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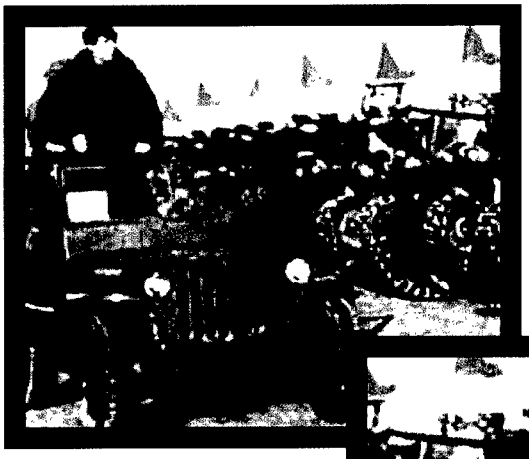
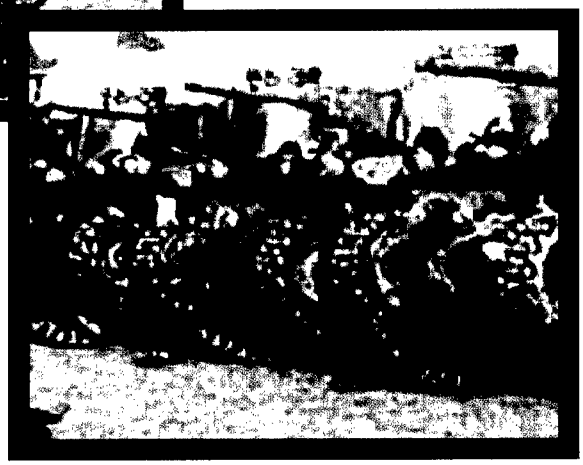


The Chinese People's Liberation Army at 75



Laurie Burkitt
Andrew Scobell
Larry M. Wortzel
Editors

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THE LESSONS OF HISTORY:
THE CHINESE PEOPLE'S LIBERATION ARMY AT 75

Edited by

Laurie Burkitt
Andrew Scobell
Larry M. Wortzel

July 2003

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FOREWORD

With the armed forces of the People's Republic of China celebrating their 75th anniversary on August 1, 2002, it only seemed appropriate and timely to take stock of the world's largest military. The People's Liberation Army (PLA) has officially been in existence for three-quarters of a century, and its history is one filled with turmoil and warfare. One weekend in September 2002, a group of PLA specialists gathered at Carlisle Barracks, the home of the U.S. Army War College, to assess what lessons China's soldiers had drawn from the history of their own armed forces.

This volume constitutes the final product of months of extensive research by the individual authors and hours of intense discussion at the 3-day conference by approximately 50 participants. The conference was sponsored jointly by the American Enterprise Institute, the Heritage Foundation, and the U.S. Army War College. It is with great pleasure that I commend this book to anyone with a serious interest in the Chinese military.

Ambassador James R. Lilley
Senior Fellow
American Enterprise Institute

PART I:

OVERVIEW

CHAPTER 1

INTRODUCTION: THE LESSON LEARNED BY CHINA'S SOLDIERS

Laurie Burkitt
Andrew Scobell
Larry M. Wortzel

The title of this volume, "The Lessons of History: The Chinese People's Liberation Army at 75," captures well the overall theme of the twelve chapters that follow. The primary focus is not on summarizing the lessons that analysts or scholars from outside China have learned when they look back at the past three-quarters of a century of Chinese military history. Rather, the emphasis of this volume is to assess key lessons that the top ranks of the People's Liberation Army (PLA) have drawn from their own military's 75-year history. The reader should be clear at the outset: this volume is not a comprehensive up-to-date overview of the state of the PLA; nor is it a comprehensive 75-year history of the Chinese communist military. Anyone seeking these will have to look elsewhere.[1] The primary value of this volume, we believe, is that it provides insights into what Chinese military leaders themselves take from their past.

Learning Chinese Lessons and Avoiding Pitfalls of Analysis.

The PLA is certainly not monolithic and to attribute a single, collective point of view is foolish, if not futile. Nevertheless, the contributors to this volume attempt to distill lessons learned by the Chinese military as an institution. However, in many cases, it is impossible to assert with 100 percent reliability what precise lessons have been gleaned by the PLA. Wherever possible, the contributors have used Chinese published source material originating from within what Paul Godwin calls "China's Defense Establishment." Moreover, it should be noted that the analyses in this volume are based entirely on open source materials.

There are challenges for any outsider researching a military organization, and there are particular challenges in studying an

opaque institution like the PLA.[2] Since analysts are not always privy to the classified studies conducted for the internal use of the Chinese military, there is the ever-present danger of dutifully parroting the propaganda published in official works produced for public and/or foreign consumption. Often the researcher is left to read between the lines, discerning what is left unsaid or taking the logic of the official printed lesson a step further. These challenges can be partially overcome by supplementing open sources with internally circulated materials wherever possible and through interviews and firsthand observation. For the non-Chinese researcher, another challenge to be overcome in studying China's armed forces is that of mirror imaging. Many PLA analysts today have served or are serving in the militaries of their own countries and still others work in the defense intellectual communities.[3] There can be a tendency to presume that all militaries think and operate more or less like one's own does. Yet, the kinds of lessons the U.S. Army may draw from a particular experience may be very different from those that might be drawn by the PLA's ground forces. Fortunately, mirror imaging is kept under control because most specialists have had to immerse themselves in Chinese language, history, and culture often for a decade or more. Many have spent months--if not years--of their professional lives in China with day-to-day interaction with the PLA.

Lessons or Reactions? Individual or Institutional? Learned or Lost?

What is a lesson? As conference participant Wendy Frieman cautioned, lesson should not be conflated with reaction. Soldiers and strategists often have gut reactions. But these are not the same as an individual or an institution *learning* a lesson. Even if an individual battlefield commander has learned a lesson, that does not mean an army as a whole has absorbed a lesson. Dennis Vetock, in his history of U.S. Army Lesson Learning, observes:

> An army learns lessons *after* it incorporates the conclusions derived from experience into institutional form. Out of the commander's experience may come a lesson, and from that lesson may come new or adapted doctrine or perhaps dissemination of potentially useful information. Only after its institutionalization

> can the lesson be correctly described in the past tense as a lesson learned. Until then it remains just a lesson or usable experience, a semantic distinction that few fully appreciate.[4]

Moreover, just as lessons can be learned, they can also be "lost."[5] In short, for a military lesson to be truly "learned," it must result in a real change or transformation and this kind of thoroughgoing institutional change can take years, if not longer. Indeed, fundamental change does not come quickly or easily to a large bureaucratic organization such as a military institution.[6]

Military Modernization: Lessons and Frustrations.

The history of the PLA in the eyes of its 2.5 million service members is a glorious one of heroic struggle and triumph over insurmountable obstacles. A fundamental lesson learned by the PLA is that the weak can triumph over the strong. No matter how daunting the difficulties and how superior the foe appears to be, ultimate victory is possible if selfless Chinese soldiers and civilians doggedly pursue their tasks. After all, China built an atomic bomb, a daunting undertaking,[7] and the PLA Navy and Air Force developed from extremely humble beginnings, each officially established as a separate service in 1949. While the PLA remains an overwhelmingly "muddy boots" military, its air and naval arms have made significant progress in recent decades in terms of quality of equipment, caliber of personnel, and operational capabilities. Here it is worth quoting General Liu Zhen, who recalled thoughts he had running through his mind when he was appointed commander of the air force of the Chinese People's Volunteers on the eve of China's military intervention in the Korean War. General Liu wrote in his memoirs that upon his appointment, he had to admit to himself that the whole subject of airpower was a "mystery." In fact, he had absolutely no experience in commanding aircraft formations. Liu went on to state the obvious: ". . . in our level of tactics and technology we were way, way below those of our enemy [i.e., the U.S. Air Force]." In facing his apparently hopeless task, Liu could only draw inspiration from the fact that the PLA had long struggled against unbelievable odds on the battlefield, always learning through a painful process of trial and error. He was comforted when recalling: "I . . . had a resolute

thought running through my mind over and over again: the cause of the revolution had all along developed out of nothing, gone from small to big, developed as a brutal, difficult, death-defying struggle."[8]

More recently, the PLA has undertaken a massive, wholesale transformation from a mass peasant infantry to smaller, highly-trained, and well-educated integrated army that stresses high technology and is capable of waging modern 21st century warfare. The PLA's failings were well-understood by some senior leaders back in the mid-1970s: Deng Xiaoping, for example, bluntly criticized the military for being "bloated, lax, conceited, extravagant, and inert."[9] Such failings became glaringly evident during the 1979 war with Vietnam (see Chapter 10 by John Corbett and Edward O'Dowd). But the process of defense transformation was not started in earnest until the mid-1980s and, today, some two decades later, still remains incomplete. There is continued frustration at the slow pace of change and at some of the glaring failings that remain, perhaps none more so than the inability of China's military industrial complex to produce, with a few notable exceptions such as ballistic missiles, complete indigenous modern weapons systems that the PLA can promptly deploy.

If We Hadn't Acted the Situation Would Have Gotten Much Worse . . . .

Chinese analysts and military historians tend to look at conflicts in which the PLA was involved and claim success each and every time. In part, this likely represents propaganda and human nature: to pronounce any military operation a failure risks incurring the wrath of one's superiors, not to mention a natural tendency to reject the idea that soldiers died for naught. But this publicly claimed 100 percent success rate also seems to represent a widespread and sincere belief among Chinese civilian and military leaders that China did the right thing in every instance. The logic of this belief can be explained with reference to what Thomas Christensen calls "trend analysis."[10] According to this concept, the PLA used force in a particular instance with the goal of countering negative trends that are extremely harmful to China's national interests. In the logic of

Chinese strategists, even if these trends were not halted or reversed by military action, they were at least mitigated. That is, if China had not used military force in a particular instance, then things would have gotten even worse. For example, Beijing judges the 1995-96 Taiwan Strait Crisis to have been a success because negative trends in Taiwan and the world were checked. If China had not made a show of force, the situation would have further deteriorated. Indeed, as Ronald Christman notes, China's leaders do not tend to evaluate the success of a military operation in terms of the operational outcome (as measured by any quantitative metric of casualties inflicted or received) but rather in terms of the impact of the conflict on the "overall situation."

At the risk of sounding trite, we suggest a primary implication to be drawn from trend analysis might be that, after the fact, China's leaders never seem to have seen a war they didn't like. What we mean is that the overall lesson these individuals seem to draw from instances since 1949 where China used military force is that these were justified, measured, and correct. We are certainly not trying to argue that China's soldiers or civilians are warmongers. On the contrary, like dedicated soldiers the world over, the men and women of the Chinese military seem to view war as a necessary evil and desire to fight only as a last resort. However, neither do we claim that Chinese soldiers are dovish; on the contrary, uniformed members of the PLA tend to be quite hawkish, especially on issues such as Taiwan. But "hawkishness" should not be confused with "belligerency" or "bellicosity."[11] In the final analysis, decisions to go to war usually are not made by soldiers. In China, as in most countries, it is civilian superiors who make these decisions, albeit often with military advice. While political leaders are not necessarily trigger-happy, they do tend to be more willing than their counterparts in uniform use military force.[12]

If, indeed, when China's leaders review the last 75 years of military history, they have never met a war they didn't like, then this may make Beijing far more predisposed to use force in the future than foreign analysts might think. And when China leaders assess the strategic environment and determine that macro trends are going against China's national interests, they may decide that, at some level, use of military force may be required (likely in tandem

with other nonmilitary measures) to achieve specific political goals. Indeed, this appears to be essentially articulated in China's *2002 Defense White Paper*.[13] It is not implausible to imagine top Chinese leaders concluding that use of military force in a particular instance is urgently needed and there is an excellent likelihood of success. Moreover, Chinese leaders would reason that, not only is military action necessary to protect national interests, it is also purely defensive in nature, strictly limited in scope, with minimal danger of escalation.[14]

The conventional wisdom is that China has fundamentally changed since the era of Mao Zedong. The country has been transformed by economic reforms that have seen the country become far more prosperous and more integrated into the global economy. In Mao's day, China was poor, autarkic, and saw little to lose from military adventures. After 2 decades of sustained economic growth, China has far more to lose from a military conflict, no matter how limited in scope or duration. This is certainly true. But the above analysis, together with recent analyses of China's use of force since 1949, presents a more sobering prognosis. What is evident from this record of military activity is that Beijing has a proclivity for taking calculated risks.[15] Furthermore, the PLA's current doctrine of limited war under high technology conditions also makes it likely that Beijing will see conflict as an acceptable risk. In Mao's China, the assumption was that war, when it came, would be total and global in scope, and the resulting devastation would also be total. Despite Maoist bravado, this tended to make China think rather carefully before it used force because of the real dangers of escalation. Today, from Beijing's perspective, the dominant trends in the world are supposed to be "peace and development."[16] While wars will continue to break out, they will be limited and local, with much less danger of escalation. For China's leaders, the macro environment and current PLA warfighting doctrine (not to mention improving power projection capability) make military conflict more thinkable than it was in Mao's day. This is not to say that China's leaders do not recognize that the costs of a conflict may be considerable, particularly to China's economy,[17] but these costs may be deemed acceptable if action prevents a critical situation from getting worse.

Lessons in Modernizing China's Defense Establishment.

In analyzing the lessons learned, scholars have feared an impending projection of pessimism. Whereas many of their papers focus on China's strategic failures and thus hint at an underlying negativity of the PLA, scholars remind us that – in this case – pessimism emerges merely by virtue of the analytical theme. Changes resulting from positive historical instances do not compare to those of their counterparts. China's military failures have been catalysts for change, the reason for reaction, and are thus predominant in analysis of the lessons learned.

Limitations on ground operations have opened doors for the development of China's naval and air services in China. In the struggle of the Korean War, Chinese military leadership realized that the People's Liberation Army Navy (PLAN) had the capacity to become the military's essential component for amphibious defense, for protecting naval traffic, and for establishing order on coastal and inland waters. Bernard Cole writes that, despite PLAN success, such as the victory in 1974 over a South Vietnamese task force, Beijing did not fully stress naval development until the late 1990s. After the 1996 Chinese defensive operations--in the face of U.S. naval deployments around Taiwan--China carried out a series of modernizations to ensure that the navy will be capable of executing defensive and offensive national strategic missions.

Since its establishment in 1949, the PLA Air Force (PLAAF) has undergone more than a handful of changes. With a retrospective view on PLAAF utility during the Korean War, the 1958 Taiwan Strait Crisis, and the 1979 Vietnam border conflict, Kenneth Allen examines PLAAF modernizations and concludes that there were "lessons learned." Allen's chapter reveals that PLAAF leadership, organization, theory, operations, weapon systems, and training have all proven to be responsive in terms of deployment, defense, and modernization. Historically, the PLAAF has faced political, budgetary, and structural limitations that have forced officials to focus on the necessity of continuous administrative and operational updates.

Though failure has been the impetus for military modernization, successful historical performances have also been catalysts for

lessons learned. Larry Wortzel's chapter on the Sino-Indian War focuses on the ability of the Chinese leadership to learn from their successful operations. During their war on the borders of China and India, the Chinese suffered few casualties and were able to destroy key targets within the Indian Army. Their success reinforced PLA principles of war: surprise, mass, maneuver, and strategic employment of terrain.

Notwithstanding the claim of success or failure, the Chinese military is anything but stagnant. Self-strengthening, self-criticism, and self-assessment are familiar terms within Chinese history, and the PLA has utilized them in their path to modernization. Paul Godwin notes that, in its attempt to develop a new program of defense modernization, post-1978 Beijing reviewed the causes and consequences of its failure to sustain past programs and began revisions based on this assessment. The chaos created by campaigns and "misdirected policies" left the PLA in strategic shambles--shambles that forced the PLA to abandon Mao's strong desire for self-reliance and to reacquaint itself with more reliance on foreign assistance. Though the post-Mao era has seen increased use of foreign arms in the modernization process, the Chinese long-term objective of self-reliance has not been erased. The PLA merely understands that it must join the leading international forces in modern warfare and that it must be a competent competitor on the international front.

Lessons of Campaigns and Civil-Military Relations.

Beijing apparently lives by the motto that it's not whether you win or lose, but how you play the game. While Western leaders concentrate on winning statistics, using quantitative figures to weigh military success, CCP leaders assess success through subjective, qualitative indicators. According to Ron Christman, effective military campaigns in China are measured by the impact on the Chinese Communist Party's ability to maintain control. Beijing assesses success through strong central authority, solidarity, national unity, and the ability to furnish self-defense. The last item on that list provides possible explanations for China's desire to develop and maintain a nuclear retaliatory capability. To secure a

robust international status, the Chinese government pushes missile and space development and has launched China into its longest period of sustained modernization.

Though the PLA has recently experienced its most expansive historical modernization period, PLA warfare strategy has not overwhelmingly been transformed in the process. The focus of the warfare strategy, however, has shifted. The strategic shifts, discussed in John Tkacik's chapter, illustrate lessons learned from a time when obvious weaknesses existed in the ground strength of the PLA--the Korean War. Chinese troops in the Korean War were deprived of adequate food, ammunition, and sleep. They suffered relentless American attacks, and death in the trenches revealed their lack of static combat experience. The Chinese quickly saw the value of persistence and adequate preparation. They learned, moreover, that positional warfare was not their forte. Trained to fight and retreat, the army was not skilled in immobile defense. They were, however, skilled in the element of surprise and certainly had strength in numbers. By fusing the successful elements of their campaigns, the PLA demonstrated qualitative evaluation. Their tactical lesson learned: in order to take advantage of numerical strength, the army must use the element of surprise.

Operational limitations and complications in the 1979 Chinese campaign in Vietnam shaped a massive post-Mao military modernization program. In their chapter, Edward O'Dowd and John Corbett suggest that ineffective artillery, crude combat engineering, and faulty land navigation weakened the 1979 campaign. The extent of the failures was so great that infantry schools began to study the complications that arose from the disastrous logistics of Vietnam. The PLA Academy of Military Sciences even published an analysis of the 1979 campaign and identified its weaknesses. Due in part to the 1979 failures and subsequent criticism, the PLA has been upgrading its training programs and standardizing its equipment and procedures.

The PLA's role in reunification campaigns has been updated more than a few times in the post-Mao era. Arthur Ding notes that China's military intervention in Taiwan's 1996 presidential elections resulted in heightened security in the region, and it forced China to realize the necessity of military modernization. Chinese officials

began to understand that reunification battles would not be fought in the absence of a militarily superior United States. If military reunification is to be successful, China must deter U.S. intervention, which would necessitate greater modernization and perhaps a more willing Taiwan. The capability gap between the mainland and the United States, Ding notes, has affected Beijing's relationship with Taiwan officials and was perhaps a factor in the comparatively prudent reaction to Chen Shui-bian's "one country on each side of the Taiwan Strait" remark in August of 2002.

Subsequent to the challenges of the Cultural Revolution and the Tiananmen Square Incident, the Chinese regime has reassessed PLA deployment and national security. As highlighted by June Teufel Dreyer, the Chinese leadership's handling of these tumultuous periods illustrates the regime's propensity to resort to military means for the sake of regaining control of the population. In order to prevent the kind of unbridled military chaos and dominance experienced during the Cultural Revolution, Chinese leaders have learned to pull in the reigns on military intervention. Post-Tiananmen use of the military indicates that the leadership has learned that the PLA should not be utilized in situations where it must directly challenge popular will.

The CCP's past inclination for PLA support has created an intertwined relationship in which the party has become almost indistinguishable from the gun. In combination with blurred party-army relations, military intervention in the 1989 student protests sent a message to the Chinese population that the "P" in PLA no longer stood for "People's." The 1989 suppression signaled an alternate meaning for PLA — Party's Liberation Army. Andrew Scobell notes that this alternate meaning had roots long before 1989, dating back to the Long March in 1935. The relationship between Chinese society and the military has been a delicate one and is often under appreciated. Often ignored, however, is the relationship between armed forces and the state. As illustrated in the Lin Biao incident, ignoring the relationship can be dangerous if loyalty to the state is not ensured within the military. Scobell's chapter reveals that the past 75 years have taught the Chinese state that the party-gun relationship is mutually beneficial but potentially fragile. The PLA may be the one defining feature in upholding a communist China.

There is no doubt among the PLA conference scholars that the extended modernization of the Chinese military indicates a series of lessons over the past 75 years. Through failure and through success, Beijing continues to review its own history and recognizes the value of qualified personnel, standardized equipment, and advanced training. The evidence indicating the utility of these lessons is whether the PLA continues to improve its personnel, upgrade its weapon systems, and step up its training schedule. The true test, however, will only come when China's military is forced to prove itself in future conflict.

ENDNOTES - CHAPTER 1

1. For a thorough overview of the PLA circa 2003, see David Shambaugh, *Reforming the Chinese Military*, Berkeley and Los Angeles: University of California Press, 2003; for recent scholarly overviews of the history of the PLA, see the chapters by Dennis Blasko, June Teufel Dreyer, William Wei, and Larry Wortzel in David A. Graff and Robin Higham, eds., *A Military History of China*, Boulder: Westview Press, 2002.

2. See, for example, Alfred Stepan, *The Military in Politics: Changing Patterns in Brazil*, Princeton, NJ: Princeton University Press, 1971, Appendix ("Researching A Semi-Closed Institution . . . .").

3. For example, seven of the contributors for this volume are retired U.S. military personnel, and one is currently on active duty; three other contributors either previously or currently work as civilian analysts in the U.S. defense community.

4. Dennis J. Vetock, *Lessons Learned: A History of U.S. Army Lesson Learning*, Carlisle Barracks, PA: U.S. Army Military History Institute, 1988, p. 128.

5. *Ibid.*, p. 119.

6. General Donn A. Starry, "To Change an Army," *Military Review*, March 1983, pp. 20-27.

7. See the heroic depiction of China's Manhattan Project in John L. Lewis and Xue Litai, *China Builds the Bomb*, Stanford, CA: Stanford University Press, 1988.

8. Liu Zhen, *Liu Zhen huiyilu* (*Memoirs of Liu Zhen*), Beijing: Jiefangjun Chubanshe, 1990. The quotes and information are from pp. 337, 338, and 342.

9. "The Task of Consolidating Our Army," speech given at an enlarged meeting of the Central Military Commission on July 14, 1975, in *Selected Works of Deng Xiaoping (1975-1982)*, Beijing: Foreign Languages Press, 1984, p. 27.

10. This explication of "trend analysis" is based on the comments made by Thomas Christensen during the September 2002 conference and discussions with Andrew Scobell. Any error of interpretation is solely that of these authors.

11. See Andrew Scobell. "Show of Force: Chinese Soldiers, Statesmen, and the 1995-96 Taiwan Strait Crisis," *Political Science Quarterly*, Vol. 115, No. 2, Summer 2000, p. 228.

12. On China, see Andrew Scobell, *China's Use of Military Force: Beyond the Great Wall and the Long March*, New York: Cambridge University Press, 2003; on the United States, see Richard K. Betts, *Soldiers, Statesmen, and Cold War Crises*, rev. ed., New York, NY: Columbia University, 1991.

13. The official English language version reads as follows: "In accordance with the needs of national development strategy, the PLA, by employing military means flexibly and in close coordination with political, economic and diplomatic endeavors, improves China's strategic environment, reduces factors of insecurity and instability, and prevents local wars and armed conflicts so as to keep the country from the harm of war."
China's National Defense in 2002, Beijing: Information Office of the State Council of the People's Republic of China, p. 13.

14. See, for example, the analysis in Scobell, *China's Use of Military Force.*

15. Allen S. Whiting, "China's Use of Force, 1950-1996," *International Security*, Vol. 26, No. 2, Fall 2001; Andrew Scobell, *China's Use of Military Force*, Conclusion.

16. This has been true for approximately the past 25 years and is still true today. For a recent statement of this view, see *China's National Defense in 2002*, p. 5.

17. See, for example, Andrew Scobell, ed., *The Costs of Conflict: The Impact on China of a Future War*, Carlisle Barracks, PA: U.S. Army War College, 2001.

CHAPTER 2

CHINA'S DEFENSE ESTABLISHMENT: THE HARD LESSONS OF INCOMPLETE MODERNIZATION

Paul H. B. Godwin

PROLOGUE

In the mid-19th century, the Qing dynasty's antiquated armed forces were incapable of successfully defending China against the military incursions of the Western powers. Since those first humiliating defeats, no Chinese government has developed armed forces capable of meeting its most dangerous foreign adversaries on equal terms. In part, this is due to China's modern history. Self-imposed isolation meant that neither the industrial revolution nor the scientific knowledge that transformed the West and created its military strength penetrated China. Continuous rebellions, revolution, internal and international wars so disrupted China from the mid-19th century into the mid-20th century that no government had the opportunity to industrialize and acquire the science and technology that was at the root of modern warfare. The best any government could do to enhance its military capabilities was to follow the path initially set by the mid-19th century Qing "Self-Strengtheners."[1] Western weapons and naval combatants were purchased and Western military advisers recruited. Arsenals and naval shipyards were constructed with foreign assistance. Chinese students were sent abroad for military training, and military academies based on Western models were established in China. This pattern of acquisition and borrowing did not grant any Chinese government the military capabilities held by the industrialized powers, including Japan, which had been far more successful in adopting Western technologies and military methods.

With its defeat of the Kuomintang (KMT) armies on the mainland in 1949, the Chinese Communist Party (CCP) inherited a country disrupted by a century of internal and international wars. China was in political chaos and its economy in a shambles, with no industrial, scientific, and technological infrastructure of any consequence. Like preceding governments, if the new People's Republic of China (PRC)

was to build a modern national defense establishment, it could do so only with foreign assistance.

The defense modernization objective set by Beijing sought to break the pattern of dependence Chinese governments had to accept over the previous century. Although it could do so only with extensive Soviet help, Beijing's long-term objective for the modernization programs launched after the Korean War was to build a self-sustaining defense establishment as free as possible from foreign sources of technology. Chinese industries were to equip the People's Liberation Army (PLA), as the services and branches of China's armed forces are collectively named, with the most modern armaments. Nonetheless, in succeeding years Mao Zedong's domestic and foreign policy initiatives prevented China from achieving this objective. Today, after 23 years of pursuing the defense modernization programs initiated by Deng Xiaoping in 1978, China remains significantly dependent on foreign technologies and foreign technicians. Furthermore, Mao's policies had denied China access to the advances in military technologies that have so dramatically changed the weaponry and supporting systems of modern warfare. With no opportunity to employ the military capabilities these new technologies created as they emerged, China's armed forces have to draw extensively on foreign military doctrine and operational concepts as they prepare for war in the 21st century. In short, 150 years after the Qing dynasty's self-strengthening movement was launched, China's defense modernization goals yet remain significantly dependent on foreign military technology and foreign doctrinal experience and innovation.

It is ironic that, as successor to the country that first assisted the PRC in building a modern defense establishment, Russia should return as China's principal source of imported advanced arms, equipment and military technology. Moreover, the United States is again the potential adversary of greatest concern to China and the primary focus of Beijing's Russian-assisted defense modernization programs. Nonetheless, China today is far different from the underdeveloped, poverty stricken, politically dislocated society the CCP inherited, and China's security environment has radically changed from the threatening bipolar Cold War structure the PRC entered in 1949.

This chapter will be devoted to assessing the lessons learned by Beijing from the difficult passage its defense modernization programs have followed. To accomplish this, the assessment is divided into two parts. First, it will review the objectives and multiple causes and consequences of the failure to sustain the defense modernization programs launched in the mid and late 1950s. Second, the defense modernization programs initiated since 1978 will be examined. Here the focus will be on the difficulties created by the aborted programs of the 1950s and China's changing threat environment. The chapter's conclusions will concentrate on the lessons China's defense modernizers have learned as they sought to overcome the obstacles they confronted and the implications of these experiences for China's future defense establishment.

Defense establishment is a central construct of this chapter. This concept is broad and designed to encompass the reality that military hardware must be joined with appropriate doctrine, strategy, operational principles and training to create an effective defense force. Consequently, the concept of a defense establishment includes more than just the armed forces. It also embraces the defense industrial base, the research and development (R&D) infrastructure, and the professional military education (PME) system, research centers, and training that prepare the armed forces for near-term security threats and potential long-term requirements.

SETTING THE OBJECTIVES

Beijing's defense modernization requirements were initially set by the experiences and consequences of contesting the Republic of China's (ROC) presence on Taiwan and China's participation in the Korean War. Although KMT forces on the mainland had been decisively defeated, the ROC's continued existence on Taiwan presented quite specific military requirements. ROC forces continued to garrison offshore islands and provide the basis for a revived military capability on Taiwan. Since their 1949 retreat to Taiwan, ROC forces had constantly harassed China's coastal shipping and conducted frequent small-scale raids and air attacks on the mainland. China's preparations to evict ROC forces from the islands they controlled and to invade Taiwan were suspended by

the outbreak of the Korean War[2] but were reinstated with the war's end. The post-Korean War contest to control the Taiwan Strait led to major clashes between ROC and PRC forces[3] and ultimately a 1954 mutual defense pact between the United States and the ROC. Although Chinese and American forces did not engage one another, the ROC received American military assistance in the Taiwan Strait confrontations of 1954-55 and 1958, including a U.S. threat to employ nuclear weapons.[4] With this alliance and the arms and training the United States provided the ROC, Beijing's ambition to conclude the civil war and restore China's territorial integrity by seizing Taiwan had to be put off indefinitely.

Beijing's poorly equipped expeditionary forces entered Korea in October 1950, and for almost 3 years they engaged a United Nations (U.N.) coalition led by the world's leading military power. No war China has fought since that time has been as long, costly, or bloody. Until the Korean War, commanders of the Chinese People's Volunteers (as Beijing named its expeditionary forces) had not experienced the firepower-intensive joint operations conducted by the ground, air, and naval forces of advanced industrial states. Since the founding of the PLA in 1927 as the Red Army of Workers and Peasants, the experience of most commanders had been in irregular warfare fought with inadequately armed light infantry units. As it rotated forces in and out of Korea's battlefields, the PLA learned much about its own extensive deficiencies in firepower, combined arms warfare, logistics, and command and control. By the latter part of 1951, when Soviet-supplied tanks and artillery began arriving on the battlefield in some numbers, the conflict had ground to stalemate where static lines of defense did not allow maneuver warfare. Offensive operations were local and tactical. Similarly, the PLA had no experience in air warfare until the Union of Soviet Socialist Republics (USSR) provided combat aircraft and training for the newly established People's Liberation Army Air Force (PLAAF) during the Korean War. Although many Chinese pilots gained experience in aerial combat, their missions did not include close air support (CAS) and battlefield interdiction (BAI), which were standard operational requirements for established air forces.[5] Because naval operations were an insignificant component of Chinese operations, the recently created People's Liberation Army

Navy (PLAN) gained no experience in maritime warfare.

What was to prove extremely influential in China's defense modernization programs was the U.S. threat to use nuclear weapons in the closing year of the war.[6] This nuclear threat was reinforced after the war when the United States adopted a national military strategy of "massive retaliation" to be built around a mix of strategic and battlefield tactical nuclear weapons.[7]

Beijing's experience in the Taiwan Strait confrontations and the Korean War created two essential defense requirements. First, to acquire ground, air, and naval capabilities that would enable the PLA to recover the offshore islands and provide an effective defense of China's territory, coastal waters, and air space. Second, that China's future defense industrial base and R&D infrastructure must be capable of supporting the PLA's requirements for the changing technological demands of war in the nuclear age. This was an immense task for a developing country lacking the industrial, technological, and scientific capabilities required to support such a goal. Only the USSR's willingness to engage in the largest industrial and technology transfer program ever to occur between a developed and developing country made such a national objective even plausible, yet alone possible.

DEFENSE MODERNIZATION FOR THE NEW ERA

China's primary security concern was to counter the threat posed by U.S. overwhelmingly superior military capabilities both to the mainland and to the recovery of Taiwan. This, in turn, required the PLA to be transformed and a major investment in the defense industrial sector of China's economy. But, if the CCP was to bring China out of its poverty and build the PRC into a great power, Beijing also needed to undertake development of the civil sector of the economy. The industrial dilemma Beijing confronted was to integrate defense requirements with the overall development of China's economy.

In 1953, Beijing and Moscow signed the first of a series of agreements in which the USSR agreed to assist China in the construction of an entire defense industrial base and R&D infrastructure. Beijing sought to produce a complete range of

modern armaments for ground, air, and naval warfare. Soviet technicians assisted in the modernization of China's shipyards, brought Russian-supplied factories on-line, and provided blueprints for the weapons these plants were to produce. China's pursuit of advanced conventional weaponry was quickly joined by its quest for nuclear arms. In January 1955, Beijing made the decision to develop nuclear weapons, and in 1956 to build their ballistic missile delivery systems. Both programs were to receive Soviet assistance. In 1958, when Moscow refused to support the development of nuclear-powered attack (SSN) and ballistic missile submarines (SSBN), Beijing undertook indigenous programs for the submarines and solid-fueled ballistic missiles to arm the SSBN.[8]

Balancing defense production and R&D with civil sector requirements was to prove difficult. Beijing had ambitious goals but its resources were extremely limited. In particular, the decision to develop strategic nuclear weapons received most opposition. There were two sources of resistance to overcome.[9] Civilians concerned with building China's basic industrial base and technological infrastructure saw nuclear weapons programs jeopardizing civil sector development. Within the military, a group viewed them as diverting too many resources from conventional weapons programs. Marshal Nie Rongzhen, the senior officer responsible for military R&D, proposed that the strategic weapons programs actually served China's overall national technological progress. He and his supporters argued that the sophisticated technologies these weapons and their delivery systems required would stimulate the development of an advanced technology base for China that at the time was essentially nonexistent. The same was true of advanced conventional weaponry such as combat aircraft. Ultimately, and until the 1980s, the military came to control the most technologically sophisticated sectors of China's industry and dominated the R&D programs. Military precedence occurred despite Mao Zedong's pronouncement in his April 1956 report to the Politburo that the defense sector had to serve the overall interests of the national economy.[10]

Transforming the PLA into a modern combined arms force capable of joint warfare was undertaken as the defense industrial base and R&D infrastructure were created. Soviet military advisers

helped establish the new military schools and training centers that were to provide officers for a modernizing tri-service PLA. Continuing a practice going back to the 1920s, PLA officers were sent to the USSR for professional military education (PME) and training in Soviet service and branch schools.[11] Given China's extensive needs, such a comprehensive level of assistance and the extent to which Soviet military advisers were involved in building the new PLA, Soviet doctrinal and operational principles were undoubtedly introduced.

Beginning in 1958, these ambitious programs were severely disrupted by Sino-Soviet dissension and the domestic economic and political crises brought about by Mao Zedong's "Great Leap Forward" campaign and the poor harvests of 1959-60. Mao's Great Leap Forward emphasized quantity over quality just as the defense industries were beginning production of weapons from Soviet supplied kits. Trapped by Mao's demand for quantity, defense plants began to produce armaments of very poor quality. According to Chinese sources, for example, in the years 1959-60 the aviation industry did not produce a single acceptable aircraft.[12] The Sino-Soviet split added yet another blow to China's defense modernization programs. A series of disagreements were creating tensions between Moscow and Beijing.[13] Attempting to pressure China into accepting its positions, in the summer of 1959 Moscow withdrew its support of Beijing's nuclear weapons R&D, and in 1960 ended its assistance for both civil and military programs. China then entered an era of unwanted self-reliance that left its ambitious defense modernization plans in limbo and with a very uncertain future.

Disruption of the post-Korean War defense modernization goals was accompanied by Mao's dispute with the PLA officer corps.[14] Mao's criticisms were not directed at modernizing the armed forces' arms and the development of air and naval power. There was agreement that to be an effective fighting force the PLA had to be armed with advanced weaponry and that modern arms would require changes in doctrine and operational principles. What Mao perceived was that in accepting the technology-driven doctrine of the Soviet armed forces, the PLA officer corps was also rejecting the egalitarian military ethic that so characterized the earlier years of the PLA. In its place, the PLA was implementing the strict hierarchical

model of the USSR's armed forces. Mao's egalitarian model stressed unity between commanders and common soldiers and between the army and the "people." This unity was an integral component of the People's War political-military doctrine that had served the PLA and its predecessors so well in the 1930s and 1940s when fighting against the materially superior forces of Japan and the KMT. As they modernized the PLA under Soviet influence, and, drawing on their Korean War experience, senior PLA commanders placed far greater importance on advanced weaponry and the capabilities of soldiers, sailors, and airman to use these weapons effectively. Mao Zedong's People's War doctrine was viewed as largely irrelevant to demands of modern firepower-intensive combined arms operations. In 1959, this clash brought down Marshal Peng Dehuai, defense minister and commander of China's expeditionary forces during the Korean War. Peng's replacement was Marshal Lin Biao, who sought to provide a better balance between the demands of modernization and Mao's insistence that the PLA restore his People's War military ethic.

The Era of Unwanted Self-Reliance: Mao's Disruptive Interventions Continue.

Severance of Russian technical support threw China's defense industrial base and R&D infrastructure into chaos, and the Great Leap Forward's economic dislocation created a budget crisis. Facing serious budgetary shortfalls and with no technical assistance forthcoming from the USSR, defense modernization priorities had to be carefully examined. The summer of 1961 saw the conventional weapons lobby inside the PLA try to reduce funding for the strategic weapons programs and return to the priority initially granted aviation, artillery and armor in the mid-1950s. They failed. The argument that programs associated with nuclear weapons did more than serve the defense industries but also benefited the national economy and China's overall technological advancement won Mao's support.[15] With this decision, R&D for conventional arms became minimal.

Renewing the priority granted strategic weapons set back an earlier agreement on the development of conventional arms. In December 1960, priorities had been set for each of the industries and

research centers responsible for ground force arms, aviation, naval vessels, air defense weapons, cruise missiles and electronics.[16] Their task was to transition from copying to modifying Soviet systems and then to developing and producing indigenous armaments. The budget priorities set in 1961 did not grant conventional weaponry the resources required to make this transition. The fate of the conventional arms industries and R&D received a further setback in 1964 when Mao Zedong launched yet another damaging initiative--his "Third Line" strategy.

As the United States expanded its role in the Vietnam War, Mao feared the conflict could spread to China and result in a nuclear attack. Drawing on the USSR's shift of its defense industrial base east of the Ural Mountains in World War II, Mao's Third Line strategy was to move industrial and R&D facilities from the coastal areas to China's northwest and southwest interior.[17] This massive relocation and construction process began in 1965. Over the next decade, 1.6 million workers built research facilities, factories, roads and railroads in remote parts of central and northwest China. Ultimately, 483 factories and 92 research institutes were constructed, and thousands of technical and scientific personnel were assigned to work in them.[18]

The Third Line strategy was yet another in a series of Maoist missteps. As Chinese sources have stated, the lives of workers and research staffs were disrupted, and widely separated institutes and factories led to uncoordinated projects and severe production difficulties.[19] Yet, even as this massive project was underway, Mao Zedong launched what was to be his last and most disruptive mass political campaign. The Great Proletarian Cultural Revolution launched in 1966 tore China apart until Mao's death in 1976.

The Cultural Revolution's decade brought the final blow of Mao's wrecking ball to the PLA, the defense industries and defense R&D. The PLA itself was drawn into the internecine warfare that marked the highest levels of China's leadership. Furthermore, for 10 years China's armed forces went without any systematic training. The navy and air force were torn apart by Maoist radicals. The aviation industry, already severely disrupted by the Third Line transition, was reduced to a shambles. Indeed, no part of the defense industries or R&D infrastructure escaped disruption, including the

strategic weapons programs.[20] When the defense industries began to put themselves together, the best they could do was produce poor quality copies of Soviet armaments from the 1950s.[21] The core of a nuclear deterrent was emerging, but the delivery systems were of questionable reliability and accuracy and, being liquid-fueled, could not be kept at high levels of readiness. Nonetheless, China's first SSN had entered service in 1974, and the SSBN was to join the fleet a decade later. The priority granted China's strategic weapons was paying off.

Reconstructing the Defense Establishment.

When Deng Xiaoping set out to reconstruct the defense establishment in 1978, it had suffered not only from the Cultural Revolution's "ten lost years," but from the 20 lost years that commenced with Mao's Great Leap Forward in 1958. The most apt description of its condition would be one of anarchic obsolescence. The strategic weapons programs were the single bright spot to emerge from Mao's years. In all other aspects, the defense establishment was a shambles and the task of reconstruction enormous.

The PLA itself was excessively manned and would require large manpower reductions. Its basic military doctrine, concepts of operations, organization, logistics, and command and control required revision to meet the demands of modern warfare. The officer corps had to be rebuilt in order to provide a leadership at all levels that could conceptualize, plan and conduct contemporary warfare. This required renovating the PLA's long neglected PME and research centers. Systematic training had to be restored in order that the PLA be prepared for combat operations. The shadow cast over these requirements was the basic obsolescence of the PLA's armaments, which were at least 2 decades behind those of the major powers. Overcoming this deficiency would be extremely difficult, for China's defense plants were incapable of producing weaponry more sophisticated than copies or modifications of Soviet systems based on 1950s technologies. The defense industries and R&D infrastructure needed resuscitation before they could be a source of advanced arms, and, even if Beijing had access to the international arms market, China had insufficient funds to purchase modern

weaponry. Nor would the PLA be capable of absorbing advanced weaponry and supporting systems. Operations, tactics, logistics, and maintenance were based on 1950s weapons. Leaping ahead to arms and equipment based on 1970s technologies without extensive preparation was simply not plausible. There was in fact no "quick fix" for the 20 years of neglect the PLA, especially the conventional general-purpose forces, had suffered under Mao Zedong's dominating influence.[22]

Beyond the sheer complexity of the task and scarce resources, two additional factors contributed to the slow, incremental approach to defense modernization mandated by Deng Xiaoping. First was the absence of any significant external assistance. In the 1950s, Soviet support had been central to the rapid construction of a modern defense establishment. In 1978, there was no source of foreign assistance that could come even close to the extent of support the USSR had provided. China's 1972 rapprochement with the United States would quickly become formal diplomatic recognition, but could not conceivably lead to any major defense assistance programs. Deng, however, would use the access to the West provided by rapprochement and U.S. diplomatic recognition to implement his "open door" (*kaifang*) strategy. Although obviously not immediately beneficial, this strategy would provide access to Western defense establishments. Such access would allow both the PLA and the defense industries and R&D sectors to understand what had passed them by in the 20 years of isolation and turmoil Mao had inflicted on China. Knowledge and understanding would be gained, but it would be slow.

The assessment of China's security environment was the second factor. Since Mao's death, there had been a debate over the degree of military threat presented by the USSR. A central argument was that the Soviet threat along China's long border was so menacing and close that defense modernization had to be granted the highest priority. At the Third Plenum of the Eleventh Central Committee held in December 1978, Deng Xiaoping ended the dispute. He asserted that although the Soviet Union was China's principal security concern, Moscow's military threat was insufficiently menacing and imminent to require the highest priority in China's resource allocation.[23] His position was strengthened by the Reagan

administration's early 1980s defense buildup and resolve to oppose any further expansion of Soviet influence.

By the mid-1980s, Deng's guidance to the PLA could state that it was no longer necessary to prepare for a major and possibly nuclear war. Any future military conflicts would be localized and limited in political objectives and geographic scope.[24] Furthermore, Beijing actively sought to ensure that China's regional security environment was as benign as possible. After Gorbachev's readjustment of the USSR's foreign and defense policies in the mid and late 1980s, relations with the Soviet Union improved to the point of rapprochement and its successor, Russia, became a quasi-ally of China.[25] The troublesome Sino-Indian border was the focus of careful diplomatic management as both New Delhi and Beijing sought to avoid remilitarizing their longstanding border dispute.[26] Working closely with Russia and the newly independent Central Asian states, China developed confidence-building measures such that the historically threatening inner Asian frontiers of China were no longer a major security concern.[27] Tensions remained, especially in the South China Sea and over Taiwan, but these were territorial and sovereignty issues that did not of themselves threaten mainland China. Consequently, as Beijing pursued the reconstruction of its defense establishment, the military security of China became more assured and less threatening than at any time since the early 19th century. These same years were accompanied by impressive economic growth and development.

Nonetheless, as China's overall military security improved, two developments emerged almost simultaneously that would significantly influence Beijing's perception of its defense modernization requirements. First, PLA assessments of U.S. military operations in the 1991 Persian Gulf War demonstrated the extent to which its forces remained woefully obsolescent in both their armaments and operational doctrine. Second, these unsettling assessments occurred as Sino-American relations were in the midst of their post-Tiananmen degeneration and the bipolar Cold War global security environment had become part of history.[28] With the Cold War's end and the disintegration of the USSR, the United States emerged as the world's most powerful state. With this transformation, China's strategic value to the United States evaporated. The sale of

150 F-16s to Taiwan in 1992 signaled just this to Beijing. By the early 1990s, Beijing's security assessments had concluded that the United States was using its overwhelming military, political, and economic power to contain and encircle China with reinvigorated military alliances. The dispatch of two aircraft carrier battle groups (CVBG) to the Taiwan area in response to Beijing's use of coercive diplomacy to intimidate Taipei in 1996 served to confirm China's convictions. Despite the Sino-America summit meetings of 1997 and 1998, the United States remained China's primary security concern.

China's 2000 defense white paper made Beijing's position eminently clear. While declaring China's policy to be one of peacefully settling disputes, the white paper cast the United States in a distinctly different light: "However, in view of the fact that hegemonism and power politics still exists and are further developing, and in particular, the basis for the country's peaceful reunification is seriously imperiled, China will have to enhance its capability to defend its sovereignty and security by military means."[29] The threatening posture taken by the Bush administration's 2001 *Quadrennial Defense Review* confirmed Beijing's perception of American intentions.[30] Indeed, it may well have convinced Beijing that it now faces a long-term strategic competition with the United States in East Asia that goes beyond the immediate issue of Taiwan.

Changing Threat Environments and Defense Modernization. Changing threat perceptions over the years since 1978 had critical consequences for Beijing's understanding of its defense modernization requirements. Deng Xiaoping's 1985 assessment that it was no longer necessary to prepare for major and possibly nuclear war with the Soviet Union resulted in a fundamental change in China's national military strategy that continues to reverberate throughout PLA doctrine and concepts of operations. The PLA's new strategic guidance was to prepare for local, limited wars *(jubu zhanzheng)* on China's periphery. These wars were expected to be short, probably high intensity, conflicts fought in confined geographical areas for limited political objectives potentially under conditions of nuclear deterrence. Although a Soviet attack for limited political objectives was seen as possible, the 1985 guidance broadened the scope of PLA planning from a single-minded focus on

preparation for war with a known enemy to contingency planning that included China's maritime periphery. Strategies based on protraction and attrition were seen as ineffective responses to these kinds of military contingencies. The most probable future wars were expected to break out with little warning. Because they would be fought for limited political objectives, the PLA had to be prepared for swift, lethal responses to crises involving the threat or application of military force with little time for mobilization.[31]

Seen in this context, the 1991 Persian Gulf War was precisely the kind of contingency the PLA had been preparing for since the mid-1980s. It was a short, high-intensity war fought for limited political objectives within a confined theater of operations. What sent a shock wave throughout the PLA was the overwhelming effectiveness of U.S. joint service operations fought with high technology arms and equipment. The conduct of the Gulf War, especially the synergy created by the linkage between military technology and joint operations, generated a turning point in Beijing's comprehension of the PLA's defense modernization requirements for both defensive and offensive capabilities. This was reflected in Beijing's refinement of the PLA's strategic guidance from preparing for local, limited war to preparing for local, limited war "under high-tech conditions" (*jubu zhanzheng zai gaoji jishu tiaojian xia*).

Looked at more broadly, over the years since defense reforms began in 1979, China's high priority defense requirements transitioned from continental defense with a primary emphasis on land warfare where the PLA was most experienced and comfortable to defending China's maritime approaches. This transition shifted primary operational responsibility from land to air and naval warfare where the PLA had the least experience and was least comfortable. Not only was this a demanding transition for the PLA's deeply entrenched ground force culture where the air force and navy are subordinate services, but it was joined with the escalating importance of military technology. The accelerating importance of technology was found in five principal areas. Combat aircraft, naval combatants, and ground force weaponry were all benefiting from technological advances. Standoff weapons launched from aircraft, ships, and submarines were increasing in range, accuracy, and lethality. Space systems for intelligence, surveillance, and

reconnaissance (ISR) and communications had vastly increased battlespace awareness capabilities. Information warfare (IW) was coming of age as an additional realm of defensive and offensive military operations. Finally, renewed U.S. R&D in missile defenses threatened the continued viability of China's aging nuclear deterrent.

These developments would not have been so important had China's defense modernization requirements been driven primarily by potential regional adversaries. Even here, however, regional concerns presented difficulties, especially territorial issues in the South China Sea. China could establish and sustain a naval "presence" in those waters, but until aerial refueling became an operational capability, neither the air force nor naval aviation could sustain air cover for a naval presence. Without air cover, China's navy was susceptible to air attack; a danger exacerbated by the weak air defense systems of its combatants. Despite the low threat environment Beijing nurtured across inner Asia, ground forces modernization was needed and would have application along China's extensive interior frontiers. Beijing's primary dilemma, however, was created by its perception of the potential threat presented by the United States in a military confrontation over Taiwan. Nonetheless, Beijing would recognize that military capabilities specifically developed for a Taiwan scenario had application elsewhere in the region.

Lessons Learned.

As reforms were implemented over the past 20 years, the PLA senior leadership learned what is required to conduct contemporary warfare. They fully understand that advances in military technology have transformed the battlefield. For current and future warfare, space and cyberspace have joined the traditional land, air, and sea battlefield dimensions to create an integrated battlespace. This battlespace is being made increasingly transparent by wide area strategic surveillance and tactical reconnaissance made possible by advanced military technologies. Mobility, speed, and long-range precision guided munitions, together with offensive joint operations and information warfare, are recognized as the keys to military success in this battlespace. Revisions to PLA concepts of operations

and training concentrate on developing the skills required for joint operations,[32] and China's military research centers are focused on preparing for the demands of future wars, with a particular concentration on information warfare.[33]

China's defense industries and R&D infrastructure have similarly become aware of their deficiencies and the changes required if they are to achieve the level of self-sufficiency Beijing hopes to achieve. In response, Beijing has adopted essentially the same strategy it applied in the 1950s, but with a critical difference. In the same manner that the PLA learned from observing and assessing U.S. military operations in the Gulf War and after, Chinese scientists have gleaned much from their contact with the United States. In the 1950s and 1960s, advanced military technology was viewed as stimulating the civil sector of China's industries. This perspective has now changed. When Deng Xiaoping initiated his open door strategy in the late 1970s, Chinese began participating in international science and technology exchanges and hosting their counterparts in China.[34] From these exchanges, China's weapons developers learned that in modern armaments and other military related areas such as space systems, many of the components and system integration processes are innately "dual use." Beginning in the 1980s, China's R&D programs reflected the interdependence of civil and military technologies.

This understanding led to the "863" programs for long-term S&T development. They were named after the year (1986) and month (March) the first program was initiated, with the follow-on "Super-863" program commencing a decade later. The first 863 program focused on information technologies, biotechnology, astronautics, energy, lasers, and new materials. The second concentrated on areas that included microelectronics, telecommunications, bioengineering, machine tools, computerized manufacturing, exotic materials, nuclear, aviation, marine, and space technologies. China's intent to move into the most advanced areas of defense research, development, testing and evaluation (RDT&E) and build the capability to manufacture weapons and supporting military systems based on the most advanced technologies is not in doubt. The integration of civilian and military R&D was part of the defense conversion process where China's extensive military industrial

complex was directed to produce products for the civilian market. The policy's intent was not only to assist in developing the civilian economy but also to improve China's military manufacturing capabilities, which were abysmal.[35] Because of the paucity of adequate reliable information, the degree of success being achieved cannot be determined. All observers agree, however, that although China remains far behind the major industrial powers in technology and precision manufacturing, progress in military "niche" areas is quite possible.[36] It is perhaps more important that China is making a concentrated effort to achieve indigenous capabilities in the most advanced realms of military technologies--the same objective set by Mao Zedong in the 1950s.

Just as Beijing was encountering the problems created by the escalating role of technology in modern warfare, China's improved relations with Russia provided a source of modern arms and military technology that existed nowhere else. As China's economy boomed, Russia was experiencing the economic downturn that came with the USSR's disintegration. An expanding economy gave China the funds to purchase weapons and military technology, and Russia needed sales to keep its defense industries alive. This coincidence could not have come at a more fortuitous time for Beijing.

Again reflecting the modernization strategy adopted in the 1950s, China's efforts in defense RDT&E are accompanied by attempts to advance its manufacturing capabilities through the licensed production of imported weapons and components. China has obtained, for example, licensed production rights to the Su-27, now being assembled from kits provided by the Russian manufacturer. Unlike the 1950s, China is also building its own advanced weaponry and platforms, albeit often with imported components, technologies, and foreign assistance. These projects include solid-fueled, tactically mobile conventional and nuclear ballistic missiles, long-range cruise missiles, combat aircraft, naval surface combatants, conventional and nuclear-powered submarines, tanks and armored fighting vehicles, and air defense systems.

That China's defense industrial complex deficiencies continue to hamper domestic design and production of modern military systems is evident from the range of weapons Beijing continues to import. Acquisitions from Russia are equipping both the PLA Air

Force and the PLA Navy. These imports include advanced combat aircraft together with their ordnance, long-range heavy-lift transport aircraft, diesel-electric submarines with their torpedoes and cruise missiles, guided missile-armed destroyers, and long-range air defense systems. Aerial refueling technologies have also been acquired from abroad, and because the U.S. blocked Israel's sale of airborne warning and command system (AWACS) aircraft,[37] China is actively seeking to acquire this capability elsewhere--most likely from Russia.[38]

PROBLEMS AND PROSPECTS

Despite Beijing's considerable efforts to modernize its defense establishment over the past 2 decades, it is evident that severe problems remain. In large part, these problems continue to reflect the 20 years when Mao Zedong's domestic and foreign policies resulted in a defense establishment isolated from advances in military technology and the changes in military operations these technologies made possible. China therefore remains dependent on foreign sources for much of its advanced weaponry, ordnance, supporting systems, and technology.[39]

Nonetheless, China is far from the poverty stricken undeveloped society and economy that undertook major defense modernization programs in the mid-1950s. After more than 20 years of rapid economic growth, China is far richer than it was in the 1950s and manufacturing capabilities have been upgraded by foreign imports. They have not yet reached the standards that exist in North America, Europe, or Japan, but manufacturing capabilities have been enhanced. China's scientific and technological personnel base has also improved in both size and sophistication. The cadre of S&T personnel that was developed and expanded by the weapons programs of the 1950s and 1960s have been joined by a younger echelon whose training began in the 1980s. Even with all the recognized deficiencies, it would be prudent to assume that China is far more capable of developing a modern indigenous defense industrial base and RDT&E infrastructure than it was in the 1950s.

Extensive reform of the PLA since the late 1970s has provided the basic building blocks required for sustained improvements in

operational capabilities. A series of force reductions brought the total number of personnel from around 4 million in the early 1980s to some 2.5 million in early 2002.[40] Officer recruitment has been changed to an emphasis on college graduates rather than selecting from the ranks of serving enlisted men and women, and advancement in rank now requires attendance at the appropriate PME schools.[41] The PLA National Defense University (PLA-NDU) was established in 1985 as the armed forces' first joint service school and their capstone PME center. The PLA Academy of Science (AMS) was revitalized. Together with the PLA-NDU Institute for Strategic Studies, the AMS has generated research in the conduct of war to assist in preparing the PLA's combat arms for contemporary warfare and military planners for thinking about potential future requirements. Improving the enlisted personnel is being sought through a program to build a noncommissioned officer (NCO) corps. First initiated in 1986,[42] the NCO program has accelerated for the past several years. The force structure has been extensively changed from what it was in the 1970s.[43] These force structure changes have been accompanied by doctrinal revisions, improved command and control, and more realistic training to prepare the PLA for joint service operations.[44] There is no sense within the PLA's leadership that these reforms are sufficient, but there is the distinct impression that their armed forces are being transformed into a more flexible, quicker responding combat force.

It is plausible to conclude that reforms undertaken since the late 1970s in the economy, the manufacturing base, the S&T infrastructure, and the PLA have reached the point where the modernization of China's defense establishment can now progress quicker than it has over the past 2 decades. The task Beijing confronts, however, has two critical components: a potential confrontation with the United States over Taiwan and the continuing quest for self-reliance. In the recent past, both the former Soviet Union and the United States abruptly severed military relations with China to demonstrate their dissatisfaction with Beijing's policies or actions. Self-reliance today is undoubtedly influenced by these very hard lessons. Despite the progress China has made, however, self-reliance must remain a very long-term strategic objective. In the shorter term, preparing for a possible Taiwan scenario will provide the overriding priority for

defense modernization.

Whether in the short or long-term perspective, China's defense modernization is focused on obtaining the most advanced weapons, ordnance, and technology available. As General Fu Quanyou, chief of the PLA General Staff, stated the objective in analyzing the challenges facing the PLA in 2002:

> . . . we must earnestly implement the strategy of strengthening the armed forces with science and technology, vigorously cultivate new-type military talents, increase the science and technology content of our weaponry, deepen science and technology-based military skills, work hard to effect our armed forces' fundamental transition from one characterized by its large personnel to one oriented toward quality performance and from a labor-intensive model to a technology-intensive model, and take additional steps to raise our armed forces' overall combat capability under high-tech conditions.[45]

An important aspect of this speech before a PLA-NDU class of senior officers is recognition that China's armed forces are yet in transition to a modern defense force and that in the military environment faced by the PLA, quantity cannot substitute for quality. It is just this approach the PLA has applied to future warfare against potential adversaries armed with high technology armaments. Winning battles against these forces requires weapons, ordnance, and supporting systems employing the most advanced military technologies.

China's defense modernization goals are importantly not based on matching the capabilities of adversaries as well-equipped and trained as U.S. armed forces, but on countering them. In assessing these requirements, PLA analysts returned to their core military doctrine from the late 1930s and its focus on how to defeat materially superior enemies. In part, PLA assessments have sought to determine what advanced military technologies are required to defend against U.S. advantages and exploit perceived American vulnerabilities. In analyzing U.S. military doctrine and observing American operations over the past decade, these analyses have come to quite specific conclusions.

- A military confrontation with the United States will involve nuclear

deterrence.

- U.S. operations place highest emphasis on degrading enemy defenses in the opening phase of a war, therefore PLA bases, command and control facilities, air defenses, and other high priority military targets will come under immediate attack.

- U.S. weapons of choice for degrading China's defenses will be long-range precision guided munitions launched from ships and aircraft.

- The "hard" attack of munitions will be coordinated with the "soft" attack of information warfare.

Major U.S. vulnerabilities are:

- Dependence on foreign-hosted bases and extended lines of logistical support for sustained combat operations in the West Pacific.

- Dependence on space systems for the command, control, communications, intelligence, surveillance, and reconnaissance that make U.S. offensive joint operations so effective.

- Dependence on aircraft carrier battle groups for the opening offensive air operations, including cruise missile attacks.

Although the PLA anticipates it will have to confront the United States with a mix of old and new weapons, acquisitions and indigenous development programs focus on developing advanced technology capabilities to offset specific U.S. advantages and exploit American vulnerabilities. To evaluate PLA problems and prospects in these tasks, it is useful to break them down into three broad missions areas: strategic deterrence, mainland defense and offshore defense.

Strategic Deterrence.

Beijing's strategy is based on "minimal deterrence" logic. This logic assumes that even states with overwhelming nuclear power can be deterred from the threat or use of nuclear weapons if credibly

threatened with a second strike. The adversary's uncertainty that its first strike has failed to eliminate all of China's strategic weapons provides the second strike threat.[46] As Beijing states China's nuclear posture:

> China maintains a small but effective nuclear counterattacking force in order to deter possible nuclear attacks by other countries. Any such attack will inevitably result in a retaliatory nuclear counterstrike by China. China has always kept the number of its nuclear weapons at a low level. The scale, composition and development of China's nuclear force are in line with China's military strategy of active defense.[47]

The force structure[48] supporting this logic is currently composed of around 20 liquid-fueled *Dong Feng*-5/5A (*East Wind*–DF) full-range intercontinental ballistic missiles (ICBM). The DF-5 achieved initial operating capability (IOC) in 1981, with its numbers gradually increasing over the past 2 decades. Because these weapons are liquid-fueled, they cannot be maintained at high levels of readiness, but are normally deployed unfueled in their silos with their warheads stored separately. Fueling the launchers and mounting the warheads can take 2-4 hours. The second long-range weapon in China's inventory is the 3,400-mile range liquid-fueled DF-4 deployed since 1980. There are now perhaps 20 of these weapons, which have the same limitations as the DF-5/5A. China's single SSBN armed with 12 solid-fueled 1,000-mile range *Ju Lang*-1 (*Big Wave* — JL-1) ballistic missiles entered service in the late 1980s. This ship has been so troublesome over the years that it likely never became operational and is a doubtful component of China's strategic forces.

These strategic forces are complemented by a regional deterrent force of perhaps 90 warheads deployed on intermediate-range ballistic missiles (IRBM). There are some 40 DF-3A liquid-fueled mobile missiles with ranges of 1,700 miles. With an IOC of 1971, these are Beijing's oldest weapons. China's newest IRBMs are the 48 solid-fueled mobile DF-21As with a range of more than 1,000 miles that achieved IOC in the mid-1980s. American bases in the West Pacific are within the effective range of both weapons.

Modernization programs to replace the inaccurate, unreliable, slow-responding liquid-fueled systems with more reliable, accurate,

quicker responding solid-fueled tactically mobile weapons were initiated in the early 1980s. Tactical mobility was sought to reduce the vulnerability of China's forces to a disarming first strike, thereby sustaining the uncertainty principle at the root of Beijing's deterrent strategy. Four new weapons form the heart of China's modernization programs. The 7,500-mile range DF-41 was to replace the DF-5, but may have been cancelled or delayed by development problems. The DF-4 is to be replaced by the 5,000-mile range DF-31. The DF-31 also serves as the basis for the 5,000-mile range JL-2 submarine-launched ballistic missile (SLBM) for the new SSBN class (the 09-4 program), should this project come to fruition. The fourth weapon is the 1,000-mile range DF-25, which will replace the aging DF-3. This system employs the first two stages of the DF-31 three-stage launcher.

As it anticipates deploying more capable nuclear forces, Beijing faces an increasingly complex strategic environment. In part, this stems from the weaponization of India's and Pakistan's nuclear programs. Of greatest concern to China, however, are U.S. ballistic missile defense programs (BMD), especially given the higher priority they have received from the Bush administration. The danger Beijing perceives is quite straightforward. Even a "thin" deployment of 100 terminal defense interceptors could threaten the viability of a Chinese deterrent based on as few as 20 weapons. Some Chinese strategists may well be apprehensive about a particular scenario where the United States becomes confident that its BMD will capture whatever retaliatory forces are launched after a disarming first strike. Such confidence undermines the uncertainty principle upon which China's deterrent depends. Under these conditions, China could be exposed to the threat of nuclear coercion – something Beijing refers to as "nuclear blackmail." Should the United States be successful in theater missile defense, which is now part of what the Bush administration conceives as a single integrated missile defense strategy,[49] China's regional deterrent would also become threatened.

China's potential response to American BMD programs involves a number of feasible options.[50] With so much invested in developing a new family of nuclear weapons, including the 09-4 SSBN class and a submarine-launched ballistic missile, cost will not necessarily constrain China's choice. Additionally, with an operational ballistic

missile defense some distance in the future, Beijing is under no immediate pressure to make a firm commitment to a radically changed strategy and force structure. These conditions suggest that the most probable Chinese response will be to increase the number of weapons and warheads to reinforce the uncertainty principle at the root of its minimal deterrence strategy. This can be done most effectively by keeping the DF-5 family on line and adding the tactically mobile DF-31 armed with multiple reentry vehicles (MRV), including penetration aids. Because China has the capability,[51] arming its missiles with multiple independently targeted reentry vehicles (MIRV) warheads is a probable option. Whether or not China will go ahead with the 09-4 class SSBN is unclear. Given that the JL-2's range is believed to be around 5,000 miles, an 09-4 SSBN could strike the United States from waters close to China. This capability would assist the uncertainty principle embedded in China's deterrence doctrine. SSBNs could also be seen as a reserve force to be fired should a retaliatory strike of land-based weapons be defeated by missile defenses.

A particular political constraint may limit the size of the force as Beijing's planners think through their potential responses to BMD. China has a longstanding commitment to "no first use" (NFU). That is, China's nuclear forces are retaliatory and will not be used first or against a non-nuclear state. A major buildup of nuclear forces would cast doubt on China's NFU commitment and alarm China's Asian neighbors as well as the United States. Such a buildup would suggest a more aggressive strategy and make it difficult for Beijing to argue as it has done for many years that its nuclear forces are strictly defensive. Thus, Beijing will consider what increase in force size it can defend as a response to U.S. BMD as it seeks to preserve its uncertainty principle.

Going beyond sustaining its minimal deterrence strategy brings China into realms of technology that it has yet to master. Launch on warning requires space-based sensors to identify the source and dimensions of an attack in near real-time to provide sufficient warning for a retaliatory strike. China's R&D in space-based sensors is known,[52] but when these programs will produce operational capabilities is not known.

Given that a U.S.-layered BMD capable of providing multiple

engagement opportunities along the entire path of ballistic missiles at all ranges is only plausible in the far distant future, it is most probable that Beijing will delay any major strategy and force structure change. Ensuring the uncertainty principle by increasing the number of launchers, especially tactically mobile systems, and mounting MRV/MIRV warheads is well within China's technological capabilities. Whatever constraint Beijing places on the size of the force structure will depend on the intersection of two factors. First, how many launchers and warheads China's strategists believe are required to penetrate an initial U.S. BMD, which will almost certainly be a terminal defense system. This requirement will be balanced by whatever Beijing believes is the maximum number of launchers it can deploy before its nuclear strategy is seen as more offensive than defensive in its intent.

Defense of the Mainland.

Chinese military analysts anticipate that in the opening phase of a war the United States will seek to crush China's defenses and cripple the PLA's ability to conduct sustained offensive operations. PLA authors had identified offensive operations as central to American military doctrine from their Gulf War assessments,[53] but defense of China's mainland did not become a central issue until NATO's mid-1999 *Allied Force* operations against Serbia. The turning point appears to have been the analysts' estimate that 95 percent of the weapons used against Serbia were PGMs, whereas only 8 percent of the weapons employed against Iraq were precision-guided.[54] The escalating employment of precision munitions becomes important when PLA planners assume that in a military confrontation over Taiwan U.S. forces will follow their doctrine and will initiate their campaign by launching intensive PGM attacks on China's air defenses, air and naval bases and missile launch sites. These "hard attack" weapons are expected to be joined with the "soft attack" of electronic and information warfare designed to disrupt PLA communications, air defense, and intelligence networks. From observing the U.S.-led campaign against Serbia, some PLA analysts assume that transportation hubs, fuel reserves, oil refineries, and other economic targets will also come under attack.[55]

China's deficiencies in defense are exposed as the PLA devises ways to offset U.S. offensive capabilities. China lacks an integrated air defense system (IADS), therefore its antiaircraft artillery (AAA) and surface-to-air missiles (SAM) are limited to point defense. This does not provide an effective defense when aircraft and cruise missiles will be attacking their targets from multiple directions. Nor is it likely that the PLAAF will be able to gain and sustain air superiority. Consequently, the PLA has concentrated its near-term defenses on low-tech responses to a high technology attack. These include camouflage, deception, dispersal and hardening of military facilities to limit the effectiveness of U.S. reconnaissance and the damage inflicted by weapons. Defense of military communications is critical and will depend in part on redundancy. China has long placed priority on constructing a national C4I (command, control, communications, computers, and intelligence) infrastructure that is secure, mobile, and less susceptible to hard and soft attack. Defense against offensive information operations is a priority, but it is difficult to determine what progress has been made.

In reporting China's defense measures, the military press has placed great emphasis on the "three attacks and three defenses" training program. This rubric covers attacking stealth aircraft, cruise missiles, and helicopter gun-ships and defense against precision attacks, electronic warfare, reconnaissance, and surveillance.[56] Great successes are claimed for this training, but a far less optimistic note was sounded by an unidentified Group Army deputy commander writing in the Beijing Military Region newspaper.[57] He charged that training for the three attacks and three defenses was far too "idealistic." Training exercises were criticized for underestimating the generation gap between the weapons employed by the attacking and defending forces, and that imagination was given precedence over reality. As examples, he cited the use of rifles to down *Apache* helicopters and artillery to attack *Tomahawk* cruise missiles. Misconceptions such as these, he declared, were not only wishful thinking, but also using such misconceptions in training would produce bad results. It is necessary to defeat the enemy using existing equipment, the critique concluded, but that to be effective training must be realistic and "seek truth from facts."

It is no surprise that the application of People's War methods to

mainland defense has received considerable attention. In addition to the expected mobilization of militia, reserve, and People's Air Defense (PAD) units, the Chongqing military garrison introduced the "militia network warfare *fendui.*" This unit, reportedly the first of its kind in the PLA, was formed out of graduate students, professors, and other computer specialists to conduct network warfare.[58] Additional People's War tactics suggested are the use of civil-defense installations to store military supplies and the use of local telecommunications, media and network systems, and civilian technological services to assist the military.[59] Major General Yao Youzhi of the AMS credited Serbia with using People's War methods to preserve its military strength when under attack and declared that Mao's doctrine will remain a "magic weapon for prevailing over enemy forces in the future."[60]

All of these efforts to offset U.S. technological and operational superiority will have some measure of effectiveness, but they do not solve China's basic problems in conducting an effective defense. Its weapons are mostly obsolete and the PLA's current C3 (command, control, and communications) network is inefficient.[61] Point defense of essential military facilities may be reasonably effective, but a truly capable air defense will require China to integrate advanced Russian SAMs into an IADS. Here, the PLA has long recognized the requirement for an effective intelligence, surveillance, and reconnaissance (ISR) capability to provide warning of an attack.

Following the pattern set by almost all of China's advanced technology military programs, ISR capabilities are being sought through a combination of indigenous efforts, importing foreign technologies, international cooperation in space programs, and the acquisition of complete systems.[62] R&D and acquisitions are being applied to space, airborne, ground, and sea-based platforms. For its space programs, China can build on its cooperative endeavors with Russia, Ukraine, Britain, France, Germany, and Italy. With the possible exception of Russian and Ukrainian assistance, it is doubtful this cooperation contains specifically military applications. Nonetheless, the foreign technology and advice China receives for civil projects can be transferred to military programs. Space systems will be complemented by ground-based over-the-horizon radars (OTHR), and tactical reconnaissance will be conducted by

manned aircraft and unmanned aerial vehicles (UAV). When these programs and acquisitions mature, China will have the capability to continuously monitor and track air and naval activity in the West Pacific, thereby greatly improving defense against air and missile attack.

Offshore Defense.

China's pursuit of ISR capabilities serves offshore defense as much as it does defense of the mainland. As in all other areas of advanced technology warfare with the exception of nuclear weapons and ballistic missiles, the sharp point of the PLA's spear is currently formed by foreign acquisitions and imported technologies. In particular, Russia is supplying China's most advanced combat aircraft and naval combatants. These acquisitions are complemented by indigenously developed aircraft, ships, and submarines built in China but using some imported technologies and sometimes with foreign assistance. The follow-on SSN to the current five *Han*-class ships will probably incorporate Russian technology. Although far from the cutting edge of modern armaments, these indigenous weapons are more capable than those derived from Soviet models of the 1950s and early 1960s that yet equip much of the PLA.[63] These acquisitions appear to support an "area denial" strategy. Reviewing Chinese assessments of U.S. vulnerabilities, this strategy appears to have three central components.

- Keeping U.S. aircraft carrier battle groups (CVBG) as distant as possible from China's maritime periphery by threatening them with cruise missile attack from aircraft, surface combatants, and submarines together with torpedo attack.

- Threatening foreign-hosted American bases with cruise and ballistic missile attack to hamper U.S. capabilities to conduct sustained combat operations, especially air operations, from these facilities.

- Developing the capabilities to attack U.S. space systems, thereby degrading the ISR and communications capabilities that make American military operations so effective.

Because they entail both defensive and offensive operations

and tactics, these objectives require substantial improvements in China's air and naval capabilities. By shifting China's maritime defense several hundred miles seaward the navy would lose the protection provided by land-based air defenses. PLAN ships do not have an area defense capability and few have a competent point defense against air and cruise missile attack. Moreover, except possibly for the newly acquired Russian *Sovremenny* guided missile destroyers (DDG), China's surface combatants have only limited anti-submarine warfare (ASW) capabilities. Consequently, a PLAN surface fleet cannot successfully defend itself against a sophisticated and competent adversary. Certainly, the PLAN is aware of these deficiencies and is seeking to overcome them — again primarily with imported weapons and technologies.

Air and naval operations against a U.S. CVBG are equally, if not more, demanding. First, one has to assume that China develops the ISR capabilities to locate and track a moving battle group. Depending on the battle group commander's interpretation of his tactical situation, the CVBG's defense "bubble" will range out 200 to 400 miles.[64] This means that an air-launched cruise missile will have to be very long range to be effective. Inside the bubble, attacking aircraft have to penetrate the CVBG's defending aircraft and missiles. Even so, when the attacking aircraft launch a cruise missile, it must be able to select its target from the defensive decoys and ships forming the battle group and survive the area and point defenses directed against it. This is a very demanding mission against a navy that prepared such defenses against a foe as formidable as the former USSR. Ship-launched cruise missiles face the same problems, assuming the launching ship could get close enough to fire its weapons.

Yet another alternative mooted in China's military press is the employment of ballistic missiles to attack a battle group.[65] Even assuming China develops the ISR capability to locate and track a moving battle group, a ballistic missile with terminal guidance would still have to distinguish the aircraft carrier from among the decoys and other ships forming the battle group. This is not an easy task.

The most effective offensive capability being acquired by the PLAN is the *Kilo* diesel-electric submarine acquired from Russia, especially the type 636. This is an exceptionally quiet submarine that

can be armed with sub-surface launched cruise missiles and both wire-guided and wake-homing torpedoes.[66] Even considering the ASW capabilities found in a U.S. CVBG, this submarine presents a very real threat. Assuming the next generation Chinese SSN (the 09-3 program) benefits from Russian technology, weaponry, and design assistance, the submarine threat to U.S. naval operations over the coming decade is going to increase significantly.

Degrading American ISR and C2 is yet another tactic mooted in Chinese journals as a way of degrading U.S. offensive operations. With so much of American effectiveness dependent upon real-time intelligence and communications, crippling the systems that support long-range precision attack and joint operations would substantially reduce U.S. superiority.[67] With so much available from public sources, China probably has a quite complete understanding of U.S. space systems and operations. It is likely that China is applying imported technologies to develop laser radars to track U.S. imaging satellites and conducting R&D on jamming the Global Positioning System (GPS). Satellite optical sensors are susceptible to damage by lasers, so it may be assumed that China is conducting research on these capabilities. Jamming communication satellites, airborne early warning systems, and the Joint Tactical Information Distributing System (JTIDS) is also probably high on China's R&D agenda. Thus far, these capabilities are only in the research stage of development and are years from operational application. Here again, however, China has made its intent clear.

The final vulnerability seen in U.S. military operations is their dependence of foreign-hosted bases for sustained combat operations in the West Pacific.[68] Long-range land attack cruise missiles (LACM), which China is trying to develop, and conventionally armed ballistic missiles would be the weapons of choice. Threatening to attack these targets would be politically charged and designed to minimize primarily Japan's support for U.S. operations. Whether China would undertake to attack bases such as Kadena Air Force Base on Okinawa is questionable. Among the issues such attacks would raise is whether the United States would see them as widening the war. It is very unlikely striking these bases would result in the United States backing away from aiding in the defense of Taiwan. It is far more likely that whatever restraints the United States had placed on

its operations, other than crossing the nuclear threshold, would be lifted in anticipation of a potentially wider war.

China's Taiwan Dilemma.

The PLA views preparations to counter U.S. military superiority in the West Pacific as an essential component of planning for the use of force against Taiwan. Beijing assumes that the use of military coercion against Taiwan will result in U.S. military intervention. This assumption almost certainly contributed to the judgement of some PLA analysts that the most effective use of military force would be to crush Taiwan's defenses and compel acceptance of Beijing's reunification terms before the United States had sufficient time to intervene. A joint missile and air attack to quickly subdue Taiwan's defenses seems to be at the heart of such a campaign.[69] Other military options are available, including variations on an intimidating display of military power, blockading the island, and an escalation strategy that begins with intimidation and gradually increases the level of military coercion before implementing a direct attack. These options, however, provide strategic warning to the United States and Taiwan, allowing them to coordinate a diplomatic and military response to China's coercion.

A short, decisive military campaign to compel Taiwan's submission fits into the pattern of operational doctrine the PLA has been developing since the mid-1980s, especially the "high-tech" variant adopted in 1993. This high-tech variant has been the focus of the advanced weaponry and military technology China has been importing, and to some extent indigenously developing, for the past decade. Nonetheless, for near-term planning the PLA faces a serious dilemma when it contemplates a short, decisive high-tech military campaign designed to compel Taipei's compliance with Beijing's demands. First, PLA planners anticipate American intervention. If these planners accept that U.S. forces will implement the offensive operational doctrine they observed in the 1991 Persian Gulf War and after, they are confronted with a difficult task. The advanced weaponry in the PLA's inventory remains limited, therefore the units equipped and fully trained with these armaments is limited. In planning for a short, decisive campaign against Taiwan, these

forces must be divided among three tasks. Some, perhaps the majority, will be assigned to the sudden air and missile assault on Taiwan. A second element must be assigned the task of deterring or defeating U.S. forces coming to Taiwan's aid. A third element must be assigned to defending critical facilities on the mainland against intense U.S. precision attack. Allocating the PLA's technologically advanced air, naval, and missile assets among these three tasks will be extremely demanding. Whereas the PLA expects to confront the United States and Taiwan with a mix of old and new weapons, the new weapons are clearly seen as the sharp point of the PLA's spear. For some years, the PLA will be short of just the weapons it believes are required to implement its preferred operational doctrine.

A final dilemma the PLA has to confront is that it has not fought a major military conflict since the 1979 border incursion into Vietnam. That now distant experience is hardly useful because it was a ground war where the PLA had the most experience and against an adversary where quantity could play an important role in the combat. A military confrontation over Taiwan brings the PLA into a realm of military operations it has never experienced: joint warfare fought in the air and at sea. Certainly, PLA exercises are increasingly joint and realistic, including amphibious warfare, but the Taiwan scenario involves confronting the world's best-equipped, best-trained, most operationally experienced armed forces. Furthermore, the PLA will be contesting United States forces in realms of warfare where they are most experienced--maritime and air power force projection. The PLA will recognize what an exacting task this is.

Ground Forces Modernization: Straddling Inner Asia and the Taiwan Scenario.

Although highest priority is now granted preparation for the demanding Taiwan scenario, China's defense modernization programs are not myopically focused on this potential conflict. In the same manner that air, naval, ISR, and IW programs concentrating on a Taiwan confrontation are applicable to other maritime theaters, such as territorial disputes in the South China Sea and protection of China's sea lines of communication (SLOC), ground forces modernization has benefits that extend beyond a Taiwan scenario.

Undoubtedly, the large joint service amphibious warfare and other exercises extensively reported in the Chinese and Hong Kong press[70] do reflect preparation for a Taiwan conflict. Nonetheless, and despite the low threat conditions that currently exist, ground forces modernization programs have implications for the defense of China's extensive inner Asian frontiers. The operational doctrine driving ground forces modernization parallels that of the air, naval, and missile forces. Since the mid-1980s, PLA ground forces have concentrated on developing the capability to respond quickly and lethally to limited, localized military conflicts along China's borders. The overall objective has been to transform the ground forces from the large, lumbering field armies that existed in the 1970s into more flexible, quicker reacting forces capable of responding effectively to a wide range of potential threats. Since the late 1990s, their training has focused on preparing to fight as the ground component of a joint operation.

In striving to achieve their modernization objectives, the ground forces have undergone a series of force reductions and reorganization.[71] In the most recent PLA force reduction of 500,000 completed in 2000, the ground forces experienced an 18.6 percent cut. The air force was reduced by 12.6 percent, the navy by 11.4 percent, and the 2nd Artillery Corps manning China's strategic forces was reduced some 2.9 percent.[72] Reductions in force (RIF) have been undertaken for more than simply slimming down PLA organization and reducing manpower costs. They are part of the objective to make the ground forces more mobile and quicker reacting. Thus, in the recent RIF some 30 combat divisions were reduced to brigades. Brigades are a central component of creating what the PLA refers to as "rapid reaction" units. Rapid reaction units have been complemented by the creation of "fist" and "special operating forces." These types of units, which have been under development since the late 1980s,[73] include ground, airborne, aviation, and marine forces. It appears they received greater emphasis following PLA assessments of the Gulf War, and the high visibility given U.S. Special Forces operations in Afghanistan will probably spur even more attention to these kinds of units.

Modernizing ground forces weapons and equipment has not benefited from foreign acquisitions as much as the air and naval

forces. In part this may be because China's R&D and manufacturing plants are more capable of developing and producing modern tanks, armored personnel carriers (APC) and artillery than they are advanced technology ships and aircraft. It may also reflect that the ground forces have a lower priority than air and naval forces. This lower priority is perhaps indicated by the fact that although ground force aviation units were first formed in the 1980s, there are still only around 300 helicopters assigned to them and they continue to lack a dedicated attack helicopter. If funds were made available, dedicated attack helicopters could be purchased in numbers from Russia along with any other rotary-wing aircraft.

It seems probable that the most modern arms and equipment available to the ground forces have been assigned to units that fall into three categories. First, those assigned to be part of, and exercise for, a Taiwan scenario, especially the amphibious, rapid reaction, and "fist" units. Second, forces deployed along particularly sensitive border areas, such as the Sino-Indian border. Third, units tasked with developing the tactics and learning the maintenance requirements for the new weapons and equipment. The knowledge and experience gained by these training units is to be passed on to other units to prepare them for the new weaponry.

This suggests that the majority of PLA ground forces remain equipped with older weapons, but that selected units with high priority missions are far better equipped and trained than the majority. In this sense, the ground forces reflect the same pattern of modernization as the air, naval, and missile forces. What percentage of PLA ground forces are capable of quick, decisive, and lethal responses to threats on China's borders cannot be determined without access to far more detailed information. It is nonetheless evident that some ground force units, and probably an increasing number, are now far more capable of conducting rapid response joint operations than was true only a decade ago. Again, as with the other services, the intent of ground force modernization is clear even if the progress made is not.

LESSONS LEARNED

The first and perhaps most important lesson learned by China's

defense establishment occurred long before systematic defense modernization was reinstated as a national goal in 1978. Twenty years of Mao Zedong's mass campaigns and too often misdirected policies had left China's military industrial complex in obsolescent chaos, and the PLA corroded into a hulking obsolescent giant. Overcoming and correcting these conditions was understood to be a long-term process. As Beijing struggled to reconstruct its defense establishment over the following 24 years, other critical lessons emerged.

When in the 1980s Chinese scientists and technicians began participating in international science and technology exchanges, weapons developers learned that technologies found in modern armaments and the complex supporting systems of contemporary and future warfare are often closely tied to civilian products. They learned that the components and systems integration processes that form much of advanced weaponry are intrinsically "dual use." The same was obviously true for space systems, electronic warfare, information technologies, and just about any other area of advanced military technology. This allowed China to institute R&D on advanced technologies with military applications by employing a broad array of civilian scientists and technicians. This did not imply that the defense industrial complex could quickly and easily be reconstructed. It did mean that high priority research programs would have greater resources to work with without unduly burdening civil sector research and development as they did in the 1950s. In the current era, military and civil R&D are often complementary.

Placing advanced weapons in serial production is far different from undertaking R&D on arms and components. The fact that the PLA's most advanced armaments are imported or, as in the case of the Su-27, assembled from kits, indicates the severe and continuing deficiencies in China's defense manufacturing plants. Whether this has diminished China's quest for a self-sufficient defense industrial complex is unclear. Producing indigenous systems with imported components and foreign assistance is a step forward, but it is most likely that China's longstanding pursuit of self-sufficiency is understood to be achievable only in the far distant future.

The principal lesson the PLA has learned over the past 24 years is

that, in both defensive and offensive operations, advanced military technologies have made the conduct of contemporary and future warfare incredibly complex. China's planners survey a military environment where ballistic missile defenses, space-based ISR, long-range precision strike munitions, information operations, and all the other advances in military technology present the PLA's current operational capabilities with daunting demands. Even the PLA's much discussed "asymmetric" approaches to a war with the United States concentrate on advanced technologies such as laser weapons to attack U.S. space systems. More importantly, as the PLA assessed U.S. military operations in the Gulf War and against Serbia, Mao Zedong's insistence that man is more important than weapons struck home with a vengeance. Whether it is the officer corps planning and preparing for war, the soldiers, sailors, airmen, and marines fighting the war, or the logisticians supporting the war, professional knowledge and training are now recognized as essential for military success. Since 1999, a constant theme in speeches by senior PLA officers and Jiang Zemin as Chairman of the Party's Central Military Commission is that China's armed forces must be capable of *applying* advanced weaponry and supporting systems in combat. Assessments of U.S. military operations taught the PLA that conceptual operational doctrine has to be applied by well-trained forces. These demands would not be so high in border disputes with many of China's neighbors, but Beijing's concerns focus on a potential military conflict with the United States over Taiwan.

China's search for arms and supporting systems capable of contesting U.S. military superiority introduced the PLA to the complexity of current military operations. Beyond the already difficult demands of conducting joint operations involving ground, air, naval, and missile forces are the yet untested tasks of integrating wide area and tactical ISR into an ongoing campaign against an aggressive and competent adversary. As it has in developing joint operations, the PLA is undoubtedly scouring U.S. doctrine and actual operations to determine how to do just this. Realistic training in the task of integrating ISR into joint operations will be as important and in many ways as demanding as the RDT&E and production of the systems themselves. What the PLA has learned as it probes the demands of contemporary and future warfare is that the more it

understands, the more complex military operations become.

To remain dependent on foreign arms, military technology and assistance for now some 150 years must be a source of profound frustration for a civilization that produced one of the world's foremost philosophers of war. There is certainly pride in the knowledge that Sun Tzu is seriously studied in the war colleges of the world's most powerful armed forces. However, for what remains of the military cadre that fought the Korean War and then saw their defense modernization ambitions aborted by Mao Zedong's obsessions, this frustration must be intense. Nonetheless, today's China has dramatically progressed in science, technology, and manufacturing skills, and its defense establishment is experiencing the longest period of sustained modernization since the PRC was founded. This progress and the promises it suggests for the future must produce a degree of confidence inside the PLA even as it generates apprehension in Asia and the United States.

ENDNOTES - CHAPTER 2

1. For an extremely useful discussion of this period in Chinese defense modernization, see John Frankenstein, "Back to the Future, A Historical Perspective on Chinese Military Modernization," a chapter prepared for the International Studies Association Annual Meeting, Anaheim, CA, March 1986.

2. He Di, "The Last Campaign To Unify China: The CCP's Unrealized Plan to Liberate Taiwan, 1949-1950," *The Chinese Historian,* Vol. V, No. 1, Spring 1992, pp. 1-16.

3. See David G. Muller, Jr., *China as a Maritime Power*, Boulder, CO: Westview Press, 1983, pp. 16-31, for an assessment of PLA operations to recover the offshore islands.

4. Gordon H. Chang, "To the Nuclear Brink: Eisenhower, Dulles and the Quemoy-Matsu Crisis, 1954-1955," *International Security*, No. 12, Vol. 4, Spring 1988, pp. 96-122.

5. Xiaoming Zhang, "China and the Air War in Korea, 1950-1953," *The Journal of Military History*, No. 62, April 1998, pp. 335-370.

6. Robert Dingman, "Atomic Diplomacy During the Korean War," and Rosemary Foot, "Nuclear Coercion and the Ending of the Korean Conflict,' both

in *International Security*, Vol. 13, No. 3, Winter 1988-1989, pp. 50-91 and 92-112, respectively.

7. Samuel P. Huntington, *In the Common Defense*, New York: Columbia University Press, 1961, pp. 83-84.

8. Evan A. Feigenbaum, "Soldiers, Weapons and Chinese Development Strategy: The Mao Era in China's Economic and Institutional Debate," *The China Quarterly*, No. 158, June 1999, p. 289.

9. *Ibid.*, p. 291.

10. John Wilson Lewis and Xue Litai, *China's Strategic Seapower: The Politics of Force Modernization in the Nuclear Age*, Stanford, CA: Stanford University Press, 1994, pp. 74-77.

11. William W. Whitson, *The Chinese High Command*, New York: Praeger Publishers, 1973, chapter 11; Muller, *China as a Maritime Power*, pp. 48-50; Kenneth W. Allen, Glen Krumel, and Jonathan D. Pollack, *China's Air Force Enters the 21st Century*, Santa Monica, CA: RAND, 1995, p. 35.

12. Selections from *China Today: National Defense S&T Undertakings*, Vols. I & II, Beijing, 1992, in *Foreign Broadcast Information Service* (hereafter *FBIS*), *JPRS Report: China's Science & Technology*, May 23, 1994, p. 3.

13. For a summary analysis of these disagreements, see Lewis and Xue, *China's Strategic Seapower*, pp. 1-20.

14. For a succinct analysis of the issues involved, see Ellis Joffe, *The Chinese Army After Mao*, Cambridge, MA: Harvard University Press, 1987, pp. 8-10.

15. Feigenbaum, "Soldiers, Weapons and Chinese Development Strategy," pp. 294-296.

16. Selections from *China Today: National Defense S&T Undertakings*, p. 4.

17. Barry Naughton, "The Third Front: Defense Industrialization in China's Interior," *The China Quarterly*, No. 115, September 1988, pp. 351-386.

18. Lewis and Xue, *China's Strategic Seapower*, pp. 93-95.

19. Selections from *China Today: National Defense S&T Undertakings*, p. 4.

20. Lewis and Xue, *China's Strategic Seapower*, p. 83; and John Wilson Lewis and Xue Litai, "China's Search for a Modern Air Force," *International Security*, Vol. 24, No. 1, Summer 1999, pp. 67-68.

21. Lewis and Xue, "China's Search for a Modern Air Force," p. 67-69; and Lewis and Xue, "China's Strategic Seapower, p. 83.

22. These topics have been extensively covered in numerous books and monographs, including Ellis Joffe, *The Chinese Army After Mao*, Cambridge, MA: Harvard University Press, 1987; David S. Shambaugh and Richard H. Yang, eds., *China's Military in Transition*, Oxford: Clarendon Press, 1997; James C. Mulvenon, *Professionalization of the Senior Chinese Officer Corps*, Santa Monica, CA: RAND, 1997; and James R. Lilley and David S. Shambaugh, eds., *China's Military Faces the Future*, Armonk, NY: M. E. Sharpe, 1999.

23. Harry Harding, "The Domestic Politics of China's Global Posture," in Thomas Fingar, ed., *China's Quest for Independence*, Boulder, CO: Westview Press, 1980, pp. 93-137.

24. Generals Zhang Zhen and Li Desheng's discussion of the May-June 1985 directive at a meeting of the *Jiefangjun Bao* editorial board reported in *Ta Kung Pao* (Hong Kong), February 16, 1986, in *FBIS, Daily Report: China* (hereafter *FBIS - China*), February 18, 1986, pp. W11-W12.

25. John W. Garver, "Sino-Russian Relations," in Samuel S. Kim, ed., *China and the World: Chinese Foreign Policy Faces the New Millennium*, Boulder, CO: Westview Press, 1998, pp. 114-132.

26. Waheguru Pal Singh Sidu and Jing-dong Yuan, "Resolving the Sino-Indian Border Dispute: Building Confidence through Cooperative Monitoring," *Asian Survey*, Vol. XLI, No. 2, March/April 2001, pp. 351-376.

27. Garver, "Sino-Russian Relations," pp. 122-123.

28. Thomas J. Christensen, "Posing Problems Without Catching Up: China's Rise and Challenges for U.S. Security Policy," *International Security*, Vol. 25, No. 4, Spring 2001, pp. 5-40.

29. *China's National Defense 2000*, Beijing: Information Office of the State Council, October 2000, p. 4.

30. *Quadrennial Defense Review Report*, Washington, DC: Department of Defense, September 30, 2001, Internet version, p. 4. [Although not named, the reference to a possible "military competitor with a formidable resource base" emerging in Asia is a clear reference to China.]

31. This transition is discussed in detail in Paul H. B. Godwin, "Chinese Military Strategy Revised: Local and Limited War," The *Annals of the American Academy for Political and Social Science*, Vol. 519, January 1992, pp. 191-201.

32. There have been numerous articles on the PLA's transition to joint warfare. See, for example, Liu Jun and Zhou Ruhong, "How to Concentrate 'Capability' in Joint Operations," *Jiefangjun Bao*, June 12, 2001, in *FBIS-China*, July 6, 2001.

33. James C. Mulvenon, "The PLA and Information Warfare," in James C. Mulvenon and Richard H. Yang, eds., *The People's Liberation Army in the Information Age*, Santa Monica, CA: RAND, 1999, pp. 175-186.

34. Evan A. Feigenbaum, "Who's Behind China's High Technology 'Revolution'? How Bomb Makers Remade Beijing's Priorities, Policies and Institutions," *International Security*, Vol. 24, No. 1, Summer 1999, pp. 95-106.

35. See Jorn Brommelhorster and John Frankenstein, eds., *Mixed Motives Uncertain Outcomes: Defense Conversion in China*, Boulder, CO: Lynne Rienner Publishers, 1997, for detailed assessments of these issues.

36. For these assessments see Richard A. Bitzinger, "Going Places or Running in Place? China's Efforts to Leverage Advanced Technologies for Military Use," in Susan M. Puska, ed., *The PLA After Next*, Carlisle, PA: U.S. Army War College, Strategic Studies Institute, August 2000, pp. 9-54; and Roger Cliff, *China's Commercial Technology: Implications for Future Military Capabilities*, Santa Monica, CA: RAND, 2001.

37. "Israel Calls Off Sale of Radar System to China," Associated Press, July 12, 2000.

38. John Pomfret, "Russia Likely to Sell Radar to China," *The Washington Post*, November 19, 2000, p. A-4

39. For a critical assessment of China's defense industrial reform, see John F. Frankenstein, "China's Defense Industries: A New Course?" in Mulvenon and Yang, *The People's Liberation Army in the Information Age*, pp. 187-216.

40. Beijing, Xinhua News Agency, March 3, 2002.

41. See Mulvenon, *Professionalization of the Senior Chinese Officer Corps*, for an assessment of the effect of PME on changing the officer corps.

42. Beijing, Xinhua News Agency, November 27, 1986.

43. For an extremely valuable discussion of force structure changes and the accessible sources, see Dennis J. Blasko, "PLA Force Structure Changes: A Twenty Year Perspective," in James C. Mulvenon and Andrew N.D. Yang, eds., *Seeking Truth From Facts: A Retrospective on Chinese Military Studies in the Post-Mao Era*, Santa Monica, CA: RAND, 2001, pp. 51-86.

44. For a discussion of doctrinal changes, see Paul H. B. Godwin, "Compensating for Deficiencies: Doctrinal Evolution in the People's Liberation Army: 1978-1999," and David M. Finkelstein, "Commentary on Doctrine," both in *Ibid.*, pp. 87-118 and pp. 119-130, respectively.

45. Li Xucheng, "Fu Quanyou Stresses Need to Actively Meet Challenges Posed by New Changes in the Military Arena and Vigorously Promote Our Armed Forces Modernization," *Jiefangjun Bao*, April 26, 2002, in *FBIS-China*, April 26, 2002.

46. For the uncertainty principle, see Li Bin, "The Effects of U.S. NMD on Chinese Strategy," *Jane's Intelligence Review*, March 7, 2001.

47. *China's National Defense in 2000*, p. 6.

48. The size and composition of China's strategic and regional forces are drawn from "NRDC Nuclear Notebook," *Bulletin of the Atomic Scientists*, Vol. 57, No. 5, September/October 2001, Internet version, pp. 1-3. Development information is drawn from John Wilson Lewis and Hua Di, "China's Ballistic Missile Programs: Technologies, Strategies, Goals," *International Security*, Vol. 17, No. 2, Fall 1992, pp. 5-39.

49. Lieutenant General Ronald T. Kadish, USAF, Director, Ballistic Missile Defense Organization, testimony before the House Armed Services Committee, July 19, 2001.

50. This discussion draws from Robert A. Manning, Ronald Montaperto and Brad Roberts, *China's Nuclear Weapons and Arms Control*, New York: Council on Foreign Relations, 2000.

51. *The Intelligence Community Damage Assessment on the Implications of China's Acquisition of US Nuclear Weapons Information on the Development of Future Chinese Weapons*, Washington, DC: Central Intelligence Agency, April 21, 1999.

52. Mark A. Stokes, "China's Military Space and Conventional Theater Missile Development: Implications for Security in the Taiwan Strait," in Puska, ed., *The PLA After Next*, pp. 112-118.

53. See, for example, Sun Hungwei, "New Developments in the Use of Airpower," *Jiefangjun Bao*, March 22, 1991, in *FBIS-China*, April 15, 1991, pp. 55-57; and Dong Wenxian, "Preliminary Study of Modern Territorial Air Defense," *Jiefangjun Bao*, September 6, 1991, in *FBIS-China*, October 7, 1991, pp. 41-44.

54. Xu Sheng, "Accurate Attacks Will Dominate Future Battlefields," *Jiefangjun Bao*, June 22, 1999, in *FBIS-China*, July 15, 1999.

55. Xu Sining, "Analysis on New Characteristics of Rear Counter-Air Strike Operations," *Jiefangjun Bao*, June 29, 2001, in *FBIS-China*, June 28, 2001.

56. Chen Youyuan, "Deepen Training in the New 'Three Attacks and Three Defends,'" *Jiefangjun Bao*, November 14, 2000, in *FBIS-China*, June 22, 2000.

57. (no title or author given), *Zhanyu Bao*, October 3, 2000, cited in *PLA Activities Report*, December 13, 2000.

58. *Zhongguo Guofang Bao*, August 28, 2000.

59. Xu Sining, "Analysis on New Characteristics of Rear Counter-Air Strike Operations."

60. Yao Youzhi and Zhao Dexi, "How Will China Handle War in the 21st Century," *Liaowang*, No 2, January 10, 2000, in *FBIS-China*, February 14, 2000.

61. *Annual Report on the Military Power of the People's Republic of China*, U.S. Department of Defense, July 10, 2002, (hereafter *Annual Report 2002*), p. 25.

62. *Ibid.*, pp. 28-29.

63. *Ibid.*, pp. 16-23.

64. I am grateful to Professor Bernard D. Cole of the National War College for discussing with me the principles of battle group defense.

65. See, for example, Feng Changsong, Xu Jiafang, and Wang Guosheng, "There is no spear that can pierce every shield, and no shield which cannot be pierced," *Zhongguo Guofang Bao*, March 3, 2002, in *FBIS-China*, March 28, 2002.

66. Dong Hua, "An Aircraft Carrier's Natural Enemy: The Anti-Ship Cruise Missile," *Junshi Wenzhai*, July 1, 2002, in *FBIS-China*, July 19, 2002, advocates sub-surface launched cruise missile attacks jointly with air-launched cruise missile attacks.

67. Mark A. Stokes, *China's Strategic Modernization: Implications for the United States*, Carlisle, PA: U.S. Army War College, Strategic Studies Institute, September, 1999, pp. 117-123; and *Annual Report 2002*, pp. 32-33.

68. Colonel Yu Guohua, "On Turning Strong Force Into Weak and Vice Versa in a High-Tech Local War," *Zhongguo Junshi Kexue*, May 20, 1996, in *FBIS-China*, January 3, 1997, identifies these vulnerabilities.

69. Stokes, "China's Military Space and Conventional Missile Development,"

presents the case for an overwhelming air and missile attack intended to paralyze Taiwan.

70. See, for example, Wei Lin and Song Fang, "Air Division Carries Out Joint Live-Fire Exercises With Neighboring Troops, Concentrates Efforts to Enhance Night Fighting Exercises at Sea," *Jiefangjun Bao*, May 2, 2002, in *FBIS-China*, May 6, 2002. Jin Shaoyang, "Areas Within Circumference of 350 Sea Miles Under Reconnaissance and Control," *Wen Wei Po*, Hong Kong, August 12, 2001, in *FBIS-China*, August 14, 2001, reported a major 3-month joint service exercise directed at Taiwan.

71. This discussion draws from *Annual Report 2002*, pp. 23-25.

72. *China's National Defense*, pp. 17-18.

73. See, for example, Li Qianyuan, "A Cursory Analysis of the Characteristics of Limited War of the Future," *Jiefangjun Bao*, December 19, 1986, in Joint Publications Research Service, *China Report*, No. 048, September 23, 1987, p. 91.

PART II:

THE SERVICES

CHAPTER 3

PLA GROUND FORCES LESSONS LEARNED: EXPERIENCE AND THEORY

Dennis J. Blasko[1]

The lessons learned by PLA ground forces since their founding can be divided into two distinct periods: first, lessons learned through their own combat experience from 1927 to 1979 and second, lessons from studying the experience of other armies in modern wars from 1979 to the present. This division roughly parallels China's revolutionary experience, led primarily by Mao Zedong, followed by the period of economic development, characterized by "reform and opening," initiated by Deng Xiaoping. Many of the lessons of the revolutionary period are now considered "assumptions" about army building in the period of reform. Underlying both periods are lessons derived from the pre-modern Chinese military, primarily the tenets of Sun Tzu *Art of War*, and the influence of the Soviet military, especially in force structure, doctrine, and equipment.

The lessons learned in the first 52 years of the PLA were derived from combat experience in both guerrilla and conventional action against the Nationalists (KMT), Japanese, and Americans and their allies. The 1979 campaign against the Vietnamese was a major influence for the period of reform to follow. Prior to the "self-defense counterattack," Deng had already identified many elements of future reform, but the bloody combat in northern Vietnam provided impetus for their implementation (along with Deng's accession to the country's primary leadership role). To reinforce the value of combat experience, the PLA rotated a series of units to the Vietnamese border in the 1980s to expose the troops to battlefield conditions.

This chapter will examine each of those two periods in turn. Major lessons are categorized into civil-military relations; China's technological level, including the "Red versus Expert" debate; and military doctrine, tactics, and force structure.

LESSONS FROM THE REVOLUTIONARY PERIOD

Though there are certainly other sources from the revolutionary period, this chapter will rely on the fountainhead of Chinese Communist wisdom, the thoughts of Mao Zedong, for its outline of lessons learned. While these quotations from the Chairman are certainly "party line," they were selected because of their enduring impact on the PLA's current ideology, force structure, and doctrine. There have been numerous modifications to Mao's lessons over the years, but many of his observations have become "traditions" in the PLA and are now assumptions used to structure the force and formulate its doctrine in the modern period. The examples cited illustrate how these lessons remain a major factor in PLA modernization.

Civil-Military Relations.

> Every Communist must grasp the truth, "Political power grows out of the barrel of a gun." Our principle is that the Party commands the gun, and the gun must never be allowed to command the Party.[2]

Though the primary mission of the PLA is defense of the country from external threats, it retains a secondary mission of domestic security, including protection of senior Chinese Communist Party (CCP) leaders.[3] Party control of the gun is emphasized foremost here because it is likely the army would be called on to perform internal security operations if the Public Security police and People's Armed Police (PAP) failed to maintain order.

Party control over the armed forces was not much of an issue during the revolutionary period when most Party leaders were or had been Army leaders. Of course, internal disputes flared over which Party-Army leaders were in control, but except for confusion during the decade of the Cultural Revolution that culminated in Lin Biao's alleged coup attempt, the military as a whole stood behind the Party. The issue was put to the test in the spring of 1989 when a significant number of officers and men failed to follow the orders of their chain of command. Nevertheless, the Party prevailed and units of the PLA from across the nation applied deadly force against an

unknown number of demonstrators and citizens.

In the following decade, Party and PLA leaders stressed "absolute loyalty" to the Party in numerous political slogans and campaigns. Ideological training was consistently listed as first priority – demonstrated by three of Jiang Zemin's "Five Sentences on Army Building" ("politically qualified, militarily competent, good work style, strict discipline, and adequate logistical support"), referring to political loyalty and party discipline. In recent years, political training has focused on Jiang's "Three Represents."

Party control is supervised by the political commissar/instructor and Party committee systems that extend from the highest levels to basic grass roots units.[4] Periods of tension between commanders and commissars have occurred, but that tension appears to have lessened today even as fewer officers move from one track to another.[5] Traditionally, the PLA has also been a school to train young communists for their eventual return to society as loyal servants of the Party.

Though there has been talk of transforming the PLA into a "state army," these efforts were set aside after Tiananmen and, in reality, Party control trumps any mention of "state control." Jiang Zemin and Hu Jintao, two Party and state leaders with no formal uniformed military experience, head the Central Military Commission (CMC); currently no uniformed military officers are found on the Party's highest policy making organ, the Standing Committee of the Political Bureau.

> The sole purpose of this army is to stand firmly with the Chinese people and to serve them whole-heartedly.[6]

The Red Army was different from warlord and Nationalist armies in its relationship to the Chinese peasants and workers. For example, the "Three Main Rules of Discipline" and "Eight Points of Attention"[7] were a code of behavior intended to enlist support from the Chinese masses in the Red Army's fight against stronger KMT forces. As a guerrilla force, the Red Army was the fish in the sea of the Chinese people.

The concept "serve the people" continues into the modern period in the PLA's provision of labor to economic projects, such as the laying of optical fiber lines throughout the country, and especially in

its efforts in disaster relief throughout the country. The manpower-heavy, mobile, and disciplined ground force with logistics and helicopter support has regularly been used as a "shock force," along with PAP, reserves, and militia, during floods, earthquakes, and other natural disasters. These undertakings have multiple benefits: 1) they improve the image of the PLA in the eye of the average Chinese and 2) they allow the units to exercise their command and control and logistics functions while providing valuable leadership experience for officers and noncommissioned officers (NCOs) in small units.

For the first time in 2002, the PLA included rescue and disaster relief operations in its unit training programs.[8] Additionally, a total of 19 special units to fight floods have been formed in designated engineering regiments and brigades.[9]

> We have an army for fighting as well as an army for labor. For fighting we have the Eighth Route and New Fourth Armies; but even they do a dual job, warfare and production.[10]

In its early years of fighting against both the KMT and Japanese, the Red Army had to fend for itself in remote, rural areas. The communists reduced the burden on the peasants by raising their own crops and livestock. This tradition continued into the PLA era, helping to reduce government expenditures for defense. However, the practice got out of hand in the mid-1980s and 1990s during the period of rapid economic growth, but of limited official allocations to the military. Training time was lost, graft and corruption were rampant, and profits were problematic as the PLA moved from subsistence farming and light industry into a vast array of commercial enterprises.

In 1998, President and Chairman of the CMC Jiang ordered the PLA and PAP to divest themselves of most of their commercial enterprises. However, as noted by the U.S.-China Commission:

> [T]he Chinese government decided to allow the PLA to retain a number of production units and enterprises, proving the "notion that the PLA is out of business is not true." Observers estimate the PLA has held onto 8,000 to 10,000 such enterprises and units of which "a vast majority were subsistence" units like farms and food-processing units. Militarily useful enterprises were retained

> for national security reasons, most notably telecommunications, space and satellite-launch services, radar technologies and opto-electronics, lasers, civil aviation and railways. Some enterprises that provided cover for intelligence gathering, national security, foreign affairs, and front operations were only partially divested.[11]

China's Technological Level.

> Weapons are an important factor in war, but not the decisive factor; it is people, not things, that are decisive.[12]

Mao's view of the importance of "man over technology," sometimes criticized as an attempt "to make a virtue out of necessity," was logical at the time for a guerrilla force operating in a country with a large population and of limited industrial modernization. In 1959 Lin Biao modified the precept with the formulation that "men and material form a unity with man as the leading factor." Lin's "balanced policy" was important in providing justification for the development of the PLA's more technical arms, i.e., missile, air, and naval forces, at the expense of the ground forces.[13]

The balance of man and weapons is directly related to the tension between "Red" and "Expert" that began almost immediately after the founding of the Red Army. In oversimplified terms, Mao's "Red" vision emphasized the ideal "Party soldier" operating with the support of the masses in a "People's War," utilizing hit and run guerrilla tactics. Modern weapons were less important to this kind of force, which often was under-equipped and relied on what it could acquire from the enemy, than they were to a more technologically advanced foe. This vision contrasts with the "Expert" professional military concept that stressed regularized organization and conventional tactics as advocated by Zhu De and nearly all early Red Army leaders.[14] In fact, the Chinese army has used both styles of fighting depending on the circumstances and today the PLA requires that soldiers be *both* "Red" (politically reliable) and "Expert" (capable of employing modern weapons and equipment in a highly structured organization).

> . . . a force which is inferior but prepared can often defeat a superior enemy by surprise attack.[15]

Chinese military planners constantly are looking for tactics and techniques by which "the weak can overcome the strong." Rapid movements, surprise, deception, and camouflage and concealment characterize the PLA's preferred operating style and can be traced back to Sun Tzu's *The Art of War*. The 1999 air campaign in Kosovo reinforced the importance of these techniques for ground forces by highlighting the success of stealthy movements at night and the employment of camouflage and concealment to elude and degrade the effectiveness of NATO's precision-guided munitions.

As the U.S.-China Commission report points out, PLA writers and researchers have a fascination with "trump cards" or "assassin's mace weapons":

> In fact, assassin's mace weapons have been given the highest level of attention since August 1999 when Jiang Zemin called for their priority development in a speech. Such weapons fall in line with a host of other asymmetrical strategies–such as cyber warfare–that the Chinese believe would help to counter U.S. military superiority.[16]

It is arguable, however, whether "trump cards," information or cyber warfare, and other asymmetric forms of warfare, especially if untested and available in limited numbers, will prove decisive in conflict. Outside the technical journals, Chinese writings seldom address the difficulties in taking these weapons from concept to reliable, deployable form. Successful use of such weapons and techniques might temporarily wound or stun a more technologically advanced enemy, but would they be effective enough for China to achieve its political objectives in a rapid and conclusive manner? What if the enemy does not respond in the way China expects – either before or after the use of the "trump card"? And what happens if their initial use spurs the enemy into a protracted, more destructive war against China? A skeptic might say that over-selling the effects of the "assassin's mace" is actually a distraction from the more difficult task of properly training a professional force to fight a modern high-technology war. These weapons could be included among the "force multipliers" the PLA is pursuing, but should not be considered ultimate weapons, which will single-handedly bring an enemy to his knees.[17]

> We stand for self-reliance. We hope for foreign aid but cannot be dependent on it . . .[18]

Self-reliance has been stressed for decades, even more so after the Soviets pulled their industrial and technological support in the late 1950s and after the Tiananmen massacre when the United States cancelled its Foreign Military Sales programs and imposed a set of sanctions that continue to this day. In a book entitled *The Third-Generation Leadership Group of the Party and the Building of the Quality of Armed Forces* published in 1997, Commander of the Chengdu Military Region Liao Xilong is quoted:

> Jiang Zemin has emphasized time and time again that *self-reliance should be the key word in strengthening our Army's modernization.* Judging by this, in developing its arsenal for cross-century purposes, the PLA will continue to adhere to the principle of mainly relying on self-reliance and drawing on foreign experience to a limited extent. As far as some leading-edge weapons are concerned, in particular, *domestic production will be the top priority.*[19] (emphasis added)

Through the decade of the 1990s, as China turned primarily to Russia for approximately $10 billion in arms imports, the ground forces received only limited numbers of Mi-17 helicopters and SA-15 mobile air defense systems[20] and perhaps some precision guided artillery munitions and anti-tank weapons. By the turn of the century, however, Chinese factories were once again producing significant numbers of new model, Chinese design main battle tanks (MBT), amphibious tanks, armored personnel carriers, self-propelled artillery, and helicopters. This new equipment is being deployed to units throughout the country, though still in relatively limited numbers. The 2002 DOD report quotes open sources predicting that 1,800 new MBTs will be deployed by 2005.[21] The 2000 Chinese *Defense White Chapter* states, "In the field of conventional equipment, China has made a fundamental shift from copying to independent production . . ."[22]

Military Doctrine, Tactics, and Force Structure.

> . . . our strategy and tactics are based on a people's war . . .[23]

"People's War" initially was a concept of *continental* defense for a low-tech, manpower intensive force, supported by loyal citizens.[24] Though air and naval dimensions were added in the late 1940s, it is an army-oriented doctrine. The doctrinal shifts of the 1980s and 1990s to "Local War" put greater emphasis on air, naval, and missile forces, and these services received priority in modernization efforts. Nevertheless, at the beginning of the 21st century, the PLA remains led primarily by ground force officers. The shift in operational mindset from continental defense to operations in the air and at sea is as great a task as modernization of equipment.

"People's War" is still considered an effective deterrent to a land invasion of the mainland. A major dimension of the continuing viability of People's War is renewed attention to reserve and militia forces, with particular attention to defense of Chinese cities from air attack. Active army units are smaller in number and size, more mobile combined arms formations than their predecessors. Still a large number of ground force units remain equipped, trained, and deployed principally for continental defense of the mainland.

> The object of war is specifically "to preserve oneself and destroy the enemy" . . . Attack is the chief means of destroying the enemy, but defense cannot be dispensed with. . . . If war is taken as a whole, attack remains primary.[25]

Despite the confusion generated by the sound of the term "active defense" and the tasks of the armed forces of the PRC "to consolidate national defense, resist aggression, defend the motherland, safeguard the people's peaceful labor, participate in national construction and serve the people wholeheartedly,"[26] Chinese military doctrine has never relied solely on the defense at any level of war--tactical, operational, or strategic. Fighting shifts between the offense and defense as circumstances change. For example, the Third Stage of Protracted War is "the counter-offensive." Mao's understanding that attack is the decisive form of combat is consistent with Clausewitz and Soviet and U.S. doctrine.

> Our principles of operation are: (1) Attack dispersed, isolated enemy forces first; attack concentrated, strong enemy forces

> later. . . . (3) Make wiping out the enemy's effective strength our main objective . . . (4) In every battle, concentrate an absolute superior force . . . (5) Fight no battle unprepared, fight no battle you are not sure of winning . . . (6) Give full play to our style of fighting . . . [27]

A common perception of the PLA is that it is "the largest military in the world," with the implication that Chinese leaders rely simply on mass to overpower their enemies. As can be seen in the quote above, the goal is to apply "absolute superior force" (which consists of both mass and firepower) *at key points*, not necessarily along the entire front. Even in Korea by early 1951, the Chinese volunteers adhered to this concept despite the "conventional wisdom":

> The press still reported human seas and overwhelming hordes, but except where they were massing for a breakthrough, the Chinese remained apart and in moderate numbers on the line. Front-line soldiers began to joke: "Say, Joe, how many hordes are there in a [Chinese] platoon?" Or, "We were attacked by two hordes last night. We killed both of them."[28]

The Chinese also learned "in open battle no amount of savage cunning could substitute for firepower."[29] Subsequently following Soviet doctrine and with Soviet assistance, the PLA incorporated large formations of artillery into the ground force. Today, conventional surface-to-surface multiple rocket and missile units extend the range of tube artillery. New self-propelled artillery and multiple rocket launchers are entering the inventory. The Chinese press recently has noted these developments, albeit somewhat simplistically: "Artillery has evolved into the biggest arm of the army. It is learned that the number of artillery guns in China is the second largest in the world. The biggest change to the Chinese artillery is that the ground-to-air missile and ground-to-ground missile units have joined this family."[30]

Jiefangjun Bao offered a more sophisticated analysis of the role of firepower and its relationship to information warfare in an article of July 2000:

> Although firepower warfare is the basic means in modern wars, it is never isolated. It will need the guarantee and support of

> mobility, capability in information warfare, engineering work, logistics, equipment, and technology. However, . . . if we exaggerate the position of mobility, information warfare, and various types of logistical support to an inappropriate extent, it will mislead and bring harm to the state's preparations against war and army building . . . . The correct practice should be studying in an all-round way to employ the firepower of various arms of services in a joint operation and fully raise the firepower capability of various arms of services.[31]

This perspective of modern war is consistent with the use of force multipliers (e.g., information warfare, engineers, etc.) to enhance the effects of firepower and maneuver. In order to retain firepower, the PLA's most advanced, mechanized group armies, i.e., the 38th and 39th, apparently have not downsized any of their maneuver divisions to brigades and have been assigned organic helicopter groups.[32] At the same time, the PLA is increasing battlefield mobility with the introduction of several types of new, wheeled armored vehicles, trucks and transports, and all-terrain vehicles.

The operational and tactical lessons learned by the PLA through several decades of actual combat operations are not that different from other armies' 20th century experience. A prime example is the PLA's understanding of the logistics lesson from the 1973 Arab-Israeli conflict: mid-intensity modern combat results in higher than expected expenditure of munitions requiring a logistics tail that can efficiently support extended operations. In recent years, each Military Region headquarters has established a "Joint Logistics Department" that seeks to maximize sources of supply and reduce duplication of effort among the services.

The PLA's problem generally has been, however, that it was the technologically weaker force with inferior weaponry, forcing it to rely more on the principles of speed, surprise, and deception than its foes. This is what Mao meant by "our style of fighting." While that style may have served its *political* purposes in early 1979 in northern Vietnam, it may not be suitable for the more likely wars of the future – limited, local wars on the periphery of China. The PLA began a multifaceted program of modernization at about the same time the country shifted its focus to "national economic development." This period of reform brought new challenges to the Chinese ground forces.

LESSON FROM THE PERIOD OF REFORM

Three major factors have defined the parameters of ground force lessons learned in the era of reform. First, in contrast to the 1950s and 1960s, when Mao's revolutionary zeal put a national emphasis on developing atom bombs, missiles, and conventional forces, since 1978 military modernization has been subordinated to national economic development. This translated directly into smaller resource allocations than the military brass may have preferred. At the end of the 1990s, China began to reap the benefits for its patience as the announced defense budget received real double-digit percentage increases,[33] while at the same time planning and preparation for possible Taiwan scenarios were pushed to the forefront.

Next, Deng's pronouncement that the threat of major world war was low and the most likely form of warfare that China would face was local, limited war allowed for military modernization to be conducted in a phased, long-term manner. Deng's guidance resulted in a shift in emphasis in the PLA from the ground forces to development of the air, naval, and missile services. At the turn of the 21st century, as a result of force reductions and defense budget increases, priority for the ground forces appears to have been reinvigorated with an infusion of new, indigenously-produced weapons and an increase in realistic training opportunities.[34]

Finally, the PLA's lack of ground combat experience since its experiences with Vietnam has required it to learn lessons vicariously based on studying the contemporary experience of other armies. The PLA has developed doctrine, refined its force structure, upgraded command and control, improved its logistics system, instituted training reform, and introduced new equipment into the force, but has yet to prove these changes meet the requirements of the modern battlefield. No measure is as effective as the crucible of battle to test the efficacy of reforms and to spur the innovation necessary to overcome deficiencies unforeseen in theory.

Civil-Military Relations.

One of the greatest examples of the PLA's loyalty to the Party in the period of reform has been acceptance by the senior military

leadership of the relatively low priority afforded to military modernization in relation to other elements of national economic development. While there has been a significant adjustment to the resources dedicated to the PLA since 1999, the U.S.-China Commission report is half right and half wrong when it says: "In 1997, the Chinese Communist Party defined the country's economic strategy. It called for close coordination between the military and civilian sectors, and *put the civilian sector at the service of the military.*"[35] (emphasis added)

The Commission bases this conclusion on the 16-character slogan: *Junmin jiehe*–Combine military and civilian; *Pingzhan jiehe*–Combine peace and war; *Junpin youxian*–Give priority to military products; *Yi min yang jun*–Let civilian production support military production. According to *China's Defense Conversion*, published in 1994 by the China Economic Press, Deng proposed the 16-character slogan *in January 1982* and it was adopted by the Party Central Committee to guide "both the military industrial construction policy of China and the policy for the development of the national economy."[36] The book specifically states: "The national defense economy is not a "purely consumer" economy. *It is built on the national economy, and it follows and serves the national economy.*"[37] (emphasis added)

The fourth 4-character phrase (*Yi min yang jun*), "Let civilian production support military production," often causes confusion and may lead to the interpretation that "the civilian sector is at the service of the military." Indeed, *China's Defense Conversion* acknowledges "money earned developing civilian products was used to develop military products," but then explains "the basic meaning" of the phrase to be:

> From the overall view of the nation, national defense expenditures cannot directly create wealth, but they are a necessary condition for civilian production to generate wealth. National defense expenditures *are taxes* generated by civilian manufacturing turned into national financial income and spent as such. Basically, military expenses come from *the conversion of civilian-product profits.*[38] (emphasis added)

This interpretation of the phrase in question explains how taxes from the civilian sector support the military sector — a situation

similar to that found in most countries.[39] With this background in mind, the actual relationship between the military and civilian sectors of the economy is more accurately stated in China's *Defense White Paper* of 2000:

> Developing the economy and strengthening national defense are two strategic tasks in China's modernization efforts. *The Chinese government insists that economic development be taken as the center, while defense work be subordinate to and in the service of the nation's overall economic construction.* Meanwhile, along with economic development, the state strives to enhance its national defense strength, to effectively support the armed forces in their efforts to improve their quality and to form a mechanism which enables national defense and economic development to promote each other and develop in harmony.[40] (emphasis added)

President Jiang is quoted in the *Yangcheng Wanbao* in February 2001 making direct reference to the 16-character slogan and saying, "We must persistently ensure unreserved coordination by building *a system of coordination* in the whole society to facilitate scientific or technological development for national defense. We must combine military efforts with non-military efforts and build a structure full of vitality for developing science and technology for national defense."[41] (emphasis added) Close coordination between the civilian and military sectors is different than placing "the civilian sector at the service of the military." Uniformed military leaders consistently reflect the thoughts expressed in the *Defense White Paper* and by President Jiang in their numerous public pronouncements and writings. For example, in April 2002, Chief of the General Staff Fu Quanyou stated:

> First, we must uphold the central task of **economic development, subordinate** ourselves to and serve the overall interest, carry forward the spirit of plain living and hard struggle, bring into full play our armed forces' special characteristics and strong points, contribute more to socialist modernization, and lay a solid material foundation for us to meet the challenges brought about by the new changes in the world **military** arena.[42]

At the 2002 National People's Congress, the *Jiefangjun Bao* quoted several PLA deputies about the *coordination* of the defense and

civilian sectors:

> Deputy Chief of the General Staff Kui Fulin: It is necessary to persistently include national defense in the overall planning for the **development** of the national economy, give overall consideration to it and make all-round arrangements for it, and promote the coordinated **development** of national defense construction and **economic** construction.
>
> General Logistics Department (GLD) Political Commissar Zhou Kunren: [G]overnments at all levels should give great support to national defense and army building, and regard preparation for **military** struggle as their duty. For example, they should give full consideration to **military** needs in the construction of highways, railways, and other projects, and should make efforts to link national defense construction with national **economic** construction to form a complete set of the two.
>
> GLD Deputy Director Zhou Youliang: It is necessary to give full consideration to the needs of national defense in **economic** construction, implement the principles of "integration of peacetime and wartime needs; and **military** and civilian compatibility," strive to link national defense construction with national **economic** construction to form a complete set of the two.[43]

The ideas of thrift and more efficient use of funds allotted to the PLA are now common themes even as resources available to the PLA grow. Nevertheless, in the Chinese military mind, there is no confusion about where the modernization of the PLA stands in relationship to national economic development — a reflection of the military's absolute loyalty to the Party.

China's Technological Level.

CMC Chairman Jiang is committed to "building a strong army with science and technology and pressing ahead with the army's quality building" by "transforming our army from a force known for quantity and scale into a force known for quality and efficiency and from a personnel-intensive force into a science- and technology-intensive force as well."[44] He and the senior military leadership recognize the PLA's limitations:

> [W]e should know that our armed forces still have difficulties or even defects in fighting or winning a local war under hi-tech conditions at the moment, including such outstanding problems as relatively backward weapons, equipment, personnel quality, structure, establishment, and so on in terms of overall scientific and technological contents, lack of experiences in or a capability of fighting a war under hi-tech conditions, and so on. . . . At present, our army's modernization standard is still incompatible with the needs of fighting a modern war, this being a major contradiction faced by our army building. . . . At present, our army still lags far behind armed forces of developed countries in the West in terms of weapons or equipment, intelligence or reconnaissance, telecommunications or liaison, command or control, joint operations, logistic support, and in other basic fields as well.[45]

With limited resources available for military modernization the PLA has had to prioritize the distribution of funds. As a general rule, ground forces have been the losers in this competition, though recent evidence suggests that situation may be changing to some degree. Instead of an across-the-board upgrading of forces, only a portion of the force has been selected to receive the newest equipment and training priority. The result of these decisions has been the creation of "pockets of excellence" and rapid reaction or *fist* units.

The army has accepted the fact that for the foreseeable future its forces will be a mix of high, medium, and low-technology units equipped with an assortment of high, medium, and low-technology equipment. President Jiang has stressed the importance of man in relationship to modern weapons, "Though we're unable to develop all hi-tech weapons and equipment within a short period of time, we must train qualified personnel first, *for we would rather* ***let*** *our* ***qualified personnel wait*** *for equipment than the other way round."*[46] Thus, it is more important to train officers and men in how to maintain and operate new equipment according to the PLA's newly promulgated doctrine than it is to flood the troops with weapons that could not be absorbed by the units. This is a rational, if long-term, solution to the problem of an army with a low education and technological base.

In order to prepare the force to properly employ new weapons and equipment in the 1990s the General Staff Department issued guidance for experimental test beds to be established in the different

Military Regions for various technologies and tactics. Lessons learned through actual troop trial would then be applied throughout the force and in the military school system. In this manner, the ground forces could learn how to best operate small numbers of modern equipment, such as night vision devices, under the current conditions in the PLA.[47] Despite the preparation undertaken prior to the issuing of new equipment, it is still common to read accounts of soldiers and units that are afraid of using or breaking the new gear.[48] Reticence of this sort is not unique to the PLA, however.

While the army has received fewer imported weapons from Russia than the other services, especially in the last few years, new models of Chinese-produced tanks, armored vehicles, artillery, and logistics equipment have been introduced into units throughout the country, and particularly to units in the Military Regions opposite Taiwan. These new prestige weapons undoubtedly will help build morale in what otherwise can be an unenviable situation.

The role of the NCO is being expanded, in part to assist in the training and operation of new equipment, but also to assist the officers in small unit leadership. This is a lesson learned from the study of foreign armies and personal observation of the NCOs during overseas travel by PLA leaders. The ongoing maturation of the NCO corps also is related to the reduction in terms of conscription for ground force soldiers from 3-2 years that occurred in the late 1990s. With conscripts staying in the army for a shorter amount of time, NCOs have increased in number and had their responsibilities expanded to provide stability in units and properly train younger soldiers to maintain and operate new equipment. Some units now are able to attain higher levels of unit proficiency in shorter periods of time than in the 1990s, allowing for major training exercises to begin in April and continue for several months.[49]

Military Doctrine, Tactics, and Force Structure.

In order for the ground force to fight potential Local Wars, it has had to 1) create or reorganize units capable of getting to a battle on China's periphery, and 2) focus on combined arms and joint training. The transformation of army corps to group armies and the formation of the first helicopter units in the 1980s were initial steps. The

growth of the army helicopter force has been slow, with only about 300 aircraft distributed among 12 aviation groups or regiments.[50] Numerous Chinese sources have photographs of growing numbers of Zhi-9 and Mi-17 helicopters; some are gunships armed with guns and rockets.[51] The PLA still lacks an "attack helicopter," designed specifically for that single role. In the 1990s, Special Operations Forces (SOF) units were established in each of the Military Regions and received considerable attention in the Chinese media. These units routinely train with army helicopter units and elements from the PLA Air Force and Navy – they are among the few PLA army units who can carry the battle beyond the borders of China.

The number of group armies has been reduced and their composition changed through transfer of units; many divisions were restructured into smaller brigades with the intention of making these units lighter and more rapidly deployable. Other divisions have had their structure modified. In the late 1990s, divisions or brigades that had been designated as "tank" were redesignated as "armored" units to emphasize their "combined arms" capabilities. Also in the late 1990s, the 1st Amphibious Mechanized Infantry Division of the 1st Group Army in the Nanjing Military Region was fashioned from the former 1st Motorized Infantry Division. By 2001, the 124th Amphibious Mechanized Infantry Division was created from the former 124th Motorized Infantry Division in the 42nd Group Army of the Guangzhou Military Region.[52] *PLA ground forces now have a larger number of designated amphibious troops than does the PLA Navy with its two marine brigades.*[53] Because of the elevation of planning for Taiwan scenarios, amphibious operations are receiving emphasis in ground force units throughout China and new amphibious armored vehicles are being introduced into the force.

An assortment of "high-technology units," such as the "Guangzhou Military Region Informationized Unit," "Jinan Military Region Tech Rapid Reaction Unit," and other "Hi-Tech Units," have been added to the various electronic warfare units previously in the order-of-battle.[54] For the first time, a surface-to-surface missile unit has been assigned to the ground forces, as opposed to the Second Artillery, in the Nanjing Military Region. This unit in Shangrao, Jiangxi province was converted from an artillery brigade in 1997.[55] Nanjing is also the first Military Region headquarters in which a

"Conventional Guided Missile Department" has been identified.[56]

Training. The Military Training Plan for 2002 carries forward lessons learned in past years and focuses "on improving the quality of training, instead of focusing on how much time is used in training."[57] Standardized training criteria and evaluation guidance have been issued to units from the General Staff Department to ensure quality. The use of simulators to enhance field training appears to be expanding.

Joint and combined arms training has become more common and more realistic, to include forces crossing Military Region boundaries to exercise in increasingly complex tasks.[58] Force-on-force maneuvers ("confrontational" exercises) are widespread, as are dedicated "Blue Force" ("enemy") units. Training is more "high-technology" oriented with a focus on the "three attacks and three defenses" (strike at stealth aircraft, cruise missiles, and gunship helicopters; defend against precision strikes, electronic jamming, and reconnaissance and surveillance). The Persian Gulf War and the NATO Kosovo operations are generally cited as the influences that led to the adoption of the "three attacks and three defenses" scheme.

In addition to joint amphibious training areas in the Nanjing and Guangzhou Military Regions at Dongshan, Pingtan, and Zhoushan islands, and near Shantou,[59] combined arms training bases have been identified in the Beijing, Guangzhou, Jinan, Lanzhou, and Shenyang Military Regions, along with five additional "Tankmen" (armored forces) training areas.[60] According to the 2002 DOD report:

> PLA ground forces training and exercises since the mid-1990s have focused on various themes, although without a predictable pattern or sequence from year to year. Training activity in 2001 reportedly emphasized maritime and amphibious training and integration of conventional ground units with Airborne, Marines, and SOF. It built on previous years and included more combat units, which incrementally improved the PLA's abilities to deploy and sustain the force, and to conduct amphibious operations in a multi-service environment . . . . Over the past year, Beijing's military training exercises have taken on an increasingly real-world focus emphasizing rigorous practice and operational capabilities, and improving the military's actual ability to use force.[61]

Deterrence. The Chinese leadership relies on its numerically large force as the basis for conventional deterrence. An article in the journal of the Academy of Military Science observed in 2001:

> In conventional deterrence, demonstrations of power can take various forms, but they are generally expressed as tests and exhibitions of high-performance weapons, focused concentrations of armed forces, large-scale military exercises, threats and strikes that serve as warning examples, and limited combat operations, etc.[62]

In order for a deterrent force to be credible it must be structured for and capable of carrying out its military missions. In the Chinese strategic mindset, significant ground forces stationed throughout the country are key to deter against both external aggression and domestic disturbances. Because of the difficulty in rapidly moving large formations of troops along with their supplies and equipment, ground forces are found in all corners of the country. Many group armies remain deployed along traditional avenues of attack into China.

PLA ground forces are also the ultimate guarantor of China's domestic stability. Although the National Defense Law of 1997 assigns to the PLA the primary mission of "defensive fighting" against external attack, "the standing army, when necessary, may assist in maintaining the public order in accordance with the law."[63] The PLA leadership would prefer for the PAP and Public Security forces to handle domestic disturbances and approved transferring 14 PLA divisions to strengthen the PAP in the late 1990s. Currently, PAP internal security forces are estimated at about 800,000 in approximately 45 division-like units.[64]

At the same time that the PLA is changing its doctrine and training regimen, the PAP is receiving more specialized equipment and training to perform its main task. As the PLA becomes more mechanized and modernized, additional training for domestic security operations will be a distraction from preparation for its primary mission. My experience with PLA officers has caused me to conclude that most Chinese military leaders have learned the same lesson as many American officers that "soldiers don't make good

policemen."[65]

With regard to "terrorism, separatism, and extremism"[66] especially in China's western regions, the PLA may likely be used in addition to, or in lieu of, PAP and local police forces. The PLA considers dealing with armed insurgents who challenge the authority of the Chinese government an integral part of its mission. In October 2002, the PLA held its first "cross-border," bilateral, antiterrorist exercise with a Shanghai Cooperation Organization member, Kyrgyzstan. The 2-day maneuver involved over 100 soldiers from each side, as well as armored vehicles and helicopters. The Xinjiang Military District provided the PLA contingent for this exercise.[67]

CONCLUSION

If anything, the PLA has proved itself to be a good learner from the lessons of its own experience and that of others. It is not afraid of making modifications to its thinking, practices, and structure if circumstances warrant. However, most often, course corrections are still framed in an ideological tradition that dates back to Mao. The effectiveness of recent attempts at modernization is yet to be proven in battle, and it is certain that if it is involved in future combat the PLA will make further adjustments based on its successes and failures in practice.

Perhaps for the army, the most significant lesson of the period of reform is that the ground forces will not be the predominant factor in most likely future scenarios. Therefore, the army leadership has given greatest priority to that portion of ground forces that can get to the fight. Only a relatively small percentage of the large ground force is likely to be applied at key points in the battle, while the rest of the force provides a distraction to the enemy and cover for smaller movements. The units that fight the first battle probably will be quite different from those called on later to participate in a longer struggle.

In the years ahead, a true commitment to a doctrine of joint warfare may be demonstrated by the elevation of air, naval, or Second Artillery officers to the most senior national leadership positions or as Military Region commanders. With the exception of Liu Huaqing, who was both an army and naval officer, nonground

force officers have not been included in the highest decisionmaking circles of the Chinese military in recent years. This is likely to be a gradual process, but at the grass roots levels there is evidence of exchanges of officers in schools to become more familiar with the inner workings of other services.

Currently, there is little indication that the PLA will be anything but a Party-controlled army in the near to mid-term. If it were to become truly a state-controlled army, political conditions would have to be vastly different than they are today. In the meantime, it is a good assumption that the fundamental tenet of the Chinese armed forces for 75 years – "the Party commands the gun, and the gun must never be allowed to command the Party" – will endure.

ENDNOTES - CHAPTER 3

1. Thanks to Paul Godwin, Ellis Joffe, Harlan Jencks, and Andy Chan for reviewing and commenting on early drafts of this chapter. Special thanks to John Corbett for unique support in the preparation of this chapter. Readers interested in the themes discussed in this review of PLA ground forces lessons learned are recommended to consult, among others, William W. Whitson with Chen-hsia Huang, *The Chinese High Command, A History of Communist Military Politics, 1927-71*, New York: Praeger Publishers, 1973; Allen S. Whiting, *The Chinese Calculus of Deterrence: India and Indochina*, Ann Arbor: The Center for Chinese Studies, The University of Michigan, 1975, 2001; Harlan W. Jencks, *From Muskets to Missiles: Politics and Professionalism in the Chinese Army, 1945-1981*, Boulder, CO: Westview Press, 1982; United States Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, Washington, DC: 1984; Monte Bullard, *China's Political-Military Evolution: The Party and the Military in the PRC, 1960-1984*, Boulder, CO: Westview Press, 1985; Ellis Joffe, *The Chinese Army After Mao*, Cambridge: Harvard University Press, 1987; Paul H. B. Godwin, *The Chinese Communist Armed Forces* Maxwell Air Force Base, AL: Air University Press, 1988; Robert L. Worden, Andrea Matles Savada, and Ronald E. Dolan, eds., *China – A Country Study*, Washington, DC: Federal Research Division, Library of Congress, 1988; Michael Swaine, *The Military & Political Succession in China*, Santa Monica: RAND, 1992; *The China Quarterly*, No. 146, Special Issue: "China's Military in Transition," June 1996; Bates Gill, "China and the Revolution in Military Affairs: Assessing Economic and Socio-Cultural Factors," and Lonnie Henley, "China's Capacity for Achieving a Revolution in Military Affairs," in *China and the Revolution in Military Affairs*, Carlisle Barracks, PA: Strategic Studies Institute, 1996; C. Dennison Lane, Mark Weisenbloom, and Dimon Liu, eds., *Chinese Military Modernization*, Washington, DC: American Enterprise Institute Press, 1996; James R. Lilley and Chuck Downs, eds., *Crisis in the Taiwan Strait*, Washington, DC: American Enterprise Institute and

National Defense University Press, 1997; Michael Pillsbury, ed., *Chinese Views of Future Warfare*, Washington, DC: National Defense University Press, 1997; Larry M. Wortzel, *China's Military Potential*, Carlisle Barracks, PA: Strategic Studies Institute, 1998; Larry M. Wortzel, ed., *The Chinese Armed Forces in the 21st Century*, Carlisle Barracks, PA: Strategic Studies Institute, 1999; James C. Mulvenon and Richard H. Yang, eds., *The People's Liberation Army in the Information Age*, Santa Monica, CA: RAND, 1999; Michael Pillsbury, *China Debates the Future Security Environment*, Washington, DC: National Defense University Press, 2000; James C. Mulvenon and Richard H. Yang, eds., *Seeking Truth From Facts*, Santa Monica, CA: RAND, 2001; Andrew Scobell and Larry M. Wortzel, eds., *China's Growing Military Power: Perspectives on Security, Ballistic Missiles, and Conventional Capabilities*, Carlisle, PA: Strategic Studies Institute, 2002; David A. Graff and Robin Higham, eds., *A Military History of China*, Boulder, CO: Westview Press, 2002.

2. "Problems of War and Strategy," *Quotations from Chairman Mao Tse-tung*, New York: Bantam Books, 1967, pp. 33, 55.

3. PLA ground forces (the Central Guard Unit) routinely provide local protection for senior Party leaders and compounds in Beijing.

4. The political officer system is a prime example of early Soviet influence on the PLA.

5. See James C. Mulvenon, "Professionalization of the Senior Chinese Officer Corps Trends and Implications," Santa Monica, CA: RAND, 1997, pp. 25-33. Two samples of senior officers show a trend toward specialization with a decline in "cross-fertilization." The implication is that PLA officers, whether commander, political, or technical, recognize the need for their mutual cooperation.

6 "On Coalition Government," *Quotations from Chairman Mao Tse-tung*, p. 54.

7. The "Three Main Rules of Discipline" are 1) Obey orders in all your actions, 2) Do not take a single needle or piece of thread from the masses, 3) Turn in everything captured. The "Eight Points of Attention" are 1) Speak politely, 2) Pay fairly for what you buy, 3) Return everything you borrow, 4) Pay for anything you damage, 5) Do not hit or swear at people, 6) Do not damage crops, 7) Do not take liberties with women, 8) Do not ill-treat captives. *Quotations from Chairman Mao Tse-tung*, p. 145.

8. "Rescue, Disaster Relief Included in Military Training," *Xinhuanet*, March 13, 2003, internet version.

9. "All-Army Conference on Building Flood-Fighting Units Held in Hubei 14-16 May," in *Foreign Broadcast Information Service* (hereafter *FBIS*), *Wuhan Hubei Ribao* (Internet Version-WWW), in Chinese, May 17, 2002; and "PRC: Army Sets

Up Special Flood-Fighting Units," in *FBIS Beijing Xinhua,* in English, 1349 GMT, June 11, 2002.

10. "Get Organized!" *Quotations from Chairman Mao Tse-tung*, p. 55.

11. *Report To Congress of the U.S.-China Security Review Commission – The National Security Implications of the Economic Relationship Between the United States and China,* Chapter 9, p. 173. For a detailed examination of the PLA's business empire, see Tai Ming Cheung, *China's Entrepreneurial Army,* Oxford: Oxford University Press, 2001; and James C. Mulvenon, *Soldiers of Fortune: The Rise and Fall of the Chinese Military-Business Complex: 1978-1998,* Armonk, NY: M. E. Sharp, 2000.

12. "On Protracted War," *Quotations from Chairman Mao Tse-tung*, p. 77.

13. Harlan W. Jencks, *From Muskets to Missiles: Politics and Professionalism in the Chinese Army, 1945-1981,* Boulder, CO: Westview Press, 1982, pp. 55-62.

14. The emphasis on expert/professionalism was another Soviet, as well as German and Japanese, influence.

15. "On Protracted War," *Quotations from Chairman Mao Tse-tung*, p. 53.

16. *Report To Congress of the U.S.-China Security Review Commission,* Chapter 1, p. 26.

17. The U.S. Department of Defense "Annual Report on the Military Power of the People's Republic of China," released on July 12, 2002, does not refer to "trump cards," but does address the development of force multipliers, pp. 14-15. For a different perspective and interpretation on the capabilities of "assassin's mace" weapons, see the copious works of Mark Stokes, Michael Pillsbury, Richard Fisher, and William Triplett in addition to the U.S.-China Commission report.

18. "We Must Learn to Do Economic Work," *Quotations from Chairman Mao Tse-tung*, p. 110.

19. "PLA Support for Jiang Analyzed," *FBIS, Hong Kong Kuang Chiao Ching,* in Chinese, No 300, September 16, 1997, pp. 12-17. This article was published before the 15th National Party Congress and provides a good insight to the PLA modernization process.

20. PLAAF air defense forces may also control some or all SA-15s.

21. "Annual Report on the Military Power of the People's Republic of China," p. 24. This appears to be a large number, but 1,800 only represents about 23

percent of the estimated 8,000 MBTs in the PLA inventory, according to *The Military Balance 2001-2002*, International Institute for Strategic Studies, p. 188.

22. "Science, Technology and Industry for National Defense," *China Defense White Paper*, October 16, 2000.

23. "The Present Situation and Our Tasks," *Quotations from Chairman Mao Tse-tung*, p. 53.

24. With the acquisition of modern weapons, today the PLA envisions incorporating high technology equipment into its concept of People's War for the defense of China.

25. "On Protracted War," *Quotations from Chairman Mao Tse-tung*, p. 50.

26. "National Defense Policy," *China Defense White Paper*, October 16, 2000.

27. "The Present Situation and Our Tasks," *Quotations from Chairman Mao Tse-tung*, pp. 51-52.

28. T. R. Feherenbach, *This Kind of War*, New York: Bantam Books, 1991, p. 424.

29. *Ibid.*, pp. 423-424.

30. "XNA Reviews Evolution of PLA Ground Force in Recent History, New Units" in *FBIS Beijing Xinhua Hong Kong Service* in Chinese 0737 GMT, June 18, 2002.

31. "PLA Daily Article on Primacy of Firepower Over Information Warfare," in *FBIS Beijing Jiefangjun Bao* (Internet Version-WWW), in Chinese, July 04, 2000, p. 6.

32. Thanks to Andy Chan for pointing out the retention of the division structure in the 38th and 39th Group Armies.

33. In the early and mid-1990s, announced defense budget increases were often negated by inflation.

34. Thanks to Lonnie Henley and John Culver for insights into the renewed emphasis on the ground force.

35. *Report To Congress of the U.S.-China Security Review Commission*, Chapter 10, "Introduction," p. 179.

36. *China's Defense Conversion*, Daily Report Supplement, *FBIS*-CHI-95-144-S, July 27, 1995, pp. 2, 18, 23.

37. *Ibid.*, p. 17.

38. *Ibid.*, p. 22.

39. For a thorough examination of the problem of interpretation of the 16-character slogan, see Alastair Iain Johnston, "The Cox Report on Governance and Policy in China: The Problems of Fact, Evidence, and Inference," in "The Cox Committee Report: An Assessment," December 1999, pp. 23-24, 26-32, at *http://216.239.39.100/search?q=cache:TgQaPaaSbX8C:cisac.stanford.edu/docs/cox.pdf+&hl=en&ie=UTF-8.*

40. "National Defense Policy," *China Defense White Paper*, October 16, 2000.

41. "Jiang Zemin's Book on Technology, Army Building Viewed," in *FBIS Guangzhou Yangcheng Wanbao* (Internet Version-WWW) in Chinese, February 13, 2001.

42. "PRC Chief of General Staff Fu Quanyou Asks PLA To Meet New **Military** Challenges," in *FBIS Beijing Jiefangjun Bao* (Internet Version-WWW), *in Chinese 26 Apr 02 P 1.*

43. "PRC: NPC **Military** Deputies Discuss National Defense Modernization," in *FBIS Beijing Jiefangjun Bao* (Internet Version-WWW), in Chinese, March 9, 2002, p. 4.

44. "Jiang Zemin's Book on Technology, Army Building Viewed."

45. *Ibid.*

46. *Ibid.*

47. See Dennis J. Blasko, Philip T. Klapakis, and John Corbett, Jr., "Training Tomorrow's PLA--A Mixed Bag of Tricks," in *The China Quarterly*, June 1996, pp. 494-499.

48. For example, see "JFJB Article Discusses Need To Train Specialists To Operate Modern Weaponry," in *FBIS Beijing Jiefangjun Bao* (Internet Version-WWW), in Chinese, May 10, 2002, p. 2.

49. PLA Troops To Conduct Military Exercises in Retaking Taiwan in Mid Aug," in *FBIS Hong Kong Wen Wei Po* (Internet Version-WWW), in Chinese, August 5, 2002.

50. The number of aircraft is from the "Annual Report on the Military Power of the People's Republic of China," p. 24; and the number of helicopter units is from *The Military Balance 2001-2002*, p. 188.

51. A rash of articles in the summer of 2002 heaped lavish praise on the commander of the 38th Group Army's helicopter group, Sun Fengyang. Accompanying photographs show both Zhi-9 and Mi-17 helicopters in his unit.

52. *Directory of PRC Military Personalities October 2000*, pp. vi, 183; and *Directory of PRC Military Personalities October 2001*, pp. vi, 187.

53. In the late 1990s, one of the two PLAN marine brigades was formed from a former ground forces division in the Guangzhou Military Region.

54. *Directory of PRC Military Personalities October 2001*, pp. 190, 198.

55. *Ibid.*, pp. vi, 209.

56. *Ibid.*, pp. vi, 147.

57. "China to Carry out New Military Training Scheme," *People's Daily Online*, January 11, 2002.

58. Susan M. Puska, "Rough but Ready Force Projection: An Assessment of Recent PLA Training," in Andrew Scobell and Larry M. Wortzel, eds., *China's Growing Military Power: Perspectives on Security, Ballistic Missiles, and Conventional Capabilities*, Carlisle, PA: Strategic Studies Institute, 2002, p. 224.

59. "PLA Troops To Conduct Military Exercises in Retaking Taiwan in Mid Aug." See also Xinhua, "PLA to simulate landings, attacks," *China Daily* online, August 6, 2002, which quotes the *Wen Wei Po* article.

60. Locations of training bases are found in the *Directory of PRC Military Personalities November 2002*.

61. U.S. Department of Defense "Annual Report on the Military Power of the People's Republic of China," pp. 26, 50.

62. "PRC Military Journal Examines Conventional Deterrence," in *FBIS Beijing Zhongguo Junshi Kexue*, in Chinese, September 30, 2001, pp. 88-93.

63. "'Law of the People's Republic of China on National Defense,' Adopted at the Fifth Session of the Eighth National People's Congress on March 14, 1997," in *FBIS Xinhua Domestic Service*, March 14, 1997.

64. *The Military Balance 2001-2002*, p. 191. Total PAP forces are estimated to number 1.5 million. Other sources put total PAP strength closer to one million.

65. For a recent example of this debate, see Eric Schmitt, "Wider Military Role in U.S. Is Urged," in *The New York Times*, internet edition, July 21, 2002. For a discussion of the mental and physical differences between modern soldiery and police work, see Dennis J. Blasko and John F. Corbett, Jr., "No More Tiananmens: The People's Armed Police and Stability in China, 1997," in *China Strategic Review*, Spring 1998, pp. 86-90.

66. This formulation is found in "'Text' of Shanghai Cooperation Organization Foreign Ministers' Statement," in *FBIS Beijing Xinhua Domestic Service*, in Chinese, 0848 GMT, January 7, 2002.

67. "China, Kyrgyzstan hold joint anti-terror military exercise," *Xinhuanet*, October 11, 2002; "China and Kyrgyzstan launch anti-terrorism exercises," *China daily*, October 11, 2002; "Joint war games boost terror fight," *South China Morning Post*, October 12, 2002.

CHAPTER 4

THE PLA AIR FORCE: 1949-2002 OVERVIEW AND LESSONS LEARNED

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> In a future high technology local war, the PLAAF will be the first to impact the enemy, and will be utilized throughout the war. We will develop elite troops armed with precise weaponry, quality training, rapid reaction, and the ability to attack and defend. The PLAAF will accelerate development of weapons and equipment to form a killing machine on a fixed scale. In recent years, troops have put education and training in a strategic position. We have already set the stage for war strategy research to defeat enemies with high technology weapons and equipment, but we must still form a military theory system with special PLAAF characteristics. One group of experimental troops has already begun to take new operational theories and concepts and has developed them into live fire exercises. Initial results have been scored in mobile operations, air attack, seizing air superiority, nighttime attack, defense, and the increased use of simulators. Future training will further highlight tactical training, including air blockades, air attack, and participation in combined operations by all three PLA services.
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> General Liu Shunyao, May 2000[1]

INTRODUCTION

This chapter provides an overview of the PLA Air Force (PLAAF) and examines lessons learned since it was established in 1949. Whereas most Western articles focus primarily on weapon systems and order of battle, this article examines the PLAAF as a whole by looking at the seven areas of leadership, organization, theory, operations, weapon systems, education and training, and logistics and maintenance. Each of the seven sections begins with a short summary of the key topics, followed by supporting background material. The conclusion section ties these lessons learned into challenges for the future.[2]

In terms of operational experience, the chapter looks at three

external campaigns the PLAAF has participated in — the Korean War, the 1958 Taiwan Strait Crisis, and the 1979 Vietnam border conflict.[3] During those campaigns, several hundred combat aircraft, antiaircraft artillery (AAA) units, surface-to-air missile (SAM) units, and thousands of support personnel deployed to a few airfields near the border, but the per-pilot sortie rate was minimal. More importantly, none of these campaigns involved enemy attacks against targets inside China's borders, so the aircraft, airfields, and troops were safe in their sanctuaries.

Since the Gulf War and Kosovo conflict, the PLAAF has acknowledged its next war will most likely be completely different from any previous wars it has fought. It readily admits its aviation and air defense assets, not only near the front but also in rear areas, will not be safe from attack by stealth aircraft and long-range cruise missiles in an intense electromagnetic environment. As a result, the PLAAF is concentrating on shifting from positional, defensive operations to mobile, offensive operations that involve camouflage, concealment, and deception (CC&D) and dispersal measures.

As noted in former commander Liu Shunyao's comments above, the PLAAF has made improvements across the board so it will be prepared to fight and win future local wars under modern high-technology conditions. His comments also provide elements of the PLAAF's aspirational doctrine, laying out its goals for the future. The question remains, however, whether the PLAAF is applying satisfactorily what it has learned in order for it to be prepared to fight these kinds of wars in the future, especially against a modern military like the United States.

During the 1950s, the PLAAF "learned from the Soviet Union and its own experience in the Korean War and standoff with the Nationalist forces on Taiwan."[4] As a result of the devastation to military professionalism during the Cultural Revolution, the PLAAF was unprepared to fight a major war as it entered the Deng Xiaoping era of the 1980s. Although the PLAAF has begun acquiring some high-tech weaponry from Russia, the bulk of the force and its tactics are still based on weapons and concepts designed in the 1960s and 1970s. The PLAAF is trying to adapt itself to the future goal of simultaneous offensive and defensive operations, but it is still hampered by institutional impediments. Because the PLAAF's

last major battle was fought in 1958, it is trying to "learn" from foreign air forces and adapt those lessons to itself. It is making some progress, but the process is slow. This chapter will examine these ideas in greater detail.

LEADERSHIP

Summary.

Over the past 53 years, leadership has resided in the hands of only nine commanders and 11 political commissars.[5] When examining their backgrounds, several generalizations can be made. First, until the mid 1980s, almost all of the leaders served initially in the ground forces. The PLAAF did not have a deputy commander with aviation experience until 1973 and a commander with pilot experience until 1985. Since then, all commanders have been pilots. Second, three of the nine commanders served first as the political commissar, but there is no discernible trend for political commissars becoming the commander in the future. Third, it has sought to promote younger leaders at all levels throughout the force, but the trend does not appear to apply to the commander's position. Fourth, the PLAAF has only limited general officer representation outside the Air Force structure. Fifth, the leadership has increased its interaction with foreign militaries.

It is difficult to make any predictions about the PLAAF's future leadership. Given that Qiao Qingchen is currently 63 years old, he will have to retire in 2004. Will his successor be in his late 50s, so he can lead for 7 to 8 years before retirement, or will he be a placeholder like Qiao for 2 to 3 years? Will he be one of the current deputy commanders, or come from a Military Region Air Force (MRAF) with no headquarters experience like Cao Shuangming did in 1992? Either path will tell something about the political dynamics at Headquarters Air Force (HqAF) at the time. Most importantly, will he be a strong leader with a broad vision, or will he merely fill the position and carry out the will of others?

Background.

All members of the PLA are assigned one of 15 grades.[6] Their

grade also designates the level of their service or organization within the PLA hierarchy as shown below:

- Grade 1: Chairman and vice chairmen, Central Military Commission (CMC).
- Grade 2: Members of the CMC. This includes the four General Department directors.
- Grade 3: Leaders (commander and political commissar) of the seven military regions (MR), Navy (PLAN), PLAAF, Academy of Military Science (AMS), and National Defense University (NDU).[7]

In spite of the PLA's focus on jointness, the PLAAF is not yet fully integrated into senior-level joint positions. It was not until the late 1980s that MRAF commanders were integrated into the MR command staff as deputy MR commanders. Prior to the late 1990s, all PLAAF officers working in the four general departments – General Staff (GSD), General Political (GPD), General Logistics (GLD), and General Equipment (GED) – were required to wear an Army uniform regardless of their job. It does not appear there is a single PLAAF general officer assigned as a deputy commander or second-level department director in any of the four general departments. Nor does it appear there are any PLAAF general officers in the prestigious AMS, where the PLA's strategy and doctrine are formulated. A major general is the director of the Training Department at NDU.[8] In spite of the lack of general officers in these organizations, the Air Force does have senior colonels (U.S. military O-7 equivalents) and colonels serving in each of these organizations.

Commanders. Of the nine commanders, the first four, covering 1949 to 1985, were all ground force officers who moved into various command positions when the PLAAF was formed in 1949.[9] In 1985, Wang Hai became the first aviator to be selected as the commander. Since then, all of the commanders have been career aviators. Chart 1 shows each commander's date of birth, dates he served as commander, age when he became commander, and the age he left office. With the exception of Liu Yalou, the age for assuming the commander's position has ranged from 50 to 63 years old. Although Wang Hai and Liu Shunyao assumed the commander's position at age 59 and 57, respectively, Cao Shuangming, Yu Zhenwu, and

Qiao Qingchen took office at age 63 and could serve for only 2 years before reaching the mandatory retirement age of 65. The political clout of the commanders has apparently decreased over the years. Some, but not all, of the commanders, political commissars, deputy commanders, deputy political commissars, and directors of the four administrative departments have been representatives at the National People's Congress (NPC). All of the commanders and political commissars have been members of the Party Congresses, and some of them have been members or alternate members of the Party Congress Central Committee. Liu Yalou was a member of the CMC, Wu Faxian was a member of the Politburo and deputy director of the CMC General Department, and Zhang Tingfa was a member of the Politburo and CMC. Zhang was the last commander to hold these positions.

One reason for the lack of political clout stems from the Cultural

Person	DOB	Held office	Age assumed office	Age left office
Liu Yalou	1910	Oct 1949–May 1965	39	55 (died)
Wu Faxian	1915	May 1965–Sept 1971	50	56 (arrested)
Ma Ning	1922	May 1973–Apr 1977	51	55 (replaced)
Zhang Tingfa	1918	Apr 1977–Jul 1985	59	67 (retired)
Wang Hai	1925	Jul 1985–Nov 1992	60	65 (retired)
Cao Shuangming	1929	Nov 1992–Nov 1994	63	65 (retired)
Yu Zhenwu	1931	Nov 1994–Dec 1996	63	65 (retired)
Liu Shunyao	1939	Dec 1996–May 2002	57	63 (retired due to health)
Qiao Qingchen	1939	May 2002–Present	63	Currently in position

Chart 1. PLAAF Commanders.

Revolution. For example, the PLAAF went without a commander for 18 months after Wu Faxian was arrested following Defense Minister Lin Biao's plane crash over Mongolia in September 1971. When Deng Xiaoping gained control of the CCP in 1978, he sought to upgrade China's airpower capabilities, but one of his unstated purposes was to assert his authority over what he and other senior officials regarded as a "potentially dangerous service."[10] Deng's leadership group attached special political weight to the PLAAF, because Defense Minister Lin Biao had wrested control of the Air Force through Wu Faxian during the Cultural Revolution. As a result of these and other power struggles in the Cultural Revolution that involved the Air Force, Party leaders thereafter sought to keep a much tighter rein over the PLAAF than the other service arms.

Political Commissars. The PLAAF has had 11 political commissars since 1949 (see Chart 2). There is no set template or discernible trends for these leaders. While seven of them spent their entire career in the political commissar system, two served in command positions before becoming the political commissar, and two of them had a mix of command and political commissar positions. Qiao Qingchen has been the only pilot. The first four political commissars spent their entire career in the political commissar system (Wu Faxian became commander under Lin Biao after being the political commissar for almost 15 years).[11] ***In an apparent attempt to weed out the political commissar influence in the PLAAF following Lin Biao's death, Ma Ning became the commander and Fu Chuanzuo became the political commissar in 1973 — both officers had spent their entire career in command positions, none of which were in the headquarters.***

Zhang Tingfa, who was the political commissar from 1975 to 1977 and the commander from 1977 to 1985, had previously spent his entire ground force and Air Force career in command positions. When Zhang was commander, the political commissar, Gao Houliang, had a mixed command and political commissar background. Zhu Guang, who was the political commissar with commander Wang Hai from 1985 to 1992, had served in only political commissar system positions, moving back and forth between Army and Air Force billets. Zhu's replacement, Ding Wenchang, had also spent his entire career in political positions, but they had all been in the PLAAF. The current commander,

Person	DOB	Held office	Age assumed office	Age left office
Xiao Hua	1916	Oct 1949–Feb 1957	33	34 (to GPD)
Wu Faxian	1915	Feb 1957–May 1965	32	39 (to commander)
Yu Lijin	1913	May 1965–Sep 1968	50	53 (to CAAC)
Wang Huiqiu	1911	Sep 1968–May 1973	57	59 (to Shenyang MR PC)
Fu Chuanzuo	1914	May 1973–Nov 1975	59	61 (retired)
Zhang Tingfa	1918	Nov 1975–Apr 1977	57	59 (to commander)
Gao Houliang	1915	Apr 1977–Jul 1985	62	68 (retired)
Zhu Guang	1922	Jul 1985–Nov 1992	63	70 (retired)
Ding Wenchang	1933	Nov 1992–Feb 1999	59	65 (retired)
Qiao Qingchen	1939	Feb 1999–May 2002	60	63 (to commander)
Deng Changyou	1947	May 2002–Present	55	Currently in position

Chart 2. PLAAF Political Commissars.

Qiao Qingchen, has a mixed command and political commissar background, having served as the deputy political commissar in the Jinan MRAF before moving up to become the commander of the Beijing MRAF. From there he became a PLAAF deputy commander, then the political commissar, and replaced Liu Shunyao as commander in May 2002, when Liu had to retire for health reasons. Little background information is available on the new political commissar Deng Changyou, except that he served in political department and commissar positions in the Lanzhou MRAF before moving to Headquarters Air Force in 1995 as the deputy director and then director of the Political Department.

Deputy Commanders. Since 1949, the PLAAF has had 32 deputy commanders, who collectively have been responsible for the following general areas: schools, training, maintenance, logistics, equipment, research and development, operations, air defense, and

discipline.[12] The first 14 deputy commanders were ground force officers who had served in the Army until the PLAAF was formed in 1949. Immediately after the PLAAF and Air Defense Force (ADF) merged in 1957, the PLAAF had seven deputy commanders, two of whom came from the ADF. These were the last two deputies with an air defense background, even though the air defense component (SAM/AAA) has been instrumental in defending China's airspace, including AAA troop involvement in the Vietnam War. Although one of the deputy commanders is always responsible for the air defense role, at least one of the deputy chiefs of staff (deputy directors in the Headquarters Department) generally has an air defense background. For example, Major General Chen Huiting, who was a deputy chief of staff in the late 1980s, had served as a SAM battalion and division commander, and as the deputy commandant of the SAM academy.

It was not until 1973 that the PLA assigned a pilot (Zhang Jihui) as a deputy commander. Between 1973 and 1982, all of the other deputy commanders had their roots in the ground forces as political commissars or commanders. In 1982, Wang Hai became only the second pilot to be assigned as a deputy commander. Since then, most of the deputy commanders have been pilots.

The most notable exceptions to assigning pilots as deputy commanders are two former commanders of the PLAAF's 15th Airborne Army. Jing Xueqin was the airborne commander from 1990 until he moved up to became a PLAAF deputy commander in 1993, where he remains today. His successor, Ma Diansheng, became a PLAAF deputy commander in September 1999, then moved to the Nanjing MR as a deputy MR commander in July 2000. Jing's appointment came at the same time airborne forces upgraded its brigades to divisions and the Air Force began receiving its first Il-76s to support the airborne forces.[13] Adding them as deputy commanders clearly indicates the elevation of the airborne forces in the PLA's force planning.

Seeking Younger Leaders. Overall, the PLAAF has made a concerted effort at reducing the age of its leaders. When ranks were reinstituted in 1988, almost two-thirds of the 32 lieutenant generals promoted were over 60 and about two-thirds of the major generals were over 54.[14] Today, the PLAAF has approximately 150 general officer positions, including one general, 25 lieutenant generals, and

125 major generals. The average age of officers assuming the same positions as those in 1988 has been reduced by about 3 to 5 years (lieutenant generals are about 57 and major generals about 52), thus indicating a move toward a younger force. By comparison, an analysis of current senior USAF leaders shows that they entered the Air Force between 1966 and 1970, and were promoted to major general at age 47 to 49, lieutenant general at 48 to 51, and general at 52 to 53.[15]

Although the Air Force has succeeded in reducing the overall age of its leaders, it has lost all of its leaders with any operational wartime experience.[16] When Wang Hai was commander (1985 to 1992), three of the four HqAF deputy commanders, three of the seven MRAF commanders and two deputy MRAF commanders were Korean War veterans.[17] By the mid 1990s, all of these officers had retired. Today, there are no Korean War veterans still on active duty, and probably no one left from the 1958 conflict over the Taiwan Strait. This means that the historical experience today's leaders bring with them comes primarily from the Vietnam War of the 1960s, where the PLAAF's main involvement was its AAA troops stationed inside Vietnam and Laos, plus a handful of air engagements along the border.[18]

Foreign Relations. The PLAAF began sending delegations abroad in August 1949, when Liu Yalou led a delegation to Russia to purchase aircraft and equipment. As with the rest of the PLA, however, this program lagged until Deng Xiaoping opened the door in the late 1970s. Since 1979, commanders have emphasized direct contact with foreign air forces by leading an average of one delegation abroad per year and hosting visits to China by two to four foreign air force commanders annually. In addition, political commissars since 1988 have also paid visits to several countries, including the United States, Russia, Canada, Mexico, Cuba, Portugal, and Turkey.

Most importantly, the record shows each of the delegations led by the commander or political commissar have included directors from key headquarters departments, regional commanders, and/or personnel from research institutes and academies. In addition, most of the deputy commanders and deputy political commissars have visited abroad as part of delegations led by senior PLAAF or PLA officers. These types of visits also help indicate who the PLAAF is grooming for future leadership positions. For example, as a deputy

commander, Liu Shunyao accompanied Defense Minister Chi Haotian to the United States in November 1996 and became the commander the next month. In September 1998, Deputy Political Commissar Qiao Qingchen accompanied Zhang Wannian to the United States and became the political commissar 3 months later.

There are several limitations to the future growth of the PLAAF's foreign relations program. The first limitation is the small size of the Foreign Affairs Division, which has only about five full-time officers and has not grown appreciably over the past 15 years. These officers must plan the itinerary for and escort all delegations to and from China. Second, each commander is authorized only one visit abroad per year under ordinary circumstances, and the number of foreign air force leaders accepted for visits to China is guided by the overall PLA visitors plan. Besides meeting with foreign commanders, the PLAAF also hosts or sends out an average of five to ten functional exchange delegations per year. Third, the PLAAF must pay for all in-country expenses for visiting delegations and all international travel expenses for PLAAF delegations. Fourth, the PLAAF has military attachés posted in only two locations — Washington and London — and only about ten countries have air force attachés assigned to Beijing. This limits the day-to-day interaction between the PLAAF and foreign air forces.

The trend is for more working-level exchanges, but not necessarily high-level exchanges. The biggest question arising from the PLAAF's involvement in foreign affairs is whether these exchanges are helping it improve its capabilities to conduct warfare against U.S. and Taiwan forces, or whether they are providing an opportunity for the current and next generation of leaders to understand the importance of peaceful global interaction.

ORGANIZATION

Summary.

The chain of command is organized into four operational and administrative levels:

- Headquarters Air Force
- Military Region Air Forces

- Air corps, command posts, and bases
- Operational units and elements

Although the PLAAF has always been subordinate to the ground forces, its operational and administrative structures were not fully synchronized until the late 1990s. The operational structure can be divided into two components: (1) the campaign command structure, which includes the military regions, air corps, command posts, and bases, and (2) the campaign and tactical unit (*budui*) and element (*fendui*) force structure.

The administrative structure closely followed, but did not always match, the PLA's structure until 1998, when the GED was established. The most important exception was the fourth first-level department that was responsible for aviation maintenance and was subordinate to the General Logistics Department prior to 1998.

From 1949 to 1971, the PLAAF created a total of 50 air divisions. Beginning at the end of the 1980s, however, the number of air divisions has gradually been reduced to just over 30.[19] These changes have taken place in order to incorporate new weapon systems, retire older systems, meet new mission requirements, and reduce personnel.

The PLAAF's campaign command structure at the MRAF level did not match the ground force structure until 1985, when the PLA reorganized its eleven military regions into seven. The PLA did not begin to fully integrate the PLAAF into the campaign command structure until the late 1980s, when the MRAF commanders became concurrent MR deputy commanders. The PLAAF also began reducing the size of its campaign and tactical force structure in the 1990s in terms of numbers of air divisions and the number of regiments per division.

Since 1949, the PLAAF has implemented five reductions in force (1960, 1970, 1975, 1985, and 1992), all of which were part of larger PLA force-reduction programs.[20] The current force is less than 400,000 personnel.[21]

Background.

According to the PLA's writings on force structure, the PLAAF's

organizational system includes the administrative structure, five operational branches/service arms, specialized support units, plus academies, schools, and research institutes.[22] It also has maintenance and logistics support units, including repair facilities, hospitals, and sanitoriums. In addition, there are various types of training bases, regiments, and groups that are directly subordinate to either HqAF or to the seven MRAF Headquarters.[23]

Administrative Structure. Over the past 50 years, the overall administrative organization from HqAF down to the lowest unit can be compared to a deck of cards that occasionally gets reshuffled.[24] Only a few new cards have been added, and the other cards have merely been moved to a different location in the deck. HqAF, located in Beijing, is equivalent to the U.S. Air Force's Air Staff and is organized into four first-level administrative departments — Headquarters, Political, Logistics, and Equipment — and their subordinate second-level functional departments, bureaus, divisions, offices, sections, and branches. This structure is basically copied down to the lowest units, where many of the functions are combined into smaller offices.

For all practical purposes, the administrative organization has been similar to the ground forces' structure, but there have been notable exceptions, especially concerning aircraft maintenance. Between October 1949 and mid 1957, the CMC created a total of 8 subordinate PLA general departments (General Staff, Training Inspector General, Armed Forces Inspection, General Political, General Cadre, General Logistics, General Finance, and General Armament) and their second-level departments and bureaus.

Between mid 1957 and late 1958, the eight general departments underwent a major reorganization, so that by the end of 1958 there were only three general departments — GSD, GPD, and GLD. This structure remained until the GED was added in 1998.

The PLAAF started out with only three first-level administrative departments — Headquarters, Political, and Logistics — but by the end of 1949, HqAF adjusted its structure to somewhat match the eight PLA general departments.[25] As a result, from 1949 to 1955, it had six first-level departments — Headquarters, Political, Training, Engineering, Logistics, and Cadre/Personnel.

In May 1955, HqAF was restructured to include 11 first-level

administrative departments plus a Military Law Division. Between 1955 and 1969, further additions and mergers occurred, but the number of first-level administrative departments remained at 11. In conjunction with a PLA-wide reduction in force in 1969, the number of first-level departments was reduced to the Headquarters, Political, and Logistics Departments.

Throughout its history, one of the lessons learned about its administrative organization was the need to have a separate structure for aircraft maintenance. Maintenance for all other equipment and weapon systems came under the PLAAF's Logistics Department and the GLD. Although it tried to match its structure to the three general departments' structure in 1969, it found the need to recreate a separate department for aircraft maintenance. Therefore, in May 1976, the Aeronautical Engineering Department, which had been downgraded to a second-level department in 1969, was re-established as the fourth first-level department. In November 1992, the PLAAF changed the name to the Equipment-Technical Department.[26] Following the April 1998 creation of the GED, the PLAAF changed the name of the Equipment-Technical Department to the Equipment Department and moved several second-level departments from the Headquarters and Logistics Departments to the Equipment Department.[27] In this particular case, it was a matter of the PLA changing the structure of the general departments to meet that of the services and branches, rather than the other way around.[28]

Air Divisions and Independent Regiments. Over the years, the PLAAF has adjusted the size of its total aviation force in terms of numbers of divisions and numbers of regiments per division to incorporate new weapon systems, retire older systems, and meet mission requirements. From October 1950 to early 1954, it deployed a total of 3,000 aircraft in 28 new air divisions composed of 70 regiments, plus five independent regiments (three reconnaissance, one bomber, and one transport). The air divisions consisted of fighters, bombers, transports, ground attack, and reconnaissance aircraft.[29]

From January 1954 to 1971, the PLAAF created an additional 22 air divisions throughout China for a total of 50 air divisions. The introduction of new aircraft such as the A-5 ground attack aircraft

and the B-5 and B-6 bombers also influenced the formation of new combat units.[30] While some units merely upgraded to the new aircraft, other units were formed using the new aircraft as their basis. Many of the early divisions relocated several times as the PLAAF expanded to meet operational needs, especially during the late 1950s opposite Taiwan and the 1960s during the Vietnam War.

Since the 1950s, the standard table of organization and equipment (TOE) for a fighter division has been 72 aircraft (plus 8 trainers) and 120 pilots — a 1:1.5 ratio — with each fighter regiment having 24 aircraft and 40 pilots.[31] The TOE for a bomber division is 54 aircraft and 90 crews — a 1:1.7 ratio — with each regiment having 18 aircraft and 30 crews. When it began forming its first air divisions, most divisions had two regiments, but a few divisions had three regiments, stationed at one to two airfields. By 1953, it began upgrading all of its divisions to three regiments. Each regiment has three to four subordinate groups (*dadui*), which, in turn, are divided into three to four squadrons (*zhongdui*).[32] One confusing event that occurred between 1964 and 1970, was that the PLAAF changed the name of each regiment to a group without changing the organizational structure. Thus, the 24th air division's 70th air regiment in 1963 was renamed the 70th group in 1964. In 1970, the regiment name was reinstituted.

According to a 1999 Department of Defense report, the PLAAF's combat aircraft are currently organized into some 30 air divisions, plus about 150 transport aircraft organized in two air divisions.[33] A June 14, 2000, *Jane's Defence Weekly* report stated that the PLAAF currently consists of 33 divisions, including 27 fighter, 4 bomber, and 2 transport divisions.[34]

The Other Branches.

1. SAM and AAA Troops. Prior to 1985, SAM and AAA units were structured as separate organizations. In most cases, they were organized into divisions or brigades with subordinate regiments. In some cases, the regiment was the highest level structure. In 1985, the PLAAF began restructuring some of its AAA and SAM regiments into combined brigades, with the goal of eventually combining as many SAM and AAA units as possible.[35] The process involved turning over most of the AAA to the ground forces, and combining

some of the remaining AAA regiments with SAM regiments into combined brigades. By the end of the 1980s, all of the SAM and AAA divisions had apparently been abolished, but some individual SAM and AAA brigades and regiments still existed.[36] By the end of the 1990s, the PLAAF had reinstituted the division level, at least for SAMs, and had apparently raised at least some, if not all, of the combined brigades to a combined division level starting in 1993.[37] This change probably reflects the PLAAF's acquisition of the S-300s from Russia, and an increased number of SAMs overall, plus the view that the combined brigades may not be the best solution to accomplishing the air defense mission.

2. Radar Troops. During the 1980s and early 1990s, the basic radar unit was the regiment. By the early 2000s, radar brigades were noted in the Shenyang, Beijing, Nanjing, Chengdu, and Guangzhou MRAF's.[38] This indicates that the number of radar units in these five military regions has grown considerably, thus necessitating higher level headquarters to maintain a proper span of control.

3. Airborne Troops. The airborne forces have also gone full circle. The PLAAF's airborne forces began in the early 1950s as a single brigade and then expanded to become a division.[39] In 1961, the CMC redesignated the PLA's 15th Corps as the PLAAF 15th Airborne Army and subordinated the original airborne division to this new organization. By the mid 1970s, the airborne army had three airborne divisions.[40] Sometime after 1984, the three divisions were reduced to brigades, but were again enlarged to divisions in 1993, each with about 10,000 troops.[41] Although the airborne forces were sometimes mentioned as the sixth PLAAF branch through the 1980s, they apparently became an official branch around 1992.[42]

Operational Control of the Force. As the PLAAF rapidly increased the number of its air divisions and independent regiments, it also created command organizations to control the aviation and air defense assets. Over its 52 year history, it has established a total of nine MRAFs, 13 air corps, and several command posts and bases to control large geographic areas that were somewhat aligned with the ground force MRs and military districts. Some of the organizations

were responsible for only a major city and its surrounding area. Each of these command organizations controlled one or more air divisions and air defense assets (SAMs, AAA, radar). As the PLAAF created its first 28 air divisions between 1950 and 1954 to deal primarily with the Korean War, it also established five air corps to control those assets. One more air corps was created opposite Taiwan in the mid 1950s.

When the PLAAF deployed 16 new air divisions in the 1960s in response to the Sino-Indian border conflict, the Vietnam War, and the new Soviet threat, it also formed six air corps and two command posts. During the Cultural Revolution, many PLAAF command organizations ceased to exist and were reestablished during the late 1970s. In addition, it added only three new air divisions and one air corps in the 1970s. As the PLAAF expanded and realigned its operational areas to match those of the ground forces during the late 1970s and early 1980s, several of the air corps either replaced MRAF headquarters, were abolished, or were downgraded to a command post. The key point is that these command organizations were composed of staff members only. When they moved, they did not necessarily have organic aviation and air defense units that moved with them. As these command organizations were moved around to replace existing organizations or establish new command organizations, they took control of aviation and air defense units that already existed in the command area.

According to General Wang Hai's autobiography, the PLA wanted to abolish the MRAF headquarters completely following the 1985 MR realignment, but the PLAAF fought and won to keep them.[43] Beginning in 1993, all of the command posts, with the exception of Lhasa, were further reorganized as bases.[44] For all practical purposes, a command post and base are identical, except that a command post is equal to an air corps (Grade 5), while a base is a deputy corps level (Grade 6) organization. One of the primary reasons command posts replaced air corps was to meet reduction in force requirements, to eliminate unnecessary administrative functions, and to make the command post an operational rather than an administrative organization.

Today, the PLAAF still has seven MRAFs (Shenyang, Beijing, Lanzhou, Jinan, Nanjing, Guangzhou, and Chengdu), five air corps

(1st/Changchun, 7th/Nanning, 8th/Fuzhou, 9th/Wulumuqi, 10th/Datong), six bases (Dalian, Tangshan, Xian, Shanghai, Wuhan, and Kunming), and one command post (Lhasa).[45]

Personnel Force Reductions. Since 1949, the PLAAF has implemented five reductions in force (1960, 1970, 1975, 1985, and 1992), all of which were part of larger PLA force reduction programs.[46] Early programs were aimed primarily at cutting the size of headquarters staffs from 15 to 20 percent. In December 1975, the PLAAF reduced its entire force by 100,000 people, and in August 1985, it further downsized 20 percent by eliminating some organizations, reforming the unit organization structure, and eliminating old equipment. In October 1992, it carried out yet another 20-percent reduction.

THEORY

Summary.

The PLAAF has three levels of theory: strategic, campaign, and tactical. Throughout its history, the Air Force has gradually developed campaign and tactical theory and the supporting regulations based on its own combat operations and Soviet doctrine, but it has yet to articulate a strategic theory. The closest attempt at a strategic concept was introduced by commander Wang Hai in 1987, which called for the Air Force to have the goal of "moving from defending the country's air space to building an air force with simultaneous offensive and defensive capabilities."[47]

Given the preeminence of the ground forces in the PLA, the PLAAF has always focused on operations to support the Army at the campaign and tactical level. The PLAAF's campaigns can be conducted independently or as joint service campaigns in positional or mobile modes. Based on their characteristics and objectives, air force campaigns can be divided into three basic types:

- Offensive air campaigns
- Defensive air campaigns
- Air blockade campaigns

Although the PLAAF has adhered to the PLA's strategic

guidelines of active defense, it was not until the 1990s that the Air Force's offensive component began receiving the greatest attention.

Background.

During its first few decades, theory and operations were primarily formulated to support the ground forces' needs. This is not surprising, since only 29 of the 5,500 original members of the PLAAF had any aviation background. The remaining troops came from the ground forces.[48] In 1951, commander Liu Yalou wrote, "The PLAAF must oppose two erroneous tendencies. The first tendency is to believe the PLAAF is a new service that can disregard the legacy of the Army. The second tendency is to be complacent with just some of the Army's experience. Both of these tendencies are wrong and will impede development." In February 1951, the first expanded meeting of the PLAAF Party Committee formally affirmed the guiding principle that "the Air Force will be developed on the basis of the Army."

As late as the early 1980s when the PLA began reorganizing its ground forces into group armies, the PLAAF was tasked to provide defense for group army positions. The CMC gave specific guidance that "each branch and unit of the PLAAF must establish the philosophy that they support the needs of the ground forces and that the victory is a ground force victory."[49] This dependence is enhanced by the fact that the PLAAF must use ground force campaign terminology as the basis for its own theory.

Developing Theory and Regulations. When it was founded, the PRC did not have any experience in developing aviation theory, so the PLAAF used the Soviet Air Force as its model.[50] In 1957, it began to make changes to Soviet doctrine by developing and teaching its own theory based on its experience in the Korean War and operations against the Nationalists on the islands off of Zhejiang Province.

In 1959, the Air Force created a Regulations Committee that wrote over 300 regulations, including the first elements of China's airpower theory.[51] In 1962, the committee published the draft *PLAAF Combat Regulations* (*Zhongguo Renmin Jiefangjun Kongjun Zhandou Tiaoling*) that laid out the concepts for its air superiority mission, which it divided into two types:[52] strategic air superiority and campaign and

tactical air superiority.

The PLAAF defines strategic air superiority as "the ability to influence a war by conducting air superiority for the entire war or a specific period of time at a particular location or locations over a sustained period of time." Tactical air superiority is defined as "the ability to influence a battle by conducting air superiority over a critical or limited area for a short period of time." In the past, however, tactical air superiority pertained primarily to areas around China's airfields, since its aircraft did not have long legs and its SAM coverage was limited.

Although the PLAAF compiled teaching materials on tactics during the late 1950s and early 1960s, it was not until the 1980s that it published several documents on tactics theory for each of its aviation troop components and airborne troops.[53] During the mid 1960s, it wrote a set of rules and regulations, courses of study, and teaching materials that showed its military theory had entered the phase of "using the PLAAF as the dominant factor" (*yi wo wei zhu*). Little progress occurred, however, in the way of developing theory during the late 1960s and 1970s as a result of the Cultural Revolution.

The PLAAF's research on military theory since the early 1980s began to focus even more on air force campaign theory. The PLA describes a military campaign (*zhanyi*) as "combat operations consisting of a series of battles conducted by *juntuan*-level organizations under a unified command to achieve a local objective or an overall objective in a war."[54]

Serious changes in the way the PLAAF thought about its future really began as a result of Deng Xiaoping's 1985 "strategic decision" that directed the armed forces to change from preparation for an "early, major, and nuclear war" to preparing for "local limited wars around China's borders, including its maritime territories and claims." These changes included writing new teaching materials, conducting research on simultaneous offensive and defensive capabilities, and doing research on campaign and strategic theory. Other events helped spur on these changes, including the burgeoning foreign military exchange program, the start of the F-8-2 foreign military sales program (Peace Pearl) with the U.S. Air Force, and the move to establish a rapid reaction force composed of "fist units," of which the 15th Airborne Army would be a lead element.

Searching for Strategic Theory. The PLAN began developing its own offshore defense (*jinhai fangyu*) strategy in the mid 1980s to protect China's growing maritime trade, but the PLAAF is still searching for its own strategic theory in the new century. While the PLA has always had an active defense (*jiji fangyu*) strategy, it was not until commander Wang Hai laid out a program in 1987 that the Air Force formally set forth the concept of "moving from defending the country's air space to building an air force with simultaneous offensive and defensive capabilities." This concept was formally identified in the 1987 publication *Science of Strategy* (*Zhanlue Xue*) as the PLAAF's long-term goal.[55] Wang emphasized that the combined arms combat environment of the 1980s required a force that could move quickly over long distances, could fight in an electronic environment, could have the capability to attack an enemy, and could keep it from sustaining complete damage from an enemy air attack — none of which the PLAAF had at the time. Recent discussions with PLA officers in Beijing indicate that the Air Force still does not consider this concept as a strategy.[56]

Although Wang Hai initiated the concept of simultaneous offensive and defensive operations in 1987, it did not receive much publicity until late 1996, when Chinese leaders, including CMC Chairman Jiang Zemin and the PLAAF's new commander, Liu Shunyao, began to emphasize the need to fight offensive battles. The timing coincided with Taiwan's final preparations to receive its first squadron of 150 F-16s and 60 *Mirage* 2000-5s in April 1997.[57]

An illuminating article in the March 2000 issue of *Zhongguo Kongjun* magazine stated, "If the PLAAF is to have direction in the future, then it must have the means to accomplish it as well. This means developing its own strategic theory. Only in this way can each branch and each department become unified and take the form of a joint force."[58] The article further stated, "It is heartening the PLAAF's strategic theory is now receiving high-level attention, and the training system will change appreciably as a result."

PLAAF Campaign Theory. The PLAAF has traditionally conducted its combat operations as a series of air campaigns within the PLA's overall campaign, so it has focused on campaign and tactical theory rather than strategic theory.[59] The PLAAF spent three years (1984 to 1987) compiling material for its first book on campaign

theory entitled Air Force Science of Campaigns (*Kongjun Zhanyi Xue*).[60] In 1988, the GSD's Training Department published PLA Air Force Science of Campaigns (*Zhongguo Renmin Jiefangjun Kongjun Zhanyi Xue*), which explained the characteristics of campaigns, the development of campaign theory, and the mission of the PLAAF's campaign *juntuan*, and how these three elements pertain to a unified command organization.[61] This was the first time it included the idea of attack (*jingong*) in its earlier Soviet formulation of an air campaign. Thereafter, Air Force Campaign Course Materials (*Kongjun Zhanyi Xue Jiaocheng*) and complementary categories of teaching materials were published to guide campaign training.

The PLAAF has been methodical in the way it has defined its campaign theory and used it to provide operational guidance for its forces. The term "air force campaign" is a general term for all types of air force campaign operations.[62] It describes an air force campaign as "using from one to several campaign large formations (*zhanyi juntuan*) or campaign tactical formations (*zhanyi zhanshu bingtuan*) to carry out the integration of a series of battles (*zhandou*) according to a unified intention and plan to achieve a specific strategic or campaign objective in a specified time. An Air Force campaign is implemented under the guidance of the national military strategy and the PLAAF's strategy."[63] PLAAF *juntuan* level organizations refer to the seven MRAF headquarters, and *bingtuan* level organizations include air corps, command post, division, and brigade headquarters.

The PLA also describes an air force campaign as "a campaign conducted independently by an air force campaign large formation or with the coordination of other services and branches. An air force campaign is guided by the national military strategy and is limited by the PLAAF's strategy. An air force campaign involves various air-to-air, air-to-ground, and surface-to-air battles to achieve specific military objectives. The campaign determines the battle's character, goals, missions, and actions, and directly supports the local and overall war."[64]

PLAAF campaign theory can be categorized into campaign theory for aviation (aircraft), air defense (SAM, AAA, and radar troops), and airborne troops.[65] Not surprisingly, these three categories reflect the way it is organized administratively and operationally in terms of its five branches (aviation, SAM, AAA, radar, and airborne troops)

and support elements (political structure, logistics, maintenance, communications, etc.).

Based on command relations, the PLAAF's campaigns can be conducted independently or as joint service campaigns in positional or mobile modes.[66] Based on their characteristics and objectives, air force campaigns can be divided into three basic types — offensive, defensive, and blockade.

OPERATIONS

Summary.

This section highlights PLAAF operations in the Korean War, the 1958 Taiwan Strait Crisis, and the 1979 border conflict with Vietnam.[67] It also provides an overview of the PLAAF's air defense operations from 1949 to 1969.

Several key points come out of this discussion. First, the PLAAF was basically unprepared for each of the conflicts, but made preparations and deployed troops fairly rapidly once the decision was made to launch the campaign. Second, ground support personnel preceded the deployment of aviation and air defense weapon systems by several days or weeks. Third, a good deal of political work was necessary to motivate the troops and to inform the local population about the necessity of what was happening. Fourth, the CMC established specific rules of engagement for each conflict. Fifth, the PLAAF used each conflict to train its troops as well as to engage in combat operations. Sixth, it has been able to mass hundreds of aircraft near the border for each conflict, using Chinese territory as a sanctuary. Finally, there will always be a discrepancy among the participants in statistics for aircraft losses, but these discrepancies could foster a false sense of accomplishment and expectations for the PLAAF for any future conflict.

The Korean War.

Although a small number of pilots from the North Korean Air Force (NKAF) and Soviet Air Force took part, the PLAAF was the primary air force involved in the Korean War on the communist

side.[68] From the PLAAF's perspective, the Korean War accomplished several goals. The most important of these were to establish a command organization, repair and build suitable airfields inside China, acquire substantial numbers of modern combat aircraft organized into 28 air divisions, and gain combat experience for its pilots, staff, and support personnel. As discussed earlier, the basic organizational structure developed during that time still exists today.

Lessons Learned. As part of its official history, the PLAAF provided an analysis of the Korean War and drew six principal conclusions.[69]

The first conclusion focused on the policy of trying to repair North Korean airfields as stepping stones toward the south and for providing direct support to the ground forces. It was not until the end of 1951 that the Chinese military leadership conceded this policy would not work because the United Nations (U.N.) forces controlled the skies over North Korea and could bomb the airfields at will. The CMC also determined the PLAAF could not directly support the ground troops. As a result, the mission changed to maintaining air superiority in northwestern Korea, providing point protection of key transportation lines and military and industrial targets, and providing indirect support for the ground forces.

The second lesson was the primacy still placed on the human factor. Even though the U.N. forces had higher-quality equipment and technology, the PLAAF insisted its forces were superior because they had come from the ground forces accustomed to difficult situations and were willing to sacrifice themselves for China.

The third lesson was that high technical skills among pilots and maintenance personnel are the keys to victory. For example, the PLAAF compared the kill ratio and aircraft malfunction ratio during the war. From September 1951 to May 1952, according to PLAAF data, the USAF kill ratio was purportedly 1.46:1, and the PLAAF had an average of one maintenance malfunction for every 558.8 sorties. After October 1952, when the F-86 became the primary fighter, the USAF kill ratio was 1.42:1, but the PLAAF had an average of only one malfunction for every 1,000 sorties.

The fourth lesson was the imperative need to improve the command level to ensure victory. Several instances were cited of missions being conducted mechanically that resulted in the needless

loss of aircraft.

The fifth lesson was the pivotal importance of equipment. Specific examples included PLAAF claims of a kill ratio of 1:7.8 against the F-80 and F-84. The situation changed when the U.N. forces acquired the F-86, but the PLAAF's acquisition of MiG-15bis fighters evened up the odds. For example, of the 125 air battles engaged in during 1952, 85 were with F-86s. Of these, the PLAAF purportedly won 9 (i.e., shot down at least one F-86 with no PLAAF losses), came out ahead in 15 (had fewer losses than the U.N. forces), tied 34, and had more losses in 27. In the remaining 40 battles against other aircraft, the PLAAF won 20, came out ahead in 10, tied 8, and lost 2.

The final lesson was the continued importance of the political commissar system's emphasis on political work among the troops to ensure victory.

But these "lessons learned" reveal a disconnect, even today, between the Chinese and American versions of the war. The wide discrepancy in air-to-air combat figures cited by both sides of the Korean War is a good illustration of the PLA's difficulties in analyzing the effectiveness of airpower.

According to the PLAAF's published history, the PLAAF shot down 330 aircraft and damaged another 95 in air-to-air combat, compared to having only 231 aircraft shot down and 151 damaged — a ratio of 1.1:1 in favor of the PLAAF. According to USAF data, U.N. forces together destroyed 976 enemy aircraft in air-to-air combat. In the course of its operations, U.N. forces lost a total of 1,986 aircraft, of which 1,041 were destroyed by hostile action and only 147 were lost in air-to-air combat. The number of U.N. aircraft damaged in air-to-air combat was not given.[70] In his autobiography, former commander Wang Hai, who flew in the Korean War, responded to the figure of only 147 U.N. aircraft lost in air-to-air combat quoted in Futrell's book by saying, "This is a lie as big as the heavens."[71]

It should be noted that the USAF had gun camera film to support most of its claims, and it is doubtful whether the Chinese had any similar accountability system. Some of the differences may be explained by Russian and North Korean participation. For example, in 1993 a pair of Russian authors challenged the authority of gun camera film by stating "some of these MiG-15s, seemingly shot down on Sabre gun camera film, actually landed at their airfields

with damage." More interesting is their revelation that Soviet losses totaled 345 MiGs.[72]

The real key to analyzing the war and the effectiveness of the PLAAF's air-to-air capabilities, however, comes from examining combat between the F-86 and MiG-15. According to Futrell, by the conclusion of the war, Sabre pilots had destroyed 810 enemy planes, including 792 MiG-15s, some of which were piloted by Soviet airmen. Meanwhile, Far East Air Force (FEAF) lost a total of 139 aircraft in air-to-air combat, including 78 Sabres. The Sabre pilots thus maintained a 10:1 margin of victory over the MiG-15.[73]

Despite its problematic record in certain areas, the PLAAF nevertheless scored some significant accomplishments. In only a few years, the PLAAF had grown from a force of a few obsolescent combat aircraft to 28 divisions and 3,000 aircraft, many of which were highly advanced systems for their time. Chinese forces virtually stopped the FEAF B-29s from flying daytime missions and, according to their statistics, shot down more than 140 aircraft in air-to-air combat, thus gaining a training edge that put it ahead of most of the world's air forces. The PLAAF had also gained valuable combat experience, established a command organization and administrative structure, built and refurbished countless airfields, and trained a cadre of maintenance and logistics personnel under combat conditions. The Korean War experience also helped the PLAAF lay the foundations for future growth, and provided the operational experience for the PLAAF's leaders in the 1980s and 1990s.

The 1958 Taiwan Strait Crisis.

In 1956, the PLA began building a new group of airfields in Fujian, Zhejiang, and eastern Guangdong Provinces to counter the Nationalist Air Force, which basically controlled the skies from Taiwan to Shanghai. In the aftermath of a 2-month-long meeting of the CMC between May and July of 1958, Beijing began a sharp upsurge in propaganda calling for the "liberation" of Taiwan. The plans called for the Air Force to enter Fujian and for artillery to begin shelling Quemoy. In response, Washington announced its forces in the Far East were going on alert and would conduct naval and air force patrols north to Okinawa and south to the Philippines.

In addition, Taiwan put its forces on alert and began conducting reconnaissance flights along the coast of Fujian and Guangdong, publicly calling this "preparations to quickly counterattack the mainland."

PLAAF Preparations. Overall, the battle for air superiority took three months and can be divided into two phases.[74] Phase 1 took place from July 27 to August 22, and consisted of moving into Fujian and Guangdong. Phase 2 took place from August 23 to mid October and consisted of air cover for the naval and army artillery shelling and the blockade of Quemoy.

As in the Korean War and, subsequently, in the 1979 Sino-Vietnamese border conflict, the political commissar system expended considerable propaganda efforts to increase political mobilization by explaining to the troops and local Chinese populace the reason for entering Fujian.

During preparations for the assault, the CMC also established the following three rules of engagement (ROE) for the Air Force:

1. The Air Force could not enter the high seas to conduct operations.

2. If the Nationalist Air Force did not bomb the mainland, the PLAAF could not bomb Quemoy and Matsu.

3. The Air Force was not allowed to attack the U.S. military but could defend against any U.S. aircraft entering Chinese territory.

PLAAF Operations. Once the general plan and ROE were established, the order to implement the plan was given.[75] Once the command, radar, and AAA units were in place, the first aircraft (MiG-17s) deployed to Liancheng and Shantou. Prior to these deployments, the United States and Taiwan were not fully cognizant that the Soviets had provided the PLAAF with the MiG-17.

During Phase 1 of the air operations (July 29 to August 22), PLAAF statistics showed that its units flew 1,077 sorties in 255 groups and engaged in four battles, shooting down four aircraft, damaging five, and losing one. Assuming that only the six regiments (about 200 aircraft) deployed along the front line conducted these sorties, each fighter flew an average of five sorties over the 23-day period — one sortie every four days. If the number of aircraft was greater,

the number of sorties declines accordingly. This indicates that the PLAAF logistical support capabilities were still far from adequate.

Phase 2 was also highlighted by further deployment of aircraft on both sides of the Taiwan Strait and larger air battles. The PLAAF redeployed some of its aircraft to airfields in Fujian and eastern Guangdong. The United States also deployed more troops and 140 F-100s and F-104s to Taiwan. In addition, the Nationalists, who began using U.S.-supplied *Sidewinder* air-to-air missiles for the first time, flew 100 to 200 sorties a day, including 30 to 80 aircraft at a time along the coast. During this period, there were seven air battles.

During one skirmish over Quemoy, PLA AAA units shot down a PLAAF aircraft. As a result, the Air Force and artillery commanders met and came up with the following principles, which were intended to guide all future air and ground combat coordination:

- If there is an air battle in progress, the ground artillery will not fire.
- If PLAAF aircraft cannot take off or if there are no friendly aircraft in the air, the ground artillery will engage the enemy.
- If the enemy is conducting bombing, the ground forces will engage the aircraft even if there is an air battle going on between enemy and friendly forces.
- Coastal forces should not open fire, except when enemy forces are attacking their specific positions.

By the end of October, Beijing deescalated the crisis with a temporary cease-fire followed by intermittent shelling of Quemoy and Matsu. The air defense situation had reached a stalemate, with the Nationalists controlling the airspace over the Strait and the PLAAF gradually controlling the airspace over Fujian, Zhejiang, and Guangdong provinces. Over the next few years, the Nationalists continued to probe the mainland's defenses with reconnaissance flights (including high-altitude U-2 flights, of which the PLAAF shot down five between 1962 and 1967).

As in many cases, the data on combat victories and losses reported

by the opposing sides vary widely. For example, according to China's data, the PLAAF and naval aviation flew 3,778 sorties in 691 groups (five to six aircraft per group). Their aircraft were engaged in 13 air battles, shooting down 14 and damaging 9. On the other hand, according to USAF data, there were 25 air-to-air engagements, with Nationalist pilots destroying 32 aircraft, downing probably 3 more, and damaging 10. Nationalist forces lost four of their own aircraft.[76]

On the positive side for the PLAAF, it now had a permanent presence opposite Taiwan, and the Nationalists no longer owned the airspace over Fujian and eastern Guangdong provinces. On the negative side, the PLA was not able to take Quemoy or Matsu, and, at least according to U.S. statistics, the Nationalists had an 8:1 kill ratio over the PLAAF. Coordination between fighter forces and ground-based defenses had been found wanting as well. Although the PLAAF deployed over 500 aircraft to the area, they did not capitalize on their numerical superiority, nor did they show any type of surge capability.

Finally, despite mounting frictions with Moscow at that time, China continued to receive military assistance from the Soviet Union. In October 1958, China received its first SA-2 missiles (5 launchers and 62 missiles) from the Soviet Union, which were deployed around Beijing.

PLAA Air Defense Operations: 1949–69.

In January 2002, former PLAAF deputy commander, Lieutenant General Lin Hu, wrote a book describing the Air Force's air defense operations for the period of 1949 to 1969.[77] In the book, Lin stated the PLAAF shot down a total of 95 aircraft and damaged 200 additional aircraft during this period while conducting its air defense mission over China and along China's periphery. The numbers were broken down into 38 aircraft destroyed and 21 damaged in air-to-air combat, 48 destroyed and 158 damaged by AAA, 9 aircraft downed by SAMs, and 1 aircraft damaged by radar troops using high-powered rifles. These figures do not cover any aircraft engaged over Korea during the Korean War. Lin stated the PLAAF drew five lessons from its air defense operations that are applicable to the Air Force today as follows:

1. Mao Zedong Thought is the PLAAF's magic weapon (*fabao*) for defeating

the enemy.

2. Always being alert is the necessary requirement to take the initiative while in a passive mode.

3. The PLAAF must continue to develop new air defense tactics to complement its mobility and flexibility.

4. The PLAAF must use crack troops for combat and must continue to advance its weapons.

5. China must develop its own aircraft engines or China will not be able to become self-sufficient.

The 1979 Sino-Vietnam Border Conflict.

China's "punitive war" or "self-defensive counterattack" with Vietnam lasted from February 17 to March 17.[78] Deng Xiaoping was named the overall commander of Chinese forces, Marshal Xu Xiangqian and Marshal Nie Rongzhen were appointed deputy commanders, and Geng Biao was named the chief of staff. Under the central command, two fronts were established – northern and southern. The Northern Front, which included the Shenyang, Beijing, Jinan, Lanzhou, and Xinjiang MRs, was placed under the command of Li Desheng, who already served as commander of the Shenyang MR.

Because the war was being fought in the south, the arrangement for the Southern Front was more important and complicated. Xu Shiyou (commander of the Guangzhou MR) was appointed commander; Yang Dezhi (new commander of the Kunming MR) was the deputy commander; and Zhang Tingfa (commander of the air force) was the chief of staff and the commander for all air forces.

The Guangzhou MRAF commander (and future PLAAF commander), Wang Hai, was placed in charge of PLAAF troops in the Guangxi operations area.[79] The Kunming MRAF command post director, Hou Shujun, was placed in charge of PLAAF troops in the Yunnan operations area. Each operations area was further divided into several operational routes, and a combined command post was established at one strategically located airfield within each operational route to command and coordinate all matters among

different branches, aircraft types within that district. The Guangzhou MRAF headquarters also established a forward command post at an unidentified location, which worked closely with the 7th Air Corps at Nanning as the unified authority for the PLAAF's participation in the conflict.

Drawing from several MRs, the Chinese assembled approximately 31 divisions (330,000 men, which equated to about 10 percent of total ground force strength) and 1,200 tanks on the border. Depending on the source, figures vary from 800-1,100 aircraft stationed at 15 air bases in Yunnan, Guangxi, Guangdong, and Hainan, many of which deployed to these areas from elsewhere in China.

PLAAF Involvement. The PLAAF's operational capabilities had declined seriously over the previous 14 years due to the Cultural Revolution.[80] The military reforms launched during the Third Party Plenum of the 11th Party Congress in 1978 came too late to improve PLA capabilities in a substantial way during the 1979 conflict. The PLAAF had been so decimated during China's protracted internal upheavals that it simply was not prepared mentally or operationally for the border conflict with Vietnam.

Although the PLAAF deployed hundreds of aircraft to the border area, neither the PLAAF nor the Vietnamese Air Force flew missions in direct support of their ground troops.[81] According to the PLA General Staff, "the Vietnamese Air Force did not dare start anything during the border conflict, which the Chinese limited to a certain area, time frame, and goals, because the PLAAF was able to maintain air superiority."[82] The air force also cites its "deterrent capability" as the primary reason the Vietnamese Air Force did not become involved in the conflict. In reality, neither side wanted to escalate the limited conflict by introducing aircraft into the campaign.

According to PLAAF statistics, a total of 8,500 sorties, using 3,131 groups of aircraft, were flown. Transport aircraft performed a crucial function, flying 228 sorties, carrying 1,465 troops and 151 tons of materiel.[83] These figures most likely represent all activity over a 2 to 3-month period, including area familiarization, flights during the 30-day conflict, helicopter evacuation of wounded personnel, and post-conflict sorties. Given a total of almost 1,000 aircraft deployed to the border area, this is only about ten sorties per aircraft over a minimum of 60 days — about one sortie every 5 days.[84] Thus, the low sortie

rates achieved in the conflicts with Taiwan during the late 1950s had not been improved upon and probably reflected continuing problems in support functions, which were further exacerbated by the effects of the Cultural Revolution. According to PLAAF data, maintenance personnel achieved a 97.5 percent readiness rate and a 99.7 percent takeoff rate for aircraft — probably not a difficult feat with such a low sortie rate.

Besides not wanting to escalate the conflict, the PLAAF was probably not capable of providing direct fire support for the ground troops or of gaining air superiority over the battle area. As a result, the PLAAF restricted its missions to fighter reconnaissance and early-warning missions along the border, helicopter rescue missions to pick up wounded soldiers, and air transport missions. It did not fly any ground attack aircraft or bomber sorties over the border during the conflict. Later PLAAF analysis of the conflict criticized the lack of effective reconnaissance and early warning capabilities and identified these as areas for improvement. The Air Force did, however, use the conflict to build, repair, or acquire new equipment and facilities as far north as the Shenyang MR, which it had not been able to do during the Cultural Revolution.

According to a summary of the report produced by the Chengdu MR, as one of its first missions, the PLAAF identified the need to educate the troops in Guangxi and Yunnan about the reasons for the upcoming operations and the need to motivate them to work all out preparing for the influx of additional troops.[85] Upon receiving the combat readiness alert, the PLAAF's political commissar system provided all of the troops in the region with intensive education by having them study the Military Commission's and HqAF's orders and relevant newspaper articles. In addition, three simple principles were put forth — everything is subordinate to war; resolutely carry out orders; and hard work comes first.

One of the most important tasks prior to the conflict was to prepare the airfields in Guangxi for the influx of about 20,000 PLAAF aviation, SAM, and AAA troops and more than 700 aircraft of different types. Because the Vietnamese Air Force was equipped with a limited number of MiG-21bis, the PLAAF deployed some units equipped with F-7s to front-line airfields in Guangxi and Yunnan; however, the PLAAF's F-7s were having major problems

and the entire program was in jeopardy at the time.

Before and during the conflict, the PLAAF's logistics organizations had two primary missions – support housing for those troops already stationed in Guangxi and prepare housing, food, water, and electricity for the incoming troops. These organizations issued about 10,000 mobile beds, more than 32,000 meters of water pipe, and 200 km of electric cable; built 43,000 m2 of bamboo sheds; and repaired more than 23,000 m2 of old housing. In addition, the Air Force used vehicles and its boat troops to transport mobile housing with the troops to Tianyang. During the conflict, the Nanning Wuxu field station dispatched over 16,500 vehicles to provide support for portions of one aviation regiment and one independent air group.

The logistics organizations also had to acquire and supply enough fuel for the incoming aircraft. Based on initial estimates of the amount of fuel required, the PLAAF's fuel supply was totally inadequate, and several depots were almost empty. Therefore, during the preparation period, fuel depots at all of the region's airfields were filled. This included the depot at Tianyang, which relied on water transport for its fuel supply. Some of the airfields did not have rail spurs, so vehicles had to bring in all the fuel. In addition, all of the combat-readiness tanks available throughout the MR and some from outside the MR were quickly transferred to the front-line airfields. These expanded the amount of aviation kerosene by over 50 percent. By the time the conflict began, the amount of fuel supplied to all the Guangxi airfields was 4.3 times the normal amount.

Supplying fuel during peacetime in China was difficult enough, but it proved even more difficult during wartime. Because some airfields, such as Ningming, are close to the border, their fuel storage was partially underground, and the rail lines supplying the bases were overscheduled. As a result, the PLAAF was concerned that the Vietnamese might destroy or disrupt fuel supplies. Because of this situation, the PLAAF took about 45 days to build more than 50 km of semipermanent fuel pipes to three different airfields.

Since it did not fly any actual combat missions during the conflict, only about one-fourth of the fuel estimated for combat was used, and the difficulties with fuel consumption were fewer than expected; however, several organizational and facilities problems

were highlighted. For example, the fuel depot capacity at the PLAAF's airfields was too small, and there was no way to support several types of aircraft or the sustained combat use of fuel for several batches of aircraft. In addition, the refueling equipment was deemed backwards and incompatible.

Once the conflict began, the air force flew numerous sorties along the border, but found that its on-station time was severely limited due to the distance it had to fly and the limited range of the F-6s.[86] On the other hand, the air force flew a large number of helicopter sorties to transport wounded soldiers to Nanning. Since the nearest point was 110 km and the farthest was 280 km, each helicopter trip took 2 to 4 hours. During most sorties, the helicopters could not turn off their engines or refuel at the pickup points. Altogether, the helicopters picked up 628 wounded soldiers from front-line field hospitals and transferred them to the rear.

Lessons Learned. The 1979 border conflict was a wake-up call for the PLAAF. Following the devastating years of the Cultural Revolution, the PLAAF took advantage of the conflict to begin rebuilding its logistics and operational infrastructure throughout China. The conflict also helped launch Wang Hai into the PLAAF commander's position in 1985. In addition, air units began rotating to the border region for several months at a time for area familiarization. These rotations helped lay the foundation for the rapid-deployment concept that was developed in the late 1980s.

The PLAAF also made some concrete decisions regarding the future of its fighter aircraft acquisitions, which is discussed in the section below on weapon systems.

WEAPON SYSTEMS

Summary.

The PLAAF's aircraft acquisition can be divided into five overlapping phases. With a few exceptions, the PLAAF's weapon systems have either been reverse engineered from Soviet/Russian systems, purchased outright from the Soviet Union/Russia, or have encompassed significant amounts of technology from several foreign countries. This process has allowed the PLAAF to modernize fairly

rapidly when the procurement pipelines were open, but it has also placed specific limitations on what it could receive, especially when there were internal and external political constraints. The process has also kept China's aviation ministry from developing its own systems, and has placed the PLAAF at the mercy of foreign suppliers for spare parts.

During its formative years, the PLAAF acquired primarily defensive weapon systems to be able to provide an adequate air defense capability for its major cities and industrial areas. Units appear to have been established, merged, and abolished based on three criteria: the need to have a presence in a particular area, such as in the Guangzhou MRAF during the Vietnam War; production of new types of aircraft with new missions, such as the A-5 and B-6; and mission requirements that demand a specific overall force size. As the PLAAF's campaign theory shifted in the late 1980s toward the goal of simultaneous defensive and offensive operations, it sought to acquire specific weapons in a systematic way. Fortunately for China, the Russian arms market opened up in 1990, or the PLAAF would not be as far along as it is in reaching its goals.

Background.

Because PLAAF history books and articles have all focused on aviation, there is very little information available in Chinese writings about the history of the AAA, SAM, and radar branches and acquisition of their systems. Acquisition of the aviation branch's weapon systems can be divided into five overlapping phases.[87]

The first two phases, which covered the relationship with the Soviet Union in the 1950s, had a lasting impact on the development of China's aviation industry. During that period, China acquired vast numbers of Soviet aircraft, including transports (An-2), helicopters (Mi-4), trainers (Yak-18), fighters (MiG-15, MiG-17, MiG-19, and MiG-21), ground attack aircraft (Il-10), and bombers (Il-28, Tu-2, Tu-4, and Tu-16). Of these, China received production rights to the MiG-15, MiG-17, MiG-19, MiG-21, Il-28, and Tu-16 but did not receive all the technical material or machinery before the Soviets withdrew in 1960.[88] China also received its first Soviet SAMs and air-to-air missiles (AAM) in the 1950s. Although the Chinese did not receive

the production rights, they reverse engineered most of the SAM and AAM systems by the mid 1960s.

Phase One. The first phase covered 1950 to 1954, as the PLAAF force structure expanded rapidly following the PRC's intervention in Korea. Having started with only a handful of aircraft left from the Japanese and Nationalist forces, the PLAAF quickly began purchasing hundreds of aircraft from the Soviet Union. In January 1950, China purchased 586 combat aircraft. The pace accelerated when the Korean War began, and by mid 1951, China had acquired 1,050 aircraft. By early 1954, the PLAAF had purchased a total of 3,000 aircraft.[89]

Phases Two and Three. The second phase began in December 1953 when the Soviet Union agreed to give China production rights to produce the MiG-15bis and YAK-18 trainer, and China began designing its own aircraft based on existing Soviet aircraft. The third phase began in July 1960 when the Soviet Union notified China it was withdrawing all of its specialists and canceling all of its contracts.

Once this happened, China took several years to either modify or reverse engineer some of the aircraft and missiles furnished by the Soviet Union. Chinese efforts reached a peak around 1965 only to be severely disrupted by the Cultural Revolution. Between 1969 and 1971, continued disruptions led to profound quality-control problems. As one history of the aviation industry notes, "It was a time of industrial anarchy or semi-anarchy . . . the whole industry was in the difficult position of trying to preserve order."[90]

For its part, the aviation industry places the blame on the direct interference of PLAAF commander Wu Faxian and the military. Official accounts claim, for example, in 1971 alone, 27 types of aircraft were authorized to be developed. Even though there were no blueprints for any of them, the industry was expected to bring them to the production stage in two to three years. Development time for aircraft stretched out for 10 to 15 years or more because production decisions were constantly delayed by protracted development problems or by leadership indecision. According to the official history of the aviation industry, 46 projects went into operation without the necessary materials or designs between 1969 and 1971; 36 of the projects had not even been approved.[91]

Phase Four. The fourth phase began following the 1979 border

conflict with Vietnam, when the PLAAF realized the F-6 could no longer meets its long-term needs. At the same time, the military began establishing its relationship with the United States. During the conflict, the F-6s were barely able to fly to the border from the existing bases, loiter for a few minutes, and return home before they ran out of fuel. As a result, the F-6 program was terminated that summer, and money was infused into the F-7 and F-8 programs, which were faltering at the time.

Modernization of the F-7 has continued in various forms since the late 1980s, but it still lacks a good engine and fire control system. In 1964, the Shenyang Aircraft Corporation began a development program to design, manufacture, and test fly the F-8, whose baseline was a Soviet aircraft that was never approved for production. Because of serious design and economic problems related to the Cultural Revolution, the first aircraft was not deployed until December 1979 – 15 years after development began – but the PLAAF still called the F-8 an "operational testbed aircraft" 10 years later.[92] Shortly after the first F-8 was deployed, the PLAAF established its modification requirements for the F-8-2, with emphasis placed on the following areas:

- Change the nose intake into side inlets to allow for a larger radar antenna, resulting in an increased search and track capability.

- Exchange the engine for a more powerful one.

- Upgrade the avionics (to include electronic counter-counter measures [ECCM], a fire control system, an automatic flight control system, etc.) to enhance combat efficiency.

- Increase maintainability.

From its first flight in 1984, the Chinese F-8-2 development project actually consisted of two programs. One program was the integration of an American fire control system acquired through the "Peace Pearl" program.[93] The second program involved the installation of a Chinese fire-control system. Following the military's involvement in Tiananmen Square in June 1989, the U.S. suspended

arms sales to China. The first F-8-2s with the Chinese-designed fire-control system were deployed to a Naval Aviation regiment on Hainan Island in 1992.[94]

Phase Five. The fifth phase began in 1990, when China returned to Moscow for weapon systems and technology. In May 1990, just prior to CMC Vice Chairman Liu Huaqing's visit to Moscow to negotiate the first Su-27 contract, the PLAAF laid out its plans for future weapon systems procurement to meet its doctrinal needs and budgetary constraints.[95] The PLAAF stated that if China relied on developing these capabilities exclusively through indigenous efforts, it would take many years to satisfy its needs. Although self-reliance in designing and developing new equipment remained a strategic goal for the aviation industry, the PLAAF had few alternatives to selective acquisition of much-needed components and subsystems. Given this acquisition strategy, the PLAAF planned to modernize its equipment according to the four criteria of "new, quality, modify, and introduce."

- *New* meant using the newest weapons and equipment already in the inventory.

- *Quality* meant focusing on acquiring and employing weapons and equipment that provided meaningful military capability and possessed a high operational rate. It also meant maintaining aircraft and engines to extend their service lives.

- *Modify* meant using new technology and materials to upgrade existing equipment, thus giving it new life. Designing and developing a new aircraft from the ground up was not considered a feasible option and would consume vast amounts of capital.

- *Introduce* meant acquiring and integrating advanced weapons and equipment from abroad.

The PLAAF also stated it would concentrate its deployment of modern equipment based on the size of the threat among the theaters of operations. In this manner, it could be ready to form

quickly for battle and could organize its training more easily. It also stated it should avoid trying to give every unit the same equipment, which would only dissipate its strength where it would be needed the most.

When deciding which weapons and equipment to modernize, the PLAAF stated it must focus on six combat capabilities: air superiority, ground attack, transporting troops and supplies, airborne early warning and reconnaissance, electronic countermeasures, and maintenance and logistics.

The 1990 plan also laid out the following general guidelines for proportionally developing its force, although no precise percentages or numbers were specified:

- Fighter aircraft must have the highest priority.
- The proportion allocated for ground attack aircraft must be larger than the portion for bombers, since ground attack aircraft with a refueling capability could be used against rear-echelon targets.
- There must be a certain proportion of bombers, especially strategic bombers.
- Reconnaissance aircraft, jamming aircraft, and airborne early warning aircraft must be supplied in relevant proportions.
- Development of transport aircraft, which have a strategic capability of moving troops and supplies, cannot be slowed down.
- Aerial refueling must constitute a certain proportion of combat aircraft as a force multiplier.
- China must pay attention to developing helicopters, especially armed helicopters, for the Army and Navy.
- The Air Force must develop ground-based weapon systems, particularly air defense missiles, radar, and communication systems.

Over the past decade, the PLAAF has implemented its acquisition strategy to varying degrees, primarily because of its access to Russian systems.[96] The list of Russian aviation and air defense weapons procured so far includes Su-27 and Su-30 fighters, Il-76 transports, S-300s SAMs, and Mi-17, Ka-28, and Mi-8 helicopters. The PLAAF has also deployed its first B-6 aerial refueling tankers for F-8-2 fighters. So far, the PLAAF has not met its goals in the area of strategic bombers and acquisition of an airborne early warning and control (AEW&C) aircraft.

For more than 3 decades the PLAAF has shown a great interest in an AEW&C capability to help offset deficiencies in its air defense system.[97] Although acquisition of a dedicated AEW&C system has again been deferred following Israel's cancellation of the A-50I *Phalcon* system in July 2000, indications are that the PLAAF will most likely buy or lease a small number of A-50U/E aircraft from Russia. A number of formidable challenges will test the Air Force's ability to effectively employ any future systems. First, there are some indications the PLAAF has yet to institute a major training program for its AEW&C mission crews. Second, because maximizing on-station time close to an area of interest is the main reason to have such a system, the PLAAF will have a difficult but expensive requirement of rapidly increasing annual flying hours to unprecedented levels. Third, the PLAAF will have to address the issue of basing for the aircraft, so that the crew can practice with the appropriate aviation and air defense units as often as possible. Fourth, the PLAAF will require certain types of logistics support from Russia to sustain training and operations, perhaps as several airfields. Fifth, the PLAAF must determine whether the systems will perform strategic or tactical surveillance missions, or both. Sixth, the PLAAF must decide how best to protect the aircraft while they are on the ground during a conflict.

TRAINING AND EDUCATION

Summary.

The PLAAF's system for training and education is an integral part of the greater PLA's system. The PLA is proud of the fact that "while

it had successfully extricated many, but not all, cadres [officers] from illiteracy when the PRC was formed, more than 70 percent of the cadres had a college-level education or above in the year 2000."[98]

When looking at the PLA's schools and academies, a distinction must be made between training and education.[99] For simplicity, "training" can be defined as preparing cadets to effectively perform their responsibilities in their respective specialties once they reach their combat or support unit. The cadets learn how to perform their duties at the "tactical and technical" level of war. Officer training takes place at the PLA's technical schools and the majority of the academies. As officers' responsibilities increase with grade, their training requires a broader focus and "education" for conducting their specialties at the campaign and strategic levels of war. Education begins to take place when members of the PLA attend one of the various service's command colleges and the National Defense University. Conscripts receive their training in specialized training bases, regiments, and groups. They do not attend schools and academies.

Since the late 1980s, the PLA's training and education has been based on the "5-3" tier system, which consists of five tiers of specialized or technical training and education for officers:[100] secondary specialized, specialized college or equivalent, university or equivalent, masters degree program, and doctorate program.

As a result, most PLA schools and academies specialize in training cadets in basic skills for their branch or support function. For example, there are separate branch (infantry, artillery, and armor) academies for the ground forces, and separate branch and support service academies within the PLAAF for pilots, maintenance, logistics, AAA, SAMs, communications, and radar.

There also is a three-tier system of professional military training and education for officers at the various command colleges — basic, intermediate, and advanced.[101] The basic level is aimed at "training" staff officers who work in the various headquarters and platoon-level officers for the tactical level of war. The intermediate level "trains and educates" officers at the regiment level in the tactical and campaign levels of war, including combined arms operations. The advanced level is aimed at "educating" officers at the corps and group army level at the campaign and strategic levels or war.

Given the PLA's origins as a peasant army and the previous emphasis on "Red versus Expert," the PLA has tended to focus primarily on training instead of education. This was especially true during the Cultural Revolution and into the early 1980s, when most PLA schools were closed and officers were selected from the enlisted ranks based on political rather than technical qualifications.

The PLAAF's system for training and education can be divided into two basic categories based on the type of institution involved. The first category consists of schools and academies for officers, plus a single school for NCOs focusing on communications. Within this category, the emphasis is on training cadets and educating middle- and senior-level officers.

The second category consists of basic training and combat training for the entire force. Basic training institutions are primarily aimed at teaching technical skills to conscripts and advanced pilot skills to flying academy graduates who are transitioning to combat units. This training takes place at specialized training bases, regiments, and groups. After the officers and conscripts reach their combat unit, individual and unit training continues throughout the rest of their career.

Since the late 1980s, the PLAAF has gradually upgraded its combat training so it can eventually meet its doctrinal requirements and carry out its training guidance concepts. The PLAAF has concentrated on aviation combat tactics in various locations, including the Flight Test and Training Center near Tianjin, the tactics training center in the Gobi Desert near Dingxin, Gansu Province, and at combined arms tactical training zones in the various military regions. The PLAAF also created a "Blue Army" aggressor unit to simulate offensive and defensive operations against the "Red Army." The tactics developed are now being moved to the unit level, where several units have begun to turn these new combat theories and concepts into live-ammunition exercises. To round out the PLAAF's tactical training and help make up for the limited number of flying hours per year, the PLAAF has increased its use of flight simulators. As a result of these changes in training, PLAAF pilots have been noted flying in more sophisticated simulated air-to-air combat.

In 1951, the PLAAF issued its first training guiding concepts. Since then, it has revised them 7 times, with the last revision taking place

in October 2001. These guiding concepts are then operationalized through the PLAAF's training program.

The PLAAF's increased training has been accompanied by problems with pilot and maintenance proficiency. As a result, the PLAAF revived a program in 2002 known as the "Two Overall Inspections" to help remedy the situation.

PLAAF Schools and Academies.

The PLAAF has always placed great emphasis on training officers to be proficient in "tactical and technical" skills, but did not begin focusing on officer education until the mid 1980s. Whereas the schools before the 1980s taught officers to fly, maintain, and support aircraft, they did not spend much time on teaching theory on how to conduct war at the campaign and strategic levels. Like the rest of the PLA, in 1986 the PLAAF changed the name of most of its schools to academies so that it could begin offering masters degrees in certain subjects. In 1999, three schools were combined administratively to become the PLAAF Engineering University, so that doctorates could be offered.

Unlike the USAF, the PLAAF does not have a single academy. The PLAAF has always had several flying academies plus specialized technical schools for officers in each branch and support element. Each school lasts from 2 to 4 years, depending on the specialty. Except for pilots, who spend 1 year at a transition training base after graduation from their flying academy, all other officer graduates are assigned directly to an operational base, since they receive their technical training at the academy. Basic and technical training for conscripts is conducted at various training bases, regiments, and groups throughout China.

The total number of PLAAF schools and academies has expanded and contracted over the years in reaction to policy changes regarding training objectives or war preparations. For example, there were as many as 17 flying schools during the Cultural Revolution, when Minister of Defense Lin Biao and PLAAF Commander Wu Faxian were advocating a doctrine of imminent war. Today, there are 8 flying colleges, 10 specialty colleges (Command, AAA, SAM, Communications, Engineering, Logistics, Political, Radar, and two

for aircraft maintenance), and one NCO school for a total of 19 schools and colleges.

Because of the political and economic turmoil during the Cultural Revolution, the PLAAF stagnated. In matters involving flight safety, education, training, strategy, and tactics, PLAAF historians claim there was actual atrophy.[102] Almost all PLAAF nonflying schools were closed for nearly 6 years, halting nonflying and ground training. Within the flying academies, all classes on theory were dropped.

From 1966 until at least 1982, officers were promoted from within the enlisted force based on political reliability rather than operational capabilities. In addition, "intellectuals," "technical officers," and anyone with a college education were looked down on. This was especially true for the PLAAF, which was considered a technical service. Under Deng Xiaoping's guidance, the situation gradually began to change during the early 1980s. For example, during an interview in 1985, PLAAF commander Zhang Tingfa discussed changes by saying, "People throughout our country are talking about respecting knowledge and talented people and taking loving care of intellectuals. So is the PLAAF, because knowledge and talented people are indispensable for the modernization of our troops."[103]

In response to new operational concepts in the 1980s, the senior PLAAF leadership joined other services in placing a greater emphasis on officer training and education.[104] Qualitative improvements were introduced for academic education, flight training, combined arms training, and joint exercise training. Academic excellence was increasingly stressed in the PLAAF, as it was throughout the military. To support this objective, the PLAAF closed some schools to consolidate resources and upgraded many schools into academies. For the first time, new pilots were expected to graduate from PLAAF academies with college degrees. Seven PLAAF academies also began in 1985 to confer masters degrees in technical fields.[105]

Because the PLAAF does not have an NCO corps like the USAF, officers are trained for hands-on operations. For example, maintenance officer cadets at the PLAAF's Engineering College and two Maintenance Technical Training Academies complete from 2 to 4 years of hands-on training on aircraft maintenance, and once they are assigned to an operational unit, they conduct much of the actual

aircraft maintenance. The same is true for the other schools and subsequent jobs in the operational units.

In 1993, the Command College implemented an in-depth teaching reform to change the PLAAF's operating methodology from "employing single branches and single types of aircraft to using multiple branches and several types of aircraft in an air force combined arms campaign, with the goal of shifting to operations in a joint service campaign." Previously, the training of middle-ranking commanders was aimed mainly at directing combat involving a single branch and single types of aircraft in warfare under general conditions.[106] Commanders who graduated from such training were good at the tactical operations of their own types of aircraft and their own branch, but they did not know much about other types of aircraft or other branches and services. Joint operations consisted of cover airplanes and attack airplanes flying far apart from each other and not having much to do with each other.

A 1996 *Zhongguo Kongjun* article discussed the lack of adequate combined arms and joint service training facing the PLAAF in the early 1990s.[107] During one exercise, several types of aircraft were deployed simultaneously to an airfield in southern China for combat readiness training. What the Air Force found out, however, was that it did not have a competent joint force commander. The person selected could handle only administrative affairs and could not direct the training and combat of other types of aircraft, resulting in errors in identifying the type of aircraft entering into the exercise airspace. In another similar exercise involving a mixed formation of fighter and attack aircraft, the commander did not know how to arrange the formation. During a joint Navy and Air Force exercise, the Air Force commander was concerned only about the take-off time, route, and destination of the Air Force aircraft but did not know anything about the Navy's actions and demands, not to mention how to coordinate with the Navy to bring into full play the power of air attacks at the critical moment. The PLAAF summarized its commanders as "lacking knowledge, having poor concepts, and being incompetent in joint operations."

As part of the reforms to produce "transcentury commanders," the Command College also began focusing on theories such as joint combat operations, mobile warfare, information warfare, and

electronic warfare and updated its combat theory. The new combat theory embodied the following "four changes":[108]

- Change from studying air combat under general conditions to studying air combat under high-tech conditions.
- Change from stressing air defense to stressing air offense.
- Change from air combat supported by joint operations with the Army to air combat supported by joint operations of Army, Navy, and Air Force.
- Change from warfare involving a single branch and single type of aircraft to combined arms warfare involving the multiple branches and types of aircraft.

PLAAF Training Guiding Concepts and Program.

Beginning in 1951, the PLAAF established specific "military training guidance concepts" (*junshi xunlian zhidao sixiang*) as the basic principles for its military training.[109] These concepts summarized the basic direction Air Force training would take in the future. The concepts were issued to unify training ideology service wide, address major problems the Air Force faced at the time, note specific training limitations, and establish certain training objectives. PLAAF senior officers have pointed out it is essential to review and modify military training guidance concepts when situations and mission development change, weapons and equipment are replaced, and new regulations and outlines are implemented.

The PLAAF has stressed that training guidance concepts are time-specific. The PLAAF's Party Committee issued the first training concepts in 1951, and has revised them 7 times since then — 1952, 1954, 1958, 1965, 1974, 1987, and 2001. In October 2001, the Party Committee changed the concepts to "closely adhere to actual combat situations (*jintie shizhan*); stress training against opposing forces (*tuchu duikang*); be hard and strict during training (*cong nan cong yan*);[110] and apply science and technology during training (*keji xingxun*).

Since the latest concepts were issued in 2001, all PLAAF branches, training units, schools, and support elements have tried to implement them in conjunction with carrying out the military training program (*kongjun junshi xunlian dagang*), which was revised in 2002 based on the new training guidelines. According to the *PLAAF Dictionary*, the *dagang* is the general plan for Air Force training. The program includes training goals, principles, content, implementation phases and procedures, timing, methods, and quality-control inspection procedures.[111] The program is divided into several categories, including training for command personnel, headquarters department, branches (aviation, AAA, SAM, airborne, and radar), and all support elements such as the communications troops.

An April 2002 article in *Kongjun Bao* provides a good look at how the PLAAF has implemented the latest program, which was formally issued that month.[112] The article explained the PLAAF has now incorporated more flying time and training periods than in the past.[113] Under the new program, each pilot can fly one to two more sorties per period than under the old program. In addition, whereas the old program allowed each pilot to fly only 2.5 hours each day, the new guidelines allow pilots to fly 3.5 hours or more each day.

PLAAF Aviation Combat Unit Training.

Since the late 1980s, the PLAAF has gradually upgraded its combat training to eventually meet its doctrinal requirements and carry out its training guidance concepts. In 1987, the PLAAF established a Flight Test and Training Center at Cangzhou airfield near Tianjin. This center has three primary missions:[114] 1) test new aircraft under development by the aviation ministry, 2) train the initial cadre of pilots in new type aircraft before the aircraft are deployed to an operational base for the first time, and 3) devise new air combat tactics.

Based on various articles in *Jiefangjun Bao* over the past decade, the Training Center also established a "Blue Army" aggressor unit located nearby to simulate offensive and defensive operations against the "Red Army." The aggressor aircraft (F-7s and F-8s) engage in exercises against PLAAF operational units, employing

dissimilar aircraft air intercepts utilizing evasive maneuvers. The tactics developed at the training base and through the "Blue Army" are now being moved to the unit level, where several units have begun to turn these new combat theories and concepts into live-ammunition exercises. According to various interviews, aggressor units have been established in each of the seven MRs.[115] The aggressor aircraft engage in exercises with local units, employing dissimilar aircraft air intercepts utilizing evasive maneuvers.

In 1958, the PLAAF built a large center for testing its AAMs and SAMs in the Gobi Desert near Dingxin, Gansu Province.[116] During the mid 1990s, the PLAAF began expanding this base to include a large tactics training center, where multiple PLAAF units could practice the tactics developed at Cangzhou and tested in individual units throughout the force. The training base has a sophisticated command and control center and air and ground tactical training ranges, plus a mock-up of Taiwan's Chingchuankang (CCK) airbase, including the runways, air defense SAM and AAA sites, radars, command posts, ammunition depots, and oil depots. Since the mid 1990s, several large-scale exercises have been conducted at the base.

The PLAAF has also apparently established combined arms tactical training zones where different types of aircraft can train together with SAM and AAA units. For example, in 1995 the Nanjing MRAF set up a coordinated tactical training zone composed of strike, ground attack, bomber, and reconnaissance air units.[117]

In April 2000, the PLA Navy's North Sea Fleet and an unidentified air division in the Jinan MRAF agreed to conduct joint service training for the first time.[118] It is not clear whether the PLAAF has similar agreements with the East and South Sea Fleets. During July 2000, the PLAAF's attack aircraft, most likely A-5s, conducted single-ship and formation attacks on a flotilla as they each made tactical maneuvers. The flotilla and the air division also practiced ship-to-aircraft communications, identification friend or foe (IFF), air reconnaissance, and shipborne ground controlled interception (GCI). The ships also practiced calling in the aircraft for air cover. The aircraft conducted 150 sorties during the two-day exercise. The article did not mention anything about Naval Aviation participation in the exercise.

To round out the PLAAF's tactical training and help make up for

the limited number of flying hours per year, the PLAAF has increased its use of flight simulators. The PLAAF now reportedly conducts more than 90 percent of its tactical training on simulators.[119]

As a result of these changes in training, some PLAAF pilots have been noted flying in more sophisticated simulated air-to-air combat with the aggressor units, training in an ECM environment, flying over the Taiwan Strait and East and South China Seas, conducting live missile firings beyond the coast, and dropping live bombs at ranges, as well as flying at night, under different weather conditions, and at low altitudes. They have also practiced emergency mobility deployments to permanent and auxiliary airfields within and outside their assigned MRs. All of these changes have been aided by the acquisition of improved navigation equipment.

The current description for PLAAF fighter, bomber, and ground attack mobile offensive air campaign operations can be summarized as "transregional rapid mobility integrated long-distance strikes at night in all weather conditions from multiple levels and different directions under unknown conditions. These attacks can be conducted against land or maritime targets, and the navigation routes can be over land or over water." Media reports discussing the PLAAF's exercises have mentioned all of the above, but, from the PLAAF's perspective, one of the newest aspects of its training program is that during exercises both antagonists are told when a war begins, but they are not told the other side's number of sorties, location, or altitude. Therefore, they must decide how to achieve victory in a completely unknown environment. An exercise conducted by a Jinan MRAF fighter regiment indicates the PLAAF's trend in training for emergency mobile transregional operations. According to a November 2000 report in *Kongjun Bao*,[120]

> A regiment of fighters consisting of over 20 aircraft departed its home base in the Jinan MR [Shandong and Henan Provinces] on a rainy night "under concealment" in late October. The aircraft flew to an airfield south of the Yangzi river [probably in the Nanjing MR] to conduct air patrols and render air support to the war zone. This emergency combat mobility drill signified a new breakthrough in its capability for large-fleet, long-range, all-weather operations at all hours and in all airspaces. The regiment holds monthly simulated drills of emergency take-off, mobility, and change of alert conditions. It has switched to unfamiliar field

targets for target practice, and changes ground markers frequently to enhance aviators' capabilities for independent navigation and target identification. It flies frequent low- and ultra-low altitude flights, some over sea areas under unknown conditions. It also subjects aviators to maximum daily flying time training. Training for complicated weather conditions is conducted in minimal weather conditions. On one exercise, the regiment practiced using ECM, penetrating enemy defenses from different directions, coordinating attacks from high and low altitudes, and simulating attacks over water.

The Two Overall Inspections.

During 2002, the PLAAF also revived a program known as "The Two Overall Inspections (*liangge da jiancha*)" that was initially implemented in 1977 but had not received much attention since then. In 1997, Deng Xiaoping, who at that time was Chief of the General Staff and vice-chairman of the CMC, ordered the PLAAF to implement the inspection program, because the PLAAF had suffered numerous serious aircraft accidents.[121] Over the course of the year, the Air Force inspected several thousand pilots, more than 1000 flight commanders, and about 200 division and school leaders. In 2002, the PLAAF reinvigorated the program "due to poor pilot and maintenance personnel performance."[122]

LOGISTICS AND MAINTENANCE

Summary.

Over the past decade, the PLAAF's logistics and maintenance forces have gradually made adjustments to their organizational structure and methods of operations to support the PLAAF's shift toward joint mobile offensive operations.

The PLAAF's logistics organization has begun to establish small elements capable of supporting aircraft deploying from their home unit to alternate airfields or different types of aircraft from another unit deploying to their airfield.

The PLAAF logistics forces have also been working on refueling aircraft, which has been one of its weakest links. New systems have been developed for at-home refueling and for refueling at alternate

and field runways.

Although the PLAAF has made a concerted effort to improve its mobile logistics capabilities, several exercises have pointed out that many difficulties still lie ahead.

Background.

Prior to the 1990s, the PLAAF's logistics and maintenance structure was organized to support 1 or 2 types of aircraft at a single airfield without outside support.[123] Therefore, each base had about one year's worth of spare parts for the aircraft. However, because many subsystems and spare parts produced in China are not made on a standardized model and each aircraft is put together by hand, an aircraft might not be able to fly until the broken part is fixed and reinstalled in the same aircraft.[124]

Over the past decade, the PLAAF has emphasized its desire to transform itself from a force capable of employing single branches and single types of aircraft in positional defensive campaigns to using multiple branches and several types of aircraft in air force combined arms, mobile offensive operations campaigns, with the goal of shifting to operations in joint service campaigns. Within this goal, the PLAAF's logistics and maintenance forces have had to change their operational structure and methods of operation from supporting single types of aircraft at their home base to supporting multiple types of aircraft at their home or deployed bases for short and long periods of time.

It appears that the PLAAF's logistics system has made progress toward reaching its goal of supporting mobile forces. Organizationally, it has established emergency mobile *fendui* of platoon or company size to support deploying aircraft into and out of airfields. These *fendui* are also responsible for helping set up mobile operations at field airstrips and highway landing strips. Although the articles reviewed discuss the need to preposition adequate material in the campaign areas before a war breaks out, they did not discuss whether this has actually happened.

From a training perspective, it appears that the PLAAF's logistics forces are applying their theory to operational exercises. As noted in several *Zhongguo Kongjun* magazine articles with accompanying

photos over the past 2 years, the exercises involve repairing damage to airfields after notional enemy attacks, including runway repairs, taking care of wounded personnel, putting out fires, and preparing to recover aircraft that are en route home and have been damaged during their mission. At the same time, the logistics forces have deployed some *fendui* to begin preparing the field airstrips or highway landing strips for recovering aircraft or for generating follow-on combat sorties. During 2002, the PLAAF also conducted a major exercise involving civilian fuel trucks.[125]

One of the most important issues that is not clear from the articles reviewed is how proficient the PLAAF would be during a real conflict, especially if some of the key first-line airfields were destroyed – as the PLA anticipates will happen in a conflict involving the United States. Would the PLAAF, in fact, be able to conduct combat sorties out of field airstrips and highway landing strips, or would it merely be there to disperse the aircraft until they could fly to another operational airfield? Would the PLAAF opt to move its aircraft further to the rear as its airfields began sustaining damage? Will the PLAAF actually be able to provide logistics support to multiple types of aircraft at a single base?

Many airfields have a single regiment with two types of aircraft (generally F-6s with F-7s or F-8s), or have two regiments with different types of aircraft, such as one regiment with F-7s and one with F-8s. While these field stations, which are the PLAAF's aviation maintenance organization at the unit level, are organized to support more than one type of aircraft, other field stations with only a single type of aircraft are not prepared to do so. But how proficient will the logistics forces at first-line airfields be if they have to support several regiments of different types of aircraft? Although bombers have conducted exercises where they stopped at multiple airfields, the media reports did not specify the types of airfields they transited or the types of support they received.

Two probable weak links for the logistics forces during a campaign will be communications and transportation. According to *Logistics Support for Mobile Operations*, "When lines of communication are disrupted, logistics along this chain are also disrupted. Therefore, the PLAAF needs to establish an independent command communications network, consisting of radio, landline,

and computers."[126] It is not clear from the media reports or the PLA books reviewed whether this is actually taking place.

Although the PLAAF has ordered that transport aircraft should be used to move logistics forces during campaigns, road and rail will still be the most likely means. A logistics transportation exercise conducted during summer 2001 in the Guangzhou MRAF emphasized the PLAAF is not yet prepared to operate under poor weather conditions or nonscripted exercises. During his critique, the Guangzhou MRAF transportation director emphasized "training still consists of form without substance just to pass the test. Some units were thrown into disorder with just the slightest change in the predetermined disposition."[127]

The PLAAF has already constructed additional airfields and aircraft shelters, some of which are hardened shelters and some are environmental shelters, at bases near the coast and land borders.[128] Additional fuel-storage facilities have been built. For example, during the mid 1990s, the Chengdu MRAF increased investment to speed up the modernization of the logistics support system of Air Force stations in Tibet, where POL and ammunition reserve bases were built and their supportive warehouses and logistics support systems were also built or improved; aviation control centers and modern logistics command systems were connected with the operational logistics command offices by system networks; construction of logistics support facilities for rear-area airports was stepped up; the conditions for logistics support for airports were improved; and aircraft parking areas were enlarged.[129] During the period immediately leading up to the start of a campaign, the PLAAF would ensure there is adequate fuel at each of the key bases.

CONCLUSIONS

Having examined the PLAAF from seven different perspectives, the question is whether the PLAAF has really learned anything that will help prepare it to fight and win local wars under modern high-technology conditions? In August 2002, Major General He Weirong, the PLAAF's deputy chief of staff for training, addressed

this question in a significant article that revealed the state of PLAAF pilot training.[130] In the article, General He stated,

> The PLAAF is in an important development period. It is gradually transitioning from being primarily a support service toward being a strategic air force. It is also transitioning from a national territory air defense type of air force to one that conducts simultaneous offensive and defensive operations. The PLAAF's equipment is rapidly becoming newer. Military training guidance concepts are undergoing an important adjustment. The military training program is also undergoing serious reform.

General He also identified serious flaws in the PLAAF's training regimen. Based on having led several delegations abroad to observe foreign training, he emphasized the PLAAF must "borrow methods and experiences from foreign militaries and adopt them to upgrade quality and effectiveness." He pointed out that foreign pilots carry out large amounts of tactical and technical battle training based on real requirements at their flying academies and transition training bases. He emphasized,

> This is not the case for the PLAAF, which does not conduct tactical training until after pilots have been assigned to their combat units and completed transition training in their assigned aircraft. Furthermore, while conducting their technical training, they do not deviate their altitude, speed, or direction. Most importantly, this is the reason for the PLAAF's long history of inflexible combat methods.

General He laid out specific problems associated with the PLAAF's ground attack training by stating,

> When the PLAAF conducts ground attack training, the targets used for the flying academies, transition training bases, and at combat units are either triangles or circles. Pilots follow the same pattern under strict ground control. This type of rote training does not allow pilots any flexibility or creativity, and is not conducive to training pilots to learn to take tactical initiative, distinguish between real types of targets, and conduct independent combat missions. Furthermore, the quota for flight time has been going down but pilots have erroneously filled out their log books.

General He concluded his observations by recommending "the PLAAF should use real war requirements as the standard and completely overhaul the entire training program, training and teaching materials, manuals, scoring standards, and regulations."

Besides the limitations General He identified, the PLAAF has faced a wide range of political, budgetary, personnel, equipment, and structural limitations to becoming a more modern force. Over the past decade, the PLAAF has readily acknowledged the following limitations to becoming a modern air force:

- Lack of an Air Force strategy;
- Minimum per-pilot sortie generation capability;
- Reliance on strict GCI;
- Flying aircraft to less than full capabilities;
- Lack of dissimilar aircraft training;
- Lack of upward professional mobility;
- Lack of over water flying;
- Inadequate combined and joint service training;
- No airborne early warning and control aircraft;
- No aerial refueling capability until the late 1990s, and only limited since then;
- Insufficient airlift for the airborne forces;
- A force composed mostly of 30-year-old F-6s and other aging aircraft;
- Lack of good air-to-air missiles, precision guided munitions, and cruise missiles;

- A force still structured primarily for positional rather than mobile warfare; and,

- An aviation industry incapable of designing and producing weapon systems to meet the PLAAF's needs.

Therefore, given these limitations, can the PLAAF implement General He's vision? If the PLAAF does have to engage in battle sometime in the near future, the keys will be pilot proficiency, sortie generation and sustainability, adequate logistics support across the board, reliable communications and real time intelligence, and equipment maintenance capabilities. It is clear, at least from reading PLAAF writings, that much of what it wants to do is still aspirational, but it is definitely putting the pieces of the administrative and operational structure in place to accomplish its goal of simultaneous offensive and defensive operations sometime in the future.

The PLAAF has adopted a formal campaign theory to guide it toward the future, and is working on strategic guidelines. The PLAAF is starting to acquire the modern weapon systems, including Su-27s, Su-30s, aerial refueling, airborne early warning and control aircraft, and S-300 SAMs to conduct an offensive campaign, but may also be too reliant on foreign technology and weapon systems, as it was in the 1950s.

The PLAAF has begun moving from exercises involving a single type of aircraft to using multiple types of aircraft in a combined-arms and joint service environment. The Air Force has established a "Blue Force" aggressor squadron and a tactics development center at Cangzhou, and a "USAF Red Flag-type" tactics training center in the Gobi Desert, all of which are starting to show positive results, both operationally and psychologically. Whereas the PLAAF rarely flew over water in the 1980s, it is a routine matter for some units today. The PLAAF is also beginning to formalize its training with the North Sea Fleet, as indicated by the memorandum of understanding for joint training signed in 2000. The logistics forces are beginning to move from being able to support one or two types of similar aircraft only at their home base to supporting large numbers and types of deployed aircraft at home and away.

What is apparent is that the PLAAF is part of a larger PLA campaign process based on coordinated action plans. What is not apparent, however, is whether the PLAAF, which has not had any significant aerial combat since 1958, is capable of sustaining sortie generation in an environment where its own airfields could come under attack from long-range cruise missiles. What is clear is the PLAAF's realization that it lacks any real-time reconnaissance capability, hence the emphasis on conducting operations in an unknown environment. According to the 2002 U.S. Department of Defense report on the PLA,

> The PLAAF does not appear to have been putting large numbers of aircraft in the air simultaneously, controlling large numbers of engagements, or sustaining high sortie rates for extended periods of time. Pilot proficiency is improving, but China's best pilots lag behind their Taiwan counterparts in terms of capabilities. PLAAF and Naval Aviation fighter pilot tactical training continues, albeit slowly. During 2001, some of the PLAAF's more advanced aircraft reportedly conducted advanced tactical training involving fighters of dissimilar types. PLAAF and Naval Aviation exercise activity during 2001 reportedly concentrated on mobility, air defense, and support to amphibious assault forces. Air defense exercises were said to be highly scripted and the scenarios lacked realism, limiting the benefit PLA pilots could have gained from the exercises.[131]

Based on analysis of previous campaigns, it is clear that the CMC will provide specific rules of engagement (ROE) for the PLAAF before it becomes involved in any conflict. In the past, those ROEs have kept the PLAAF from engaging certain forces, whether in the air, on the ground, or at sea, that could lead to an escalation of the conflict. In any future conflict, it might be more difficult to impose and adhere to strict ROEs, especially if the PLAAF's airfields and air defense sites come under attack.

There is no doubt the PLAAF should be proud of its recent accomplishments, but it should also be careful not to overemphasize its capabilities to Beijing's leaders based on its performance during the Korean War. For example, the PLAAF consistently points out it has shot down a total of 1,474 and damaged 2,344 aircraft over the past 50 years. What it neglects to mention is the breakout for air-

to-air combat and those aircraft downed or damaged by AAA and SAMs.

In the final analysis, however, the PLAAF may lack the most sophisticated weapon systems today, but it should not be sold short. Based on the author's interviews throughout Asia over the past 5 years, China's neighbors are definitely concerned about what the PLAAF will look like in 20 years, especially if China's economy remains strong and the PLA's modernization efforts continue at their current pace. As the PLAAF has shown in the past, it could move hundreds of aircraft, SAMs, and AAA, as well as thousands of support troops to unsophisticated airfields near the front in a short period of time if necessary. It may not be as far along as it would like in training to implement its air offensive theory, but it would salute smartly and attempt to carry out its orders if required to do so.

ENDNOTES - CHAPTER 4

1. Quan Yue, "PRC Air Force Commander on Capabilities, Priorities," *Foreign Broadcast Information Service* (hereafter *FBIS*) CPP20000505000035, May 5, 2000, *Hong Kong Zhongguo Pinglun,* in Chinese, May 5, 2000.

2. Research for this chapter revealed that the amount of information on the PLAAF available from Chinese-language open-source material has grown considerably over the past decade. These include histories, encyclopedias, dictionaries, handbooks, biographies, magazines, and newspapers. In addition, foreign journals have provided much data on weapon systems, and more foreigners are writing lengthy analytical pieces on the Air Force. Although Chinese-language sources provide good data, for the most part they tend to concentrate on the early years and center on the aviation branch at the expense of the three air defense branches (surface-to-air missiles, antiaircraft artillery, and radar), the airborne troop branch, and support elements. The sources also discuss the future in terms of aspirational doctrine without providing details on how to get there, and, with few exceptions, lack critical analysis of the people and events that have shaped the history. Furthermore, these sources have not addressed critical events, such as the 1979 border conflict with Vietnam. For example, former commander Wang Hai's autobiography, published in 2001, provides valuable insights into what was going on in the PLAAF during his career, but he does not have a single mention of the conflict, during which time he was the Guangzhou Military Region Air Force (MRAF) commander. Another example is former deputy commander Lin Hu's book published in 2002 on air defense that covers only 1949 to 1969.

3. No aircraft were involved in the 1962 border conflict with India or in 1969 with the Soviet Union.

4. Hua Renjie, Cao Yifeng, and Chen Huixiu, editors, *Kongjun Xueshu Sixiang Shi, (Air Force Art and Thought History)*, Beijing: Jiefangjun Publishers, 1991, p. 294.

5. In the PLA system, the commander and political commissar share equal power. The U.S. Air Force has had 17 chiefs of staff since 1947. Biographical information on the PLAAF's leaders comes from Zhu Rongchang, ed., *Kongjun Da Cidian (Air Force Dictionary)*, Shanghai: Shanghai Dictionary Publishing House, September 1996, 799-854.

6. In the U.S. military, the terms "rank" and "grade" are effectively synonymous. In the PLA, however, they are quite distinct. Military ranks (*junxian*) were abolished in 1965 and not reintroduced until 1988. Most importantly, all officers, regardless of service, are assigned one of 15 grades (*zhiwu dengji*), which is equivalent to an army command position or army equivalent position (AEP). The highest grade (Grade 1) is the chairman and vice-chairmen of the CMC. Members of the CMC, which includes the head of all four general departments, are Grade 2. Within the PLA, the AEP, not the rank, reflects authority and responsibility across service, branch, and organizational lines. Thus, while rank is a key indicator of position within the hierarchy for foreigners, AEP is still the key indicator within the PLA. Even though the commander and political commissar hold the same grade, they oftentimes do not have the same rank due to time in grade requirements. Regulations regarding retirement ages refer to AEP, not rank. Military pay is calculated on the basis of rank, AEP (grade), and time in service.

7. It is not clear whether the leaders for the Second Artillery Corps are grade 4 or 5 (deputy MR leader), because the Second Artillery Corps is an independent branch, not a service. Various PLA officials have told the author the leaders are Grade 5, but the author has not seen anything in writing to support this one way or the other.

8. A PLAAF major general who had been the director of the Political Department at NDU was transferred to the Nanjing MRAF as the political commissar in August 2002.

9. The PLAAF did not have a commander following Wu Faxian's arrest in September 1971 until Ma Ning became commander in May 1973. According to one informed PLA official, Ma Ning flew Il-28s as a young officer, thus making him the first pilot to be selected as the PLAAF commander. However, PLAAF biographies for Ma do not indicate this to be the case. According to Zhu Rongchang, 1996, 842, Ma's biography does not make any mention of attending flight school or being a pilot. In this biography, he moved directly from being a deputy operations division director in the 12th army's headquarters department before 1949 to serving as the PLAAF's 21st air division deputy commander and commander until 1967. Even if Ma did fly Il-28s for a short period, for all practical purposes, in 1985 Wang Hai

became the first full-fledged aviator to become the commander.

10. John Wilson Lewis and Xue Litai, "China's Search for a Modern Air Force," *International Security*, Summer 1999. William W. Whitson, *The Chinese High Command: A History of Communist Military Politics, 1927-71*, New York, Washington, London: Praeger, 1973, p. 550. Stanley Karnow, *Mao and China: A Legacy of Turmoil*, New York: Penguin Books, 1972, 429. *Dangdai Zhongguo Kongjun* (*China Today: Air Force*), Beijing: China Social Sciences Press, 1989, p. 481. Lin Biao controlled the PLAAF through Wu Faxian and the PLA Navy through Li Zuopeng, who was the Navy's political commissar and basically ran the Navy. Events surrounding the fate of Wu and Li were confusing after Lin Biao's death in a plane crash over Mongolia in September 1971. According to *Dangdai Zhongguo Kongjun* and recent interviews with PLA officials, Wu and Li Zuopeng were tried along with the Gang of Four. Wu was sentenced to 17 years in prison and Li to 20 years.

11. In May 1950, Wu became PLAAF deputy political commissar and director of political department, and, for all practical purposes served as the political commissar, since Xiao Hua was transferred to GPD in April 1950; Wu officially became the PLAAF political commissar in February 1957.

12. The PLAAF had as many as seven deputy commanders immediately following the merger with the Air Defense Force in 1957. During the 1960s and 1970s, the average was four deputy commanders. In the mid 1980s, the PLAAF tried to reduce the number from four to three, but found that they could not manage all of their responsibilities properly. Therefore, in 1987 a fourth deputy was added. This situation remains today.

13. This was also about the same time the PLAAF began consistently identifying the airborne forces as a branch. Previously, the airborne forces were not always listed as a branch.

14. Zhu Rongchang, 1996, pp. 799-854. When ranks were given in 1988, all of these generals had already held their positions or equivalent positions for 1-5 years. According to the 1989 issue of *Shijie Junshi Nianjian* (*World Military Yearbook*), Beijing: PLA Press, 1989, p. 6, the PLA conferred ranks on 17 three-star generals, 146 two-star lieutenant generals, and 1,251 one-star major generals in 1988.

15. Information on USAF generals was taken from biographies available on the USAF internet link, *http://www.af.mil/lib/bio/*.

16. According to interviews with PLA officials, although the PLAAF has some input into selecting its leaders, the CMC is responsible for promoting two- and three-star PLAAF officers.

17. Kenneth W. Allen, Glenn Krumel, and Jonathan D. Pollack, *China's Air Force Enters the 21st Century* Santa Monica, CA: RAND, 1995, p. 85. While Wang Hai was

commander, the HqAF deputy commanders who are Korean War veterans were Lin Hu, Li Yongtai, and Liu Zhitian. The other three MRAF commanders were Liu Yudi (Beijing), Sun Jinghua (Lanzhou), and Hou Shujun (Chengdu). The MRAF deputy commanders were Yao Xian (Beijing) and Han Decai (Nanjing).

18. Allen, Krumel, and Pollack, 1995, Chapter 3, pp. 76-78. The official PLAAF history dedicated only a few pages to the Vietnam War, covering the PLAAF's involvement from August 1965 to March 1969.

19. "The Security Situation in the Taiwan Strait," report submitted by Secretary of Defense William Cohen to the US Senate as directed by the FY99 Appropriations Bill, February 17, 1999.

20. Zhu Rongchang, 1996, pp. 973, 977, 980, 982.

21. Secretary of Defense, "Report on the Current and Future Military Strategy of the People's Republic of China," Report to Congress Pursuant to the FY2000 National Defense Authorization Act, June 23, 2000.

22. Yao Yanjing, Lai Mingchuan, Wang Yamin, *Junshi Zuzhi Tizhi Yanjiu* (Military Organization System Research), Beijing: National Defense University Press, June 1997; Xin Ming, ed., *Zhongguo Renmin Jiefangjun Kongjun Shouce* (*People's Liberation Army Air Force Handbook*), Qingdao: Qingdao Publishers, June 1991, 97. Zhu Rongchang, 1996, pp. 142-143; Xin Ming, pp. 97-98. The PLAAF identifies the following as specialized support units: radar, communications, chemical defense, reconnaissance, and electronic countermeasures troops.

23. In the PLAAF, aviation units are organized into air divisions, regiments, groups, and squadrons, and aviation maintenance units are organized into groups, squadrons, and flights. The air defense and support units are organized into divisions, brigades, regiments, battalions, companies, platoons, and squads. A command post/base is slightly lower than an air corps (the commander is equal to a deputy corps commander); a brigade is slightly lower than a division (the brigade commander is equal to a deputy division commander); a battalion and aviation group are equal; a company and aviation squadron are equal; and a platoon and flight are equal. See Xin Ming, pp. 97-98.

24. For example, over the years the training department and schools department have been first-level departments, have merged, and have been separated several times, but their functions have not changed.

25. Yao Jun, ed., *Zhongguo Hangkong Shi* (*A History of China's Aviation*), Zhengzhou: Dajia Publishers, September 1998, p. 376.

26. Zhu Rongchang, 1996, p. 146.

27. 1999 Yearbook, p. 103.

28. During the 1990s, the PLA Navy had five first-level departments – Headquarters, Political, Logistics, Equipment Repair Department, and Equipment Technical Department – and the Second Artillery Corps had four first-level departmentsHeadquarters, Political, Logistics, and Technical Equipment. When the General Equipment Department was created in 1998, all of the services and branches reorganized their structure to completely match the four general departments.

29. Yao Jun, 1998, p. 163-164.

30. The PLAAF began receiving the A-5 in December 1969, the B-5 in 1967 (even though other PLAAF units had received Soviet-built Il-28s earlier), and the B-6 in 1976. See Yao Jun, 1998, pp. 260, 413, 415, 664.

31. Yao Jun, 1998, p. 293.

32. Groups are battalion-equivalent organizations, and squadrons are company-equivalent organizations.

33. "The Security Situation in the Taiwan Strait," Report submitted by Secretary of Defense William Cohen to the US Senate as directed by the FY99 Appropriations Bill, 17 February 1999. The PLAAF began reducing the number of air divisions from 50 in the late 1980s.

34. Robert Sae-Liu, "PLAAF fixed-wing fleet cut in major restructuring," *Jane's Defence Weekly*, June 14, 2000, p. 41.

35. 1991 Yearbook, p. 65.

36. Allen, 1991, Section 17. An interview with a senior PLAAF officer in April 1989 indicated that the PLAAF was not pleased with the process of combining all of the AAA and SAMs into combined brigades and was considering various options.

37. Yan Jin, *"Chen Shikun, Beikong Daodan Mou Shi Kaizhan 'Xuexi Gao Keji Renren Dong Junshi' Huodong," [A Certain Beijing MRAF SAM Division Conducts Activities to 'Study High Technology So Everyone Understands the Military'], Jiefangjun Bao,* 27 May 1999; Zhang Jinyu, *"Beikong Huncheng Lu Mou Shi Yindao Guanbing Fayang Gan Daying Pin Jingsheng Gongke Xunlian Nan Ti," [The Officers and Soldiers of a Combined Brigade of a Certain Beijing MRAF Division Conduct Difficult Training Tasks], Jiefangjun Bao,* May 20, 1999; Wang Jiqing, Yao Jian, *"Beikong Daodan Mou Shi Qufen Cengci Peiyang Xin Zhuangbei Qushou," [A Certain Beijing MRAF Division Conducts Tiered Training on New Equiptment], Jiefangjun Bao,* September 23, 1998; Zhu Rongchang, p. 160.

38. Xin Ming, p. 111-112. Review of various PLA and *Xinhua* reports.

39. Allen, Section 17.

40. *Handbook on the Chinese Armed Forces*, Washington, DC: Defense Intelligence Agency, DDI-2680-32-76, July 1976, pp. 4-47.

41. *Handbook of the Chinese People's Liberation Army*, Washington, DC: Defense Intelligence Agency, DDB-2680-32-84, November 1984. "PLA Airborne Brigades Become Divisions" *Jane's Defence Weekly*, Vol 20, No. 14, October 2, 1993, p. 12. Department of Defense, "The Security Situation in the Taiwan Strait." Report submitted by Secretary of Defense William Cohen to the U.S. Senate as directed by the FY99 Appropriations Bill, February 17, 1999.

42. The communications troops had always been noted as the fifth branch until around 1992, but they were lowered to a support force when the airborne forces became the fifth branch.

43. Wang Hai, *Wang Hai Shangjiang: Wode Zhandou Shengya* (*General Wang Hai: My Combat Career*), Beijing: Zhongyang Wenxian Chubanshe (Central Literature Publishers), February 2000.

44. Zhu Rongchang, 1996, p. 147.

45. *Directory of PRC Military Personalities*, no publisher given, October 2001.

46. Zhu Rongchang, 1996, pp. 973, 977, 980, 982.

47. Hua, Cao, and Chen, 294-331, 294-331. Gao Rui, ed., *Zhanlue Xue* [Science of Strategy], Academy of Military Science, October 15, 1987, p. 114.

48. Hua Renjie, Cao Yifeng, and Chen Huixiu, ed., *Kongjun Xueshu Sixiang Shi*, (*Air Force Art and Thought History*) Beijing: Jiefangjun Publishers, 1991, pp. 294-331. Only 36 pages of this book discuss the history of the PLAAF's theory. The remainder of the book discusses the history of U.S. and Soviet air force theory.

49. Chengdu Military Region Campaign Training Office, *Jituanjun Yezhan Zhendi Fangyu Zhanyi Kongjun de Yunyong* [*Air Force Utilization During the Campaign to Defend Group Army Field Positions*], February 1982, p 1.

50. During the early years, 70 percent of the aviation force consisted of fighters, leaving the remaining 30 percent to be divided among the other types of aircraft (bombers, ground attack, and transport) and systems for the other branches (SAM, AAA, airborne, radar, and communications).

51. Hua, Cao, and Chen, 1991, pp. 315-316.

52. Teng Lianfu and Jiang Fusheng, ed., *Kongjun Zuozhan Yanjiu* (Air Force Operations Research), Beijing: National Defense University Publishers, May 1990, p. 159.

53. These documents included fighter tactics (*qianji hangkongbing zhanshu*), ground attack tactics (*qiangji hangkongbing zhanshu*), bomber tactics (*hongzha hangkongbing zhanshu*), reconnaissance tactics (*zhencha hangkongbing zhanshu*), transportation tactics (*yunshu hangkongbing zhanshu*), airborne troop tactics (*kongjiangbing zhanshu*), AAA tactics (*gaoshepaobing zhanshu*), and SAM tactics (*dikong daodan zhanshu*).

54. Wang Houqing, Zhang Xingye (ed.), *The Study of Campaigns (Zhanyi Xue)*, Beijing: National Defense University Press, May 2000, p. 9. *Zhongguo Junshi Baike Quanshu* (*Chinese Military Encyclopedia*), Beijing: Academy of Military Science Publishers, July 1997, Vol. 3, p. 748.

55. Hua, Cao, and Chen, 1991, pp. 294-331; Gao Rui, ed., *Zhanlue Xue* [Science of Strategy], Academy of Military Science, October 15, 1987, p. 114.

56. Interview in Beijing, April 2002.

57. Oliver Chou, "President calls for hi-tech push by Air Force," *South China Morning Post*, March 3, 1999.

58. Wang Jianyun, "We Must Win the Next Battle: Two Fighter Division Commanders' Views of Simultaneous Offensive and Defensive Capabilities," *Zhongguo Kongjun* (*China Air Force*), No 85, 2000-2, pp. 4-8.

59. It is difficult to find the term "doctrine" in PLA writings. The Academy of Military Science encyclopedia does not use the term, nor does the PLAAF's dictionary. In most cases where we might use "doctrine," the PLA uses the term "theory" (*lilun*), "thought" (*sixiang*), or "art" (*xue*). For purposes of this article, however, the term doctrine is used when appropriate.

60. Lin Hu, ed., PLAAF Headquarters Education and Research Office, *Kongjun Shi* (*History of the Air Force*), Beijing: PLA Press, November 1989, p. 252.

61. Hua, Cao, and Chen, 1991, pp. 294-331. One of the difficulties in discussing the PLAAF's theory is the problem of translating certain terms. For example, the *Kongjun Da Cidian* (*Air Force Dictionary*) translates *zhanyi* as both operations and campaign, yet translates *zuozhan zhanyi* as operational campaign. The PLAAF dictionary translates *kongjun zhanyi xue* as air force operational art, but CNA is translating *Zhanyi Xue* as the Study of Campaigns.

62. Teng and Jiang, 1990, p. 157.

63. Teng and Jiang, 1990, p. 152. Wang and Zhang, 2000, p. 346.

64. Wang and Zhang, 2000, p. 346. The Chinese is: *Kongjun zhanyi, you kongjun zhanyi juntuan dandu huo zai qita junbingzhong peihe xia shishi de zhanyi.*

65. Teng and Jiang, 1990, p. 155.

66. Teng and Jiang's 1990 book discussed independent and combined arms (*hetong*) campaigns. It did not discuss joint service campaigns at all. The PLAAF did not begin discussing joint service operations until around 1995.

67. Information on the Korean War, the 1958 Taiwan Strait Crisis, and the Vietnam border conflict is taken in part from Allen, Krumel, and Pollack, 1995.

68. As part of the "People's Volunteer Army," China's air force was organized and known as the "People's Volunteer Air Force," but the term PLAAF is used in this article. Unless noted, the primary sources for information in the book are blended from three sources: Robert F. Futrell, *The United States Air Force in Korea 1950-1953*, revised edition, Washington, DC: U.S. Air Force, Office of Air Force History, 1983; *China Today: Air Force*, 1989; and Lin Hu, 1989.

69. *China Today: Air Force*, 1989, pp. 203-211.

70. Of the total of 1,986 allied aircraft lost, U.N. records show that 945 were lost to nonenemy causes and 1,041 to enemy action, including 147 in air-to-air combat, 816 to hostile ground fire, and 78 to unknown enemy action.

71. Wang Hai, p. 156.

72. Gordon Yefim and Vladimir Rigmant, *MiG-15*, Osceola, WI: Motorbooks International, 1993, p. 114. Futrell, 1983.

73. Futrell, 1983.

74. The material in this subsection draws from *China Today: Air Force*, 1989, pp. 333-351. Unless otherwise indicated, quotations herein are from that publication.

75. The material in this subsection draws upon *China Today: Air Force*, 1989, pp. 333-351. Unless otherwise indicated, quotations herein are from that publication.

76. USAF Historical Division, 1962, p. 39.

77. Lin Hu, *Baowei Zuguo Lingkong de Zhandou: Fight to Protect Motherland's Airspace*, Beijing: PLA Publishers, January 2002, pp. 323-329.

78. Information on the general setting for the border conflict comes from Chen, King C., *China's War With Vietnam, 1979: Issues, Decisions, and Implications*, Stanford, CA: Hoover Institute Press, 1987.

79. Of note, Wang Hai did not even mention the 1979 border conflict in his 2001 autobiography.

80. The material in this subsection draws from Kenneth W. Allen, *People's Republic of China, People's Liberation Army Air Force*, Washington, DC: Defense Intelligence Agency, May 1991, pp. 18-3, 18-4; and Allen, Krumel, and Pollack, 1995, Chapter 5, pp. 87-97.

81. Li, Man Kin, *Sino-Vietnamese War*. Hong Kong: Kingsway International Publications, Ltd., 1981, pp. 33-35. The PLAAF deployed F-5, F-6, and F-7 fighters, plus Il-28 bombers, to the border. At that time, the Vietnamese Air Force was equipped with MiG-21s and MiG-23s, plus U.S. F-5As and A-37s left over from the war. The Vietnamese also had SA-2, SA-3, SA-6, and SA-7 SAMs, plus the formidable ZSU-57-2 self-propelled AAA.

82. Chengdu Military Region, 1982.

83. *China Today: Air Force*, 1989, p. 638.

84. In contrast, according to interviews in the Pentagon, USAF aircraft were envisioned to fly up to three sorties a day in a European conflict.

85. Chengdu Military Region, 1982.

86. No statistics are available about the actual number of sorties flown near the border.

87. Information on the PLAAF's weapons systems comes from Allen, 1991, Sections 28 and 29. For an excellent summary of PLAAF weapon systems acquisition, see Lewis and Xue, 1999.

88. China did not actually produce any MiG-15s, choosing to produce the MiG-17 when it became available.

89. Information on the PLAAF's order of battle was compiled from *China Today: Air Force*, 1989, pp. 78, 88; Lin Hu, 1989, 46; and Yao Jun, 1998.

90. *China Today: Air Force*, 1989, p. 83.

91. *Ibid.*, 1989, pp. 83-84.

92. According to discussions with PLAAF officers and officials at the Shenyang Aircraft Corporation in 1987-1989, the program continued despite these problems because the government's investment in the program was high, and China wanted to encourage the construction of the aeronautics industry, including the infrastructure for R&D, manufacturing, and flight testing.

93. Contrary to many reports, the program did not include any technology transfer, because the fire-control systems were modular sets that the United States produced and would fix in the United States if problems occurred.

94. Interview with PLA officials.

95. Teng and Jiang, 1990.

96. Richard Fisher has written extensively on the PLAAF's acquisition of Russian weapon systems.

97. The analysis on the AEW&C program was provided by Luke G.S. Colton, "PLAAF AEW&C Acquisition: Background, Current Challenges, and Future Prospects," January 12, 2002.

98. The PLA uses officer and cadre interchangeably, especially since there was no rank system before 1955 and between 1965 to 1988.

99. Dr. Paul Godwin and Dr. Tom Bickford provided guidance on how to distinguish between training and education within the PLA's schools and academies.

100. Allen, Krumel, and Pollack, 1995, p. 128.

101. Chinese Military Encyclopedia, 1997, Vol 2, p. 389.

102. *China Today: Air Force*, 1989, pp. 480-491; Lin Hu, 1989, pp. 195-202.

103. Tsang Hsing, "Zhang Tingfa Interviewed on Air Force Reforms," Hong Kong, *Kuang Chiao Ching*, June 16, 1985, reported by The British Broadcasting Corporation, June 21, 1985.

104. To emphasize the focus on training, the Commandant of the PLAAF Command College, Lieutenant General Yang Zhenyu, became one of four deputy commanders at Headquarters Air Force in 1993. Another of the deputy commanders, Lieutenant General Lin Hu, was previously a deputy commandant at the PLAAF Command College, and the current commander, Lieutenant General Yu Zhenwu, was director of the Training Department at Headquarters Air Force.

105. The 8th and 9th Flying Schools were abolished, and the 11th Flying School

was changed to the Test Flight and Training Center. The SAM, Weather, Political, Radar, and Communications Engineering academies, as well as the Engineering and Air Force Command colleges, have begun awarding masters degrees.

106. Hong and Tian, 1996.

107. Hong Heping and Tian Xia, "Head to the New Century," *Zhongguo Kongjun*, October 1, 1996.

108. Hong and Tian, 1996.

109. See Zhu Rongchang, 1996, p. 779, under the heading *Principles of Flying Training of Air Force* and on p. 180 under the heading *Guide Thought for Air Force Military Training*. "History and Evolution of PLAAF Military Training Guiding Concepts," *Kongjun Bao* (*Air Force News*), January 15, 2002.

110. According to interviews, Chinese athletic teams use this phrase to stress training hard.

111. Zhu Rongchang, 1996, p. 180.

112. *Kongjun Bao* (*Air Force News*), April 25, 2002.

113. Each training day is broken into at least three training periods (*changci*)--the morning, afternoon and evening, and nighttime. Therefore, a pilot could conduct sorties during two training periods on the same day.

114. The author visited the center in April 1989.

115. Interviews in China, Taiwan, Japan, and the United States.

116. *Dangdai Zhongguo Kongjun* (*China Today: Air Force*), Beijing: China Social Sciences Press, 1989, p. 311; Zhang Nongke and Zhang Jinyu, "Air Force Builds Modern, Comprehensive Tactical Training Base," *Jiefangjun Bao*, October 28, 1996, *FBIS-CHI-96-228*, November 26, 1996; "China Builds Airport Copy," *Associated Press*, April 28, 1999.

117. Chen Hanzhong, Chen Yiyuan, and Hong Heping, "Training Conducted Under Conditions More and More Similar to Those of Actual Combat," *Jiefangjun Bao*, July 19, 1995 (FTS19950719000807).

118. *Jiefangjun Bao*, July 19, 2000.

119. Hua Chun, Chang Tun-Hua, Kuo Kai, "Air Force Trains Crack Units Troops for Offensive, Defensive Operations," Interviewing Lieutenant General Liu Shunyao, PLA Air Force Commander," Hong Kong *Ming Pao*, August 2, 1997,

FBIS-CHI-97-226, August 2, 1997.

120. "Air regiment holds transregional night maneuver," *Air Force News*, November 23, 2000.

121. Zhu Rongchang, 1996, pp. 778-779.

122. Numerous articles in *Kongjun Bao* (*Air Force News*) for 2002 discuss how PLAAF flight schools and aviation units have implemented the two overall inspections programs.

123. This section provides a summary from Kenneth W. Allen on "Logistics Support for PLA Air Force Campaigns," pp. 251-306, in Andrew Scobell and Larry M. Wortzel, ed., *China's Growing Military Power: Perspectives on Security, Ballistic Missiles, and Conventional Capabilities*, Carlisle, PA: U.S. Army War College, Strategic Studies Institute, September 2002.

124. China's combat aircraft are made by hand without using standardized templates for drilling holes. Workers drill holes by the "eyeball method." Therefore, some parts might not fit another aircraft.

125. *Zhongguo Kongjun* (*China Air Force*) magazine, Issue 4, 2002, p. 21.

126. Wen Guangchun, ed., *Jidong Zuozhan Houqin Baozhang*, (*Logistics Support for Mobile Operations*), PLA General Logistics Department Headquarters Department, PLA Press, January 1997, pp. 189-190.

127. Zhao Bo, "Seven Days and Nights of Exercises in the South China Sea: Revelations as Guangzhou Military Region Air Force Military Transportation System Conducts a Comprehensive Support Exercise under Modern Conditions," *Jiefangjun Bao*, Internet Version-WWW, August 5, 2001, *FBIS-CHI*-2001-0806, August 5, 2001.

128. See *http://www.fas.org/nuke/guide/china/facility/airfield.htm*.

129. Deng Guilin, "Air Force in Tibet Sets Up a Comprehensive Logistics Support System," *Jiefangjun Bao*, July 17, 1996.

130. He Weirong, "Enlightenment from Examining Foreign Air Force Training," *Air Force News*, August 15, 2002. He became one of the four deputy chiefs of staff in 1996. He was assigned as the Jinan MRAF Commander in December 2002.

131. Department of Defense, "Annual Report on the Military Power of the People's Republic of China," July 2002, p. 27.

CHAPTER 5

THE PEOPLE'S LIBERATION ARMY NAVY AFTER HALF A CENTURY: LESSONS LEARNED IN BEIJING

Bernard D. Cole

INTRODUCTION

The People's Liberation Army Navy (PLAN) was officially established in May 1950; almost a quarter-century after the People's Liberation Army (PLA). This chapter will examine how Beijing has viewed the PLAN as an instrument of national security strategy. In particular, what "lessons learned" has the People's Republic of China (PRC) government drawn about employing its navy? The answers to that question should allow some tentative conclusions about how Beijing may aspire to take advantage of the "ubiquitous striking force of sea power."[1]

This chapter will review the PLAN's role as an instrument of the nation's security strategy during the past half-century, since that history provides guidance toward how current Chinese leaders view naval power as an instrument of the state. Beijing is modernizing its navy; does this program aim to change the PLAN from a coastal, "brown-water" force to an open ocean "blue-water" service able to secure Beijing's vast maritime territorial claims?[2]

Lessons Learned.

The first question about China's maritime lessons learned is the degree to which Beijing has learned or not learned the value of maritime power as an instrument of national policy. The post-1949 regime has consistently made national security decisions within a historically and geostrategically continentalist framework. Hence, Chinese views of naval power as an instrument of national power are likely to be constrained by a focus inland, to the north and west.

That said, the PRC government has never ignored sea power, has employed naval force on several occasions, and has learned some

hard lessons about the benefits, drawbacks, and requirements of employing that military instrument. The first interpretive period in this chapter is from 1949 to 1960, from the founding of the PRC to the apparent resolution of the post-Korean War struggle for control of PLA strategy and modernization. Beijing faced the full spectrum of strategic challenges during this decade, from very serious domestic unrest to possible global nuclear war. Domestic political events were an important influence on the development of China's navy, and, by inference, the leadership's view of its value. The Korean War exacerbated the lack of resources available for naval development in China, and the new PLAN relied on the Soviet Union for ships and assistance until 1960. Chinese policymakers learned the value of naval power in executing several national security missions: conducting joint amphibious operations with the army and air force, defense against amphibious raids, protection of sea-borne merchant traffic – including blockade-breaking – and establishing law and order on coastal and inland waters. These missions required only a limited, coastal defense navy, a "lesson" that China's experience in the Korean War did little to contradict, despite the ability of the allies to directly affect the course of that conflict through their almost unchallenged command of the sea.

Naval developments during the next period, from 1961 to 1976, were highlighted by the war in Southeast Asia, the split with the Soviet Union, the after-effects of the Great Leap Forward, and especially by the Great Proletarian Cultural Revolution (GPCR). Chinese strategic thought remained focused on land warfare, with the PLAN assigned to support the army; the primary naval role was to oppose a possible Soviet amphibious assault. Beijing apparently did not learn lessons about the greater usefulness of its navy from the PLAN's victory over a South Vietnamese task force in the South China Sea's Paracel Islands in 1974. Similarly, and as was the case in the Korean War, the American ability to use its command of the sea to launch air strikes and logistically support its forces ashore in Southeast Asia seemed not to impress Chinese strategists. The leadership did seek during this period to develop naval strategic nuclear deterrent power.

The following period, 1976-early 1990s, was marked by the end of the Cold War and the U.S. final emergence as sole global

superpower. One Chinese analyst, who decried the constraints imposed on naval developments during the GPCR, implied that the PLAN did not recover from that cataclysm until at least 1980, when "the Navy actively initiated research on weapons development planning."[3] The PLAN played no significant role in the 1979 war with Vietnam, although it defeated a Vietnamese naval force in 1988 in the Spratly Islands. This victory was the first step in an extended series of South China Sea island seizures that lasted through 1995, when China occupied Mischief Reef.[4] Beijing's view of the PLAN as a coastal force, dedicated primarily to opposing possible Soviet attack, started to change towards the end of this period. China's strategists apparently learned from allied operations in Southwest Asia the lesson that the PLAN had to be larger, technologically modernized, and capable of executing a range of national security missions.

The final period, 1995 to the present, began dramatically with the 1995-96 events in the vicinity of the Taiwan Strait. Other influential events were the allied campaign in the Balkans, highlighted by the bombing of China's Belgrade embassy, and Beijing's attempts to take advantage of post-Cold War events which have had an increasing non-nation state flavor. This period's new naval lesson to China's leaders may well be a Mahanian[5] belief in the PLAN's role as an instrument of national strategy. More to the point, Beijing learned from the spring 1996 events that to be effective, any policy toward Taiwan requires a creditable PLAN, if only to give pause to possible U.S. intervention.[6]

THE FRAMEWORK: GEOPOLITICS AND HISTORY

Although China includes over 11,000 miles of coastline and contains more than 6,000 islands, it historically has been a continental rather than a maritime power, more often viewing the sea as a potential invasion route for foreign aggressors rather than as a medium for achieving national goals. China has always depended primarily on ground forces to guard its national security interests — for the simple reason that threats to those interests have consistently arisen in the northern and northwestern Asian vastness. However, China, in spite of its historic focus on continental security

concerns, has not ignored its maritime boundaries. There have been periods during which the government has deployed powerful fleets dedicated to vital national security interests.

Chinese historians date organized naval warfare in their nation to the 6th century BC, Spring and Autumn period.[7] Navies were built, doctrine developed, and a supporting administrative infrastructure established intermittently during the Song, Yuan, Ming, and Qing dynasties, from approximately 900 to 1900 AD. These naval forces were used to pursue national security objectives, but when these objectives had been achieved the navy was largely disestablished, as the government diverted resources to the more consistently important continentalist and domestic elements of national security.

No dynasty fell as a direct result of maritime invasion or pressure; the navy was never vital to a dynasty's survival. Nonetheless, the Imperial period offers what may be significant cues to the way current Chinese leaders intend to employ their navy.

By the 19th century, China had fallen so far behind the global norm in naval power that it was unable to prevent the influx of imperialists — who came almost entirely by sea.[8] As China reeled from this onslaught, "self-strengthening" efforts adopted the slogan "Chinese learning as the fundamental structure, Western learning for practical use." Naval modernization embodied admiration of modern warship technology and a belief that China's humiliating defeat by the imperialist powers had been made possible by their naval and commercial sea power. China had deployed a modern navy by 1884, using three approaches to build the new force: indigenous production, purchases abroad, and reverse engineering foreign systems. The new navy suffered from high-level governmental corruption and weak administration and soon came to grief in war with two foreign naval powers: France in August 1884 and Japan 10 years later.[9] Beijing's 19th century fleets failed to become a coherent, national navy. Land warfare also dominated the civil war and Japanese aggression that lasted from 1911-49; naval forces were weak and peripheral to the struggle.

CHINA "STANDS UP": THE PLAN, 1949-60

The communist victory in 1949 was an army victory, but the

terminal stages of the war against Kuomintang (KMT) forces had required the PLA to deal with a riparian environment.[10] The precursor to the PLAN was a naval force established in February 1949 by the Third Field Army in East China, under the leadership of Marshall Chen Yi. Chen "informed" General Zhang Aiping that he was to oversee the project, with orders to complete the process by the end of 1949 so the new navy could be used to transport and support infantry troops against Taiwan.

Zhang immediately organized the East China Navy. His task was "jump-started" in April, when 25 warships of the KMT Navy's Second Fleet under the leadership of Admiral Deng Zhao-xiang defected to the communist regime. Zhang also began building a shore-based infrastructure, with a naval school established in Nanjing in August, and organized a rudimentary maintenance and logistics infrastructure.[11]

The East China Navy began augmenting its forces by rapidly repairing available ships. By the end of October, the first group of 16 escort vessels and gunboats was ready for operation, forming the communist regime's first navy unit.[12]

China's new rulers recognized the need to deal with maritime issues. The nation's policymakers were mindful of China's recent history: "In the past hundred years," wrote one PLA strategist, "as a result of our complete lack of coastal defense, imperialist aggression against us has come mostly from the sea. . . . naval defense is an important component part of national defense and that our national defense would not be solid unless there is a powerful naval defense force."[13] In late August, Mao Zedong and other CCP leaders decided to send Zhang Aiping to the Soviet Union to discuss importing Soviet vessels and inviting Soviet naval advisors. Zhang's naval delegation arrived in the Soviet Union in mid-September and "quickly received positive Soviet responses to their demands."[14]

The new government in Beijing immediately faced attacks on its coastline and island territories by the KMT regime that had fled to Taiwan. In fact, on June 21, 1949, the KMT government announced a blockade of all coastal ports in the CCP "occupation zone," and its naval and air forces started harassing merchant ships operating to and from the mainland; mines were laid to block the mouth of the Yangzi River; KMT bombers attacked coastal cities and former KMT

naval vessels that had defected to the CCP.[15]

Chinese new naval forces were assigned specific missions on several occasions. First, two maritime threats were perceived in 1949: the local threat from Taiwan, and a more general threat from the United States. This perception was accurate insofar as the KMT navy continued raiding coastal installations, landing agents, attacking merchant craft and fishing vessels, and threatening invasion of the mainland on a larger scale. Hence, in 1950 coastal defense was emphasized as the primary mission of the newly created "East China Military Command," headquartered in Shanghai and deploying more than 450,000 personnel.

Second, Beijing recognized China's maritime vulnerabilities and opportunities, including a long, exposed coast, dependence on fisheries, reliance on coastal commerce, weak economy, and a historic continentalist defense orientation.

Third, when the "East China People's Navy" was established on May 1, 1949, its mission was described as defending China's coast against "imperialist aggression from the sea," continuing the fight against Chiang's forces, and helping with economic reconstruction.[16] The navy's commander repeated its mission in slightly different words, averring that the fleet was needed to safeguard China's independence, territorial integrity and sovereignty:

> against imperialist aggression. . . . to destroy the sea blockade of liberated China, to support the land and air forces of the People's Liberation Army in defense of Chinese soil and to wipe out all remnants of the reactionary forces."

Fourth, senior strategy makers in China saw the need for naval forces to establish law and order on coastal and riverine waters, in addition to the oft-stated missions of helping the army capture offshore islands still occupied by the KMT, and preparing for the capture of Taiwan. Hence, the CCP Politburo charged the new navy with "defending both [eastern and southeastern] China coasts and the Yangtze River."

In other words, even before the PRC was formally established in October 1949, its leaders had learned that the new government needed an effective navy. The PLAN was formally established in May 1950 under the command of General Xiao Jinguang.

Not at all surprisingly, given the emphasis on defense and the paucity of resources, Beijing adopted a maritime strategy — in so far as it adopted one at all — of the Soviet coastal defense doctrine known as the Young School. This strategy emerged in the Soviet Union in the very early 1920s, as the new revolutionary regime lacked the means to do little more than defend itself against White Russian and foreign assaults. This strategy relegated naval forces to supporting the army.

There were striking lessons for PRC leaders to draw from comparing the strategic situations of their new regime and the early 1920s Soviet Union:

1. a new regime that was under military and political attack by several capitalist countries and had not completely quelled domestic fighting;

2. a regime that *expected* to be attacked by capitalist nations, with amphibious attack a current fact and future threat, especially from "the ultimate bastion of imperialism, the United States;"[17]

3. a navy that was in disarray, and almost entirely manned by captured/defected former enemy personnel;

4. budgetary shortages that limited the amount available to spend on expensive naval systems;

5. lack of an industrial infrastructure to produce indigenously modern naval armaments; and

6. a maritime frontier hemmed in by adversarial fleets and bases.

The most practical lesson from such a comparison was that the PRC needed an inexpensive naval force that could be quickly manned and trained. When the PLAN conducted a ceremony to name its ships on May 23, 1950, it had 51 combat vessels, 52 landing vessels, and 30 auxiliary vessels, with a total tonnage of about 43,000;

it already outclassed the KMT in both quantity and quality, at least on paper.

Generals Zhang Aiping and Xiao Jinguang were typical of early PRC naval leadership: revolutionary officers who had spent their entire career as ground commanders and were transferred to the navy for reasons of political reliability and proven combat record, rather than for any naval experience. In fact, this system continued to dominate until 1988, when career PLAN officers began leading the navy. That effective naval commanders require a different background of education, training, and experience than do army commanders is an example, perhaps, of a lesson *not* learned until relatively late in the life of the PRC.

Soviet Assistance.

Soviet assistance for establishing the PLAN had been obtained by Mao Zedong during his 1949-50 visit to Moscow: China used half of the initial Soviet loan of $300 million for the navy, including the purchase of four old Soviet submarines, two destroyers, and a large number of patrol boats. The new force also included about 10 corvettes, 40 ex-U.S. landing craft, and several dozen miscellaneous river gunboats, minesweepers, and yard craft, all from the Nationalists.[18] Moscow helped establish a shore-based infrastructure, including shipyards, naval colleges, and extensive coastal fortifications.

The Soviet Union provided old, poorly maintained ships, and insisted that China pay for its purchases. This exacerbated the PLAN's acquisition problem, since Mao Zedong instituted two priorities for the first Five-Year Plan in 1953: fighting the war in Korea and rebuilding industry. The armed services were limited to 30 percent of national expenditures. Hence, the PLAN was limited in the amount of money allocated for the purchase of foreign ships, while even domestic shipyard allocations had to be "based upon China's industrial growth," meaning that warship construction was not necessarily prioritized over commercial ship construction.[19] One reason for this low priority was the lesson Chinese leaders drew from the Korean War: land power remained the dominant element in national defense.

Events during this initial period of navy building highlighted to Beijing issues that had to be resolved before effective maritime forces could be deployed. These included recruiting, training, and educating enlisted and officer personnel and the industrial requirements of building and maintaining a fleet.

LESSONS: THE OFFSHORE ISLANDS

Beijing's immediate goal in 1949 was seizure of the offshore islands still occupied by the KMT; the invasion of Taiwan was initially scheduled for the spring of 1950, but soon postponed to the summer of 1951. Mao Zedong's strategic goal was to complete the unification of China and hence bring the revolution's initial phase to a successful close. He considered the capture of Taiwan "an inseparable part of his great cause of unifying China."[20] Mao lacked experience in naval warfare, but quickly learned that a successful campaign against Taiwan would require adequate amphibious training, naval transportation, "guaranteed air coverage," and the cooperation of a "fifth-column" on the island — requirements that still apply.

Most of the islands that remained under Nationalist control lay within 25 nm of the mainland. Most prominent among these many island garrisons were the approximately 20,000 KMT troops who had retreated to the Kinmen (Quemoy) Islands; perhaps 5,000 to the Dongshang Islands, about 1,000 to Mazu (Matsu) Island, and 160,000 to Hainan.[21]

Initial efforts by the new regime to capture these islands, including Daxie, Jintang, and Taohua, succeeded with little difficulty; as a result, PLA commanders probably underestimated the difficulty in completing the occupation of all the islands, including Taiwan. But the PLA in late 1949-early 1950 still lacked significant air and surface elements, was short of shipping suitable for troop lift (and lacked the crews to man what it possessed), and was ignorant of the parameters of even short-range amphibious operations.

The first hard lesson about amphibious operations was learned when a 10th Army Corps division made a landing on Kinmen on October 25, 1949. The KMT held control of the sea and the air, and knew that the invasion was coming. They destroyed all the PLA

transport vessels after their embarked troops landed on the island; the invading soldiers were quickly defeated and thousands captured. Then, a division of the PLA's 7th Army Corps – between 5,000 and 7,000 men – landed on Dengbu Island on November 7 and was similarly routed. These defeats "shocked the CCP leadership."[22]

The losses made the military and party leadership realize that the PLA demanded new skills and training. The strategic goal – reuniting all insular territory with the mainland – remained the same, but operational doctrine and tactics had to change.

China achieved a major amphibious victory in April 1950 when the PLA occupied Hainan, after Taiwan the second-largest island held by the Nationalists. The campaign cost heavy PLA losses, but more than 90,000 Nationalist troops were captured. This victory resulted from careful planning, followed by the neutralization of superior Nationalist ground, naval, and air forces.[23] Shore-based artillery was employed to gain effective control of the sea and airspace between Hainan and the mainland, and Taiwan's senior commanders performed poorly.

In retrospect, China did not have to be concerned about American intervention in its island campaigns, even that involving an assault on Taiwan; neither the United States nor any other foreign power was likely to intervene in what promised to be the final stages of the Chinese civil war.

The U.S. Navy considers amphibious warfare to be the most difficult of all naval operations to conduct, a lesson learned by the PLA during this period. Previous success in land warfare did not necessarily lead to success in island warfare. As it learned in the early island operations, PLA victory against Taiwan would require effective joint warfare, with the cooperative efforts of land, sea, and air forces.

The list of specific lessons learned by Beijing during the 1949-50 island campaigns was headed by that of simply finding a way to cross intervening straits. Other major problems included acquiring sufficient transport vessels; how to load, organize, and control those vessels to transport troops and then to use small boats to land the troops; how to avoid soldiers' seasickness; how to establish and then exploit beachheads; and gathering information about weather, currents, tides, and bottom topography. Developing plans for

invading Taiwan included mobilization of all civilian vessels in the coastal provinces, with the organization of three naval task forces to transport the troops necessary for the cross-strait operation.[24]

LESSONS: TAIWAN

First Phase.

Extending Beijing's rule over Taiwan has remained near or at the top of China's list of vital strategic interests since 1949. On June 14th of that year, Mao Zedong ordered General Su Yu, the Third Field Army commander, to "pay attention to studying the problem of seizing Taiwan," stating that,

> if Taiwan is not liberated and the KMT's naval and air bases not destroyed, Shanghai and other coastal areas will be menaced from time to time. If Taiwan is not liberated, we will not be able to seize hundreds of thousands of tons of vessels. Our coastal and inland water transportation will thus be controlled by foreign merchants.[25]

Chinese shipyards hastened the repair and construction of transport vessels, at a cost of 1.9 trillion yuan.[26]

By January 1950, twelve armies had been assigned to the Taiwan campaign, with four armies designated for the assault phase. This force probably numbered approximately 150,000 troops.[27] General Su Yu estimated that 760,000 tons of shipping, plus 2,000 small boats, were needed to execute this campaign plan, but these forces were not available.[28] The general knew even more troops would be required, since the KMT forces on Taiwan were becoming more capable with the passage of time, but more troops required more transports and supporting vessels. PLA planners in 1950 had to try to compensate for the shortage of the most vital resource for carrying out an assault on Taiwan, troop lift, which remains a problem for the PLA.

Hence, the PLA was far from completing preparations for the Taiwan campaign at the outbreak of the Korean War. These preparations were effectively shelved in July 1950, when both Generals Su Yu and Xiao Jinguang were transferred to serve as commander and deputy commander, respectively, of the Northeast

Border Defense Army.

Second Phase.

The Korean War so absorbed China's military attention and resources that the PLA would never again come as close to being prepared to assault Taiwan, as it had been in the early spring of 1950. The strategic ambition remained, but no serious effort was made to deploy a navy sufficiently strong to carry it out. The most obvious evidence of this is that during the 1950s Beijing did not authorize construction of a single amphibious ship.[29]

China's leaders remembered the lessons of the 1949 Kinmen battle: a joint operational capability was required for successful amphibious assaults, and shipping requirements were complicated by the fact that it was not enough to offer sufficient transport vessels to the first line forces; if the second-line forces did not have adequate means of transportation, the first-line forces would be cut off from logistics support, isolated, and defeated.

Beijing's fear of American intervention was heightened in June 1950, when President Harry Truman ordered the U.S. Seventh Fleet into the Taiwan Strait at the outset of the Korean War. Although he explained America's reentry into the Chinese civil war as a means of preventing either side from attacking the other, Beijing believed that Truman was in fact committing the United States to the defense of Taiwan — after having refused to do so for many months. Premier Zhou Enlai called Truman's move "violent, predatory action by the U.S. Government [that] constituted armed aggression against the territory of China and total violation of the UN charter."[30] Beijing recognized the complete U.S. air and sea superiority in East Asia.

Although some smaller KMT-held islands were captured in the summer of 1950, in August General Chen Yi, commander of the PLA's East China Headquarters, recommended to the CCP Central Committee that the Taiwan campaign be delayed from 1951 to 1952. The Central Military Commission (CMC) approved, noting that "It is also decided not to [re]assault [even] Kinmen before April 1951."[31]

Third Phase.

The Korean War presented mixed naval lessons to China. The

amphibious landing at Inchon in September 1950 was a major turning point of the war, while allied command of the sea allowed aircraft carriers and battleships to bombard Chinese and North Korean forces at will. The U.N. forces suffered only one significant maritime defeat, when a planned amphibious assault on the east coast port of Wonsan in October 1950 had to be canceled because of North Korean mines. Overall, however, Korea was not a maritime conflict and the PLA's efforts were evaluated as successful, which contributed to continued belief in a defensive, coastal navy.[32]

This conclusion was not unanimous; after witnessing the effects of modern weaponry first-hand in Korea, some PLA leaders wanted to modify Mao's theory of "People's War" by acknowledging the importance of "modern weaponry." Peng Dehuai, who had commanded Chinese forces in Korea, was the most prominent of these. Peng reportedly stated that "People's War and such stuff are outdated [at sea because] in battle the Navy relied upon the tonnage of its vessels, the caliber of its guns and the slide rule."

Peng's attempts at "regularization and modernization" of the military brought the accusation that he was trying to "negate the principle of people's war" by placing "military technique in the first place and [denying] that political and ideological work is the primary factor in building up" the PLA's "combat strength." His attempt to modify Mao's military theories was one of the reasons he was dismissed from office in disgrace in 1959.[33]

The end of the Korean War gave rise to apparent debate at the senior-most levels of the CCP about the means of implementing national security strategy. This debate may be simplistically described as a contest between those who wished to modernize the PLA based on Korean War experiences, and those who believed in a more fundamentalist version of "people's war."

Naval lessons were "learned" by some PLA leaders, then, but were subsumed within a debate that involved the economic and social disasters inflicted on China by Mao Zedong, and probably included something of a leadership struggle. Mao and his adherents prevailed, with severe impact on the PLAN: modernization was extremely limited, focusing almost entirely on Mao's directives to develop a sea-borne nuclear deterrent. Any Korean War lessons learned in maritime warfare were disregarded for the near-term.

The PLAN was not ignored, however: in December 1953, Mao stated at an expanded session of the Central Committee Politburo "we must build a strong navy": (1) to get rid of disturbances by ocean pirates and protect the security of ocean channel shipping; (2) to prepare the strength to recover Taiwan at an appropriate opportunity and eventually unify our entire country; and, (3) to ready our forces to resist an invasion of imperialism from the sea. He qualified these goals, however, by noting that the navy had to be built "in a planned, progressive way in accordance with the situations regarding industrial development and finance."[34]

Recovering Taiwan remained a key national goal for Beijing, but little was done to equip the PLA to achieve that goal. The navy during the decade following the end of the Korean War had little standing in military budget priorities; few ships were acquired and it was only in the latter half of the 1960s that the PLAN began acquiring vessels equipped with guided missiles and other relatively modern equipment.

Taiwan remained too weak for its stated goal of recovering the mainland to serve as anything but empty rhetoric. On Beijing's side, Taiwan was treated as a means of national security signaling, with Beijing creating the crises of 1954-55 and 1958 in the straits. China naval operations in the mid-1950s focused on defeating the continuing KMT attacks against the mainland and on capturing islands still held by Taiwan.

The first of these major incidents began in September 1954, when PLA artillery began shelling Kinmen Island. This barrage continued until May 1955, and included KMT naval vessels as targets; in November 1954, the 1,400-ton KMT destroyer escort *Taiping* was sunk."[35] The 1954-55 episode included PLA capture of the Dachen Islands, an effort that took advantage of superior PLA air power and a well-coordinated amphibious assault against an outlying island.[36] China demonstrated that it had learned the lessons of the Kinmen debacle regarding the conduct of amphibious warfare.

This success at the operational level was more than offset by the strategic defeat Beijing suffered when Chiang Kai-shek was able to use the crisis to leverage a mutual defense treaty with the United States. The *de facto* American intervention that had followed Truman's June 1950 action had now become a *de jure* alliance. As

demonstrated by the role played by U.S. naval forces in helping to evacuate the Dachen Islands in 1955 and to resupply Kinmen in 1954-55, the PLAN remained a limited factor in the Sino-American strategic equation.

Mao renewed the strait crisis in the summer of 1958, primarily with artillery barrages that peaked between August and October.[37] In neither of these straits crises did Beijing apparently intend capturing Kinmen or Mazu, and the incidents emphasized the PLAN's limited capabilities.

Nonetheless, the 1950s ended with Chinese possession of all the disputed islands except Kinmen, Mazu, and, of course, Taiwan. The PLAN also stopped most of the KMT raids on the mainland, as well as attacks on merchant and fishing vessels.[38] Beijing clearly had learned the lesson of the need for naval forces to protect sea-borne trade and the fishing industry.[39]

This was a turbulent period in China, due to the break with the Soviet Union, the Great Leap Forward, and power struggles within the CCP. It was not a time of innovation or significant change in the military structure. Despite the naval lessons so painfully learned during the 1950s, the most important military experience of the decade for China's leaders had been Korea, overwhelmingly a land war for the PLA. Hence, the PLAN's "lessons learned" had little effect on the strategic thought and policymaking of the nation's political-military leadership at the end of the PRC's first decade.

A NEW SITUATION: 1960-76

The PLAN began to grow and modernize during this period, despite the severe disruptions of the GPCR, the break with the Soviet Union, and the continuing standoff with Taiwan. The navy's input to the third 5-year plan was approved by the CMC in April 1967, including the design and construction of "advanced medium-sized surface ships, medium-sized submarines, and nuclear submarines. . . .[and] a new missile seaward defense boat."[40] This program indicates an early move toward "offshore active defense," the term frequently used in recent years by Chinese analysts describing the PLAN's strategic role in national security strategy.

For nuclear deterrent forces, Beijing initially relied on the Soviet

Union during the 1950s. The stresses in the alliance with Moscow became more divisive as the decade progressed, however, in part because Mao Zedong was determined that China develop its own nuclear forces, proclaiming "even if it takes 10,000 years, we must make a nuclear submarine."[41] The budgetary priority accorded nuclear weapons, the economic disruptions resulting from the disastrous Great Leap Forward, and continuing belief in Maoist orthodoxy all contributed to the lack of resources for building a strong Chinese navy during the late 1950s and 1960s. The PLAN had been organized, sent to sea, and proven effective as a coastal defense force within 10 years of its founding, but except for the CMC-controlled program to launch a sea-borne nuclear deterrent force, the navy remained in a supporting role for the army.

Despite the split with the Soviet Union and the war in Vietnam, China's strategic focus during this period was domestic, mostly because of crises of the leadership's own making. Problems for the PLAN resulted from the Soviet withdrawal in 1960, fuel shortages, maintenance inadequacies, difficulty finding well-educated recruits, and continued second-class status in the national security strategy hierarchy. Another bit of evidence that Beijing was slow to learn how to deploy a modern, effective navy was the "auxiliary maritime militia," a Maoist hangover composed of fishermen and coastal junk sailors. This force, probably numbering approximately 750,000 people aboard some 140,000 craft, was intended to supplement the navy's ability to conduct coastal reconnaissance and surveillance operations.[42] In fact, the militia served as little more than a dead zone for already scarce PLAN resources.

The 1960s were marked by major foreign and domestic events that further constrained development of a sea-going navy. The split with the Soviet Union was signaled during Nikita Khrushchev's October 1959 meeting with Mao Zedong in Beijing and was dramatically executed in mid-1960, when Soviet advisors (and their plans) were withdrawn from China. The navy suffered with the rest of the PLA, as projects were left in turmoil. Furthermore, none of the other significant events in the early 1960s, including battles with India and the Southeast Asia conflict, directly involved the navy; they did not provide justification for improving the PLAN, but rather served to limit naval modernization.

Although the PLAN's strategic role remained limited by a Maoist emphasis on People's War, Minister of Defense Lin Biao may have wanted to institute a policy of technological development coequal with "politics in command." He did not press his ideas, however, and as the decade ended was solidly on the side of "politics," writing "long live the victory of people's war."[43] This may have simply reflected Lin's belief that the CCP had to remain firmly in control of the PLA for China to survive and that ideological reliability was more important than modern hardware, a strategic view certain to maintain the prominence of army forces at the expense of the navy.

China's strategic picture changed radically during the 1960s as relations with the Soviet Union deteriorated to the point of armed conflict along the Amur River. The former ally was now the enemy; soon the United States would be China's ally, which meant that Beijing's strategic focus was primarily to the north and west – away from the sea.

The GPCR, lasting from 1966 to 1976, seriously hampered naval modernization; even the relatively sacrosanct missile, submarine, and nuclear weapons programs were affected.[44] The PLAN continued to serve in support of the army; modernization was limited, since People's War viewed technology and weaponry as less important than soldiers imbued with Maoist ideology.

A review of global naval developments indicates that PLAN modernization was retarded by perhaps two decades as a result of the program restrictions and personnel losses that occurred during this political maelstrom. Except for the evolution of maritime nuclear power, the PLAN missed or was very late joining common developments in most warfare areas during the 1950s and 1960s, including guided missiles in anti-air (AAW), anti-surface (ASUW), and anti-submarine warfare (ASW); automation and computerization of command and control (C3); the expanded use of ship-borne helicopters; automation of gunnery and sensor systems; and even the advent of automation and gas turbine technology in ship propulsion.

PLAN modernization was still hamstrung at the end of the GPCR by the "Gang of Four." For instance, Jiang Qing led an attack on naval missile development. Another member of the "Gang of Four," Zhang Chunqiao, expressed the Gang's anti-navy position and

support for the "continentalist view."[45] Despite this attitude and a lack of resources for major conventional force development, the PLAN had moved into the missile age by 1976, deploying a Soviet-designed ballistic missile submarine and the first frigate armed with anti-ship cruise missiles.

Mao's determination that China become a nuclear power carried through the ideological turmoil of the late 1950s, 1960s, and early 1970s, as Beijing invested heavily in developing nuclear-armed missiles and a nuclear-powered submarine to launch them. These were national rather than PLAN projects, however, and did not significantly increase the navy's strategic status in the view of the leadership. Strategic thought in Beijing remained focused on land warfare, with necessary airpower and nuclear adjuncts; the PLAN remained characterized as a supporting arm of the army.

1976-99.

Mao Zedong reportedly supported the development of a modern navy in May 1975 at a meeting of the CMC.[46] He was probably reacting both to the Soviet threat and to the development of a powerful navy by China's ancient protagonist, Japan. The PLAN's first priority in the 1970s was defending against possible Soviet amphibious assault from the northeast, since Moscow's navy was considered a major threat, despite the weak Soviet amphibious forces in the Pacific.[47] Other missions included combating criminal activities such as smuggling, piracy, and illegal immigration; sea and air rescue (SAR); and safety of navigation. These were important, but did not have strategic implications.

Perception of an increased maritime threat from Moscow was heightened by Soviet naval developments in the 1960s and 1970s, even though they were defensive in motivation and aimed at the United States. China's concern about Soviet maritime power was strengthened when Moscow demonstrated its new global navy in the 1975 *Okean* exercises.

The Soviet Pacific fleet had become the largest of Moscow's four fleets by the mid-1970s, almost doubling in size and including the latest combatants, notably nuclear-powered and nuclear-armed surface ships and submarines. Soviet merchant and fisheries ships

were also omnipresent in Pacific waters vital to China's economic interests. The Soviet navy in the late 1970s and 1980s was poised to threaten sea lines of communications (SLOCs) vital to Beijing's rapidly increasing merchant marine and overseas trade, as Moscow's naval forces maintained a continual presence in the South China Sea, Indian Ocean, and North Arabian Sea.

Several factors continued to impede development of a large, modern Chinese navy during the early years of this period. The political after-shocks of the GPCR, as Hua Guofeng and Deng Xiaoping contested for the leadership of post-Mao China, limited the resources devoted to military modernization. This struggle was not resolved until 1980, with Deng emerging on top.

After the Gang of Four were arrested in October 1976, Premier Hua Guofeng noted the PLAN's nuclear deterrent mission. In 1980, however, Deng Xiaoping reemphasized the navy's role as a coastal defense force, a view retained throughout the first half of the decade. "Our navy," Deng asserted, "should conduct coastal operations. It is a defensive force. Everything in the construction of the navy must accord with this guiding principle."[48] CMC Standing Committee Vice-Chairman Yang Shangkun reemphasized this in August 1985, when he declared that "the construction of the Chinese Navy has been determined by the nature of our state. . . . The Navy is fundamentally a coastal defense force. The Navy must be built in accordance with this characteristic."[49]

Naval growth was also limited by disorder in China's economic and social structures that lasted beyond the end of the GPCR. This turmoil especially affected the military-industrial complex, hindering PLA modernization efforts. Furthermore, the PLAN was not significantly involved in the 1979 "punishment" of Vietnam; the sobering lessons of that conflict applied most directly to the army. Hence, the PLAN's position within the PLA almost certainly did not improve by comparison with the army; the recognized need to improve that branch's capability probably lessened the budgetary resources available to the navy.

Finally, the triangular play among China, the Soviet Union, and the United States meant that by 1980 Beijing could rely on the world's largest, most modern navy to counter the Soviet maritime threat. Furthermore, given the U.S.-Japan security treaty, Beijing

could subsume concern about future Japanese aggression within its strategic relationship with Washington.[50] Hence, the PLAN could not expect a more significant role as an instrument of national strategy in Beijing as the 20th century approached its final decade. There was no reason for China's strategists in the early 1980s to have learned new lessons about the value of the PLAN as an instrument of national policy.

Events soon occurred, however, that probably raised the PLAN's profile in the minds of China's leadership. First was the new military strategy adopted by the CMC in mid-1985, shifting the PLA's focus from a major (nuclear) war with the Soviet Union to local, limited wars on China's periphery. Five types of limited wars were discussed in Chinese military journals in the late 1980s: (1) small-scale conflicts restricted to contested border areas; (2) conflict over territorial seas and islands; (3) surprise air attacks; (4) defense against deliberately limited attacks into Chinese territory; and, (5) "punitive counter-attacks" launched by China into enemy territory to "oppose invasion, protect sovereignty, or to uphold justice and dispel threats."[51] This new paradigm, especially case (2) above, implies a lesser role for heavy army units, and a greater role for naval forces. Major exercises in the past decade and a half seem to cover these five scenarios, with the PLAN the dominant service in several, including annual events since 1988.[52]

Second was the end of the Cold War and the concomitant decay of the Russian Pacific Fleet to the point where few of its warships got underway on a regular basis. Third was the heated up sovereignty disputes in the South and East China Seas during the first half of the 1990s. The complex situation in the South China Sea occurred in an area where the PLAN was used to victories (in 1974 and 1988); this record continued during the imbroglio with the Philippines during 1995-98. In the East China Sea, where China and Japan dispute the sovereignty of the Daoyutais (or Senkaku Islands in Japanese), Beijing and Tokyo worked successfully to keep the lid on the disagreement.

Fourth was China's increasing dependence on imported sources of energy, a dependence that began in 1992 and continues to increase. This brought to the fore the traditional navy mission of maintaining the security of the SLOCs, a mission the PLAN was and remains

capable of performing only in China's coastal waters.

Fifth, Beijing's analysis of the post-Cold War world assumed that a multilateral international structure would emerge. That this did not occur was probably disappointing and perhaps even disillusioning to Chinese policymakers. However, the world that did develop in the 1990s, although featuring the United States as "unipower," was also disruptive enough to give some credence to the more diffuse international political situation envisioned by some Chinese analysts. The decade's events in the Persian Gulf, Africa, the Middle East, Southeastern Europe, Russia, and South Asia may have lent credence to those who believed that the PLAN should be developed as a primary instrument of enforcing sovereignty, especially in view of China's very long coastline, plethora of islands, and offshore territorial claims.

Sixth, the economic disaster that befell most of East Asia after mid-1997, exacerbated by Japan's continuing economic torpor, has left China in a position of relative economic strength not seen since the height of the Qing Dynasty. This has allowed double-digit increases in the PLA (and the PLAN) budget, as well as providing a comfortable zone within which senior policymakers could entertain projecting China's presence on a more consistently global basis, a role best carried out by the PLAN.

The navy also proved its value as an instrument of the state across a wide spectrum of nationally sanctioned activities during the 1980s. These included several deployments to the South Pacific to support intercontinental ballistic missile (ICBM) flight tests; the first successful launch of a long-range missile from a submerged submarine; support of early satellite launches; Arctic and Antarctic explorations; and the conduct of foreign port visits, including in 1989 the first PLAN visit to a U.S. port.

In short, major changes in China's domestic and international situation in the 1980s heightened the importance of maritime power to national security strategy. Beijing's second maritime priority, after the Soviet threat, was securing offshore territorial claims. Taiwan was the most important of these, but the South China Sea was also significant. Successful action against South Vietnamese naval forces in 1974 resulted in Chinese possession of the disputed Paracel Islands; whether Beijing learned any lessons from this episode — other than that other claimants to the South China Sea

islands and reefs would not accede meekly to Beijing's territorial claims — is difficult to evaluate, since we lack detailed knowledge of PLA planning and intentions preceding the actual battles.

This episode may have convinced Chinese strategists of the need for a force dedicated to amphibious warfare, and hence contributed to the 1979 resurrection and assignment to the South Sea Fleet of the PLAN's Marine Corps, which first had formed in 1953 but disbanded in 1957. The navy's slender amphibious assets were improved and concentrated in the South Sea Fleet, with a training regimen that included "island seizing" exercises.[53] This development strengthened Beijing's policy view of the PLAN as necessary to enforcing insular territorial claims.

Another date which may have been pivotal in China's post-Cold War national security view actually occurred before that period was clearly over: the June 1989 massacre in Tiananmen Square, which effectively cut Beijing off from American military assistance and eased the turn to Moscow for modern weaponry, especially for the PLAN. Furthermore, Beijing employed its navy as a primary instrument for combating the U.S.-led efforts to isolate China after the Tiananmen events by conducting a campaign of ship visits throughout Southeast and South Asia in the second half of 1989 and 1990.

By the turn of the 21st century, China's leaders came to understand and value the PLAN's role in diplomacy and as a deterrent force. The navy's role in national strategy was greatly enhanced over that of 1950, 1960, or 1980, but still remained secondary to land forces in terms of value as an instrument of national defense.

THE NEXT PLAN

One useful list of generic naval missions includes (1) maritime diplomacy; (2) domain maintenance; (3) maritime presence; (4) sea control/sea denial; (5) deterrence; (6) tripwire; and (7) power projection.[54] Counterpoised to this list are Beijing's most important national security concerns today, and how the PLAN fits into those priorities. What lessons about employing naval power have been absorbed by China's national security policymakers? At one level, Beijing's number one national security priority is maintaining the CCP in power, which requires maintaining social peace and

domestic stability; the second is achieving status as East Asian regional hegemon, and the third is status as a world power. At a second level is defense of continental China; defending and exerting sovereignty, including disputed insular territories; and reuniting Taiwan with the mainland.[55]

A strong PLAN is, *ipso facto*, necessary to achieve these seven goals, since the first depends on accomplishing the latter five. Naval units are particularly useful for exercising diplomatic *presence*, for demonstrating China's interests throughout East Asia and indeed throughout the world; a two-ship PLAN task force recently completed a circumnavigation of the globe, the first in China's history, visiting Asian, African, European, and Western Hemisphere nations.[56]

Naval forces also are inherently mobile and flexible instruments, and hence particularly well-suited for "wars on the periphery." This mobility also allows naval forces to serve as a "force multiplier," affecting a security situation to a degree greater than the strength of the units involved.

Naval expansion and modernization may also have been spurred during the 1980s by the coastal concentration of China's burgeoning economy and military facilities. Also, the resources necessary for a modernized PLAN became available as a result of China's dramatic economic development and increasing wealth. Beijing's increasing focus on the national security issues posed by Taiwan and other insular disputes strengthened the apparent value of naval forces as an instrument suited for their resolution.

Several events contributed to an environment favorable to PLAN modernization in the 1990s. First was Beijing's 1985 strategic decision that the Soviet Union no longer posed a major threat to China in terms of global nuclear war, and that in the future the PLA would have to prepare instead for "small wars on the periphery" of the nation. The emphasis on a "peripheral" (to a significant extent maritime) rather than continental strategic view improved the PLAN's position in obtaining resources within the PLA.

Second was the rise to prominence of General Liu Huaqing. He had been schooled in the Soviet Union, served most of his career in the science and technology arms of the PLA, and was close to Deng Xiaoping. Liu's appointment to head the navy was unusual, since he held substantive (general/admiral) rank senior to that (lieutenant-

general/vice admiral) normally held by the PLAN commander. His promotion indicated that Deng wanted to improve the navy's capability and status within the PLA, and raise its profile as an instrument of China's national security strategy.

Liu exerted a strong force on naval developments as navy commander from 1982-87, and then as vice-chairman of the CMC until 1997. He is best known for promulgating a three-stage maritime strategy for China that provided justification on which PLAN officers and other navalists could base their plans for a larger, more modern navy. More important were his accomplishments in reorganizing the navy, redeveloping the Marine Corps, upgrading bases and research and development facilities, and restructuring the school and training systems.[57]

Third, China's widening maritime concerns and increased budget resources in the 1980s raised interest in a strong modern navy. PLAN modernization proceeded along three paths — indigenous construction, foreign purchase, and reverse engineering — much as had the Qing Dynasty's "self-strengthening" navy of 100 years earlier. The 1980s program proceeded at a measured pace, however, and Beijing did not embark on a major naval building program. China's national security strategy in the 1980s and 1990s shifted between the United States and the Soviet Union as the Cold War ended. Throughout, Beijing seemed to follow Lord Palmerston's dictum that a nation has no permanent allies, but only permanent interests.[58] China's strategic concerns remained primarily domestic and continentalist, but the maritime element gained in importance.

Current maritime strategic thinking in China remains somewhat opaque, with most public statements made by uniformed officers who have an obvious interest in advancing such strategy. A good summary of such thought still remains Allen Whiting's 1996 article on PLA threat perceptions.[59] He cites both naval officers and business/government leaders as to the value of the PLAN's mission; they cite national interests — sovereignty, defense of the homeland, offshore economic deposits — that are not new but that are increasingly important to an increasingly anachronistic communist regime in Beijing striving to retain power over an increasingly capitalistic society. Hence, the PLAN has almost certainly garnered new regard as an instrument for achieving national strategic goals.

The navy has grown and modernized at a steady if moderate

pace during the past 2 decades. Construction has included guided-missile destroyers (DDGs) and frigates (FFGs), replenishment-at-sea ships, conventionally and nuclear-powered attack-submarines, and support craft including missile-tracking ships and officer-training vessels. Foreign purchases were at first concentrated in the west, with the United States selling China modern maritime gas-turbine engines and torpedoes, and western European nations selling weapons and sensor systems that included Italian torpedoes, French cruise missiles, and British radars.

More recently, the PLAN has gone to Russia for ships, weapons, and sensor systems. European nations, including Israel, have continued serving as a source of some systems. This acquisition process reflects an increased budget for the PLAN, not just in its "regular" budget, but also in "special" funding allocated by the CMC for the purchase of major systems, such as the *Sovremenny*-class DDGs and *Kilo*-class submarines.

The nation's recognition of its globalizing economic interests may have resulted in a more Mahanian view of the value of naval power to protect and perhaps expand those interests that are increasingly important to the well being of China's huge population, and the continuing empowerment of the CCP. Protecting offshore petroleum assets, other seabed minerals, and fisheries also received increased attention.

CONCLUSION

China is a maritime nation, dependent on sea-borne trade, energy imports, and fisheries. Despite this maritime environment, China's national security concerns during the past 75 years focused almost entirely on internal security and continental threats, except for Taiwan. China fought the KMT, Japan, the Soviet Union, Vietnam, India, South Korea, and the United States during that period; none of those conflicts involved significant Chinese naval participation, although the sea provided Japan, the United States, and the Soviet Union with a haven from which China could have been attacked.

The new regime in 1949 recognized the importance of maritime issues. Mao Zedong understood that conquering Taiwan required a navy with expertise in amphibious warfare, sea-borne logistics, and

maritime air power. The effort to organize such a navy was aborted because of the Korean War, however, and thereafter limited by domestic political events.

Naval development was all but frozen during the 1960s by the Sino-Soviet split and the GPCR. Only at the end of the 1970s, after the end of the GPCR and the post-Mao power struggle, was the PLAN in a position to "take off." No such take-off occurred, however, because Beijing's security concerns remained focused on continental threats posed by the Soviet Union and India, as well as by border instabilities with Vietnam and in Central Asia.

Beijing did begin devoting significantly greater resources to the PLAN in the 1980s and 1990s, apparently in recognition of the increasing importance of its maritime concerns. This trend has continued, and the PLAN today probably receives more than its share of China's defense budget, although the military remains dominated by the army.[60]

China's leadership has viewed its navy through much the same prism as its imperial and Republican predecessors; the navy building for the 21st century owes a good deal to this history, marked by some enduring legacies. First, while Chinese naval power has never held top priority in Beijing's strategic calculations, its utility in resolving specific issues usually has been understood. Two senior naval officers at the PLAN's leading research institute argued that a strong navy is necessary for homeland defense, since "the seas have become the new high ground of strategic competition . . ., a key national security defense . . ., [and] of crucial importance to a country's prosperity and honor . . . ."[61]

Second, PLAN modernization has been closely linked to the nation's economic development, with the claim that a nation not understanding the importance of the ocean is a nation without a future.[62] Naval modernization will almost certainly continue, in view of China's continuing economic growth.

Third, Chinese naval development has been marked by significant interaction with foreign navies, most notably reliance on Soviet/Russian advisors, strategy, equipment, technology and engineers.[63]

Fourth, the Chinese government has on several occasions employed naval force in pursuit of national security goals. Furthermore, island campaigns of 1949-55, the Straits crises of 1954-

55 and 1958, and the 1974, 1988, and 1998 actions in the South China Sea are almost all evaluated by Beijing as successful.

Finally, Beijing wants a navy capable of ensuring coastal defense and the success of discrete, well-defined campaigns to defend its maritime territorial claims. A major sea power must be capable of defending its maritime territorial rights. Additionally, China's willingness to resort to naval force even when apparently outgunned bears a cautionary message for foreign analysts, and Beijing's willingness to employ military force to "teach lessons," means that the PLAN may be deployed in situations not anticipated by opponents.

The post-Cold War focus on offshore sovereignty, economic, and resource issues has added to the PLAN's perceived importance, as has the core issue of reunifying Taiwan. China today aims to deploy a modern navy capable of operating on, above, and below the sea's surface, to "become a Great Wall at Sea."[64] Chinese maritime strategists discuss the need for a strong navy in geo-political terms, including the demand for increased *lebensraum* for a nation that supports almost a quarter of the world's population on approximately seven percent of its arable land.[65] Beijing's focus on its maritime borders was highlighted in a 1996 statement by a PLA strategist who claimed that

> in the last 109 years, imperialists have repeatedly invaded China from the sea . . . .470 times, . . . 84 of these being serious invasions. The ocean has become an avenue for the aggressors to bring in their troops and haul away our wealth . . . . the ocean is not only the basic space for human survival, but also an important theater for international political struggle . . . . The better people can control the sea, the greater they have the sea territorial rights [which have] become inseparable from a country's sovereignty . . . .[66]

China's naval "lessons" since 1949 may be readily identified; the degree to which they have been "learned" — understood and translated into strategic policy, doctrinal developments, and operational applications — is more difficult to evaluate. The island campaigns of the 1950s offered operational-level lessons that were understood but implemented only on a limited basis. Fear of first American and then Russian aggression was viewed largely in a

continentalist context; the PLAN was improved but as an adjunct of the army.

Recent PLAN exercises have demonstrated several "lessons learned," including:

- the need for a reliable, comprehensive material acquisition infrastructure, with minimal dependence on foreign suppliers;
- the need to integrate logistical support, to include cooperation with the civilian sector;
- the requirement for well-educated, well-trained, well-exercised, dedicated personnel;
- the need for a clear, coherent command structure to ensure an effective linkage from Beijing headquarters to fleet operatives.
- the importance of effective joint operation of air, surface, and ground forces, especially for amphibious operations.

Nations have traditionally devoted the resources necessary to become naval powers when they meet three criteria. First, they are secure on their land borders; second, domestic tranquility is assured; and third, indigenous technology is sufficient to support a state of the art naval force. China has concerns about all these criteria.[67]

The problematic nature of these factors limits Beijing's learning from its use of naval power. China's leadership understands the navy's role as an instrument of national security strategy, but the PLAN is not being allocated the attention and the resources necessary to make it a primary instrument for accomplishing strategic objectives. China's leadership recognizes the nation's maritime dependence, but the lessons learned from the PLAN record continue to be limited in application.

ENDNOTES - CHAPTER 5

1. Herbert Rosinski, quoted in B. Mitchell Simpson, III, *Essays on Maritime*

Strategy, Newport, RI: U.S. Naval War College Press, 1972, p. 25.

2. "Blue water" is part of a maritime strategy paradigm with "brown" and "green" water. Brown water refers to littoral ocean areas, within about 100 nm of the coastline; green water is less definite, referring to ocean areas from about 100 nm to the next significant land formation. For China, for instance, green water extends from brown water to Okinawa or from brown water throughout the South China Sea. "Blue water" is represented by the so-called "second island chain," delineated by a line from Japan through the Bonin Islands, the Mariana Islands, and the Caroline Islands. A "blue-water" PLAN, then, would have to be capable of projecting power to a distance of at least 1,600 nm from China's coast and beyond, including the Yellow, East China, and South China Seas.

3. This paragraph, and that preceding it, draws from "Strengthening Research," *Dangdai Zhongguo Haijun, China Today: The People's Navy*, Beijing, October 1987, pp. 459-465, in Ai Hongren, *Zhonggong Haijun Toushi--Maixiang Yuanyangde Tiaozhan, (An Inside Look Into the Chinese Communist Navy--Advancing Toward the Blue Water Challenge)*, Hong Kong, 1988, *in Foreign Broadcast Information Service* (hereafter *FBIS*): Joint Publications Research Service (hereafter JPRS), July 16, 1990, p. 17.

4. Called Meiji Jiao by China, Panganiban Reef by the Philippines, and Da Vanh Khan by Vietnam, which also claims this land feature.

5. Alfred Thayer Mahan, the late-19th century American naval officer who is arguably the most prolific and influential historian and theoretician of naval power of the modern era, has been read in PLAN schools since the mid-1950s; his most widely accepted "lesson" is simply that a powerful navy is a crucial instrument of power for a maritime nation.

6. Although not cited, this chapter depends significantly on research I conducted for my 2001 book, *The Great Wall at Sea: China's Navy Enters the 21st Century*, Annapolis, MD: Naval Institute Press, 2001.

7. Zhang Tieniu and Gao Xiaoxing, *Zhongguo Gudai haijun Shi (Naval History of Ancient China)*, Beijing: The Eight One Publishing House, 1993, Preface.

8. Zhang and Gao state in their Preface that "the Qing Dynasty locked its door against the world, and . . . the Chinese navy was almost at a standstill. . . . As a result, when the western big powers opened the door to China with powerful cannons and powerful ships, China had to take a beating and to surrender its sovereign rights under humiliating terms."

9. See Juo Ting-yee, "Self-Strengthening: The Pursuit of Western Technology," in *The Cambridge History of China*, Vol. 10: *Late Ch'ing, 1800-1911*, Part I, John K. Fairbank, ed., Cambridge, UK: Cambridge University Press, 1978. Fairbank,

China: A New History, p. 220, relates one famous case of corruption: the diversion of perhaps $50 million in naval construction funds to the building of the Empress's Summer Palace in Beijing, complete with a large boat made of marble.

10. PLA NDU, *Zhongguo Renmin Jiefangjun Zhanshi Jiangian* (A Brief History of the Chinese People's Liberation Army Revolutionary War), Beijing: PLA Press, p. 600, cited in Larry M. Wortzel, "The Beiping-Tianjin Campaign of 1948-49: The Strategic and Operational Thinking of the People's Liberation Army," in a chapter prepared for the U.S. Army War College's Strategic Studies Institute, Carlisle, PA, n.d, Chart 1, which shows that in July 1949 the PLA possessed seventy-seven "naval vessels." Wortzel notes, for instance, that the campaign to capture Tianjin had to deal with the fact that the city is surrounded by water and crossed by canals and waterways, as it is the gate to the sea for the North China plain. Nationalist forces had flooded much of the area by the first week of January 1949, "slowing movement and forcing the Communist forces to gather boats to conduct their attack." Also see Gene Z. Hanrahan, a naval intelligence officer writing in "Report on Red China's New Navy," Naval Institute *Proceedings*, Vol. 79, No. 8, August 1953, p. 847, who describes the Nationalist contribution to this force as "twenty-five vessels ranging from LCTs to destroyers, representing an estimated one-fourth of the total Nationalist naval force. . . ." An article in *Dangdai Zhongguo Haijun*, October 1987, p. 58, (in JPRS, 23 February 1990) in the collection by Ai Hongren, stated that Chinese naval forces in early 1950 totaled 183 ships, displacing 43,268 tons; the former KMT ships were included. To these were soon added an additional 217 vessels displacing 90,335 tons, but these numbers included various commercial and fishing vessels, salvaged ships, and "48 old ships [bought] in Hong Kong." Furthermore, the Chinese author of this report noted that "the performance of these ships was quite poor, as they were obsolete."

11. See Hanrahan, p. 847; also see David G. Muller, Jr., *China as a Maritime Power*, Boulder, CO: Westview Press, 1983, p. 10, who quotes Deng Zhao-xiang, who also commanded the ROC cruiser *Chongqing*, describing the "large number of ROC's Navy officers [who] joined the People's Navy with their warships and accouterments."

12. He Di, "'The Last Campaign to Unify China': The CCP's Unmaterialized Plan to Liberate Taiwan, 1949-1950," *Chinese Historians*, No. 5, Spring 1992, p. 8.

13. Chen Wanjun, "Interview with Sr. Capt. Yu Guoquan, Director of Division of Ships, Dept. of Armaments & Technology, PLAN," *Jianchuan Zhishi*, Beijing, July 7, 1995, pp. 2-3, in *FBIS*, July 8, 1995, p. 54.

14. He Di., p. 5.

15. *Ibid.*, p. 2.

16. Shu Guang Zhang, *Mao's Military Romanticism: China and the Korean War, 1950-1953,* Lawrence: University Press of Kansas, 1995, p. 48. Also see statement by PLAN Vice-Commander Zhou Xihan, 1957, quoted in Muller, p. 47.

17. Vladimir Lenin, quoted in Bruce W. Watson, "The Evolution of Soviet Naval Strategy," in Bruce W. Watson and Peter M. Dunn, eds., *The Future of the Soviet Navy: An Assessment to the Year 2000,* Boulder, CO: Westview Press, 1986, p. 115.

18. He Di, p. 8. KMT defectors included the cruiser, *Chongqing,* but that was soon sunk by KMT air attack. The new PLAN also tried to order two cruisers from Great Britain and to obtain modern foreign warships through Hong Kong, efforts that were frustrated by the outbreak of the Korean War.

19. In Ai Hongren, p. 9; the PLAN was told to spread a 3-year purchase agreement with the Soviet Union over the life of the 5-year plan.

20. He Di, p. 2.

21. Troop numbers are from Edward Marolda, "The U.S. Navy and the Chinese Civil War, 1945-1952," Ph.D. diss., The George Washington University, 1990, pp. 125ff.

22. He Di, p. 6.

23. The PLA force numbered approximately 142,000 against 160,000 KMT soldiers. Marolda, p. 126. The most complete account of this successful PLA operation is Reed Richards Probst, "The Communist Conquest of Hainan Island," Ph.D. diss., The George Washington University, 1982.

24. He Di, p. 12. Edward Marolda, p. 139, states that by spring 1950 Beijing "had assembled a motley armada of 5,000 vessels . . . freighters, motorized junks, and sampans" to use for the invasion of Taiwan; this force was to be manned by "30,000 fishermen and other sailors."

25. *Ibid.,* p. 1.

26. *Ibid.,* p. 9. Wu Yuan-li, *The Economy of Communist China: An Introduction,* N.Y.: Praeger, 1965, pp. 85, 170, gives a 1952 exchange rate of approximately Y1 = $.33.

27. He Di, p. 11, calls these "field armies," which is probably not correct: John Gittings, *The Role of the Chinese Army,* London: Oxford University Press, 1967, estimates that the PLA was organized into five field armies in 1951 containing approximately 2.1 million troops; Yuan Wei, ed., *Zhongguo Renmin Jiefang Jun*

Wu Da Yezhan Budui Fazhan Shi Lue (History of the People's Liberation Army's Five Field Armies), Beijing: PLA Press, 1987, also lists five Field Armies in the PLA in 1950, totaling approximately 4.6 million troops. My thanks to Kenneth Allen for bringing this second source to my attention, and to Dennis Blasko, Paul Godwin, and Ellis Joffe for their comments.

28. The enormity of this tonnage is illustrated by the fact that in 1950 the three classes of U.S. troop transports designed for amphibious assault displaced 12,000, 16,000, and 18,000 tons, respectively: "760,000 tons" would equate to approximately 42 of the largest these troop transports, and that number simply did not exist, anywhere. Furthermore, initial U.S. plans to assault the island in 1944 called for 450,000 troops.

29. William H. Whitson, with Huang Chen-hsia, *The Chinese High Command: A History of Communist Military Politics, 1927-71*, N.Y.: Praeger, 1973, p. 53.

30. Quoted in Marolda, pp. 119-120.

31. He Di, p. 15. The assault on Taiwan had been delayed from the summer of 1950 to the summer of 1951 during the spring of 1950, before the Korean War broke out.

32. "Success" in this case is certainly not indisputable, given the disproportionately high losses suffered by the PLA, but it continues to represent China's official position.

33. *The Case of P'eng Teh-huai, 1959-1968*, Hong Kong: Union Research Institute, 1968, pp. 164-165. Peng's statement about the navy is quoted in Bruce Swanson, *Eighth Voyage of the Dragon: A History of China's Quest for Seapower*, Annapolis, MD: Naval Institute Press, 1982, pp. 206-208. Also see Whitson, p. 462, who states that "after P'eng's dismissal in 1959, a variety of restraints, both political and economic, conspired to reduce allocations to conventional military modernization."

34. Quoted in Ai Hongren, p. 38, Appendix 1: "A Chronology of Events for the Chinese People's Liberation Navy, 1949-1985," p. 38.

35. Thomas J. Torda, "Struggle for the Taiwan Strait: A 50th-Anniversary Perspective on the First Communist-Nationalist Battles for China's Offshore Islands and Their Significance for the Taiwan Strait Crises," Unpublished manuscript, 1999, p. 1. This ship was the ex-USS *Decker*.

36. Gordon H. Chang and He Di, "The Absence of War in the U.S.-China Confrontation Over Quemoy and Matsu in 1954-1955: Contingency, Luck, or Deterrence?", *The American Historical Review*, Vol. 98, No. 5, December 1993, p. 1514, describe this action as one in which"10,000 PLA troops . . . overwhelmed

1,086 Kuomingtang soldiers."

37. "[N]early 450,000 shells" were fired at Kinmen and Mazu during these three months; later, the PLA began firing only on even-numbered days. Ai Hongren, Appendix 1, p. 40, quotes Mao as justifying the 1958 barrage as support for "the revolutionary struggle of the Middle Eastern peoples," as well as striking "against provocations by the U.S. and Chiang Kai-shek forces."

38. Other islands remained under Taipei's control, including the Penghus, just off the southwestern Taiwan coast, and the Pratas Islands and Itu Aba in the South China Sea. Taiwan attacks on the mainland continued into the 1960s. Early PLAN naval campaigns are addressed by Xiaobing Li, "PLA Attacks and Amphibious Operations during the Taiwan Straits Crises of 1954-1958," Chapter presented at the CNA Conference on the PLA's Operational History, Alexandria, VA, June, 1999.

39. Also, fisheries agreements were negotiated with Japan, North Korea, and Russia during the 1950s: see Muller, p. 65, n. 46; "Developments in the Fishing Industry in Communist China," *Ajiya Kenkyu*, June 6, 1961 in JPRS, February 1, 1962, p. 1; and Asakawa Kenji, "Fishery Production and Policy in Communist China," *Chuyoku Kenkyu Geppo*, Tokyo, October 30, 1961, in JPRS, February 1, 1962.

40. Ai Hongren, p. 13.

41. Quoted in *Dangdai Zhongguo Haijun*, Beijing, October 1987, pp. 239-249, in Ai Hongren, Section 3: "Self-Directed Research and Development," p. 13.

42. Muller, p. 90, discusses the 1960s maritime militia.

43. Quoted in Swanson, p. 205.

44. See John Wilson Lewis and Xue Lita, *China's Strategic Seapower: The Politics of Force Modernization in the Nuclear Age*, Stanford, CA: Stanford University Press, 1984, pp. 206ff, 231, 236; even Zhou Enlai was unable to protect these programs completely.

45. *Ibid.*, pp. 147-148, 223.

46. Muller, p. 154.

47. Raymond V.B. Blackman, ed., *Jane's Fighting Ships: 1970-1971*, London: Jane's Yearbooks, 1971, p. 610, credits the Soviet navy with just four "large" (4,000 tons displacement) amphibious ships, and eighty smaller (600-1,000 tons) vessels, and these were spread out among all of the Soviet Union's four fleets: Pacific,

Black Sea, Baltic, White Sea.

48. Lewis and Xue, p. 223, discuss Hua's decision; they quote Deng on p. 224

49. Quoted in Ai Hongren, Appendix 1, p. 51.

50. The most memorable expression of this factor was by Lieutenant General Henry Stackpole, USMC, commander of the Third Marine Expeditionary Force on Okinawa, who was quoted in Fred Hiatt, "Marine General: U.S. Troops Must Stay in Japan," *Washington Post*, March 27, 1990, p. A14, describing the United States as "a cap in the [Japanese] bottle."

51. Discussed in Paul H. B. Godwin, "Chinese Military Strategy Revised," *The Annals of the American Academy of Political and Social Science*, Vol. 519, January 1992, p. 194.

52. Best known, perhaps, are the 1988 South China Sea exercises, as well as those conducted in the Taiwan Strait area in 1995, 1996, and most recently in 2001; further, Beijing has announced annual exercises of at least four months in duration featuring the PLAN.

53. In 1980, for instance, a major fleet exercise in the South China Sea focused on the seizure and defense of islands in the Paracels. Several major exercises since then have apparently been designed to "mirror image" an assault against Taiwan.

54. Harold K. Kearsly, *Maritime Power and the Twenty-First Century*, Aldershot, UK: Dartmouth Press, 1997, p. 107.

55. Michael Swaine and Ashley Tellis more elegantly address these general points in *Interpreting China's Grand Strategy: Past, Present, and Future*, Santa Monica, CA: RAND, 2000.

56. See Kenneth W. Allen, "Showing the Red Flag: The PLA Navy as an Instrument of China's Foreign Military Relations," draft ms.; also see Allen and Eric A. McVadon, *China's Foreign Military Relations*, Washington, DC: Henry L. Stimson Center, 1999, for the most complete account of the PLAN's diplomatic role.

57. Alfred Wilhelm, *China and Security in the Asian Pacific Region Through 2010*, CRM 95-226, Alexandria, VA: Center for Naval Analyses, 1996, p. 43, gives a good overview of Liu's accomplishments. For a more laudatory view of Liu, see Jeffrey B. Goldman, "China's Mahan," Naval Institute *Proceedings*, Vol. 122, March, 1996, pp. 44-47, who cites him as the champion of a "blue water navy."

58. Palmerston stated in an 1848 speech to the House of Commons that "We

have no eternal allies, and we have no perpetual enemies. Out interests are eternal, and those interests it is our duty to follow."

59. Allen Whiting, "The PLA and China's Threat Perceptions," *China Quarterly*, No. 146, June 1996, pp. 600-601.

60. China's defense budget--itself a term that should be cautiously used--remains an arcane topic; the best analysis is the work of David Shambaugh, notably his forthcoming *Modernizing China's Military: Program, Problems, and Prospects*, Berkeley: University of California Press, 2003. As Dennis Blasko has pointed out, there are still no PLAN officers assigned as Military Region commanders, and none appear in the senior levels at China's NDU or in the CMC infrastructure.

61. Yan Youqiang and Chen Rongxing, "On Maritime Strategy and the Marine Environment," *Zhongguo Junshi Kexue* (*China Military Science*), Beijing, May 20, 1997, pp. 81-92, in *FBIS*, May 22, 1997.

62. Fairbank, "Maritime and Continental in China's History," discusses these factors.

63. I agree with Whitson and Huang, p. 473, who argue that "On balance, it is evident that the evolving Russian model of military ethic and style, especially on the issues of military role, commander authority, and strategy, has been the most important European influence to alter traditional Chinese perspectives."

64. Xu Zuzhi, "Chinese Navy Has Truly Become a Great Wall at Sea," *Zhongguo Xinwen She,* Beijing, October 1, 1999.

65. Kearsly, p. 17, offers a construct that PLAN strategists would likely find attractive: he uses the phrase "territorialization of the seas" to describe national control of ocean areas under the "idea that a state's jurisdiction over the land is simply pushed seaward in terms of rights and duties concerning good order, the exploitation of resources and the exercise of limited sovereignty." He also cites "environmental concerns, nationalism and above all, economic exploitation. . . ." and argues that 'sovereignty protection' is now a high priority naval mission."

66. Chen Wanjun, "Interview with Senior Captain Yu Guoquan, Director of Division of Ships, Department of Armaments and Technology, PLAN," Beijing *Jianchuan Zhishi*, No. 7, July 95, pp. 2-3, *FBIS*, January 9, 1996, p. 54.

67. Christopher R. Bullock, "China's Bluewater Ambitions: The Continental Realities of Chinese Naval Strategies," *Georgetown Journal of International Affairs*, Summer/Fall 2002, p. 59, discusses these factors.

CHAPTER 6

THE PEOPLE'S LIBERATION ARMY AND CHINA'S SPACE AND MISSILE DEVELOPMENT: LESSONS FROM THE PAST AND PROSPECTS FOR THE FUTURE

Mark A. Stokes

INTRODUCTION

On September 18, 1999, Jiang Zemin, President of the People's Republic of China (PRC), and members of the Political Bureau of the Standing Committee assembled in the Great Hall of the People to honor central figures in one of the PRC's most ambitious long term development projects in history. The ceremony eulogized aerospace and nuclear engineers involved in China's "two bombs, one satellite" (*liangdan yixing)* program that produced China's first nuclear bomb, strategic ballistic missile, and satellite. Medals were conferred upon 23 engineers, such as Qian Xuesen, who sparked the imagination of a nation and rekindled the martial spirit and grandeur of China.[1]

As demonstrated by the September 1999 ceremony, the PRC has long recognized the importance of aerospace power. In the 21st century, a nation's military prowess often is defined in terms of its aerospace power. Aerospace power provides a country a credible means to deliver weapons of mass destruction (WMD) for the purposes of deterrence. It also presents a nation with trappings of prestige and the ability to wage war quickly and at reduced costs. Since shortly after establishment of the nation, the PRC's space and missile establishment has been a primary element of China's nuclear deterrent. Its aerospace power has provided the PRC with prestige and power that few nations enjoy. Today, aerospace power, including tactical missiles and supporting assets, are important coercive tools and force multipliers that could play a decisive role in a future conflict around China's periphery.

A number of drivers have prompted Beijing to build up its aerospace technology base. These include the desire to develop and maintain an assured nuclear retaliatory capability; a need for

prestige and international respect; the availability of technology and expertise; and a requirement to dominate conflicts around its periphery quickly and at low cost. Developing the ability to deliver payloads across continents, launch satellites, and, more recently to strike targets around its periphery with conventional payloads did not come easy. It has been a long and bumpy road from the time Qian Xuesen made his initial proposals in 1956 to today. This winding path was fraught with failure, frustration, political landmines, and intermittent success. Today, however, China's long history of space and missile development and the sacrifices of its first generation of aerospace engineers have established a viable foundation to use force to pursue its national security interests.

This chapter traces the development of PRC aerospace power. Space and missile development are integrated under the heading of *hangtian*, a Chinese term that captures satellites, launch vehicles, ballistic missiles, surface-to-air missiles, and cruise missiles. This is juxtaposed against the aviation, or *hangkong*, industry. This chapter focuses primarily on space and ballistic missile programs, and its primary customer, the Second Artillery of the PRC's People's Liberation Army (PLA).

This chapter focuses on technological development instead of defense organizations, doctrine, and operations. First, the Second Artillery and the General Armaments Department, which is responsible for space operations, are two of the most technologically advanced organs in the PLA today. There is a close affiliation between these two entities and their industrial supporters. Secondly, there is a paucity of information regarding the Second Artillery.

This chapter examines key factors that have driven the development of aerospace power; addresses key organizational and personality issues; and traces the development of key space and missile programs since the inception of the PRC aerospace industry. This paper divides China's space and missile development into three phases: Phase 1: establishment of China's aerospace industry and the Second Artillery (1957-84); Phase 2: China's quest to maintain strategic sufficiency (1984-91); and Phase 3: relative shift in focus to maintaining national sovereignty (1991 to the present). The chapter concludes with a general discussion of potential future developments.

ESTABLISHING THE FOUNDATION: THE EARLY YEARS (1957-82)

The humble origins of China's aerospace industry coincide with the return to China of prominent U.S. Air Force engineer Qian Xuesen in 1955. Sent to the United States on a scholarship in 1935, Qian was educated at MIT and Caltech and became one of the initial cadre of the Jet Propulsion Laboratory. As one of the world's foremost experts in propulsion and aerodynamics, Qian worked on a number of advanced aircraft and missile projects. As an Army Air Corps colonel, he was a member of the U.S. team dispatched to Germany after World War II to debrief Werner von Braun, designer of the German V-1 and V-2 missiles. As a member of the U.S. Air Force Scientific Advisory Board, he authored futuristic concepts including nuclear powered aircraft propulsion, manned space flight, and rocket powered transcontinental aerospace vehicles that travel at speeds in excess of 10,000 mph. Qian participated in the drafting of the U.S. Air Force's first long range vision, *Toward New Horizons.* However, suspected of harboring communist sympathies, Qian was deported to China in 1955.[2]

Shortly after his return to China, Qian urged Minister of Defense Peng Dehuai to make development of ballistic missiles, satellites, and launch vehicles a national priority. On February 17, 1956, Qian submitted a formal proposal to the party leadership to establish research and development (R&D) facilities for space and missile development. Premier Zhou Enlai convened a special conference to consider the proposal and on October 8, 1956, he formally directed the establishment of the Fifth Academy under the PLA. Qian Xuesen was appointed as its initial director of an organization composed of 10 research sections.[3]

In November 1957, the Fifth Academy organization was readjusted. The First Sub-Academy (*diyi yanjiu fenyuan*) was responsible for engine development, while the Second Sub-Academy was responsible for control systems. In addition, an aerodynamic testing range was formed, along with a ballistic missile training unit. Zhou Enlai and Nie Rongzhen recruited into the Fifth Academy more than 30 engineers, most of whom were Western educated.[4]

The early years of China's space and missile program were marked by assistance from the Soviet Union. Discussions began

in September 1957 when a delegation, led by Nie Rongzhen, visited Moscow to negotiate a technical assistance agreement. The two sides signed an agreement on October 15, 1957. It included provisions for the transfer of missiles for reverse engineering (two R-1 and 14 R-2 ballistic missiles), the technical data packages for the missiles, acceptance of Chinese students at Soviet military engineering academies, and assignment of approximately 100 Russian technicians to assist China in its missile program. Russian assistance was terminated, however, when Soviet technicians abruptly departed China on August 12, 1960.[5]

In March 1958, Minister of Defense Peng Dehuai approved a proposal for construction of four R&D bases (general systems and engine, control and guidance, engine testing, and aerodynamics) and one test base in Gansu province. With Soviet assistance, the design of the Gansu test facility (Northwest Missile Test Base), located near the ancient town of Jiuquan, was completed by September 1958 and construction began a month later. A rail line was constructed that connected Jiuquan with Fifth Academy facilities in Beijing. China's initial test of an R-2 missile, loaded with Chinese propellants, was carried out on November 5, 1960, using radio control.

Between 1961 and 1965, China's space and missile industry witnessed a remarkable expansion. The Third Sub-Academy, responsible for anti-ship cruise missile development, was established in September 1961. Shanghai Academy of Space Technology (SAST), responsible for surface-to-air missile and sounding rocket development, was formed from the Second Electro-Mechanical Bureau on August 1, 1961.[6] To oversee China's expanding strategic weapons program, the Chinese Communist Party established the Central Special Committee in November 1962.

In June 1964, central authorities established another organization — the Fourth Branch Academy — for research, development, and production of solid motors. The Fourth Sub-Academy, located in Hohhot, Inner Mongolia, created at the urging of Qian Xuesen, centered on a small group of engineers that constituted the Solid Motor Institute, a small organization that was formed in 1961.[7]

In January 1965, the aerospace industry was reorganized. The PLA Fifth Academy became the Seventh Ministry of Machine Building (*qijibu*). Subordinate subacademies became full-fledged academies, and all military personnel within the new Seventh

Ministry were demobilized. Chinese Communist Party (CCP) Chairman Liu Shaoqi appointed PLA Air Force Deputy Commander Wang Bingzhang as Minister.

Deliberations began in early 1967 concerning the establishment of a unified entity for space technology and to ensure China's objective of launching a satellite by 1970 was met. Combining a number of institutes involved in space-related activities (i.e., the 651 Institute, Beijing Scientific Instrument Factory, Lanzhou Institute of Physics, Shanxi Taihua Scientific Instrument Factory, etc.), the China Academy of Space Technology (CAST) was formed on February 20, 1968.[8]

During this timeframe, China's central leadership also began to develop "third line" facilities to augment key space and missile research and production centers in Beijing and Shanghai. In March 1965, the CCP Central Committee approved a Seventh Ministry plan for diversifying design, R&D, and production in "third-line" bases deep inside China, such as Sichuan, Hunan, Shaanxi, and Guangxi. At the same time, design and production facilities in Shanghai were expanded.[9]

At the same time, the space and missile industry developed an R&D and production strategy. The strategy, called "Three Moves in a Chess Game" (*sanbuqi*), called for three models in the R&D/ production cycle at any one time--one system in trial manufacturing and testing; a follow on model under design and R&D (*xinghao yanzhi*); and preliminary research (*yuxian yanjiu, or yuyan*) on basic technologies associated with a generation-after-next model. Chief designers were appointed to coordinate efforts among various research institutes, academies, academic centers, and industries.[10]

As it expanded and developed strategies for fielding ballistic missiles and satellites, however, the Seventh Ministry was paralyzed by the chaos of the Cultural Revolution. During the summer of 1966, Nie Rongzhen attempted to shield engineers, accused by some of being "reactionary elements," by soliciting assistance from the Beijing Garrison Command. However, the Seventh Ministry divided into factions in 1966, the September 15 Rebellion Corps ("915"), dominated by administrative personnel; and the September 16 Rebellion Corps ("916"), dominated by the engineering community. On January 23, 1967, a young missile engineer, Ye Zhengguang, overthrew the Seventh Ministry leadership and forcibly removed

Minister Wang Bingzhang, Vice Minister Qian Xuesen, and other senior cadre. Violence between the two factions reached a crescendo on June 8, 1968, when a mob killed one of China's foremost missile engineers, Yao Tongbin. After Yao's death, Zhou Enlai directed that key engineers be placed under special protective custody.[11]

Others were persecuted as well. Missile guidance specialist Song Jian, leading an R&D effort into ballistic missile defense, had his home ransacked and property confiscated in June 1968. For a period of time, Qian Xuesen and Huang Weilu, in charge of the JL-1 project, were forced to do manual labor. Missile tests were delayed due to local disputes, and educational institutions within the space and missile industry were closed. Many in the third line industries suffered due to an overzealous attempt at a hasty expansion.

The effects of the Cultural Revolution on the focus and pace of China's strategic programs were severe. While various programs sputtered along, the loss of morale, vision, and momentum after the Cultural Revolution were significant. A factionalized Seventh Ministry was rife with vengeful engineers and administrators who were skeptical of their national leadership. They had also wasted precious time in their race to maintain some degree of symmetry with the West.

After suffering 10 years of political turmoil, however, the CMC decided to hasten the development of key projects. In order to focus its resources and regain lost momentum, China's leadership initiated the "Three Grasps" (*sanzhua*) in September 1977. The "Three Grasps" centered on three programs: development and testing of intercontinental and submarine launched ballistic missiles; and launch of a communications satellite. With Song Renqiong appointed as the new Seventh Ministry minister, Tu Shou'e was designated as the chief designer of the ICBM; Huang Weilu as chief designer of the SLBM; and Ren Xinmin as the chief designer of the communications satellite.[12]

BALLISTIC MISSILE DEVELOPMENT

Between the mid-1950s to the early 1980s, China dedicated itself to developing its first generation of ballistic missiles and establishing the Second Artillery Corps. During the this period, China space and missile industry, guided in large part by Western-trained engineers,

equipped the Second Artillery with two intermediate range ballistic missile (IRBM) variants and one intercontinental ballistic missile.

China's initial ballistic missile program, under the heading of Project 1059, was based on reverse engineering two Russian 600-kilometer range R-2 ballistic missiles that were delivered to Beijing in December 1957. This program, led by Chief Designer Liang Shoupan, began in October 1958. Despite a series of failed tests and withdrawal of Soviet support in 1960, the Fifth Academy began trial production of the R-2 ballistic missile in 1960. China's first launch of a ballistic missile took place on November 5, 1960.[13]

After the successful production of the R-2 (DF-1) ballistic missile, China turned its sights to the DF-2 medium range ballistic missile in the Spring of 1960. China's senior leadership assigned Xie Guangxuan and Ren Xinmin to serve as chief designers of China's first inertially guided ballistic missile. The initial test of the 1050-kilometer range DF-2 from the Northwest Missile Test Base (*Jiuquan*, or the 20 Base) failed in March 1962. After a series of successful tests between May and July 1964, China decided to expand the range of the missile to 1250 kilometers through use of a more efficient liquid fuel in February 1965. The expanded range version of the DF-2 was tested several times from November 1965 to mid-1966. The first test of a nuclear armed ballistic missile, the DF-2, occurred on October 27, 1966, 4 months after standing up the Second Artillery Corps. More than 100 DF-2 missiles were produced between 1962 and 1969.[14]

Shortly after branching off from the PLA in 1965, the Seventh Ministry leadership approved an Eight-Year Plan (1965-1972) for development of missile technology. The plan involved four kinds of missiles by 1972 (*banian sidan*). The first two missiles – the extended range DF-2 (designated the DF-2A) and the DF-3 already were well along. However, the second two, the DF-4 and the DF-5 presented new technical challenges due to the ranges involved. The plan envisioned a phased program toward an ICBM that would include a 4000 kilometer range missile (the DF-4) that could hold Andersen AFB hostage; and the 12,000 km range DF-5 that could cover the United States from sites in northern China. These two systems would be developed in parallel.[15]

In March 1965, the China's senior leadership approved a program for the intermediate range DF-3 ballistic missile, China's first independently designed missile. Key players in the missile's

development, which began as early as April 1964, included Sun Jiadong, Ren Xinmin, Hao Fujian, and Yao Tongbin. The initial flight test was conducted in December 1966 but encountered engine difficulties. In December 1968, the 2,650-kilometer range DF-3 was taken to the newly constructed Northwest Missile Test Center (Base 25) for full range testing. The missile, capable of carrying a 2,150 kilogram payload, was deployed to the Second Artillery in May 1971. In 1981, the First Academy initiated a modification to the DF-3 to increase its range to 2,800 kilometers; two flight tests in December 1985 and January 1986 were successful.[16]

After a 9-month technical feasibility study, R&D on China's next missile, the "intermediate-long range" DF-4, began in March 1965. Ren Xinmin was appointed as chief designer. Using the DF-3's first stage, the DF-4, China's first multiple staged missile, was designed to carry a 2200-kilogram warhead. The missile was first tested in November 1969 from Jiuquan. However, the second stage failed to separate from the first and the missile was detonated. A second test, carried out on January 30, 1970, was successful. A full range test was conducted in November 1970 from the newly constructed Northeast Missile Test Base (near Jingyu, in the northwest province of Jilin). Shortly thereafter, work began on extending the range of the DF-4. However, due to complications associated with the Cultural Revolution and the higher priority allotted to the DF-5, further progress on the missile was deferred until 1975. The missile eventually was tested in a series of tests from May 1976 to October 1980 to a range of 4,750 kilometers, and began deployment to the Second Artillery in November 1980.[17]

The DF-5 was intended to be able to range the entire continental United States from sites in northern China. The DF-5 R&D proceeded in parallel with the DF-4. In 1966, Qian Xuesen advocated development of an advanced DF-5 warhead with penetration aids, including electronic countermeasures and light exo-atmospheric decoys.[18] The initial successful test of the DF-5 took place on September 10, 1971, approximately 20 months after the first test of the DF-4. Alarmed by actions of the former Soviet Union, the PRC accelerated deployment of the DF-5 in 1980. Shortly after two full range flight tests in the western Pacific Ocean in May 1980, the DF-5 was deployed in an operational training mode in June 1980, into an experimental unit in December 1980, and into two operational silos

by the end of 1981. In 1983, China's senior leadership approved development of an extended range version of the DF-5, known as the DF-5A, a system that can carry 3200 kilograms over 13,000 kilometers.[19]

Solid Fueled Ballistic Missiles.

China had attempted to elicit Soviet support on solid motor development but to no avail. Preliminary research on solid propellants began in the late 1950s. Under the leadership of Li Naiji, a solid motor research group was established in Hohhot, Inner Mongolia, and a series of solid motors, ranging in diameter from 77 to 286 millimeters, were tested between 1960 and 1962. After formation of the Fourth Sub-Academy in 1964, formal work began on developing solid motors in August 1965. The Sub-Academy was granted full academy status in January 1965. The academy next fabricated 28 motors, all 300 millimeters in diameter, for the purposes of testing. Sufficiently confident in its mastering of smaller motors, the Fourth Academy began to develop a 1400-millimeter motor, which was tested on December 1, 1966. It also began development of a 770-millimeter motor to serve as the third stage for China's first launch vehicle, the Long March-1.[20]

With a 1400-millimeter test successful, a formal decision to move to the next development stage of a solid-fueled ballistic missile was made in March 1967. However, due to the turmoil of the Cultural Revolution, conceptual design work did not commence until August 1978. Leadership over the project was turned over to the Fourth General Design Department, with Huang Weilu appointed as Chief Designer.[21]

Construction of test facilities for the JL-1 and DF-21 began at the North China Missile Test Site near the city of Taiyuan, in Wuzhai county (also known as 25 Base) in 1973 and was completed by June 1980. Initial JL-1 tests were conducted in December 1980 and January 1981, but failed. A subsequent test in June 1981 from the 25 Base succeeded. At least four follow-on tests were conducted between November 1981 and January 1982. The missile was declared operational in August 1983, although testing continued on a second production batch through early 1985. Planning for the land based version of the JL-1, known as the DF-21, began in 1978. A series of

ground tests were conducted from April to May 1984 and the first test of the DF-21 was conducted in May 1985.[22]

Establishment of the Second Artillery.

Shortly after the formation of the Seventh Ministry of Machine Building in 1965, the Central Military Commission formed the Second Artillery Corps, an organization that has expanded and diversified its missions since its founding in the 1960s. As China began its ballistic missile program, China's first strategic missile training group (*dadui*) was formed in Changxindian, in the southwestern suburbs of Beijing, in December 1957. Six hundred officers and technical specialists were drawn from throughout the PLA and defense industry. Eighteen months later, in July 1959, this training group was transformed in a launch battalion that serve as a "seed unit" (*zhongzi budui*) to provide the initial cadre of missile launch specialists that could form subsequent units.

After a survey team led by then Deputy Chief of General Staff Zhang Aiping examined four military regions, each formed their own surface-to-surface missile battalions in March 1960. At least one battalion, located in Northwest China, was formed from an artillery school. These battalions consisted of a headquarters department (*chu*), political department, logistics department, as well as subordinate technical companies. These four battalions were upgraded to regiments in January 1964. From 1963-1966, these units conducted four exercises that involved the launching of eight missiles (six of the launches were successful). In 1966, the PLA Artillery commander, Wu Kehua, proposed to the Central Military Commission the formation of an independent service arm that should be formed from artillery and Chinese People's Public Security units (*zhongguo renmin gong'an budui*). Mao Zedong and the CMC approved this concept in June 1966. Zhou Enlai named the organization the "Second Artillery" to sow confusion among outside observers as the true purpose of the organization.[23]

The Second Artillery was officially established in a ceremony on 1 July 1966. Commanded by General Xiang Shouzhi, the original organizational structure had the standard headquarters, political, and logistics departments (*bu*), as well as engineering, intelligence, surveying, calculation (*jisuan*), weather, chemical defense, and

camouflage support (*baozhang*) units. With the primary Second Artillery command post established in Beijing, an underground reserve command post (*yubei zhihuisuo*) was established at Taibai, south of the Shanxi city of Baoji.[24]

While under the General Staff for administrative purposes, the Second Artillery units were to report directly to the CMC. Initially equipped only with short range ballistic missiles, DF-3 intermediate range ballistic missiles were introduced into the Second Artillery inventory in 1971. "Intermediate-long range" missiles (i.e., the DF-4) and the DF-5 intercontinental ballistic missile began introduction in the early 1980s.

Over the next several years, six Second Artillery bases, numbered 51-56, were established throughout China. Between 1966 and 2000, each base oversaw between one and three regiments or brigades. While initial units were equipped with the DF-2 medium range ballistic missile, four DF-3 units, consisting of about 120 missiles and 40 launchers, were formed near Dengshahe, Liaoning (51 Base); Lianxiwang, Anhui (52 Base); Jianshui, Yunnan (53 Base); and in Qinghai (56 Base). Two DF-4 units, managing approximately 40 missiles, were established in the 1970s in western Hunan and Qinghai provinces. The Second Artillery established two DF-5 ICBM brigades in the 1980s in Hunan and Henan provinces.[25]

SATELLITE AND LAUNCH VEHICLE DEVELOPMENT

Like its missile program, the impetus for China's satellite development lies with Qian Xuesen, who stressed the importance of a space program shortly after returning to China. More calls for initiating a space program began shortly after the launch of Sputnik in October 1957. In January 1958, Qian and a group of engineers drafted a formal proposal to develop a satellite and launch vehicle and designate a team to work on the project under the code name "581." To observe Soviet satellites, China developed an early satellite observation network centered on China's space observatory on Purple Mountain in Nanjing. Other satellite tracking sites, which provided data to the Purple Mountain observatory, were set up in Beijing, Guangzhou, Yunnan, and Shanxi.[26]

Mao Zedong committed to developing a Chinese satellite on May 17, 1958 during a speech before Central Committee meeting

in Beijing. Development of a satellite was included in the August 1958 12-Year plan for Scientific and Technical (S&T) Development. The project, originally assigned to the Chinese Academy of Sciences, was code-named the "581 Program." A leading group in charge of the project was directed by Qian Xuesen, who established three design institutes responsible for general systems design; automation and control; and space physics. Members of the leading group made a visit to Soviet satellite developing facilities in October 1958. The satellite R&D was centered in Shanghai. To assist in its satellite development, Shanghai-based research centers focused on development of sounding rockets for exploration of the upper atmosphere. At this time, China's Academy of Sciences also began a series of conferences and R&D on manned spaceflight.[27]

China temporarily shelved its satellite program in January 1959 in favor of concentrating on its ballistic missile development. However, in 1962, at the urging of Qian Xuesen, China's leadership decided to resume satellite R&D after initial successes in China's ballistic missile and sounding rocket programs, and after France and Great Britain launched their first satellites. Qian Xuesen recruited a team of four designers from Shanghai's Institute of Electro-Mechanical Design and drafted a game plan for the development of satellites. In January 1963, the Shanghai Institute of Electro-Mechanical Design was integrated into the Fifth Academy.

Definitive plans for the launch of China's first satellite began in January 1965. In August 1965, the Central Special Commission approved a CAS proposal for satellite development, but assigned the Commission for Science, technology, and National Defense to organize and coordinate the satellite development and launch center, while CAS would handle the ground segment. A 64-day design conference (known as the "651 conference") began in September 1965. In January 1966, the "651 Design Institute" under CAS began conceptual design work on China's first satellite. China's first satellite, the DFH-1, was launched on a Long March-1 on April 24, 1970. A second satellite project for scientific research, known as the Shijian-1 (SJ-1), was launched in March 1971. Afterwards, there was a 4-year gap before the launch of the next satellite in 1975.

Reconnaissance Satellites.

Because of the need for accurate targeting data, China's reconnaissance program is intimately related to its nuclear missile program. Since the modest beginnings of a satellite reconnaissance program in early 1966, China has launched at least 22 reconnaissance satellites.[28] Initial space reconnaissance efforts were geared toward developing the optical cameras, receivers, and attitude control mechanisms to support imagery and electronic reconnaissance programs.

Under the leadership of Wang Xiji and Sun Jiadong, the recoverable project was divided into four phases: 1) program assessment from early 1966 to September 1967; 2) the conceptual design from September 1967 to March 1970; 3) prototype development from March 1970 to January 1973; and 4) flight model development after January 1973.[29] After a 3-day conference, the Eighth Design Institute (now the 508th Research Institute) forwarded a conceptual proposal for a film-based recoverable system to the Central Military Commission in September 1967, which approved and assigned the project to China Academy of Space Technology (CAST) in February 1968. Development of the optical remote sensing devices was initiated in November 1967. Key developmental issues for the project, dubbed the 911 Program, that had to be tackled included the solid motor and parachutes for braking the reentry capsule; the attitude control system; satellite structure (heat protection); and the optical sensors. After initiating work on a prototype in early 1973, the initial test of the satellite on a Long March 2 launch vehicle was conducted on November 26, 1975; the 4-day mission was a partial success, and subsequent test launches were conducted in December 1976 and January 1978. The program entered the applied phase in 1979, with the initial launch of the Jianbing-1 (JB-1) in September 1982.[30] After launching six JB-1 satellites between 1982 and 1987, the PRC developed a second-generation reconnaissance satellite, the JB-2, which was launched in 1987.

To augment its optical reconnaissance program, Zhou Enlai directed initiation of the 701 Program and its launch vehicle, the FB-1, on 14 August 1969. The PRC experimented with electronic intelligence (ELINT) satellites, euphemistically called "technical experimental satellites" (*jishu shiyan weixing*), in the mid-1970s

under the Shanghai Bureau of Astronautics' 701 Program. The first Chinese ELINT satellite was launched from Jiuquan in July 1975 on the FB-1 launch vehicle, which was specifically designed to meet the weight and orbital accuracy requirements of ELINT platforms. The FB-1 launched two more experimental ELINT satellites in December 1975 and August 1976. For unknown reasons, the program was discontinued.[31]

Communication Satellites.

Having mastered smaller reconnaissance satellites in low earth orbit, Beijing's space industry focused on larger communications satellites in geosynchronous orbit, 36,000 kilometers above the equator. Such a program required a much more powerful launch vehicle and a new launch site. Inspired by U.S. ability to beam images into American living rooms during the visit of President Richard Nixon in 1972, Beijing began to evaluate its requirements for communications satellites. Theoretical studies on a communications satellite were carried out in the mid-1960s. However, it was not until the Central Committee approved a State Planning Commission proposal in February 1975 that serious R&D was initiated. Mao granted final authorization in April 1975, naming Sun Jiadong as chief designer. After evaluating a number of orbital concepts, including the Soviet Molniya orbit, the PRC settled on a geosynchronous orbit. A formal application was submitted to the International Telecommunications Union in March 1977. Initial mock-ups were produced in 1977, the first electrical design prototype was developed in 1979, and the final integrated satellite, labeled as the DFH-2, was completed in Spring 1983. The satellite was transported to Xichang Space Launch Center in January 1984 and launched on a LM-3 vehicle on January 26, 1984. However, technical failure of the third stage resulted in the satellite being stranded in a low earth orbit. A second DFH-2 satellite launched on April 8, 1984, this time successfully.

SPACE LAUNCH INFRASTRUCTURE

China's space program was dependent upon the successful development of a space launch infrastructure, including launch

vehicles, launch centers, and tracking, telemetry, and control network. Work on China's first launch vehicle, designated as Long March-1 (LM-1), began during the second half of 1965. The vehicle, which served as the basis for subsequent launchers, was developed for the specific purpose of launching the DFH-1 satellite. The technical challenge was development of multiple engine stages that could generate 100 tons of thrust and lift a 300-kilogram satellite into a 440-kilometer low earth orbit. Initial design work was carried out by the Seventh Ministry's 8th Design Institute, but was transferred to the China Academy of Launch Technology (CALT). Under the guidance of CALT director, Ren Xinmin, liquid engines for the first two stages of the LM-1 were derived from the YF-2 engines used in the DF-3 intermediate range ballistic missile. The third stage incorporated a 770mm diameter solid motor developed by the Fourth Academy in Hohhot, Inner Mongolia. Subsystem development was completed by Fall 1968, when general assembly and large scale ground tests began. To ensure uninterrupted progress on the LM-1 project, Zhou Enlai placed 3,456 specialists on the special protection list. The LM-1 was delivered to Jiuquan Space Launch Center on March 26, 1970, and successfully delivered the DFH-1 satellite on April 24, 1970. The LM-1 launched a second payload, the SJ-1, on March 3, 1971.[32]

China's second generation launch vehicle, the LM-2, is a modification of the DF-5 intercontinental ballistic missile. Preliminary research on the heavy lift vehicle began in 1966. Under the leadership of chief designer Tu Shou'e, model design work on the LM-2 began in 1970 for the purpose of launching China's first generation reconnaissance and scientific satellites. The launch vehicle was designed to place a 1800 kilogram payload into a low earth orbit. The initial LM-2 launch on November 5, 1975, failed to place its payload into proper orbit due to a fractured wire in its control system. A second successful launch occurred on November 26, 1975.[33] The LM-2 launched two more satellites in December 1976 and January 1978.

Because the system essentially duplicated the LM-2, initiation of the Fengbao-1 (FB-1) program in Fall 1969 was an anomaly of the Cultural Revolution. The decision to develop two nearly identical rockets concurrently can be blamed on the turbulent factional politics after the Cultural Revolution. Prompted largely by the

"Gang of Four" to provide a larger role for Shanghai based space establishment, a design team was centered on the Shanghai Second Bureau of Electro-Mechanical Industry. General system design, led by Shi Jinmiao, was started in December 1969. Like the LM-2, the FB-1 was a derivative of the DF-5 ICBM. Under the heading of the 701 Program, the ostensible purpose of the FB-1 space launch vehicle was to boost a "technical experimental" payload into orbit. The first prototype was assembled and delivered for testing in October 1970. The first launch of the FB-1 from Jiuquan took place in August 10, 1972. The final launch, involving the placement of three satellites on one vehicle, took place in 1981, a year after the Gang of Four were tried in court and handed lengthy prison sentences.[34]

China's decision in 1976 to deploy a communications satellite required a new launch vehicle. The design that was selected — the Long March 3 (LM-3) was a three-stage launch vehicle designed for delivery of a 1,500-kilogram satellite into geosynchronous transfer orbit. Assigned to the Seventh Ministry's First Academy (CALT), the LM-3 and its communications satellite payload were designated as a national priority under the "Three Grasps" campaign in September 1977. Xie Guangxuan, assisted by Long Lehao, was appointed as chief designer. The first two stages of the LM-3 are similar to those of the LM-2. However, what made the LM-3 unique was its third stage that used a cryogenic (liquid hydrogen and oxygen) engine capable of multiple ignitions. The first launch of the LM-3 from the Xichang Space Launch Center took place on January 29, 1984. However, the third stage failed to re-ignite a second time and the satellite did not reach its proper orbit. A second attempt on April 8, 1984, was successful.[35]

In August 1978, China's senior leadership decided to develop a backup launch vehicle for the communication satellite project. Designated the Long March 4, the Commission of Science and Technology for National Defense (COSTND) assigned the project to the Shanghai Astronautics Bureau and conceptual design work began in February 1979. In addition to backing up the LM-3, China's senior leadership decided in October 1982 to use the LM-4, which uses a conventional third stage instead of a cryogenic engine, to launch China's first generation of weather satellites. Sun Jingliang was assigned as LM-4 chief designer. After the successful launch of the DFH-2, the LM-4's primary mission became the launching

of sun synchronous weather satellites. The first weather satellite, Fengyun-1 (FY-1) was launched from Taiyuan Space Launch Center on September 7, 1988.[36]

Launch Centers.

The initial decision to construct space launch centers coincided with the March 1965 decision to develop third line industries. A decision had already been made as early as 1958 to construct a missile test (Number 3 Launch Area) and space launch facility (Number 2 Launch Area) in the Gobi desert near the town of Jiuquan. Construction on the initial portion of the Jiuquan Space Launch Center, known as the "5020 Launch Complex" was completed in April 1967 and hosted the initial LM-1 launch in April 1970. The second center, known as the "138 Launch Complex" was completed in 1970 and hosted the initial launch (probably ballistic missile) in September 1971; the FB-1 in July 1975; and 1981 DF-5 test into the Pacific Ocean.[37]

Because the Jiuquan Space Launch Center was considered unsuitable for launches into geosynchronous orbit, the State Council and CMC decided in December 1970 to construct a new launch site further south and closer to the equator near the town of Xichang, Sichuan province. The Cultural Revolution and engineering challenges associated with constructing a space launch facility in mountainous terrain resulted in slow progress until the 1977 decision to hasten development of the communications satellite and associated launch facilities. Construction was completed in 1983, and the first satellite launch on an LM-3 (DFH-2) took place in April 1984.[38]

China's senior leadership also decided to diversify the mission of its North China Missile Test Site near Taiyuan to include a space launch capability in 1966. Due to complications associated with the Cultural Revolution, progress was delayed until November 1977, when the central leadership decided to launch sun synchronous satellites from Taiyuan. The Taiyuan Space Launch Center was completed at the end of 1987.[39]

Satellite Tracking, Telemetry, and Control.

A space infrastructure requires a capable ground segment that can locate, track, and monitor satellites during and after launch. China's space tracking network, based on its astronomical observatories, began shortly after the launch of Sputnik in October 1957. Formal planning for establishing a dedicated space tracking began in 1965. Led by Wang Daheng and Chen Fangyun, a group of engineers proposed that the China Academy of Sciences develop a national network. In Spring 1967, after assigning responsibility for developing the TT&C network to COSTND, satellite tracking tests against foreign satellites were conducted from sites in Beijing, Nanjing, Shanghai, and Wuhan. Plans were laid for adding a sea-based component for the network. Weinan, Shanxi province, was established as the command center for the network in 1970. Upon completion, a new organization was formed — China Launch and Tracking Control General (CLTC), which functioned as the space launch operations arm of the PLA. Roughly analogous to U.S. Space Command, CLTC was commissioned to oversee three satellite launch centers and China's vast tracking, telemetry, and control (TT&C) network.[40]

MAINTAINING STRATEGIC SUFFICIENCY (1984-91)

The PRC leadership and its incipient aerospace industry adjusted its focus during the early 1980s to ensure the vitality of its new nuclear retaliatory force and consolidate technical achievements in its space program to support military modernization and development of the national economy. As China's space and missile program accumulated successes, President Ronald Reagan's announcement of the Strategic Defense Initiative (SDI) in March 1983 served as a rude awakening, demonstrating how far China had fallen behind the rest of the world. China's leadership directed a series of studies to evaluate the effect SDI would have on the ability of the Second Artillery to reach its targets. By 1986, Chinese experts generally agreed there were three potential responses: expansion of offensive forces; development of technical countermeasures; and deployment of anti-satellite (ASAT) systems to destroy space-based ballistic missile defense (BMD) systems.[41] In February 1986, the reorganized

Commission of Science, Technology, and Industry for National Defense (COSTIND), with CMC support, sanctioned the overall long-term development effort and further directed the formation of 18 study groups to focus on designated critical technologies.[42]

Some within the defense S&T community believed COSTIND's plan was not sufficient to meet the technical challenges posed by SDI. In March 1986, some of China's most prominent defense engineers presented a petition to the Central Committee on establishing a "High Technology Research and Development Plan Outline." The plan, referred to as the 863 Program, was jointly managed by COSTIND and the State Science and Technology Commission and functioned as a guide and funding source for numerous preliminary R&D projects, including space systems, high powered lasers, microelectronics, and automated control systems.[43]

Organizational Issues.

Beginning in the early 1980s, the space and missile industry underwent a series of reorganizations to help manage the post-Cultural Revolution environment and support Central Committee decisions made in December 1978 to prioritize economic development. In May 1982, the Seventh Ministry of Machinery was restructured to become the Ministry of Astronautics Industry, with Zhang Jun appointed as Minister. In April 1988, the Astronautics Industry was merged with the Aeronautics Industry in an attempt to reduce management overhead and merge the technology base of the aviation and aerospace sectors. To consolidate senior level oversight of space and missile activities, the State Council and CMC decided to establish a State Space Leading Group in March 1989, with the Executive Secretariat of the group located within headquarters of COSTIND. In 1993, the Ministry of Aeronautics and Astronautics was split, and the astronautics sector was incorporated as the China Aerospace Corporation (CASC).[44]

Ballistic Missile Developments.

In the mid-1980s, China implemented a gradual program to raise the level of sophistication of its space and missile programs. During the annual senior meetings at Beidaihe in 1984, the central authorities

issued an edict that no major world war was expected in the next 10-15 years. China would have a decade or more to improve its first generation ballistic missiles and develop a second generation of missiles based on solid motor technology. On December 26, 1984, the space and missile industry released a directive shifting the emphasis away from liquid to solid fueled ballistic missiles; from strategic to tactical ballistic missiles; from first generation strategic missiles to second generation missiles; and from experimental to operational satellites.[45] With the Fourth Academy achieving success in testing a two-meter diameter solid motor at the end of 1983, China's senior leadership began model R&D on a solid-fueled replacement for the DF-4, known as the DF-31, in early 1986. Plans also began for a more advanced solid fueled ICBM, the DF-41.[46] The move toward solid-fueled ballistic missiles was driven at least in part by a desire to enhance the survivability of its small nuclear force in the wake of U.S. President Ronald Reagan's announcement of the Strategic Defense Initiative in March 1983. Commercial interests served as the primary impetus for development of conventional tactical ballistic missiles.

During the mid-1980s, Beijing's senior leadership began to develop options for arming solid fueled ballistic missiles with conventional warheads. During Spring 1984, the First Academy submitted proposals for developing conventional short and medium range ballistic missiles. Engineers believed that technologies associated with China's new generation of solid-fueled ballistic missiles could be adapted for operational purposes. Initial conceptual design work on the 600-kilometer range DF-15 began in April 1984. The missile was marketed at the First Asian Defense Exhibition in November 1986. An agreement to sell the missile to Syria ostensibly was signed in early 1988, before the initial test of the missile in June 1988.[47]

Another entity, the 066 Base in western Hubei province, entered the competition for conventional ballistic missiles. Also known as Sanjiang Space Corporation, the 066 Base, which previously developed solid motors for the Third Academy, evolved into an independent R&D and production base during the latter half of the 1980s. In 1984, the 066 began development of the 300 kilometer range DF-11 ballistic missile, which was first tested in mid-1990 and sold to Pakistan in 1991.[48]

SATELLITE AND SPACE LAUNCH DEVELOPMENTS

During this phase, China's space and missile industry focused on increasing its space lift capabilities in support of the PLA and the civilian economy. After three successful launches of the LM-2, work began in 1980 on enhancing its lift capacity into low earth orbit from 1,800 to 3,000 kilograms. The LM-2 variant, known as the LM-2C, was first launched from Jiuquan Space Launch center in September 1982. Another LM-2 modification was initiated shortly after China's commitment to enter the international space launch market. This vehicle, known as the LM-2E utilized four external boosters to raise the lift capacity to 9,200 kilograms. China also developed subsequent variants of the LM-3. The LM-3A utilizes the first and second stages of the LM-3, but uses an improved cryogenic third stage to allow lifting of a 2,650 kilogram payload into orbit. Another variant, the LM-3B, uses the same three stages as the LM-3A, but adopts the LM-2E's external boosters to allow the vehicle to launch a 5,000 kilogram payload.[49]

In 1986, China's senior leadership formally directed initiation of model R&D on the next generation communication satellite, the DFH-3. Satellite development went through four phases: conceptual design (*lunzheng sheji*); program design (*fang'an sheji*); preliminary design (*chuyang sheji*); and primary design (*zhengyang sheji*). Three satellites were produced during the preliminary design phase for electronic, structural, and heat testing. Testing was completed in September 1994 and launch on an LM-3A took place from Xichang Space Launch Center on November 30, 1994. Equipped with 24 transponders, the DFH-3 carried six times the communications capacity as the first generation DFH-2 and filled an important gap in civil and military telecommunications.[50]

In addition to the DFH-3, China's strategic sufficiency period witnessed the launch of its second-generation reconnaissance satellite. The system, known as the Jianbing-2, reached IOC in September 1987 when it was launched from Jiuquan Space Launch Center and returned to earth with its film in Sichuan. The JB-2 provided for wide area imaging and orbited for eight days. Four JB-2 satellites were launched between 1987 and 1992. In 1993, a problem in its attitude control system resulted in a failed JB-2 mission. The final JB-2 satellite was launched from Jiuquan in July 1994.[51]

A follow-on variant of the JB-2 satellite, known as the JB-2A, carries 2,000 meters of film and has a resolution capability of at least 10 meters. The first JB-2A was launched in August 1992, with subsequent launches in 1994 and 1996. One of the more significant aspects of the JB-2A was its demonstrated maneuvering capability. The JB-2A orbited for 15 or 16 days before returning to earth with its imagery package.[52] On October 20, 1996, using the LM-2D from Jiuquan, China launched another "scientific survey" (*kexue shence*) satellite, which orbited 15 days before returning to earth.[53] The 1996 JB-2A launch was expected to be the last in this series as China moves to a more advanced imaging system.[54]

International Cooperation.

In the early 1980s, China's space and missile industry stressed development of international contacts as a means to diversify its sources of expertise and to generate additional income to subsidize its budget. China signed a contract with Germany's Deutsche Aerospace for technical assistance with its DFH-3 program. Taking advantage of high international demand for launch services in the mid-1980s, China began marketing its launch vehicles in 1985. With a credible success record, China was able to undercut U.S. and French competition by offering launch services at 30-75 percent below the cost of Western providers. After signing a bilateral agreement with the United States, the Ministry of Astronautics Industry signed initial contracts for satellite launching services with U.S. and European companies. Between 1987 and 1990, Swedish, German, French, and Pakistani space industries contracted for Chinese launch vehicles to carry experimental payloads.[55]

MAINTAINING NATIONAL SOVEREIGNTY (1991 TO THE PRESENT)

Since 1991, the space and missile industry has focused on supporting limited wars under high technology conditions. A renewed confidence and vision regarding the purpose of its space and missile assets have characterized this most recent phase. A series of events in the early 1990s, reinforced by a series of political

shocks later in the decade, have created a sense of urgency that has not existed since the Cultural Revolution.

The 1991 Gulf War was a rude awakening for the Central Military Commission and the aerospace industry. The awesome display of military power demonstrated how vulnerable the Chinese homeland is to attack from a potential enemy. The war proved the preeminence of air power and long range precision strike, augmented by space based command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems. According to one source, in a December 1995 meeting the CMC concluded "ground fighting can only enhance the results of battle."[56] The war also highlighted the political and potential military utility of conventional ballistic missiles.

As China was absorbing lessons from the Gulf War, events on Taiwan sounded alarm bells in Beijing. In May 1991, The Period of Mobilization for Suppression of the Rebellion, which had been in force since the withdrawal from the mainland in 1949, was terminated. That same year, the National Unification Council adjusted its definition of "One China," claiming for the first time that "China is temporarily divided" and that "each side of the Taiwan Strait is administered by a separate political entity." In April 1992, open advocacy of Taiwan independence was legalized. Adding to Beijing's consternation was the announcement in September 1992 of the release of U.S. F-16A/B fighters to Taiwan.

The collapse of the Soviet Union in 1991 and the willingness of Russia and Ukraine to assist China's aerospace development presented opportunities that had not existed since August 1960. Access to foreign assistance, combined with other events later in the decade, reinforced and intensified Beijing's sense of urgency to field a new generation of solid fueled ballistic missiles with penetration aids; a space-based C4ISR architecture; and conventional ballistic missiles. The visit of Lee Teng-hui to the United States in May 1995 and the U.S. dispatch of two aircraft carrier battle groups off the coast of Taiwan in March 1996 removed any doubt that the PLA would require an ability to deter or complicate U.S. intervention in a Taiwan Strait conflict.

A series of events that occurred between March and August 1999 sharpened PRC focus on the United States and Taiwan in its strategy and force planning. There is a large body of evidence that

suggests an important high level decision was made in the early to mid-May 1999 timeframe to accelerate key weapons systems R&D and production programs. After the initiation of the NATO air campaign in March 1999, media reporting suggests the CMC lobbied for funding to accelerate several programs, including new ballistic missile variants, land attack cruise missiles, and other systems. During a April 10, 1999, meeting, CMC Vice-Chairman Chi Haotian was alleged to have announced that CMC Chairman Jiang Zemin had signed a work report to speed up and intensify R&D on 15 projects and to advance and expand production on 12 programs.[57]

The accidental bombing of the Chinese embassy in May 1999 further increased the leverage of hardline elements within the PLA. The Politburo and State Council were alleged to have approved fiscal support to a CMC R&D and production acceleration scheme on or about May 15, 1999. General Equipment Department Director Cao Gangchuan directed that extraordinary efforts be expended to achieve breakthroughs in key areas and reduce the time needed for development and testing of systems. The State Planning and Development Commission had the responsibility of coming up with the means to fund the effort. The direction to accelerate R&D and production was a key theme of a June 1999 GED-sponsored All-Army conference on military armaments.[58]

Responsibility for accelerating weapon system R&D and production largely fell on the two entities that constituted the China's space and missile industry after a 1999 reorganization of China Aerospace Corporation: China Aerospace S&T Corporation (CASC) and the China Aerospace Electro-Mechanical Corporation (CAMEC). On May 10, 1999, *China Space News* reported that key academies under CASC and CAMEC held a May 9, 1999 meeting to review the status of key R&D programs and develop a game plan for acceleration of weapon system R&D.[59]

On May 18, 1999, the aerospace industry leadership convened a second meeting, chaired by CAMEC Director Xia Guohong, on Kosovo and China's aerospace policy. The meeting of China's foremost experts on aerospace technology concluded that future warfare depends on precision guided munitions and long range precision strike; integrated air and missile strikes supported by space technologies; and electronic countermeasures. Then-Deputy Director of the Second Academy, Yin Xingliang, noted, "all of these

characteristics serve to tell us that future wars will be face-offs decided by real military strength in the air. It is not likely that a ground war between large countries will break out." According to Xia, the solution to China's security lies in "trump card" (*shashoujian*) weapons and increasing the precision of China's tactical missiles.[60]

Organization.

To meet the challenges of the 21st century, the State Council and CMC directed the reorganization of its space and missile industry on April 13, 1999. CASC was divided into two organizations — China Aerospace Science and Technology Corporation (new CASC, or *zhongguo hangtian keji jituan*) and China Aerospace Machinery and Electronics Corporation (CAMEC). Wang Liheng, a cruise missile specialist, was appointed as CASC director, but acknowledged that he would serve only as an interim leader as the new organization settled. The new organization, responsible for strategic ballistic missiles, launch vehicles, and satellites, incorporated the China Academy of Launch Technology (First Academy); the Fourth Academy; CAST (Fifth Academy); Shanghai Academy of Space Technology (SAST, or the Eighth Academy); 062 Base (Jiangnan Space Group); and the 067 Base. CASC reshuffled its leadership in December 2001, with Wang Liheng retiring and 40-year-old Zhang Qingwei assuming his position. Jin Zhuanglong and Xu Dazhe were appointed as deputy directors.[61]

To place additional focus on precision inertial guidance and navigation, the State Council and CMC directed the formation of a new academy under CASC for development and production of navigation, guidance, and control systems. On July 28, 2001, CASC announced the formation the China Academy of Space Navigation Technology *(zhongguo hangtian daohang jishu yanjiuyuan)*. Also known as the 10th Academy (also Space Era Instruments Company), the new organization, which consists of 5,200 engineers and technicians, absorbed various entities from the First Academy, 067 Base, and SAST.[62] CASC also recently elevated the status of the 067 Base to research academy. On April 26, 2002, CASC formed the Sixth Academy, also known as the Academy of Space Propellant Technology (*hangtian tuijin jishu yanjiuyuan*), based near Xian, Shanxi province.[63]

The second half of the space and missile industry, CAMEC, assumed responsibility for conventional aerospace weaponry, such as cruise missiles, surface-to-air missiles, solid fueled launch vehicles, and a portion of the short range ballistic missile portfolio. Armed with a doctorate degree from the University of California, Xia Guohong was appointed as CAMEC director.[64] CAMEC absorbed the Second and Third Academies and the 061 and 066 Bases. On September 6, 2001, CAMEC was renamed China Aerospace Science and Industry Corporation (CASIC, or *zhongguo hangtian kegong jituan*). Xia Guohong retained the CASIC directorship and Yin Xingliang, a noted ASAT and missile defense specialist, was appointed as deputy director.[65] In July 2002, CASIC also formed four large enterprises that integrate existing academies and miscellaneous companies and research departments.[66]

To place greater emphasis on solid motor development, CAMEC/CASIC formed a new research academy on August 21, 1999. The new organization, known as the CAMEC Sixth Academy, was established from the old Inner Mongolia Command (*Neimenggu zhihuibu*), also known as the Hexi Chemical Machinery Corporation. The Sixth Academy, known as the Academy of Solid Motor Technology (*guti huojian fadongji jishu yanjiuyuan*), develops a range of solid motors for strategic and tactical missiles.[67] In light of the continued existence of the CASC Fourth Academy, the reason for the new solid motor academy under CASIC is unclear. Given the continued work of the Fourth Academy under CASC, there may be an intentional effort to create competition between CASIC and CASC solid motor R&D and production entities.[68]

BALLISTIC AND CRUISE MISSILE DEVELOPMENT

Led by a group of relatively young engineers, China's space and missile industry is developing a range of advanced strategic and conventional ballistic and land attack cruise missiles. Building upon its experience in solid motor development since the late 1950s, the First Academy and 066 Base are continuing R&D on mobile solid fueled ballistic missiles. The Second Artillery is said to be equipped with 350 conventional short-range ballistic missiles (SRBMs) distributed among three brigades opposite Taiwan. One source indicates that during annual meetings at Beidaihe in August

1999, China's senior leadership decided to accelerate the production and deployment of enough ballistic missiles to outfit four SRBM brigades by 2002.[69] Western sources believe the PLA may deploy as many as 650 SRBMs opposite Taiwan over the next several years, while Taiwan Ministry of National Defense statements indicate that as many as 800 SRBMs could be deployed by 2006.[70] These missiles would be distributed into as many as seven brigades in the 2005-2010 timeframe.[71] Aerospace industry journals indicate the PLA has established a requirement for ballistic missile accuracy to be less than 50 meters circular error of probability (CEP) and a land attack cruise missile (LACM) accuracy of less than 16 meters.[72] CASC and CASIC researchers have conducted extensive feasibility studies of the use of conventional ballistic missiles against aircraft carriers.[73]

The establishment of the 10th Academy is indicative of the emphasis China places on precision guidance. Most recently, CASC engineers are prioritizing terminally guided ballistic missiles. Options include terrain matching terminal guidance, which makes use of digitized stored images (electro-optical or radar) and matches them against the images acquired in the seeker. The First Academy began preliminary research on terrain contour matching (TERCOM) terminal guidance as early as 1977.[74] Radar matching was used on the U.S. Pershing-II and optical matching is currently used on a Russian variant of the SCUD-B.[75] First Academy engineers believe digital scene matching can result in a 5-12 meter accuracy for their ballistic missiles.[76] There is evidence that China intends to design up to six different payloads for its conventional ballistic missiles. CASC writings indicate prioritization of submunition payloads, and electromagnetic pulse, penetrating, and fuel-air explosive warheads for use against air defense sites, radar, airfields, semi-hardened C4I centers, and ports. [77]

SRBM Development.

China's current R&D is aimed at extending the range and increasing the lethality of its short range ballistic missiles. The PRC deployed its first DF-15 short range ballistic missile brigade in 1994 and allegedly is deploying a growing number of 300 kilometer range DF-11 and 600 kilometer range DF-11A missiles opposite Taiwan. The DF-15 is a solid-fueled, 600 kilometer SRBM. Manufactured by

the First Academy, the DF-15's detachable payload reportedly has an attitude control mechanism that permits steering corrections from separation to impact.[78] The First Academy is said to be developing a 1000-kilometer range version of the DF-15.[79] Some reporting indicates the DF-15 currently has a 100-meter CEP.[80] However, there are indications that the DF-15 has been flight tested to an accuracy of better than 50 meters.[81] The 066 Base's 600-kilometer range DF-11A program began in 1995 and reached design finalization (*dingxing*) in 1999.[82] Taiwan sources indicate that the first DF-11A brigade is being formed in the Yong'an/ Nanping area.[83]

MRBM Development.

A longer range version of the DF-21, the 2,500 kilometer range DF-21 Mod 2, is reportedly under development. Both the DF-21 Mod 1 and Mod 2 likely have missile defense countermeasures, including endo-atmospheric decoys that were tested in 1995 and 1996.[84] In addition to continuation of its nuclear DF-21 program, CASIC is focusing its efforts on a conventional version of the DF-21. To support its warfighting mission, the PRC has been developing a conventional variant of the DF-21 since the early 1990s. This system, known as the DF-21C, may adopt a terminal guidance package that uses on board computers to correlate stored images with landmarks that theoretically could achieve a CEP of 50 meters or better.[85] Such a capability naturally would require a maneuverable reentry vehicle. The reentry speed of the DF-21C is likely to be fast enough to preclude engagement by lower-tier missile defense systems, such as the PAC-3. Equipped with a conventional warhead as large as 1,500 kilograms, the DF-21C could force defenders on Taiwan to move toward mid-course or upper terminal phase missile defenses, such as the Theater High Altitude Area Defense (THAAD) system and sea-based mid-course interceptors. As many as two conventional DF-21 brigades could be in operation before 2010.[86]

ICBM Development.

Today, CASC is focused on fielding a new generation of mobile, solid-fueled ICBMs. Slated for deployment before 2005, the DF-31 eventually will replace the DF-4 long intermediate range ballistic

missile. The DF-31 is estimated to carry a single warhead and could incorporate penetration aids, including decoys and chaff. At least 10-20 DF-31 missiles can be expected to enter the Second Artillery over the next 5 years, sufficient to outfit one brigade with a notional structure of 9-16 launchers assigned to three or four battalions.[87]

Two variants of the DF-31 also are under development. First is an extended range version of the DF-31 with a range of at least 12,000 kilometers. This longer range missile, known as the DF-31A, likely will be tested within the next several years and will be targeted primarily against the United States. Japanese observers note that the DF-31A is in some respects more advanced than some Russian systems, such as the Topol-M. As many as 10 DF-31A ICBMs could be fielded by 2010. Another variant of the DF-31 — the JL-2 — will be launched from submarines. The JL-2 missile was successfully tested in early 2001. A modified Type 94 submarine will carry the JL-2. Projected for deployment by 2005, the 8,000-kilometer range missile would be able to strike targets in Alaska, Hawaii, and the western part of the United States when operating in Chinese coastal waters.[88] Indications exist that the timeline to field the DF-31, its longer range variant, and the JL-2 was accelerated in May 1999.[89]

MIRVs.

CASC has had the capability to develop and deploy a multiple reentry vehicle system for many years. As of January 1996, the First Academy was in midst of developing multiple warhead payloads, each with its own guidance system and maneuvering capability.[90] Research and development on multiple independent reentry vehicles (MIRVs) was initiated as early as 1970. Technical difficulties, however, stalled the program. The First Academy renewed research and development shortly after the SDI announcement in March 1983. The DF-5A, able to strike targets throughout the United States, was the designated recipient of the MIRVs, although there is no evidence to date that they have been deployed. The U.S. intelligence community assesses that China could develop a multiple RV system for the DF-5 ICBM in a few years. Chinese pursuit of a multiple RV capability for its mobile ICBMs and SLBMs would encounter significant technical hurdles and would be costly.[91]

Missile Defense Countermeasures.

Beijing is concerned about projected deployment of U.S. missile defenses that threaten to reduce the viability of its strategic and tactical ballistic missile forces. China's interest in missile defense countermeasures dates back to the 1960s, when Qian Xuesen proposed in 1966 the development of on-board jammers and light exoatmospheric decoys. With further studies and research conducted in the 1980s providing the foundation, Beijing has embarked upon a far-reaching and multi-faceted program to develop missile defense countermeasures. These programs include technical countermeasures and an expansion of its missile force, as well as asymmetrical measures, such as anti-satellite operations. The PRC is investing significant resources into countering missile defense through the development of technical penetration aids. Contemporary Chinese literature on technical countermeasures is focused on "two categories and eight major penetration technologies" (*liang dalei, ba datufang jishu*): These include countersurveillance (electronic countermeasures, stealth, decoys, and fast burn motors) and counterintercept (multiple warheads, maneuvering reentry vehicles, hardening, and saturation).[92]

Land Attack Cruise Missile Development.

In addition to ballistic missile development, the PRC has placed a high priority on the research, development, and production of land attack cruise missiles (LACMs). CASIC's Third Academy could field China's first generation land attack cruise missile for the PLA Air Force within the next 2 years Western sources and publications from Taiwan indicate Beijing's first air launched land attack cruise missile, a Silkworm variant dubbed the Yingji-63 (YJ-63), will be launched from Hong-6 (H-6) bombers. As of June 2000, six ALCM-capable H-6 bombers had been produced and a total of 25 are to be expected to be in service by 2005. Each H-6 will be able to carry between two and four YJ-63s. The YJ-63 will feature a TV-guidance package and will have a 500-kilometer range, and at least 200 are expected to be in service by 2005.[93] Taiwan sources note Chinese efforts to develop a generation-after-next cruise missile modeled after the Tomahawk cruise missile, which is expected to be in service in the 2005-2010

timeframe. The LACM will be capable of carrying conventional or nuclear payloads and could have a range of between 500-1,500 kilometers.[94]

SATELLITE AND LAUNCH VEHICLE DEVELOPMENT

As it conducts more advanced R&D on ballistic missiles, CASC is investing in more sophisticated satellites and launch vehicles. The CASC's Fifth Academy (China Academy of Space Technology) is developing a range of systems, including high capacity telecommunications satellites and high resolution electro-optical imaging systems. At the same time, the space and missile industry is continuing to diversify its family of launch vehicles.

Communication Satellites.

In the area of communications satellites, there have been three significant developments. First, China launched its first second-generation communications satellites, the DFH-3 in 1993. A key follow-on to the DFH-3 is the Feng Huo-1 (FH-1), China's first satellite to provide military units with both C-band and Ku-Band communications. Xinhua news agency reported that the satellite, also known as the 2,300 kilogram Zhongxing-22, was launched on a LM-3A on January 25, 2000. Western reporting suggests that the Fenghuo is the first of several military communications satellites for the "Qu Dian" integrated command, control, communications, computer, and intelligence (C4I) system, China's first such system. CAST began formal R&D on its third generation communications satellite, the DFH-4, in late 2001. The DFH-4 will be a direct broadcast satellite with 50 transponders and a life of 15 years. The system is expected to be launched in 2005.[95]

Reconnaissance Satellites.

China plans to field an integrated dual use space reconnaissance architecture by the end of the decade. In the 10th Five-Year Plan, CASC plans on deploying a limited reconnaissance architecture, euphemistically referred to as an "environment and disaster

monitoring system," that consists of two electro-optical (EO) and one synthetic aperture radar satellite. This "2+1" satellite constellation will be expanded in the 11th Five-Year Plan to four electro-optical and four synthetic aperture radar satellites (called the "4+4").[96]

CASC and China's electronics industries have made notable progress in charged couple devices (CCD), a technology that is essential to the development of real-time EO imaging systems.[97] An EO satellite enables Beijing to beam images back to ground stations directly from space. The Ziyuan-1 (ZY-1), developed jointly between the PRC and Brazil, is China's first EO satellite. R&D on the ZY-1 satellite began in 1988, entering initial R&D (chuyang yanzhi) phase in 1989. Launched in October 1999 on an LM-4, the ZY-1 has a 2-year lifespan and incorporates a data transmission system to beam images back to earth. The ZY-1, operating at an altitude of 778 kilometers, was limited to a 20-meter resolution, but adds to China's experience base in EO imaging systems.[98] The ZY-2, launched in September 2000, has a significantly improved resolution that will provide better services for PLA intelligence analysts. Like the ZY-1, the ZY-2 has a 2-year lifespan and can transmit images back to ground stations within line of sight of the satellite.[99] This sytem, equipped with an improved CCD camera, has a resolution of five meters or better.[100]

In addition to the ZY series, China also is developing micro satellites weighing approximately 150 kilograms. The satellites, developed jointly by the Fifth Academy, China Academy of Sciences, Harbin Institute of Technology, and Qinghua University, include a remote sensing package with a spatial resolution of 10 meters or better. With initial funding under the 863 Program, the satellites, known as Chuangxin-1 and Tansuo-1, will have an orbit of 600 kilometers and will carry out mapping missions and monitor natural disasters. A constellation of microsatellites is planned.[101] Also under development is a solar telescope (*taiyang wangyuanjing*) that could have some military applications. This system, scheduled for launch in 2005, will be equipped with both EO and X-Band sensors and is advertised as one of China's most sophisticated satellites to date. R&D began in 1992 and systems integration in July 2000.[102]

Shortly after the Gulf War, China's senior leadership approved a program for development of a synthetic aperture radar satellite. Initial research that began in 1991 was funded under the 863 program.[103] In addition to imaging systems, there are indications

that CASC is investing in space-based electronic reconnaissance. Chinese technical writings indicate that the Shanghai Academy of Space Technology (CASC Eighth Academy) is evaluating options for a space-based electronic intelligence (ELINT) system. At least one potential design is a constellation of small ELINT satellites, which can ensure precise location data and survivability.[104] In addition, some credible observers believe that the Shenzhou-3 had an ELINT mission, specifically targeting frequencies from around 300-1,000 MHz. The Federation of American Scientists also believe that many of China's scientific research satellites bear characteristics of ELINT missions.[105]

In other developments, China integrated global positioning system (GPS) receivers on its satellites in the mid-1990s for geo-reference purposes. After initiating preliminary research in 1991 and model R&D in 1994, the 503rd Research Institute tested its first GPS system on board China's 17th remote sensing satellite launched in October 1996.[106] In a final development, China's planned deployment of a data relay satellite (DRS) system will provide an extended range near-real-time targeting capability.[107] A Chinese DRS architecture under development is expected to include at least two geostationary satellites that could provide 85 percent coverage of the earth and support 5-10 satellites at the same time.[108]

Navigation Satellites.

China's first generation navigation satellite, the Beidou 1, was launched in 2000. The concept for navigation was initially developed in the 1980s by one of China's pre-eminent engineers, Chen Fangyun. The concept, known as Shuangxing (Twin Star), was to involve two satellites in geosynchronous orbit. After initial tests using DFH-2 communications satellites, the program moved from its preliminary R&D into applied research phase in 1993. The Beidou project uses the DFH-3 bus and will eventually consist of as many as four satellites that will serve as back-ups.[109] There has been discussion between Chinese and Russian space officials regarding Chinese funding of replacement Global Navigation Satellite System (GLONASS) satellites. In exchange, the PRC would obtain access to their services. The issue was allegedly a topic of discussion between

Chi Haotian and Russian Deputy Prime Minister Ilya Klebanov during Chi's 16-18 January 2000 visit to Moscow.[110]

Launch Vehicle Developments.

Over the last 10 years, China has focused on diversifying its space launch capability, to include development of launch-on-demand, solid fuel launch vehicles for small satellites. To support fielding of small satellite constellations, China's senior leadership have authorized CASIC to develop solid fueled launch vehicles. Under the leadership of CASIC's Fourth Design Department, small solid fueled launch vehicles, most likely a derivative of the DF-21, will be able to place small payloads in orbit at a time and place of the PLA's choosing. China intends to field these mobile, solid fueled launch vehicles by 2005. Reduced size and complexity allows for faster manufacturing time and production in significant numbers.[111] In addition to the solid rocket launcher, there is some consideration of resurrecting the LM-1 design, redesignated as the LM-1D, for launching of small satellites.[112] As CASIC develops a solid fueled launch vehicle (LV) for small satellites, China also is working on a three stage heavy lift LV that uses kerosene/liquid oxygen (LOX) and LH2/LOX. The new vehicle, expected to be fielded by 2007, is designed to lift a 25 ton payload to low earth orbit and up to 13 tons to geosynchronous transfer orbit (GTO).[113]

Satellite Tracking and Control.

Over the last 10 years, the PLA has modernized and expanded its space tracking network. This network, operated by the PLA China Launch and Tracking Control (CLTC), is needed for tracking and control of a projected increase in China's domestic satellites, its international satellite launch business, and manned space program. The PLA has added overseas links in Chile and the South Pacific island of Kiribati, and has contracted with France for access to data from its space tracking network.[114] CLTC and Swedish Space Corporation (SSC) signed an agreement for Chinese access to Sweden's space tracking network in early 2001.[115]

China Academy of Sciences' astronomical observatories in Nanjing and Kunming feed into the CLTC network, providing

orbital prediction data for CLTC. CAS and CLTC are upgrading their network of high resolution telescopes, augmented by laser tracking devices. China's space community claims an ability to detect objects in space down to 10 inches.[116] While the network is designed for cooperative targets, it does provide the framework for improvements against noncooperative targets. The CLTC space tracking network likely supports the Second Artillery through alert messages indicating that foreign reconnaissance satellites are passing overhead.[117]

International Cooperation.

Since 1991, China has become heavily reliant upon the former Soviet Union for its space and missile program. Space cooperation began in May 1990, and a formal agreement was signed 2 years later.[118] The relationship was solidified on December 18, 1992, when China's space and missile industry and the Russian Space Agency signed an official protocol for the sharing of space technology. A subsequent agreement was signed in 1994 that covered at least ten areas of space cooperation, including satellite navigation, space surveillance, propulsion, satellite communications, joint design efforts, materials, intelligence sharing, scientific personnel exchanges, and space systems testing.[119] The two sides meet yearly to review the status of programs.[120] Cooperation has centered on cryogenic technology for use in upper stages for launch vehicles. Russia sold China three RD-120 cryogenic upper stage engines in 1995.[121] Russia also is assisting China in its manned space program.[122] Space cooperation agreements have also been concluded with Ukraine, Belarus, and Kazakhstan. Areas of cooperation with Ukraine include remote sensing, satellite communications, and aerospace material research and development.[123]

CASC and CASIC have not limited their international cooperation to the former Soviet Union. China's space and missile industry has developed close working relationship with France, Germany, and Italy. Based on a June 1994 agreement, CASC and France's National Center for Space Studies (CNES) are cooperating in the areas of small launch vehicle, navigation satellites, satellite attitude control systems, communication satellites, and meteorological satellite technology.[124] China will work with France in developing the Proteus

small satellite bus.[125] Areas of cooperation with Germany include satellite communications (SATCOM) transponder technology, solar panels, and orbital control systems.[126] China is also working with Germany on a two-ton solar telescope that will orbit around the moon around 2005.[127]

MANNED SPACE FLIGHT

Since publication of Qian Xuesen's *Interplanetary Flight*, China has dreamed of manned space flight. In April 1968, Qian established a manned space flight research center, known as the Beijing Institute of Space Medical Engineering (507th Research Institute) to study how humans would respond to space flight. The decision to proceed in R&D into manned space platforms and reusable space vehicles was reflected in the 1986 Mid-to-Long Term S&T Development Program.[128] A new astronaut training facility, the Beijing Space Technology Experiment Center, was opened in 1995 in northwestern Beijing. All astronauts in training are experienced PLA Air Force pilots with at least 1,000 hours of flying time.[129] Under a 1995 contract with CAST, Russia's Yuri Gagarin Center near Moscow is providing training for 70-80 Chinese astronauts, engineers, and managers in 1997-98. Russia's Krunichev Space Center and Energia Company, and Ukrainian space agency are assisting in the development of the capsule and booster capable of lifting 20 tons.[130]

China is conducting an extended test program (Project 921-1) before launching a man in space. Under the leadership of chief designers Qi Faren and Wang Yongzhi, the first unmanned test (Shenzhou I) took place on November 19-20, 1999 and lasted 14 orbits. Launched by the LM-2F, the module returned and landed in Inner Mongolia. Shenzhou 2 flew in January 2001 on a more aggressive mission. This unmanned flight was a modification of Shenzhou 1 flown to test the life support systems. The multi-module space vehicle performed a 7-day, 108-orbit mission and ejected a return capsule carrying biological specimens that touched down in Inner Mongolia. An orbital module that ground controllers put through an extensive set of maneuvers was left behind in space.

The Shenzhou 3 module was launched on a LM-2F in March 2002. Following a week of flight, the vehicle's return module equipped with test dummies returned to Earth on April 1. Once again, the

spacecraft's orbital module remained in orbit. There is speculation this still-in-orbit hardware might become a rendezvous target for the follow-on Shenzhou 4 mission in a few months time. There is some speculation that the Shenzhou 5 may carry a two or three-person Chinese crew, perhaps by year's end.[131]

The Shenzhou project is intended to lay the foundation for subsequent space shuttle (*hangtian feiji*) and an aerospace plane (*kongtian feiji*) programs (Project 921-3). Since 1989, China has embarked upon a serious effort to deploy a space shuttle. Space shuttle designs are somewhat alarming. According to one U.S. analysis, a 1991 design was meant to optimize transfer between coplanar orbits, essential for military related space activities to include ASAT operations. Other Chinese studies confirm interest in coplanar transfers.[132] The project ostensibly is valued at RMB 11 billion (approximately U.S. $1.35 billion), weighs 22 tons, carries a payload of up to 3.5 tons, and is operated by a crew of three. The shuttle will have a service life of 30 missions, with a typical mission length being 3-5 days.[133]

Taking space shuttle concepts a step further, COSTIND is directing an effort to master technologies associated with a hypersonic single-stage-to-orbit (SSTO, or *danji rugui*) aerospace plane. GED's Beijing Institute of Systems Engineering (BISE), with technical assistance from the launch vehicle/ballistic missile and cruise missile industries (CASC's First and Third Academies), is responsible for the aerospace plane's systems design, which will incorporate scramjet engine (*chaoran chongya fadongji*) technology.[134] In 1996, First Academy President Li Jianzhong indicated that one design concept weighs 2,000 tons and will have manned and unmanned versions.[135] China is also laying the groundwork for a space station around the year 2020.[136]

CONCLUSION

China's progress today in space and missiles can be traced to Qian Xuesen, Ren Xinmin, and other early pioneers involved in the *liangdan yixing* program. This generation of relatively young engineers was motivated by a revolutionary zeal to raise China's international status and prestige. In the course of a few years, this group was able to pull off a miracle by developing an ability

to launch ballistic missiles and satellites during a time when the country could barely build a decent car or bicycle. They worked in primitive conditions: there were no metal workshops, aerospace institutions of higher learning, or infrastructure for jet propulsion.

Despite rapid progress in the late 1950s and the first half of the 1960s, the Cultural Revolution from 1966 to 1976 reduced progress to a sclerotic pace and soured a generation of space and missile engineers. Faced with a U.S. Strategic Defense Initiative that threatened to widen the gap between China and the rest of the world, Beijing launched an effort to hasten development of its technological base and maintain its nuclear deterrent. At the same time, with its economic opening to the world, China's leadership opened its rudimentary space launch business to foreign customers. However, it was not until the 1990s that a series of events, including the Gulf War, Taiwan's drift toward greater autonomy, and the NATO campaign in Yugoslavia, provided the perception of an increasingly threatening environment and the shock necessary for China to rekindle the *liangdan yixing* spirit.

China's past achievements have established the foundation for significant advancements in the future. A sufficient body of evidence suggests that China has a number of goals associated with its space and missile development. As noted in the July 2002 *DoD Report to Congress on PRC Military Capabilities*, Beijing's force modernization is driven largely by the desire to stem Taiwan moves toward greater autonomy and to deter or complicate U.S. intervention. The availability of Russian technical expertise, on a scale similar to that of the late 1950s, could enable Beijing to achieve its goals at a hastened pace and at reduced cost.

This vision requires a viable C4ISR architecture with a significant space-based component; a responsive and diverse space launch infrastructure; long range precision strike capability; and a survivable nuclear deterrent. China's space-based reconnaissance and communications capability is proceeding at a relatively advanced pace. The PLA should have an EO, radar, electronic, and weather monitoring architecture before 2010; portions of this system are available today. Beijing should have the ability to rapidly launch small reconnaissance satellites that can monitor events around its periphery and in the Western Pacific Ocean within the next 3-5 years.

Beijing is making significant advancements in its long range precision strike capability based upon an arsenal of increasingly accurate and lethal conventional ballistic and land attack cruise missiles. The space and missile industry is striving to achieve ballistic missile accuracies of less than 50 meters. China also is developing a diverse range of payloads, including runway cratering submunitions and penetration and radio-frequency warheads. To maintain the viability of its nuclear arsenal, the PRC is conducting R&D on a range of technical countermeasures to U.S. missile defense programs and fielding a new generation of solid fueled intercontinental ballistic missiles.

China's space and missile ambitions come with a price tag. How this multi-billion dollar modernization program is funded remains shrouded in obfuscation and mystery. A large portion likely comes from extra-budgetary sources, such as the space launch business, CASC and CASIC civilian enterprises, the 863 program, or the central government space budget. Funding for many satellite programs may be derived in large part from other government entities responsible for weather, civil telecommunications, cartography, earthquake monitoring, and remote sensing. Regardless, as the July 2002 *DoD Report to Congress on PRC Military Capabilities* notes, annual defense spending is expected to increase in real terms over threefold to fourfold between now and 2020.[137]

China's space and missile industry and the PLA have been able to absorb lessons from the past that will guide its future development. China understands that it can not rely solely on indigenous development in order to achieve significant technological breakthroughs. After years of isolation, Beijing has opened up to the West and states of the former Soviet Union in the hope of attaining access to critical technologies. Organizationally, the PRC understands that reliance upon a sole source for R&D and production does not produce significant incentives for quality control and advancement in technology. For the PLA, the Gulf War and Operation ALLIED FORCE provided valuable lessons on the utility of space for command and control, reconnaissance, weather, navigation, and other combat support functions.

For those interested in China's space and missile program, the next 5-10 years promise to be exciting. The PLA-watching community can expect a significant expansion of the Second

Artillery as new conventional SRBM and MRBM brigades are formed. One also should anticipate one or two new DF-31 brigades to be formed within this decade. One should watch how new space launch vehicles are organized and subordinated. With the foregoing in mind, observers should project expansion of DF-21 production facilities as new conventional ballistic missiles and DF-21 derived launch vehicles are fielded. New and mysterious satellites will be launched, presenting challenges as to their real utility.

In short, inspired by the *liangdan yixing* spirit, nationalism, an increasingly sophisticated technology base, and assisted by a willing cadre of foreign advisors, a young, educated, and energetic generation of engineers is likely to pave the way for the significant advances in PRC military capabilities. As a result of developments within its aerospace sector, the PLA is adjusting its warfighting doctrine to accommodate anticipated advances in C4ISR, long range precision strike, and other strategic dimensions of warfare.

ENDNOTES - CHAPTER 6

1. The term *liangdan* means literally, two bombs or projectiles: ballistic missile (*daodan*) and nuclear weapon (*yuanzidan*). See "Liangdan yixing yuanxun," Commemorating "Two Bombs and One Satellite" Heroes, *Zhongguo hangtian bao*, *China Space News*, September 18, 1999, p. 1.

2. Iris Chang, *Thread of the Silkworm*, New York: BasicBooks, 1995, pp. 40-144.

3. The ten research sections and leading engineers are: 1) general design, Ren Xinmin; 2) aerodynamics, Zhuang Fenggan; 3) missile structure, Tu Shou'e; 4) engines, Liang Shoupan; 5) propellants, Li Naiji; 6) control systems, Liang Sili; 7) components, Zhu Jingren; 8) telemetry, Feng Shizhang; 9) computation, Zhu Zheng; 10) technical physics, Wu Deyu.

4. John Wilson Lewis and Hua Di, "China's Ballistic Missile Programs: Technologies, Strategies, and Goals," *International Security*, Fall 1992, Vol. 17, No. 2, pp. 130-131. The Fifth Academy was equivalent to an Army; the sub-academy was equivalent to a corps. A Third Sub-Academy was established for development of cruise missiles. Also see Xie Guang, pp. 34-35.

5. Zhang Jun, ed., *Space Industry*, Beijing: Astronautic Publishing House, 1992, pp. 6-7.

6. Zhang Wenzhong, *"Qianjinzhong de Shanghai hangtian jidi"* ("Advancements of the Shanghai Aerospace Base"), *Zhongguo hangtian (China Aerospace")*, September 1996.

7. Li Wei, *"Hangtian xiangyang zhi ge: zhongguo hangtian siyuan jianyuan 40 zhounian lizan,"* ("Song of Space: Commemoration of China's Aerospace Fourth Academy's 40th Anniversary"), *Zhongguo hangtian (China Aerospace)*, June 2002, internet version.

8. *"Zhongguo kongjian jishu yanjiuyuan zhuqing jianyuan 30 zhounian," Zhongguo hangtian*, March 1998. Also see Zhang Jun, p. 26. Vice Ministers included Liu Youguang, Qian Xuesen, Liu Bingyan, Gu Guangshan, Zhang Fan, and Cao Guanglin.

9. Zhang Jun, pp. 35-37. The third line bases under the Seventh Ministry were numbered from 61-68; defense industry test bases were numbered 20-27. For example, the 066 Base, developer of the DF-11 SRBM, was established in 1969.

10. A contemporary example of this approach would be the DF-31 that is in the testing phase; DF-31A that is in the model R&D stage, and the DF-41 that is in preliminary R&D.

11. Lewis and Xue, pp. 146-147; Iris Chang, pp. 247-252; and personal discussions with Yao Tongbin's widow, Ms. Penny Peng. Yao Tongbin was a British-educated materials specialist who returned to China in the mid-1950s. Qian Xuesen appointed Yao as director of the First Sub-Academy's Materials Institute, 703rd Research Institute. An account of Yao Tongbin's travails will be published in the United States within the next year or so. Wang Bingzhang, former Deputy Commander of the PLA Air Force in the 1950s, eventually was reinstated, but jailed in 1971 for being part of the "Lin Biao Clique."

12. Xie Guang, ed., *China Today: Defense Science and Technology*, Beijing: National Defense Industry Press, 1993, pp. 113-132. Tu Shou'e, born in Wuxing, Zhejiang province, graduated from Qinghua University in 1940 and from the Massachusetts Institute of Technology in 1943. Later in his career, he played a significant role in development of satellite launch vehicles. Huang Weilu was an automated control specialist who was born in Wuhu, Anhui Province. He received his masters degree from the Imperial College, University of London, UK, in 1947.

13. Jia Junming and Dong Xuebin, *Yitian: Gongheguo daodan hewuqi fazhan jishi (Rely on the Sky: Record of PRC Nuclear Missile Development)*, Beijing: Xiyuan Chubanshe, 1999, pp. 113-118. The authors are from the Second Artillery; Xie Guang, ed., *China Today;* pp. 256-259. Liang Shoupan, born in Fujian province was a 1939 graduate of MIT. After the 1059 program, he directed his efforts at advanced liquid rocket engines and then anti-ship cruise missiles. He is known

today as the father of China's cruise missile program. After the first two R-2s, 12 more were delivered over the next year.

14. Xie Guang, pp. 256-261. Of interest is that the U.S. intelligence community detected little activity related to this system from the fall of 1966 through early 1969. Next to Qian Xuesen, Ren Xinmin had the most significant influence on China's space and missile development. Born in Ningguo, Anhui Province, he undertook his undergraduate study in Nanjing Central University in 1934, and graduated from the National Institute of Technology, Ministry of Military Administration) in Chongqing in 1940. He earned his Ph.D. in 1949 from the University of Michigan. Ren was responsible for long-term planning and technology development programs of liquid rocket engines. In addition to work on China's first generation of ballistic missiles, he also oversaw development of the Long March-1 launch vehicle that was used for the successful launch of China's first satellite, DFH-1. He was chief designer of the DFH-2 communication satellite project, and led the development of the Long March-3 launch vehicle. He also oversaw the Fengyun meteorological satellite project.

15. Lewis and Hua, pp. 5-40.

16. Xie Guang, pp. 259-261. Design work on Base 25 began in 1966 and construction was completed in October 1968. The facility was developed for testing on the DF-3, but also became a primary test facility for solid fueled missiles. It also constructed a test silo for the DF-5. The DF-3 designation was originally used by Qian Xuesen in 1961 for a program to develop a 10,000 kilometer range missile fueled by liquid oxygen and kerosene, similar to the U.S. Atlas system. Qian quickly realized that this program was overly ambitious and it was cancelled.

17. Xie Guang, pp. xx.

18. Lewis and Xue, p. 21.

19. Lewis and Hua.

20. Ruan Chongzhi, *"Woguo guti tuijin jishu fazhan de huigu yu zhanwang,"* ("Recollections and Prospects for China's Solid Propellant Technology"), *Zhongguo hangtian (China Aerospace)*, October 1999, internet version. Also see Lewis and Xue, pp. 136-145; and Xie Guang, pp. 272-275.

21. The Fourth Design Department, initially subordinate to the Fourth Academy, moved to the Second Academy in 1979.

22. Xie Guang, pp. 311-313; and Lewis and Hua, p. 26-28.

23. Jia Junming and Dong Xuebin, *Yitian* pp. xx-xx; and Zhang Jiajun and

Sun Jinhan: "Casting the Shield of Peace – Second Artillery Commander Yang Guoliang and Political Commissar Sui Yongju Talk About Building of Strategic Missile Force," *Liaowang*, July 21, 1997, pp 4-7, in *Foreign Broadcast Information Service* (hereafter *FBIS*)-*CHI-0561*, 08/28/1997.

24. *Ibid.* Also see Will Young, *"Shenmi zhongguo de zhanlue daodan budui"* ("China's Mysterious Strategic Missile Unit"), *Chinese Military Chronicles*, June 2000.

25. Some sources of unknown reliability claim that a DF-5 unit, possibly for training purposes, is located just north of Beijing in the vicinity of Xuanhua. U.S. intelligence estimate in 1972 noted that the existence of two operational Second Artillery units "near Kunming." See *Peoples Republic of China Nuclear Weapons Employment Policy and Strategy*, March 1972, Defense Intelligence Agency, on FAS web site.

26. Zhang Jun, p. 19.

27. *Ibid.*, pp. 19-23.

28. A good reconnaissance satellite summary chart is in Zhong Jian, *"Tianyan: Zhonggong hangtian jihua dui woguojia anquan zhi yiangxiang"* ("Eyes in the Sky: Influence of China's Space Plans on Taiwan Security") 7, *Jianduan keji, Advanced Technology*, August 2002, pp. 76-81.

29. Liu Jiyuan, *China Today: Space Industry*, Beijing: Astronautics Publishing House, 1992, pp. 280-302. Wang Xiji is the chief designer of China's sounding rockets, first space launch vehicle, and first recoverable satellites. Wang Xiji was of Pai nationality, and born in 1921 in Kunming into a merchant family. In 1948 Wang went to America to obtain a Master's Degree at the Virginia Polytechnic Institute. He decided to return to home after the Communist victory without completing his doctorate. Wang Xiji most recently chaired a space policy committee that produced a report in January 2002 outlining future steps for China's space and missile program.

30. Zhang Xueping, *"Woguo hangtian guangxue yaoganqi yanzhi qude chengguo"* ("Results of China's Aerospace Optical Remote Sensing Devices"), *Zhongguo hangtian (China Aerospace)*, January 1998, p. 17; and Xie Guang, *China Today*, p. 364. CAST's 509th Research Institute, Huayin Machinery Factory in Shanghai) had the lead design role for the initial tests. The Jianbing series are also known as "Fanshihui" (FSW), or "recoverable" satellites.

31. The satellites operated in an inclination of 69-70 degrees, a perigee of 186 kilometers, an apogee of 464 kilometers, and a period of 90 minutes. The apogee on the last technical experiment satellite in August 1976 was raised to 2,145

kilometers. The August 1976 satellite decayed from orbit on November 25, 1978. China's technical experiment satellite of the 1970s is the only space platform not discussed in detail in official histories. ELINT satellite development is likely one of the most sensitive programs within the defense industry and PLA. See *China Today: Space Industry*, Beijing: Astronautic Publishing House, 1992, pp. 162-170. "Summary of Launches in China," *Zhongguo hangtian*, September 1996, p. 29; "Capabilities of The GSD Third Department in Technical Intelligence," p. 6.

32. "*Zhongguo changzheng huojian yanzhi lishi huigu yu sikao*" ("Recollections and Considerations of China's Long March Rocket R&D"), *Zhongguo hangtian* (*China Aerospace*), March 1998, p. 23. Also see Zhang Jun, pp. 126-142.

33. Zhang Jun, pp. 144-161.

34. *Ibid.*, pp. 162-173.

35. *Ibid.*, pp. 174-198. Preliminary research on the cryogenic engine was begun as early as March 1965 with the first test conducted in 1971. Responsibility for the first and second stages was given to the Shanghai space industry, likely as a token gesture to the Shanghai-based Gang of Four.

36. *Ibid.*, pp. 199-210.

37. *Ibid.*, pp. 366-368. The 138 Launch Complex also is equipped to conduct captive firing tests.

38. *Ibid.*, pp. 368-370.

39. Xie Guang, pp. 395-396.

40. Zhang Jun, 384-397. According to undated brochures, CLTC headquarters occupies a large facility on Beijing's North Third Ring Road and is made up of a planning department, development department, tracking and control department, logistics department, and liaison department. Two research institutes under CLTC include the Luoyang Institute of Tracking, Telecommunications, Technology (LITTT) and the Beijing Special Engineering and Design Research Institute (BSEDI). The COSTIND (now General Equipment Department) entity responsible for constructing launch and tracking sites and testing facilities is the BSEDI.

41. Bonnie S. Glaser and Banning N. Garrett, "Chinese Perspectives on the Strategic Defense Initiative, *Problems of Communism*, March-April 1986, pp. 28-44.

42. Xie Guang, pp. 149-150.

43. *Ibid.*, pp. 152-153; also see Richard P. Suttmeier, "China's High Technology:

Programs, Problems, and Prospects" in *China's Economic Dilemma*, pp. 546-564. All of the engineers pushing the new initiative were involved in strategic programs--Wang Daheng, a preeminent optics expert who played a role in China's space tracking network; Wang Ganchang, one of the founding fathers of China's nuclear program; Yang Jiachi, a satellite attitude control expert; and Chen Fangyun, an electronics engineer and leader of program to develop China's space tracking network.

44. Zhang Jun, 60-63. The space leading group is composed of senior representatives from COSTIND, GED Ministry of Science, Ministry of Foreign Affairs (MFA), State Planning Commission, CASIC, and CASC.

45. Lewis and Hua, p. 28.

46. *Ibid.* Preliminary R&D had begun as early as September 1974.

47. *Ibid.*, pp. 34-36.

48. *Ibid*, p. 36. Also see the summary of 066 Base (Sanjiang Space Group) in *Zhongguo hangtian bao (China Space News)*, July 2, 1999, p. 12.

49. Qu Yiguang, "Zhongguo Changzheng huojian yanzhi lishi huigu yu zhanwang" ("Recollections and Prospects for China's Long March Rockets"), *Zhongguo hangtian (China Aerospace)*, March 1998, pp. 23-26.

50. Zhang Guofu and Zheng Shangmin, *"Zhongguo weixing jishu sanshinian"* ("30 Years of Chinese Satellite Techology"), *Zhongguo hangtian* (*China Aerospace*), September 1996, pp. 20-28.

51. Jeffery Richelson, "Navy Says China Poised to Close Space-Intel Gap," in *Defense Week*, February 24, 1997, p. 9. Also see Zhong Jian, p. 77.

52. Richelson, p. 9.

53. *"Woguo chenggong fashe yike weixing"* ("China Successfully Launches A Satellite"), *Zhongguo hangtian (China Aerospace)*, November 1996, p. 10.

54. Bill Gertz, "Crowding In On the High Ground," *Air Force*, April 1997, pp. 18-22; and Covalt, pp. 22-23.

55. Wang Chunyuan, *China's Space Industry and Its Strategy of International Cooperation*, Stanford University Center for International Security and Arms Control, 1996, p. 5.

56. Nan Shih-yin, "Inside Story of Enlarged Central Committee Meeting,"

Hong Kong *Kuang Chiao Ching*, January 16, 1996, in *FBIS-CHI*-96-027; also see Jen Hui-wen, "Latest Trends in China's Military Revolution," in *Hong Kong Hsin Pao (Hong Kong Economic Journal)*, February 9, 1996, in *FBIS-CHI*-96-047. For other comments on lessons from the Gulf War, see Ho Po-shih, "The Chinese Military Is Worried About Lagging Behind in Armament," *Tangdai*, March 9, 1991, pp. 17-18.

57. Among various sources, see Wang Hsing-chou, ""Beijing Builds Up Military Strength To Avoid Being Vulnerable to Attack," *Tai Yang Pao*, May 17, 1999, p. A18, in *FBIS-CHI*-0340, May 18, 1999; and "PLA Armament Head Addresses Weaponry Meeting," *Xinhua*, June 30, 1999, in *FBIS-CHI*-0339, July 7, 1999.

58. Hong Kong press reports in late May 1999 indicate that the State Council and Central Committee released a special allocation of $10 billion (RMB 80 million) for R&D and procurement in late May 1999. In September 1999, the State Planning and Development Commission instructed local government banks to provide loans to selected industries for key projects. A bond issue valued at RMB 60 billion was intended to support defense industry R&D and production.

59. Attending the meeting were retired aerospace advisors, Xia Guohong, CAMEC Director; Zheng Quanbao, First Academy Deputy Party Chairman; Yin Xingliang, Second Academy Deputy Director, then CAMEC Deputy Director, and now director, Second Academy; Huang Ruisong, Third Academy Deputy Director; Ye Peijian, Fifth Academy Chief Engineer; and Hua Linsen, 066 Base Director, now CAMEC Deputy Director. Xia Guohong confirmed that the decision to accelerate R&D was confirmed at the first CAMEC work.

60. Li Shouwei, "Applying Technology to National Defense," *Zhongguo Hangtian Bao (China Space News)*, May 26, 1999, p.1.

61. Zhang Qingwei was born in Jilin in November 1961 and spent his first few years in the Aviation Industry, 603 Institute. He transferred to the space and missile industry's First Department in 1988 where he played a prominent role in China's 921 program, specifically as assistant designer for the LM-2F launch vehicle in 1992. He was promoted to serve as Deputy Director of the First Academy in 1998 and Deputy Director of CASC in 1999. Jin Zhuanglong was born in Zhoushan, Zhejiang province in March 1964. A missile design specialist, he rose through the ranks from the Shanghai's Eighth Design Department to become Director of the Eighth Department in January 1998. Xu Dazhe was born in Nanchang in 1956. After completing graduate work at the Harbin Institute of Technology, he was assigned to the 15th Research Institute, First Academy, where he was responsible for launch support equipment, i.e., launchers. He rose to become Deputy Director of the First Academy and concurrently director of the 211 Factory, responsible for ballistic missile and launch vehicle integration. He became president of the First Academy in January 2000.

62. *"Hangtian shidai yiqi gongsi (shiyuan) zujian chengli"* ("Space Era Instruments Company {10th Academy} Established"), *Zhongguo Hangtian Bao (China Space News)*, August 1, 2001. Specifically, the 10th Academy consists of the First Academy's 13th Research Institute and 230 Factory; the 067 Base's 7107 and 7171 Factories; and SAST's 803 Research Institute.

63. *"Hangtian tuijin jishu yanjiuyuan guapai"* ("The Academy of Space Propellant Technology Hangs Its Sign"), *Zhongguo hangtian (China Aerospace)*, May 2002, internet version. The CASC Sixth Academy is directed by Lei Fanpei and is manned with 8000 people divided into 11 different entities.

64. Xia Guohong was born in October 1939 in Jintan, Jiangsu Province. He graduated with a Ph.D. from the University of California as a specialist in automated control systems. He was formerly CASC deputy director and member of the CASC Party Member, and dual-hatted as CAMEC Party Secretary.

65. *Zhongguo hangtian bao*, September 7, 2001. Born in June 1953 in Wuxi, Jiangsu Province, Yin Xingliang is a specialist in guidance and simulation. Yin was formerly in the First Academy's 12 Research Institute and subsequently served as Vice-Director of the CASC Second Academy. He rapidly became a leader in R&D on space intercept (ASAT/TMD) control systems. Other senior CASIC officials include Vice Director Xue Li, Gao Hongwen, Cheng Wen, and Fang Xiangming. Xue Li was born in Inner Mongolia in 1956, is a graduate of National University of Defense Technology in Changsha, and spent several years working in the China Academy of Space Technology, Fifth Academy. Gao Hongwei was born in 1956, a graduate or Qinghua University, and spent more than 20 years at the 066 Base in Hubei, where he worked his way to being director in 1999. Fang was previously director of the Xinguang Power Machinery Factory in Shenyang, an organization that makes solid motor casings for ballistic missiles.

66. The First Enterprise Department (*diyi shiyebu*), directed by Zhang Wei, integrates the Space Qinghua Satellite Company, 719 Factory, 068 Base, and the Yunnan Space Group. It is known to the outside as the China Academy of Electro-Mechanical Information Technology. The Second Enterprise Department (*dier shiyebu*), directed by Yin Xingliang, integrates all of the Second Academy, the 061 Base, and the 801 Factory. It is known to the outside as the China Academy of Space Electro-Mechanical Defense Technology. The Third Enterprise Department (*disan shiyebu*), directed by Gao Hongwei, integrates all Third Academy organizations, the Shenyang Xinguang Group, and the 111 Factory. It is known to the outside as the China Academy of Space Electro-Mechanical Cruise Missile Technology. The Fourth Enterprise Department (*disi shiyebu*), directed by Li Yue, consists of the Fourth Department, 066 Base, 307 Factory, the 17th Research Institute, 824 Factory, the Solid Motor LV Corp, and the Henan Space Group.

67. *"Neimenggu zhihuibu geng ming diliu yanjiuyuan"* ("Inner Mongolia

Command Changes Name to Sixth Academy"), *Zhongguo hangtian*, October 1999. Another article with the same name was published in Zhongguo hangtian bao on August 28, 1999.

68. Fourth Academy likely is based in Xiangyang, near Xian. As of 2002, the Fourth Academy director is Zhou Weimin. Sixth Academy Director is Gao Chongwu.

69. See Mark A. Stokes, "China's Space and Conventional Theater Missile Development: Implications for Security in the Taiwan Strait," in Susan Puska, ed., *People's Liberation Army After Next*, Carlisle: U.S. Army War College, Strategic Studies Institute, pp. 107-189.

70. See Tony Walker and Stephen Fidler, "China Builds Up Missile Threat," *Financial Times*, February 10, 1999, p. 1; and "Taiwan Boosts Defenses With Live Fire Test of Patriot System," *AFP*, June 20, 2001.

71. *Lianhe zhanyi di erpaobing zuozhan (PLA Second Artillery Joint Campaign Operations)*, unpublished manuscript, 1996, p. 10.

72. Zhu Bao, "Di-di dandaoshi zhanshi daodan de fazhan qushi," pp. 9-19. The CEP is the radius of a circle within which 50 percent of missile fired will impact.

73. Xu Minfei, Zhu Zili, and Li Yong, "Feasibility of Technologies for Use of Ballistic Missiles to Counter Aircraft Carriers," *Guofang Keji Cankao*, Vol. 18, No. 4, 1997, pp. 126-130, summarized in *Chinese Astronautics and Missilry Abstracts (CAMA)*. Also see Feng Jianbao, "Feasibility Study of Conventional Ballistic Missiles Attacking Aircraft Carriers," paper presented at the Annual China Astronautics Society UAV Specialists Conference, April 1998, summarized in CAMA, Vol. 6. No. 1, 1999. Also see Wang Guobao, "Initial Discussion on Tactical Ballistic Missile Electronic Warfare," *Hangtian dianzi duikang*, April 97, pp. 1-7, summarized in *CAMA*.

74. Lewis and Hua, p. 29. Chinese engineers note that critical technologies for terrain matching terminal guidance include large scale and very large-scale integrated circuits (LSIC/VLSIC).

75. Zhu Bao, pp. 9-19. Development of VLSIC and LSIC technology is one of Beijing's highest priorities. CASC's Ninth Academy would likely actually produce the application-specific integrated circuits. The SCUD-B payload known as the AEROFON uses an optical sensor during the latter stages of flight to detect and home in on a target.

76. It is not clear how far engineers have gone in their preliminary research in this type of ballistic missile terminal guidance. See Gan and Liu, pp. 68-69.

TERCOM is only effective over land where landmarks are used as reference points.

77. Zhu Bao, *"Di-Di Dandaoshi Zhanshi Daodan de Fazhan Qushi"* ("Developmental Prospects of Surface-to-Surface Tactical Ballistic Missiles"), pp. 9-19; and *Lianhe Zhanyi Di Erpaobing Zuozhan (PLA Second Artillery Joint Campaign Operations)*, unpublished manuscript, 1996, p. 11. As of 1996, CALT was testing a guided submunition (*jiandan zimudan*) package for blast and fragmentation effects; and penetrating submunitions (*qinche zimudan*) for cratering runways. More advanced packages under development include terminally guided sensor fused submunition warheads. There are also indications of CBU-78 GATOR-like mine laying submunition development.

78. Duncan Lennox, ed., *Jane's Strategic Weapon Systems*, Issue 24, May 97, Surrey, England: Jane's Information Group.

79. Zhao Yunshan, *Zhongguo daodan jiqi zhanlue, jiefangjun de hexin wuqi* (*China's Missiles and Strategy: The PLA's Central Weapon*), Hong Kong: Mirror Books, p. 232. Informed sources assert the Mirror (*Mingjing*) series of books have a mixed record of reliability. However, development of a longer range version of the DF-15 is also alluded to in Bill Gertz, "China Adds To Missiles Near Taiwan," *Washington Times*, August 28, 2001, p. 1. Zhao states that the expanded range DF-15 incorporates a more advanced propellant. There is often confusing reporting on an unidentified 1000 kilometer system--the M-18--that may, in fact, be the rumored extended range DF-15.

80. Zhao Yunshan, p. 232. Other sources credit the DF-15 with only as good as a 150-meter CEP. See "Missiles! China Has Them Too!" *Wen wei po*, June 1, 1999, p. A5, in *FBIS-CHI*-00169, June 22, 1999.

81. Brian Hsu, "M-Class Missiles' Bark Worse Than Bite: Military," *Taipei Times*, August 16, 2000.

82. See the summary of *066 Base, Sanjiang Space Group*, in *Zhongguo hangtian bao*, July 2, 1999, p. 12.

83. "Military Officials Discuss PRC's Fujian Missile Positions," *Chung-Yang Jih-Pao*, December 1, 1999, p. 10, in *FBIS-CHI*-0322, 12/01/1999. Bill Gertz from the *Washington Times* reported that the second Second Artillery brigade is being formed near the city of Yong'an, Jiangxi province. A third brigade consisting of the DF-11/CSS-7 is under construction in Fujian province.

84. The 700-meter CEP is extracted from *Janes Strategic Weapons Systems*, 1998. Also see "Dongfeng-21 zhongcheng daodan ("DF-21 MRBM"), *Shijie junshi luntan* (*World Military Forum*), January 2000, in Chinese.

85. The conversion of the DF-21 from a strictly nuclear mission to a conventional role was reported as early as 1994 in the Chinese journal, *Guoji Hangkong* (*International Aviation*). Further indications of a terminally guided DF-21 are from discussions between Richard Fisher and an engineer from CALT's Beijing Research Institute of Telemetry, 704th Research Institute, at the 1996 Zhuhai Air Show. Extensive CASC technical writings on terminally guided theater ballistic missiles tend to substantiate the engineer's comments. Other sources indicate that the conventional DF-21C program, referred to as the DF-21 Mod 3 by some sources, is influenced in large part by the Pershing-2, entered the applied R&D (*xinghao yanzhi*) phase in 1995 and that the primary payload will be a penetrator warhead, *zuandi dantou*) for use against semi-hardened facilities such as command centers. See "China Replacing Nuclear Warheads on Some Missiles," *Jane's Defense Weekly*, January 27, 1994; and Will Young, *"Shenmi de zhongguo daodan budui"* ("The Development of the Chinese Second Artillery"), *Shijie junshi luntan* (*World Military Forum*), internet edition, *http//:www.wforum.com*, January 2000, in Chinese. It is not clear how far engineers have gone in their preliminary research in this type of ballistic missile terminal guidance. For a discussion of terminally guided ballistic missiles, see Gan Chuxiong and Liu Jixiang, *Daodan yu yunzai huojian zongti sheji* (*General Design of Missiles and Launch Vehicles*), Beijing: Defense Industry Press, January 1996, pp. 68-69. Also see Wang Honglei, Second Artillery Corps, "Optical Image Guidance Technology," in *Zhidao yu Yinxin*, January 1995, pp. 34-37, in *CAMA*, Vol. 2, No. 3, 1995.

86. *"Kongjun yu haihang zhuangbei fazhan"* ("Air Force and Naval Modernization"), in *Zhonggong junshi xiandaihua* (*PRC Military Modernization*), Taipei: Ziyou Publishing, June 2000. One should note, however, that the PAC-3 could engage an incoming MRBM if the missile was targeted directly against the fire unit itself.

87. See Bill Gertz, "Chinese Missile To Threaten U.S. By 2000," *Washington Times*, May 23, 1997, on Federation of American Scientists webpage, *http://www.fas.org*.

88. Department of Defense, "Proliferation and Response," January 2001, China Section; "China: Long Range ICBM Could Reach U.S. Mainland," *Flight International*, August 14, 2001; *"Kongjun yu haihang zhuangbei fazhan"* ("Air Force and Naval Modernization"), in *Zhonggong junshi xiandaihua* (*PRC Military Modernization*), Taipei: Ziyou Publishing, June 2000; and Shintaro Ishihara, "An Urgent Threat," *The Shield*, Vol. XVIII, No. 2, March/April 2001. The relationship between the DF-31A and the DF-41 is unknown.

89. A series of meetings were held in the aftermath of the accidental bombing of the Chinese Embassy in Belgrade. A total of 15 programs were designated for acceleration. A CASC committee was formed to plan for the accelerated timeline.

See *"Beiyue zhaxing: wuqi yanzhi jiasu"* ("NATO Bombing: Accelerate Weapons R&D"), *Zhongguo Hangtian Bao*, May 12, 1999, p.1. Attending the meeting were retired aerospace advisors, Xia Guohong, CAMEC Director, Zheng Quanbao, First Academy Deputy Party Chairman, Yin Xingliang, Second Academy Deputy Director, Huang Ruisong, Third Academy Deputy Director, Ye Peijian, Fifth Academy Chief Engineer, and Hua Linsen, 066 Base Director.

90. Gan Chuxiong and Liu Jixiang, *Daodan Yu Yunzai Huojian Zongti Sheji (General Design of Missiles and Launch Vehicles)*, Beijing: Defense Industry Press, January 1996. p. 42.

91. *Foreign Missile Developments and the Ballistic Missile Threat Through 2015*, Unclassified Summary of a National Intelligence Estimate, Director of Central Intelligence, January 2002.

92. Lu Hongquan and Yang Liandong, *"Zhanlue he zhanshu dandao daodan de tufang"* ("Penetration of Strategic and Tactical Ballistic Missiles"), published in an unknown journal in March 1999. Lu and Yang are from the China Academy of Engineering Physics, CAEP; also see Bai Hande, *"Ganraodan de zhonglei he zuozhan fangshi"* ("Types and Operational Styles Associated with Jamming Warheads"), *Xiandai bingqi (Modern Weaponry)*, 1995, pp. 152-153.

93. *"Kongjun yu haihang wuqi zhuangbei fazhan"* ("Development of the Air Force and Naval Aviation Equipment"), in *Zhonggong junshi xiandaihua (PRC Military Modernization)*, Taipei: Ziyou Publishing, June 2000. The YJ-63 designator indicates the system is a variant of the YJ-6, C-601. Also see "China's New Cruise Missile Nears Service," *Flight International*, August 22-28 2000, p. 26.

94. *"Kongjun yu haihang wuqi zhuangbei fazhan,"* June 2000. The YJ-63 can be traced back to China's first generation cruise missile, the Shangyou-1, an improved copy of the Soviet *Styx* anti-ship missile and the prototype for the Haiying family of cruise missiles. The inspiration for cruise missile development is from Qian Xuesen, who devoted himself to this cause from 1965 to 1968. The first Haiying missile test was conducted in December 1966, but problems were identified with the missile's radar systems. The first successful test was conducted in October 1970.

95. Sun Hongjin, *"Woguo disandai tongxin weixing yanzhi qidong"* ("China Begins R&D on Its Third Generation Telecommunications Satellite"), *Zhongguo hangtian bao (China Space News)*, December 26, 2001, internet version.

96. Xu Jing, *"Woguo huanjing yu zaihai jiance yubao xiaoweixing xitong gaikuang"* ("Situation of China's Environmental and Disaster Monitoring and Reporting Small Satellite System"), *Zhongguo hangtian*, July 2002, internet version. In an alternative proposal, Second Artillery requirements are that the constellation

would include seven small satellites, three EO, two SAR, and one IR, with a launch weight of 300 kilograms or less. The Second Artillery is proposing the use of mobile, solid fueled launchers that could launch satellites to a 300-kilometer sun synchronous orbit from anywhere in China. Wu Chongshan, *"Diguidao weixing zhencha xitong shexiang"* ("Concept for Low Earth Orbit Satellite Reconnaissance System"), *Xiandai junshi tongxin* (*Modern Military Communication*), March 1999, pp. 31-34. The author is principal designer of the Second Artillery's space support requirements.

97. The United States and the Soviet Union attained a near-real-time capability in 1976 and 1982, respectively.

98. Jean Etienne, *"Les Nouveaux Projets de L'Asie Spatiale,"* ("The New Projects in Asian Aerospace") in *Space News*, No. 110, November 4, 1996, at *http://www.sat-net.com/space-news*. Also see Chou Kuan-wu, "China's Reconnaissance Satellites," *Kuang chiao ching*, March 16, 1998, pp. 36-40, in *FBIS-CHI*-98-098. China's successfully launched the CBERS/ZY-1 on August 7, 1999 on board a LM-4A launch vehicle.

99. *"Zhongguo ziyuan erhao weixing shengkong," Zhongguo hangtian bao*, internet version, September 6, 2000. The chief designer of the ZY-2 is Ye Peijian from the China Academy of Space Technology. GED Director Cao Gangchuan was one of the first to congratulate Ye Peijian, stressing his contributions to national defense.

100. "China and Brazil To Develop CBERS 3 and 4," *SpaceDaily*, internet version, September 30, 2000.

101. Wei Long, "China To Launch Micro Imaging Birds," *SpaceDaily*, internet version, November 20, 2000.

102. Sun Hongjin, *"Zhongguo kongjian taiyang wangyuanjing 2005 shenglong"* ("China To Launch Space Solar Telescope in 2005"), *Zhongguo hangtian*, May 2002, internet version.

103. *"Woguo xingzai hecheng kongjing leida yingyong yanjiu qude zongda jinzhan," Zhongguo hangtian*, February 1996, p. 16.

104. Among numerous references, see Liao Yuanshou, "Development of Satellite-borne Precision Direction Finding Antenna Array," *Dianzi Duikang Jishu* (*Electronic Countermeasure Technology*), March 1995, pp. 19-26, in CAMA, Vol. 2, No. 5, 1995. Liao is from the Southwest Institute of Electronic Equipment (SWIEE), also known as the 29th Research Institute, China's premier entity engaged in radar electronic support measures and ECM equipment; also see Li Yudong, "Satellite-Borne Radar Reconnaissance," in *Dianzizhan Xinjishu Yu Qingbao Gaige Wenzhai*, October 95, pp. 126-133, in CAMA, Vol. 3, No. 6, 1996.

105. The source of this information is Sven Grahn, who closely monitors China's space program. He was chief engineer for the Swedish-PRC Freja project, which was launched from Jiuquan Space Launch Center in October 1992. His comments and assessment are based on photos of the Shenzhou-3 that revealed three log-periodic antenna arrays that would be consistent with a space-based electronic reconnaissance system. The announced missions of the three SJ-2 [*Shi Jian* — Practice] spacecraft launched on a single booster on September 20, 1981, included ionospheric and atmospheric studies. This cover story was frequently used by early American electronic intelligence satellites launched by the U.S. Navy and the mass and orbital parameters (200 by 1600 kilometer orbits at 59.4 degree inclination) of the SJ-2 spacecraft are consistent both with the announced missions as well as with ELINT applications. See *http://www.fas.org/spp/guide/china/military/sigint.*

106. The implication is that a reconnaissance satellite can image a location and establish geocoordinates for the imaged target. See Liu Zhen, *"Gaodongtai GPS jieshouji zai weixingshang tazai chenggong"* ("GPS Receiver Carried on Satellite Successful"), *Zhongguo Hangtian Bao*, November 16, 1996, p. 1.

107. Seeking to transmit imagery directly to theater and field commanders, China's remote sensing community has also begun to explore development of mobile remote sensing ground stations. On China's data relay satellite program, see Zhang Wanbin, "Spaceflight Development Strategy: Mid-Long Term Development Strategy, "*Zhongguo keji luntan (Forum on Science and Technology)*, November 1992, pp. 9-12, in *JPRS-CST*-93-002; and Cheng Yuejin, "Information Transmission System of Data Relay Satellites," *Space Technology Information Research*, 1993, in CAMA, Vol. 1, No. 6, 1994. On mobile ground station acquisition, see Wang Mingyuan, "Mobile Remote Sensing Ground Stations," *Kongjian dianzi jishu*, Space Electronic Technology, 1997, Vol. 2, pp. 32-37 in CAMA, Vol. 4, No. 6, 1997. One of the first U.S. mobile imagery ground stations, EAGLE VISION, entered the inventory in 1995. China has expressed interest in acquiring a foreign EAGLE VISION-like system from either U.S. or French vendors.

108. *Dragon in Space*, July 24, 1999. Its data rate is about 150-300Mbps. SWIET is the major tracking and telemetry systems provider for the Chinese space program.

109. See "Second Beidou Placed in Orbit," *Xinhua*, December 21, 2000. Also see "Beidou: From Concept to Reality," *Dragon in Space*, December 14, 2000.

110. Simon Saradzhyan, "Russia Replenishing Glonass Satellite Navigation System," *Defense News*, October 2, 2000, p. 12.

111. *"Hangtian guti yunzai huojian youxian gongsi chengli"* ("Aerospace Solid

Launch Vehicle Corporation Established"), *Zhongguo Hangtian*, June 2000, internet version. The corporation will be jointly administered by at least four key entities involved in the development of the DF-21 and its sea-launched sister, the JL-1: Beijing Electromechanical Engineering Design Department (4th Department); Academy of Space Solid Rocket Engine Technology (4th Academy); Beijing Institute of Control and Electronic Engineering (17th Research Institute); Nanjing Chenguang Factory (307 Factory); and the China Aerospace Electromechanical Corporation. Also see See Zhang Dexiong, "Guowai xiaoxing weixing de guti huojian tuijin xitong" ("Solid Rocket Propulsion Systems for Foreign Small Satellites"), in *Hangtian qingbao yanjiu* (*HQ-93011*), pp. 139-155; Wang Zheng, "Screening Studies and Technology for All-Solid Space Launch Vehicles," *Guti huojian fadongji sheji yu yanjiu* (*Solid Rocket Engine Design and Research*), April 1996, pp. 63-73, in CAMA, Vol. 3, No. 6, 1996; and Zhang Song, "Design and Optimization of Solid Launch Vehicle Trajectory," *Guti huojian jishu*, 1997, Vol. 20, No. 1, pp. 1-5; and Zhang Dexiong, "China's Development Concept for Small Solid Launch Vehicles," *CASC Fourth Academy Information Research Reports*, the Fourth Edition, October 1995, pp. 1-11, in CAMA, Vol. 5, No. 2, 1998.

112. "*Zhongguo changzheng huojian yanzhi lishi huigu yu sikao*" ("Recollections and Considerations of China's Long March Rocket R&D"), *Zhongguo hangtian* (*China Aerospace*), March 1998, p. 23.

113. *Aerospace China*, February 2001.

114 Wang Chunyuan, *China's Space Industry and Its Strategy of International Cooperation*, Stanford University: Center for International Security and Arms Control, July 1996, p. 4; "China Building Satellite Tracking Station on Tarawa," *Asian Defense Journal*, March 1997, p. 66; and "Satellite Command Station Operational in Kiribati," *Zhongguo Xinwenshe*, October 14, 1997, in *FBIS-CHI-97-287*.

115. *SpaceDaily*, internet version, January 26, 2001.

116. Trip report, NASA visit to China, June 12-22, 1991. For example, China plans to develop a 500-meter aperture radio space telescope for deep space exploration. With a price of approximately 25 million dollars, the system, based in Guizhou Province, will primarily support civilian academic research, but could also be used to supplement China's space surveillance network. CAST and the China Academy of Sciences are involved. See "Beijing Plans to Develop 500 Meter Radio Telescope," *Xinhua*, April 9, 1998, in *FBIS-CHI-98-099*.

117. A 1993 edition of the Second Artillery journal, *Flying Eagle*, discussed a "comprehensive satellite early warning information management system" (*erpaobing weixing linkong yubao zonghe xiaoxi chuli xitong*) that began operations as early as 1991.

118. Wang Chunyuan, *China's Space Industry and Its Strategy of International Cooperation*, Stanford University Center for International Security and Arms Control, July 1996, p. 4; Marat Abulkhatin, "Official on Prospects for Space Cooperation," *Itar-Tass*, October 10, 1996, in *FBIS-SOV*-96-198.

119. "*Wang Liheng Fujuzhang Lutuan Fangwen E'Wu Liangguo*" ("CASC Deputy Director Wang Liheng Leads Delegation to Russian and Ukraine"), *Zhongguo Hangtian Bao (China Space News)*, April 11, 1994, p.1.

120. Chen Chang, "Ukrainian Deputy Prime Minister Says There Are Broad Prospects for Ukrainian-Chinese Cooperation," *Xinhua*, September 17, 1996, in *FBIS-CHI*-96-182.

121. "Russia Sells Launch Vehicle Technology," *Military Space*, August 21, 1995.

122. Andrey Kirillov, "China to Buy Russian Equipment for Manned Space Missions," *Itar-Tass*, March 14, 1995, in *FBIS-SOV*-95-049. A formal agreement for Russian assistance in the manned space program was signed in 1995. Items of special interest include emergency rescue, thermal control, and space docking.

123. "*Zhong, E, Wu, Disanjie Yuhang Keji Dahui Zai Xigongda Zhaokai*" ("China, Russia, Ukraine, Open the Third Space Science Meeting at Northwest Polytechnical University"), *Zhongguo hangtian bao (China Space News)*, October 3, 1994, p. 1. The 1994 meeting was held from September 17-20. Sun Jiadong chaired the Chinese team.

124. Christian Lardier, "Chinese Space Industry Ambitions," in *Air & Cosmos/Aviation International*, October 25, 1996, in *FBIS-CST*-96-020; and author's unpublished report, "The Role of China's Space and Missile Industry in Strategic Modernization, May 1995.

125. "Paris, Beijing Discuss Strategic Space Partnership," *Les Echos*, January 29, 1997, p. 11, in *FBIS-CHI*-97-020.

126. "*Zhongguo hangtian kaizhan quanfangwei guoji hezuo*" ("China Space Opens Comprehensive International Cooperation Meeting"), *Zhongguo Hangtian Bao (China Space News)*, October 3, 1994, p. 1.

127. "Ambitious Space Program Gears Up for Competitive Edge."

128. Si Liang, "Only the East Wind is Lacking," *Zhongguo tongxun she*, August 11, 1994, in *FBIS-CHI*-94-158.

129. *China Today: Defense Science and Technology*, Beijing: National Defense Industry Press, 1993, pp. 386-390; and "Astronauts Trained for Chinese Manned Spacecraft," *Zhongguo Tongxun She*, March 29, 1995, in *FBIS-CHI*-95-062.

130. Craig Covalt, "Chinese Manned Flight Set for 1999 Liftoff," *Aviation Week and Space Technology Review*, October 21, 1996, pp. 22-23; and "Chinese Cosmonauts To Train at Gagarin Space Center," *Interfax*, December 27, 1996, in *FBIS-SOV*-96-250. For indications of Jiuquan serving as the base for China's manned launch program, see Xu Kejun, "Safety Support of Space Launching For Astronauts," *Daodan shiyan jishu*, 1997, Vol. 1, pp. 1-9, in CAMA, Vol. 4, No. 5, 1997.

131. Leonard David, "China's Space Ambitions Keep Western Experts Guessing," *Spaceflight*, July 8, 2002, internet *http://www.space.com*. Liu Zhusheng is chief designer of the LM-2F.

132. For a technical analysis of one of China's space shuttle concepts, see Philip A. Smith, "The Chinese Space Shuttle: A Great Leap Forward," unpublished Naval War College paper, June 1996; and Wang Xiaojun, "Study on Minimum-fuel Low Thrust Multiple Burn Transfer Between Coplanar Circular Orbits," *Yuhang Xuebao*, 1996, Vol. 17, No. 3, in CAMA, Vol. 3, No. 6, 1996.

133. Viacheslav A. Frolov, "China's Armed Forces Prepare for High Tech Warfare," *Defense and Foreign Affairs: Strategic Policy*, January 1998, pp. 12-13. The 2005 timeframe appears overly ambitious.

134. See Liu Xingzhou, "*Chongya fadongji de fazhan he yingyong*" ("Development and Applications of Pulsed Engines"), *Zhongguo hangtian*, Vol. 3, 1993, pp. 34-37; Huang Zhicheng, "Real Gas Effects for the Aerospace Plane," *Aerodynamic Experiment and Measurement Control*," Vol. 8, No. 2, 1994, pp. 1-9; also see Huang Zhicheng, "Aerodynamic Design of Nozzles for the Aerospace Plane, "*Aerodynamic Experiment and Measurement Control*," Vol. 7, No. 4, 1994, pp. 1-7; Qiu Qianghua and Huang Zhicheng, "Aerodynamic Design Of Single Stage to Orbit Winged Rocket," *Liuti lixue shiyan yu celiang*, 1997, Vol. 11, No. 2, pp. 19-25, in CAMA, Vol. 4, No. 6, 1997; Wang Yali, "Hybrid Propulsion System for a Single-Stage-To-Orbit Engine," in *Huojin tuijin*, 1997, Vol. 3, pp. 39-49, in CAMA, Vol. 4, No. 6, 1997; and Yue Jialing, "Preliminary Design of a Hydrocarbon-Fueled Dual Mode Scramjet Engine for a Hypersonic Vehicle," *Liuti lixue shiyan yu celiang*, 1997, Vol. 11, No. 2, pp. 1-13, in CAMA, Vol. 4, No. 6, 1997. China's interest in an aerospace plane is not unusual. Almost all the major powers, including the United States, Europe, Japan, and India, have active hypersonic vehicle programs.

135. Presentation delivered at 47th International Astronautical Federation, March 1996, Beijing, China.

136. "China Preparing for Manned Space Program," *Neimenggu Ribao*, July 28,

1995, p. 2, in *FBIS-CST*-95-015.

137. One should note that, as they become more sophisticated, the cost of satellites has risen. In 1994, the average cost of a Chinese produced satellite was between U.S. $3-12 million. However, the HY-1 cost U.S. $24 million.

PART III:

THE CAMPAIGNS

CHAPTER 7

HOW BEIJING EVALUATES MILITARY CAMPAIGNS: AN INITIAL ASSESSMENT

Ron Christman

EXECUTIVE SUMMARY

China's known criteria for measuring the effectiveness of military campaigns prioritize evaluating success in terms of the impact on the Chinese Communist Party's ability to control the "overall situation." Direct military, strategic, and political results are secondary in nature when compared to the leadership's subjective assessment of its control of the overall situation. In theory, this assessment is derived by calculating a campaign's impact on the leadership's ability to ensure central authority; preserve leadership solidarity and national unity; maintain momentum behind the nation's central task; and balance the need to deter or defeat primary adversaries while simultaneously containing domestic instability and securing secondary fronts.

The priority Beijing places on controlling the overall situation is different from the tendency of Western leaders to weigh military success in terms of dominant quantitative indicators, to include weapons and equipment destroyed, personnel killed in action, and public approval ratings. This difference is driven, in part, by direct lessons political and military leaders have learned regarding the importance of controlling the overall situation. Key sources of these lessons include battles in ancient China, Marxist-Leninist thought, Maoist military thinking, the War with Japan, the Chinese Civil War, and China's own domestic and geopolitical circumstances.

The assessment criteria identified thus far provide insights into how China's leadership intends to exercise strategic leadership in wartime. However, there are a number of human, organizational, and procedural variables that might erode the leadership's ability to apply these criteria in future war. Indeed, the emphasis placed on controlling the overall situation is designed, in part, to prevent these variables from degrading Beijing's ability to base decisions on

national, vice subnational, interests.

The key to gaining a deeper understanding of how China's leaders would evaluate military campaigns is to gain greater access to China's assessment criteria. Critical areas for future research include how Beijing intends to organize strategic leadership in wartime, establish a culminating point for victory, determine an exit strategy, and set a ceiling for acceptable costs.

INTRODUCTION

The purpose of this chapter is to assess what criteria, if any, China's leadership is likely to use in measuring the effectiveness of military campaigns. In so doing, this chapter will address what we know about China's measures of effectiveness (MOE) criteria; how these criteria compare to what we know about Western MOE criteria; where these criteria derive from, especially in terms of lessons the leadership has learned; and the potential for what we know about Chinese criteria to be based on deceptive or confusing information. I have only begun to "scratch the surface" of this vexing question. Hence, the findings in this chapter are inherently an "initial assessment." In this context, this chapter will identify those factors that might erode the leadership's ability to apply these assessment criteria in a future war. Finally, the chapter will identify information acquisition strategies and key topics and issues for future research.

In examining this question, it is important to explicitly define what it is we are examining and the level of analysis at which we will operate. First, our focus will be on how the national-level leadership in China, defined as the senior-most Chinese Communist Party (CCP) and Chinese People's Liberation Army (PLA) leaders, is likely to measure or evaluate the progression and outcome of operational military campaigns conducted by the PLA. This chapter does not examine how the PLA's General Staff Department (GSD) or lower-level command headquarters are likely to measure the military effectiveness of campaigns.[1]

Second, we will be employing a relatively loose definition of the concept of a military campaign. We want to gain a better understanding of how China's national-level leadership would evaluate the effectiveness of "major military actions" conducted

at what the United States would consider to be the "operational level" of warfare. This definition is consistent, in my view, with China's own definition of a military campaign representing "the principal means to achieve objectives in a war."[2] In so doing, I fully recognize that the execution of an "operational plan" by the Chinese may involve the conduct of several military campaigns (combat operations) simultaneously. However, I believe it would be more useful to focus on the general question of how Beijing[3] would measure major military actions conducted at the operational level of war than to seek to examine how senior leaders would evaluate individual campaigns that derive from one operational plan. Put simply, we want to know how Beijing evaluates PLA operations that are progressing in the field and how it would assess whether the end-result of these operations is likely to constitute success or failure.

METHODOLOGY

We face a number of fundamental challenges in seeking to identify and characterize the criteria China is likely to use in evaluating the effectiveness of operational military campaigns. These challenges are driven by:

- The lack of extensive research on the specific subject of how Beijing evaluates military campaigns;[4]
- The high likelihood that China, like other countries, seeks to conceal its assessment criteria from foreign view; [5]
- Inherent limitations associated with various research strategies, to include case studies, in examining the four hundred or more campaigns the PLA has conducted since 1927;[6] and,
- The potential for study of this topic, which can be considered a subset of decisionmaking, to become subject to the same problems that have bedeviled the development of decisionmaking theory.[7]

SOURCE MATERIAL AND WORKING HYPOTHESIS

Given these issues, I have sought to "bound" research for this chapter by examining source material since the last major war for China (1979) that might shed light on how Beijing conceives of assessment criteria in the aftermath of the major and minor wars the CCP and PLA have fought since 1927. The primary sources examined include various Chinese language source documents providing potential indications of how the Chinese leadership conceives of the art of "strategic leadership." In particular, I examined several doctrinal PLA publications developed by the PLA's National Defense University (NDU) and its Academy of Military Science (AMS). Since China's senior leadership is likely to be composed of both military and civilian leaders, I also examined information that derived from CCP organs. In so doing, I consulted several Chinese language publications or reports that emanate from the CCP's Central Party School (CPS), various administrative organs of the CCP, as well as the CCP Constitution itself. In particular, I examined source material that outlined how the CCP currently conceives of the correct "stand, viewpoint, and method" for problem solving.[8]

The basic working hypothesis is that "framing effects" are likely to play a substantial role in shaping how the Chinese leadership defines a situation, calculates the merits of alternate courses of action, and ultimately measures the success or failure of the course it has chosen.[9] The primary reason I chose this approach is my belief that there are several potential conditions in the Chinese leadership milieu conducive to the emergence of a common "framework" amongst Chinese leaders for how to assess military operations or other actions. These conditions include the role of history in shaping Chinese perceptions, the likely role of strategic culture in China's national security realm, the existence of concepts of statecraft in China with ancient origins, the existence of "military science" in China's military-strategic community, and the apparent efforts of the CCP historically to develop a "doctrine" for problem solving.[10]

WHAT WE KNOW AND WHY

The central question remains: what criteria are China's leaders likely to use in evaluating military campaigns? The answer is that

it is possible to identify and characterize how China's leadership is likely to conceptualize and aspire to evaluate military campaigns in wartime. The Chinese rarely assert what their assessment criteria are in military writings on strategy, campaigns, strategic leadership, and various doctrinal party documents or statements, etc. The source material tapped thus far is certainly not exhaustive; however, it represents some of the more authoritative Chinese documents on strategic leadership, the study of campaigns or strategy, and military or party "doctrines" for problem solving methods. In reviewing these and other documents, there is little information that provides direct clues as to the Chinese leadership's likely campaign-level MOE criteria. Two lone exceptions are a 1990 PLA NDU book on the fundamental art of operations and various public statements and articles by CCP CPS Vice President Zheng Bijian regarding the current "stand, viewpoint, and method" that Chinese leaders should employ in problem solving.

One reason we have so few indications of China's assessment criteria may be that these criteria are purposely "hidden" from foreign, nonparty, or non-PLA observers. These criteria may exist in writing somewhere in an internal CCP or PLA document related to deliberate planning for military operations or wartime management by national-level leaders. Conceivably, the reason we have so few indications may also be that the current post-Mao and post-Deng Chinese leadership itself has never actually explicitly established what its criteria would be for measuring military campaigns in wartime. China has not been engaged in a war since 1979, and military affairs in China have been secondary to economic development for 2 decades. The focus of civilian leaders on military affairs, including potential wartime assessment and decisionmaking issues, is undoubtedly secondary or tertiary in nature. For example, an article in 1999 by Maj Gen Lu Haozhong, President of the PLA's Second Artillery Command Institute, implied that the senior leadership has yet to establish what its criteria would be for approving the use of nuclear weapons.[11]

It is therefore difficult for me to say with high confidence that we really "know" what China's assessment criteria are for evaluating campaigns at this juncture. We face practical limitations in gaining access to internal information on Chinese assessment criteria or to information that Chinese leaders themselves have yet to consolidate.

Nonetheless, I was able to uncover some information that sheds light on what China's pre-planned assessment criteria might be or on the criteria that China's leaders are likely to ultimately settle on when evaluating campaigns in wartime. In particular, there is one primary Chinese language source that provides unique insight regarding the specific criteria China's leadership would use in measuring the effectiveness of operational military campaigns in wartime. Moreover, the main criterion identified in this military document is corroborated in the CCP's own doctrine for problem solving, as outlined below.

The Military Approach.

According to a 1990 PLA NDU text on the "Fundamental Art of Operations," the art of command necessitates a "full appraisal" of the "values" of a campaign by the leadership when making campaign decisions, weighing alternate campaign plans, or gauging the success or failure of an operational campaign.[12] The "true value" of the potential outcome of a campaign as well as its progress cannot be discerned by simply measuring its direct results. Instead, the value of a campaign is demonstrated by the following four "factors:"

- The direct military results of the campaign, defined in terms of the ability to annihilate the enemy's effective combat strength, to include enemy personnel and weapons/equipment, or the capture or defense of a certain place;

- The impact of the campaign in question on China's next strategic move, including follow-on PLA campaign operations;

- The impact of the campaign on the psychology, politics, economy, and internal personal relations of the enemy; and,

- The role of the campaign in enhancing, maintaining, or degrading the national leadership's ability to grasp and control the "overall strategic situation."[13]

This NDU textbook emphasizes that, as a matter of principle, a commanding officer should seize every opportunity to annihilate the enemy's effective combat strength and to fight every battle that can lead to the enemy's annihilation. Indeed "annihilation of the enemy means victory." In addition, commanding officers, especially high-ranking ones, should also possess a "strategic consciousness." This quality is of particular importance since the "real values" of a campaign are reflected in "its status and role in the overall situation of a war."

These four criteria, despite their limited base of sourcing, provide the clearest evidence available to the author of China's likely criteria for measuring the effectiveness of military campaigns. They provide a potentially useful tool for understanding how China's leaders would evaluate the progression or outcome of a campaign. I will deliberately limit our assessment in this chapter to the last one of these four criteria. The first three are relatively easier to understand and explain. I am confident one could document their use in Chinese language material, based on references I have seen to these concepts in reading PLA doctrinal articles and other information.[14] Moreover, this framework strongly points to the overall situation as being the most important MOE, and, therefore, the most important subject of analysis.

The Party Approach.

The credibility of the NDU textbook's emphasis on the "overall strategic situation" as being the most important criterion is enhanced by the fact that the importance of this criterion is evident in the party's own doctrine for solving problems in general. Article 34 of the CCP Constitution stipulates that "leading party cadres" at all levels must "strive to use the Marxist stand, viewpoint, and method to solve practical problems."[15] According to CCP CPS Vice President Zheng Bijian, the incorporation of Deng Xiaoping Theory into the CCP Constitution in 1997 has direct implications for the "stand, viewpoint, and method" and "world outlook" that CCP leaders should employ in solving contemporary problems.[16]

Based on Deng Xiaoping Theory, the specific "stand, viewpoint, and method" for problem solving outlined by Zheng is captured by the following eight Chinese characters: Overall Situation (*Daju*), Test

(*Kaoyan*), Opportunity (*Jiyu*), and Confidence (*Xinxin*).[17] Without examining this formula at length in this chapter, the concept of "test" in essence involves how Beijing assesses a situation; "opportunity" is a short-hand term for how Beijing would weigh the subjective strategic advantages or disadvantages and the objective material gains or losses associated with a course of action; and "confidence" is a short-hand explanation for the "calculations in the temple" that Beijing would conduct before a major action to "assure victory" beforehand. This process of assessment and calculation would include assessing the strategic configuration of power Beijing is operating in, assuming the appropriate posture (disposition), establishing a feasible war aim, and adopting the appropriate resolve.[18] According to Zheng Bijian and other CCP officials, the party's ability to "grasp" and "control" the overall situation is the most important criterion. As Zheng explained it once, the implication of China's current international and domestic situation is that "every issue of major or principled importance is in the final analysis, related to our view of *the overall situation* in contemporary China and the world."[19]

In this context, a key question to answer is what does China's leadership really mean when they refer to the importance of the party "grasping" and "controlling" the "overall strategic situation" in both military and nonmilitary contexts. The answer is that a simple key word search on the terms "overall situation" or the "overall strategic situation" reveals that the Chinese have a relatively well-thought out definition of what is required to maintain control of the overall situation.[20] Essentially, China's party and military establishments emphasize the importance of controlling the overall situation as the most fundamental way of coping with an immediate challenge or "test" within the context of China's complex domestic situation and vast geopolitical circumstances.[21] These conditions create several local, regional, departmental, factional, and personal interests that, if not properly managed, work to erode the senior leadership's ability to base decisions and strategy on a comprehensive understanding of China's "national interest."

Hence, one of the challenges for Chinese leaders in making decisions and measuring the success of a strategy is the need to take steps to "checkmate" these subnational interests, thereby ensuring

that China's "national interests" prevail.[22] As Deng Xiaoping once described it, whether or not the CCP controls the overall strategic situation cannot be assessed from the perspective of a small number of people or from the perspective of these "local" or subnational interests. Deng advocated using the concept of the "overall strategic situation" and the "interests of the majority of the people" when judging if policies are "correct" and in determining the degree to which they are correct. Specifically, Deng stated that "we should frequently take 90 percent as the standard and see whether or not they [a policy] represent 90 percent of the people and whether or not they are supported by the people."[23] The author doubts that Deng's call for using "90 percent as the standard" signifies an interest in basing CCP decisions on a solid majority of political support from the Chinese population. Undoubtedly, the judgment as to whether 90 percent of Chinese society supported a policy would be made by senior CCP leaders. Nonetheless, Deng's comments underscore the extent to which the Chinese leadership's approach to problem solving involves an active effort to "check-mate" various subnational interests that could influence China's policies in ways that may not accord with China's national interests or the interests of senior CCP leaders. These subnational interests include the desires of individual leaders, "factions" in the party or military, the interests of various "xitongs" in China (to include the foreign affairs, PLA, and economic establishments), regional interests in China (inland or coastal provinces), or county-level or lower "local" groups. The risk of these interests pursuing "subnational" interests at the expense of the national interest is compounded by the pervasive influence of corruption in Chinese society, especially elite circles.

Research on China's concept of grasping and controlling the overall situation reveals that China's leaders are likely to use four specific sub-criteria when evaluating whether a military campaign is enhancing, eroding, or maintaining Beijing's control of the "overall situation."

- The extent to which the senior leadership maintains "strong central authority" to include absolute control of the PLA.[24]

- The extent to which a "common understanding" exists

between CCP leaders, between the party and the PLA, and between the party and the Chinese population; and the extent to which national unity is maintained in a large society with multiple ethnic groups (56 total groups);[25]

- The extent to which the party and nation is able to maintain "momentum" behind the country's top priority task – which is generally defined as either continued development of comprehensive national power or the maintenance or enhancement of a favorable position in the strategic configuration of power, depending on the degree of foreign or internal threat to China's interests;[26]

- Finally, the extent to which the leadership is able to simultaneously maintain an appropriate "center of gravity" between several objectives in its military-strategic calculus.[27] With this formula as a baseline, further research reveals that Chinese leaders are likely to define the sub-criteria they would evaluate in assessing whether the progression or results of a military campaign enable Beijing to maintain a "center of gravity" in its China's military-strategic calculus. This calculus can be broadly defined as comprising four distinct elements:

    - The defeat of any specific challenge to China's sovereignty and territorial integrity;[28]

    - The deterrence or limitation of foreign military intervention in any war between China and a third party;

    - The containment and repression of any internal sources of domestic instability or civil unrest; and,

    - The ability to defend Chinese interests, territory, and sovereignty against challenge on secondary fronts along China's periphery.

From the Chinese perspective, a central task in China's military-strategic calculus is the need to meet these four objectives simultaneously. An illustrative example of this calculus in Chinese thinking is the following quote from an AMS doctrinal chapter on Strategic Command and Support. In describing the importance of stipulating the basic attack orientation when making a strategic decision, this chapter emphasized the following:

> The basic orientation is the focus of the struggle between the enemy and us and the center of gravity for the use of force, and it determines the combat situation and the development of the war. Whether or not we can check a war of aggression launched against us by an enemy, with simultaneous threats from two or multiple enemies, or whether or not when we find ourselves in a combat environment with two or multiple fronts we can deal forcefully with the primary enemy, or whether or not in a defensive war we can break through the enemy's offensive, or whether or not in a offensive war or strategic offensive we can defeat the enemy fairly smoothly, are all closely related to the determination of the basis attack orientation, and strategic commanders must pay particular attention to doing a good job of resolving this issue, *which is of decisive significance."*[29]

COMPARISON TO WESTERN CRITERIA

It is important to understand where this Chinese approach to assessment criteria fits in relationship to what we know about the approach of other nation's elites to measuring military effectiveness.[30] In particular, this initial understanding of China's MOEs enables us to gauge how China's assessment criteria might be different from Western or U.S. approaches to measuring operational success. Is China's focus on the leadership's subjective assessment of the impact of a military campaign on the party's ability to control the overall strategic situation similar to or different from the approach of Western leaders to evaluating the success of military operations?

The basic answer to this question is that China's campaign-level assessment criteria are markedly different from the approach that Western leaders tend to take to evaluating military campaigns. As with the case of China, much work needs to be done in developing a more in-depth understanding of Western assessment criteria. Based on a preliminary review of some of the work that has been

completed, China's approach to evaluating military campaigns contrasts with the tendency of Western leaders to weigh military success in terms of dominant quantitative indicators, to include weapons and equipment destroyed, personnel killed in action, and public approval ratings.

Scott Gartner's recent study of strategic assessment in war (see endnote 5) examined four case studies: British decisionmaking on anti-submarine operations in World War I and World War II; U.S. decisionmaking regarding the ground strategy in the Vietnam War; how the U.S. Army and Marines evaluated success in the Vietnam War; and U.S. decisionmaking in the Iranian hostage rescue attempt in 1979. In all cases, national-level leaders relied primarily on so-called "dominant quantitative indicators" when deciding how a war or campaign was going and whether a change in strategy was necessary. In some cases, these dominant quantitative indicators were "battlefield indicators" (tonnage of Allied shipping lost, number of U-Boats sunk, destruction and construction of Allied merchant shipping, enemy or allied personnel killed in action, enemy weapons captured, or the impact of an operation on quantitative indicators of social stability in Vietnam). In one case (the Iranian hostage crisis), the dominant quantitative indicator was public approval ratings for the U.S. President. In all of these cases, changes in strategy were prompted by sudden, accelerating changes in the dominant indicators used as assessment criteria.[31] Essentially, national-level leaders changed their strategy if the dominant indicators suggested that the war or strategy was "going bad" and the rate of performance was decreasing at an increasingly rapid rate.

The main difference between China's approach to evaluating campaigns and the approach of U.S. and British leaders is the clear-cut tendency in the Chinese approach for using subjective measures vice quantitative indicators of performance. It is conceivable that the Chinese may rely on specific quantitative indicators (public opinion polls, force exchanges, and economic performance figures, etc.) when making conclusions about the desired level of central authority, party solidarity, national unity, strategic momentum, and balance in China's military posture. For example, China's criteria for measuring the direct results of a campaign include gauging the extent to which PLA actions are annihilating or paralyzing the enemy's effective combat strength. These measures clearly can, and

probably are gauged by using quantitative indicators, to include weapons and equipment destroyed or personnel killed in action.

However, I judge that the Chinese are likely to rely primarily on qualitative, subjective assessments when making conclusions about military performance in war. The use of specific quantitative indicators is likely to be secondary in nature, given the traditional emphasis in Chinese strategic culture on the battle of "wits, wisdom, and strategy" being more decisive in determining war outcomes than actual engagements between opposing military forces. Indeed, senior leaders in China's military operations research community frequently lament the limited use of their various analytic tools and research results by national-level leaders.[32]

LESSONS LEARNED

One of the primary reasons that China's leaders use different assessment criteria is that the Chinese have a number of powerful internal sources of strategic culture and approach to warfare.[33] To be sure, the Chinese readily admit that they study how other nation's approach international security affairs, to include grand strategy, in an effort to enhance their own approach to issues of strategy, security, and national development.[34] However, I have been able to identify and characterize seven distinct sources of strategic thought that can be traced to China's emphasis on the "overall situation" as the key measure of success in evaluating military campaigns. Only one of these sources, Marxist-Leninist Thought, can be traced to foreign roots. Lacking an extensive role for foreign sources and outlets in shaping how China's leadership intends to evaluate military campaigns in wartime, it should not be surprising that China's assessment criteria are different from those employed by the West. The role of these seven sources in shaping China's assessment criteria is outlined below.[35] Each of these sources has taught China's leadership key "lessons" regarding the important of the overall situation as the main criterion.

Ancient Battles.

According to an official, authoritative PLA source on wartime strategies, one known "law of war" currently taught to PLA officers

is the concept that "in dealing with strategy and campaigns, and the relationship of battles over time, the important thing is to *execute campaigns and battles on the basis of the overall strategic situation,* thereby having campaigns and battles become part of the overall strategic situation."[36] The example that this PLA document cites as the first instance when the Chinese learned the importance of the overall strategic situation was the struggle between Liu Bang (founder of the Han Dynasty) and Xiang Yu (Liu's chief rival) during the formative period of the Han Dynasty (202 BC) after the fall of the Qin Dynasty.[37]

The reason the Chinese believe this struggle is such an important event in military history is that it reveals how it is possible to emerge victorious in war when operating from a position of inferiority and despite having lost multiple battles prior to the last one. Essentially, this struggle teaches that the inferior can defeat the superior provided the inferior side has a "comparatively more strategic mindset." Based on NDU's account in 2000, Xiang Yu was defeated because he lacked long-range overall strategic planning for the entire war. He pursued lots of "big battles" with "definite blindness" even when he won these battles. Xiang failed in "taking these battle victories with the overall strategic situation and tying them together." From the perspective of the overall strategic situation, Xiang "again and again took unwise actions." In contrast, Liu Bang was "proficient at inferior strength," had a tendency to "plan the overall arrangement, and thus form a "strategically decisive strong approach, finally going through a decisive campaign operation to being victorious in the war." In the end, Liu maneuvered Xiang into a "death trap," and, when finally cornered, Xiang slit his own throat.[38]

Marxist-Leninist Thought.

The Chinese Communist Party subscribes to the viewpoint that Marxist-Leninist philosophy provides a scientific worldview and method for understanding the relationship between things.[39] In particular, materialist dialectics holds that regardless of which thing one is trying to understand, it should be viewed as comprising a "whole," that is, a sum total of all aspects, relationships, and elements within the thing, which should be viewed as the "parts" of the "whole." In this context, the parts and whole constitute

an important pair of philosophical categories that have universal applicability in understanding the "complex links" between things and the process of developing things. According to this line of reasoning, it is impossible to understand and grasp specific aspects, relationships, or elements of a thing without proceeding from the links of the whole "entirety" of a thing.

The Chinese believe that Marxist-Leninist dialectics, including the relationship between the parts and whole has applicability in understanding warfare.[40] Specifically, Chairman Mao Zedong has pointed out that "any war situation which acquires a comprehensive consideration of its various aspects and stages forms a war situation as a whole."[41] More recently, then-PLA GSD Chief General Fu Quanyou stated that "in order to direct a future high technology local war, the army guidance for war should adhere [in part] to both historical materialism and dialectical materialism and uphold the Marxist view on wars and the Marxist military dialectics."[42]

The practical implication of this emphasis on dialectics and understanding the relationship between the "part" and the "whole" in wartime is that it places a premium on the national leadership "reducing blindness" and "short-term actions" in decisionmaking by basing those decisions "on the overall situation" and on "seeing the interests of the whole as higher than everything else." At the same time, this emphasis on the whole should lead to a solid understanding of the role and importance of each "part" of the overall war situation. The analogy used is to equate warfare with chess in the sense that one wrong move can lead to the entire game being lost. According to this analogy, that one wrong move was a "part" that had "decisive significance for the whole situation."[43]

The effect of these concepts on how Beijing is likely to evaluate military campaigns in wartime is that they have led the Chinese to define military campaigns as actions that are best gauged in terms of their impact on the overall strategic situation. As the AMS describes it,"strategy is a whole, and campaigns and combat actions are parts."[44] According to the dialectic logic of the whole and the part, if a local operation (campaign) is feasible, based on an understanding of the local situation, but not feasible in the overall situation, "the partial must be subordinated to the overall." Conversely, if the local command does not believe a campaign is feasible, but the central leadership believes it should be conducted in the interest of the

"overall situation," then the interests of the "partial" (i.e., the local commander) must subordinate itself to the "overall situation" by implementing the campaign as directed from higher authorities.[45]

This logic manifests itself in recent PLA commentary on the relationship between campaigns and the overall situation. According to the PLA NDU's 1999 textbook, *On Military Campaigns*, one characteristic of a campaign is that it "carries out the task given in consideration with the overall situation of a war."[46] The PLA NDU's 2000 book, *Science of Strategy*, also stipulates that campaigns must be carried out, "according to the requirements of the overall wartime situation."[47] In future, high-tech local wars, this close linkage between a campaign and the overall situation of a war will become even more pronounced. "It may just take one or a few campaigns to end a war." In this context, it is possible for a campaign to be aimed at achieving local "and even the overall objectives of a war."[48] From retired AMS Vice Commandant Lieutenant General Mi Zhenyu's perspective, "in a local war, every campaign, and even every battle, may have a direct bearing on the overall situation. Therefore, there will be more occasions in which the strategic commander finds himself directly involved in guiding a campaign or even an important battle."[49] While some of this thinking reflects Chinese perceptions of the nature of high-technology local war in the modern period, to include improvements in modern telecommunications capabilities that support the command and control of military operations, this thinking has its roots in Marxist-Leninist thought, which the Chinese have incorporated in developing their own notions of "military dialectics."[50]

Maoist Military Thinking.

A third source of China's emphasis on the "overall strategic situation," would be Chairman Mao Zedong and his thinking on military-strategic matters. The AMS's recent publication, *Science of Strategy*, defines the concept of strategy itself as being "the planning and guidance for the overall situation of war."[51] This definition is based on an earlier definition of strategy that Mao articulated in his 1936 article, "The Strategic Issues in the Chinese Revolutionary War." From Mao's perspective, "as far as there is war, there is the overall situation of war. The whole world can be the overall

situation of war; a country can be the overall situation of a war; a dependent guerilla district and a major and independent operational front can also be the overall situation of a war. All the things that have the nature of taking care of all aspects and all phases are the overall situation of war."

Mao also articulated the concept of a "campaign" existing in-between strategy and tactics. He pointed out that there were "internal objective rules" within strategy, that were not the product of subjective will, which led strategy to focus on the overall situation instead of any concrete answer to any local issue.[52] Mao believed it was essential for both the top commander and the "battle commanders" and "tactical commanders" to possess a certain degree of understanding of the "overall situation in a war."[53] From Mao's perspective, "knowing the entire situation would facilitate the use of its parts. Because the parts constitute the whole."[54]

Chinese military strategists point to Mao's emphasis on the overall situation as being one of the primary factors driving Mao to adopt a strategy of conducting a protracted war against the Japanese that would pass through three phases: strategic defense, stalemate, and strategic counteroffensive.[55] From this perspective, Mao selected this strategy based on his assessment that China was operating from a position of inferiority (as far as "numbers" were concerned) in the overall situation, especially in the balance of power with Japan. Mao also assessed that in every local area, and in every specific operation, China possessed conditions in which it could establish "absolute superiority." In this context, Mao advocated avoiding a "battle of attrition" in favor of a protracted war strategy of mobile warfare supplemented by guerilla and positional warfare. Mao calculated that "as time goes on" we will gradually "gain superiority in the overall situation" until we reach a point where we can conduct a strategic counteroffensive and eventually defeat the enemy's war aim.[56]

For practical purposes, we will limit our examination of Mao's command practices to this one example. Nonetheless, a fuller examination of Mao's military writings and behavior probably would find more instances in which Mao explicitly used the concept of the "overall strategic situation." The bottom line is that Mao clearly emphasized the critical importance of the senior leadership understanding and seeking to control the "overall war situation.

According to the new AMS *Science of Strategy* book, Mao firmly believed that "The commander should know the entire war effort. The success or failure of the war could be determined by whether attention was paid to the entire front."[57] In this context, it seems a logical conclusion that Mao was a strong advocate of measuring military campaigns in the context of their impact on the overall situation.

Lessons from the War with Japan.

Chinese military strategists point to at least three examples in the War of Resistance Against Japan (1937-45) in which they learned direct lessons regarding the importance of the "overall situation" as the main criterion for judging the effectiveness of war strategies or campaign operations. The first lesson concerned the fact that the CCP and the Kuomintang (KMT) pursued different war strategies towards Japan resulting in two diametrically different results. According to the PLA's own interpretation of the war, the CCP followed a "policy of conducting guerilla warfare but not letting up efforts to conduct mobile warfare under favorable conditions, and led the people's armed forces in conducting guerilla warfare behind enemy lines, opening large liberated area battlefields" and achieving favorable results in war. In contrast, "the KMT followed a policy of passive defense, and was not only unable to effectively strike at the enemy, but also forced to stay in a passive position, thus suffering repeated serious setbacks on frontal battlefields." From the PLA's perspective, the clear lesson of this situation is that "whether the strategic policy is correct or not will have a fundamental impact on the overall situation in a war."[58]

The second example they cite is the so-called Long March in which the Central Workers and Peasants Red Army initially decided to go to western Hunan to join up forces with the 2nd and 6th Field Armies. Based on various military moves by Chiang Kai-shek's main force and other forces, Mao Zedong analyzed the situation and proposed abandoning or changing original plans on four separate occasions. Given that the Long March was ultimately successful, Chinese strategists point to Mao's assessment and changed plans as an example where "timely and ongoing accurate assessment of the war situation, looking at the overall situation and knowing when to

change and being adept at doing so, enable our forces to continue to extricate themselves from dangerous situations and gaining the initiative in the strategic transition" of the war.[59] China's strategists are also known to cite the Long March as an example in which the massive objective material costs of a major military action (the PLA lost more than 90 percent of its personnel and much of its equipment during this strategic retreat), were ultimately worth it. In their view, the end result of the Long March was strategically advantageous in the sense that the CCP and PLA avoided military defeat in central China and were better positioned to fight both the Japanese and the KMT afterwards. Although I do not have a reference to the "overall situation" logic handy, this situation is another example of where the Chinese could argue that the "part" (i.e., the 90 percent who died) had to subjugate its interests to the "whole."[60]

The third lesson the Chinese draw from the War of Resistance Against Japan regarding the "overall situation" is the critical importance of the senior leader assessing the situation and basing his or her judgments on an understanding of the overall situation. During this war, there were 19 different liberated areas created. From the Chinese perspective, it was not necessarily inevitable that the war would be won, especially because, due to communication and transportation problems, the leaders in each liberated area did not have a "sense of the overall situation." Hence, they turned for guidance to the CCP Central Committee, and victory can be directly attributed to Mao Zedong's wise leadership and guidance to each liberated area, according to the Chinese.[61]

Lessons from the Chinese Civil War.

Given the rich history of the Chinese Civil War, there undoubtedly are multiple situations in which Chinese strategists have learned lessons regarding the importance of measuring success or failure in terms of the overall situation. For practical purposes, however, I will limit our analysis to one specific campaign that the Chinese point to as a "textbook" example of the importance of weighing military campaigns in the context of the "overall strategic situation."

The specific campaign the Chinese cite as an example of the importance of weighing the consequences of a local action in terms of the overall situation, in both military and civilian circles, is the

Dabieshan campaign of the summer of 1947 and early 1948.[62] In CCP and PLA history, this campaign is considered a critical victory in the civil war because the Liu-Deng Army made a strategic advance that enabled the PLA to hold an important location, despite significant costs and losses, a move that played a crucial role in enabling the PLA to "gain strategic momentum and obtain overall victory" in the war.[63]

Under Mao's guidance, the Liu-Deng (Liu Bocheng-Deng Xiaoping) Army deployed in June 1947 on a 1,000 li march (approximately 335 miles) with the goal of occupying and holding the Dabieshan mountain area in central China.[64] Both Mao and Deng calculated there would be serious costs associated with this move, but Mao believed that "paying the price and holding the position" would constitute victory. After the Liu-Deng Army reached Dabieshan, they essentially drew a massive encirclement and suppression campaign by KMT forces, in which more than 50 percent of Chiang Kai-shek's forces along the southern route were located in the Central Plains area.

In order to defeat this campaign, Deng divided his force into two commands, and dispatched one force, led by Liu Bocheng to the Huabei area while operating behind enemy lines. The Central Military Commission dispatched the Chen-Xie Army to exert pressure on Wuhan, thereby relieving some of the pressure on the Deng-led Army in Dabieshan. However, Deng advised the central leadership that his Army could hold out longer, despite having already suffered several months of intense enemy pressure. Deng argued that doing so would draw the enemy force around it so that other PLA units could launch a counter-attack against KMT forces. In the end, Deng's advice was adopted, and his Army was able to hold out, despite being a solitary force behind enemy lines with no support force nearby and no way to receive additional supplies. The successful defense of the Dabieshan area enabled the Liu Bocheng forces at Huaibei and the Chen-Su and Chen-Xie Armies to score major victories in attacking KMT forces in the Central Plains area.

The direct implication of this example for our subject is that both Deng and other CCP leaders, including Mao Zedong, consider it a textbook case of a partial local interest (i.e., the Dabieshan campaign force led by Deng Xiaoping) successfully subordinating itself to the interest of the CCP and the PLA as a whole in a way that had a

fundamental strategic impact on the overall situation in the war. In an important speech after the campaign, Deng Xiaoping outlined how "many comrades" mistakenly viewed the situation from the "partial situation at Dabieshan" and concluded, based on a "pessimistic mood," that the situation was extremely serious.[65] In contrast, Deng outlined how he used dialectics to proceed from the overall situation, to conclude that whether the Dabieshan counteroffensive was a success or failure "can only be fully understood by properly calculating the accounts." This calculation involved comparing the number of troops eliminated on both sides and assessing the state of the war in several different national areas. According to Chinese accounts, Deng's use of the method of "doing the accounts" directly, clearly, and powerfully showed the importance of looking at questions from the overall situation.[66]

China's Geopolitical Situation.

China's geopolitical situation also shapes the emphasis placed by the Chinese on the need to grasp and control the so-called "overall strategic situation." China has 22,143 kilometers of land boundary and 14,500 kilometers of coastline and claims 3 million square kilometers of ocean territory. The security of China's land borders, coastline, and offshore islands historically has been difficult to maintain because of the vast size of its periphery and the traditional inadequacies in Chinese military power. The implication of this geopolitical situation historically, according to the PLA AMS, has been that China's leaders have faced a "hard issue" in "choosing the direction of strategic defense." In particular, there has been a traditional debate in China over the primary importance of "sea defense" or "fort defense" in determining the strategic deployment of armed forces.[67]

This hard choice regarding strategic deployment has created tension between two competing "principles of strategic action" in Chinese military-strategic thought: "correctly setting a primary strategic direction" or "looking after the whole situation and grasping the center of strategy."[68] Chinese strategic thought clearly emphasizes that correctly setting a primary strategic direction is the "foremost problem that strategic planning and guidance must solve."[69] The Chinese define the primary strategic direction as the

"key point of the overall situation" and the "standardized direction for centralized employment of strategic forces." Failure to set a primary strategic direction that goals, forces, and means can be organized around in time and space results in military forces and strategic means becoming "loose sands." In contrast, setting a primary strategic direction enables your side to concentrate forces for deployment and form a favorable strategic posture in important combat directions, either offensive or defensive.

According to the AMS, in China's "complicated international strategic setup and peripheral security environment," it is imperative for the strategic commander to "grasp the major contradiction affecting our national security and determine the main opponent and principal threat to security." In particular, "when there are two or more directions under deterrence, he should separate the good one from the bad one and make a distinction between the primary and secondary strategic direction." Doing so will enable the strategic commander to "raise the actions in this direction to the height of the overall situation," thereby creating opportunities to "smoothly push forward the whole war situation."[70]

In this context, while Chinese strategic thought defines correctly setting a primary strategic direction as the "foremost problem that strategic planning and guidance must solve," it also asserts that the "most essential issue related to success or failure of the war" is whether the strategic commander can "control the whole situation and look after all parts therein to generate strategic value for the actions of all parts in the whole situation."[71] A key challenge for the strategic commander in looking after "all parts" is the need to grasp what the Chinese define as the "center of strategy (*schwerpunkt*)." This center of strategy is a changeable, unfixed part of the whole whose success or failure will affect the fundamental interests of the whole situation. It is essentially the "focal point of confrontation and struggle between the two belligerent sides," and there is only one strategic center in a given time and space. Given that the Chinese assume each period, war, and strategic stage has its own situation, the "strategic center" of a war can change. The strategic commander must therefore be good at adjusting to this change. From the Chinese perspective, a "change in the ratio of forces between two belligerent sides is the fundamental base to transform the strategic center."[72]

Based on the logic in footnote 30 above, China's geopolitical

situation has probably been a primary factor shaping the emphasis of Chinese strategic thought on setting a primary strategic direction, grasping the relationship between the parts (i.e., campaigns and stages) of the war effort and the "overall situation," and on understanding and adapting to changes in the estimated strategic center of the war. Essentially, the Chinese are likely to measure the extent to which a military campaign is achieving China's objectives in a primary or secondary strategic direction, the impact of this campaign on the leadership's estimate of the "strategic center" in the war, and whether the progression or outcome of a campaign conducted along one strategic direction necessitates a reevaluation of Beijing's judgment regarding what strategic directions should be primary or secondary in nature.

One gets the sense that before, during, and after a campaign, the strategic leadership or its subordinates would view it as necessary to constantly assess the "strategic center" in the war to determine if Beijing has struck the right balance in apportioning resources to the war effort along various strategic directions. Given that every war that China has been engaged in since 1949 has involved two-front war situations for the leadership to consider, it would be interesting to see if case studies of leadership decisionmaking during these wars uncovered evidence of Chinese calculations regarding the "strategic center," determining the primary and secondary strategic directions in the war, and the degree of leadership confidence in its ability to be engaged on two fronts simultaneously.[73]

China's Domestic Context.

China's domestic context undoubtedly shapes how Beijing is likely to evaluate a military campaign's impact on the leadership's ability to control the overall strategic situation. According to CCP CPS Vice President Zheng Bijian, the CCP draws a fundamental distinction between the "fundamental importance" of the "overall domestic situation" in comparison to the "overall international situation," which is mainly viewed in terms of its influence on the domestic situation. From Zheng's perspective, China has never in its history embarked on a modernization drive as extensive as the current one. Its ability to withstand and resist risks is limited because it has many weaknesses, to include the existence of "competing

schools of thought" regarding the appropriate "world outlook" for China.[74]

This emphasis on the fundamental importance of the overall domestic situation is reflected in the subcriteria that the CCP apparently use in defining its ability to "grasp" and "control" the overall strategic situation. Of these four subcriteria, three address issues that are primarily internal in nature, whereas the fourth addresses China's military-strategic calculus. The first and second subcriteria deal with the issues of CCP central authority, party solidarity among CCP leaders, and national unity inside China. The third subcriterion — momentum in China's central task — deals, in part, with China's economic development program, which is crucial to China's effort to maintain internal stability. Moreover, China's military-strategic calculus places a premium on the leadership's ability to simultaneously balance a number of objectives, to include containing domestic instability and civil unrest. Finally, when describing the characteristics that a leadership should possess in order to control the overall strategic situation, the Chinese emphasize the need for a "political outlook" and a need to "maintain political sensitivity," since "public feelings affect the overall situation."[75]

The implication of this domestic factor for how Beijing is likely to evaluate military campaigns is two-fold. First, prior to the initiation of any campaign, it appears that the leadership would probably make assessments regarding the impact of a military campaign on the CCP's ability to uphold central authority, party solidarity, national unity, and momentum in the nation's central task and to contain domestic instability and civil unrest. In theory, fundamental concerns regarding the extent to which a military campaign would erode the leadership's ability to maintain any of these conditions would be a factor prompting the leadership towards foregoing or delaying a military campaign.

Once a war is underway, the leadership is likely to also assess whether a campaign's progression or outcome has maintained or eroded its ability to maintain any of these domestic conditions. Should the campaign be viewed by leaders as working to erode its ability to maintain these conditions, this would, in theory, increase pressures on the leadership to end a campaign, scale-back original war aims, or find some nonmilitary solution to the war. Moreover, the extent to which the end result of a campaign has eroded the

leadership's ability to maintain these conditions is likely to shape leadership perceptions of whether a campaign should be viewed as a success, even if the campaign achieved clear-cut favorable results on the battlefield, strategically, or in impacting the internal political situation for the enemy.

Finally, the domestic political impact of a military campaign could also be one factor pushing the Chinese leadership towards initiating a war, or a military campaign, or otherwise continuing a military campaign despite poor results on the battlefield. The prospects for such a situation would be greatest if the leadership calculates that a military campaign or its progression is likely to enhance the party's ability to maintain central authority, party solidarity, national unity, and momentum in the nation's central task or to contain domestic sources of instability and civil unrest. For example, a recent study of eight historical cases in which the Chinese used armed force since 1949 has concluded that Beijing's use of force *always* served the purpose of domestic mobilization. Both Mao and post-Mao leaders "fully understood that the tension created by an international crisis provided them with the best means to call the whole nation to act in accordance with the CCP's terms and will."[76] Moreover, in their evaluation of the effect of China's use of force, Beijing's leaders "put more emphasis on whether or not the military action promoted the Communist regime's legitimacy [internally] than on the material losses China suffered on the battlefield (such as heavy casualties on the battlefield, and the emphasis on using resources for military purposes at the expense of economic reconstruction)."

POTENTIAL DECEPTION OR CONFUSION?[77]

It is prudent and necessary to ask the question of whether our understanding of China's assessment criteria is based on deceptive or confusing information. The criteria and subcriteria identified and characterized seem rational in nature. Perhaps these are the assessment criteria that China wants us to believe, given that, as Sun Tzu asserts, "all warfare is based on deception."[78] Closely related to this question, we also need to ask ourselves whether these assessment criteria actually yield insight on China's likely thinking or whether we are simply "confusing ourselves" in using this information.[79]

At this juncture, I believe there are two areas where we would risk

deceiving or confusing ourselves if we are not careful in relying on these assessment criteria in seeking to understand China's calculus. The first would be the potential for the term "overall situation" to mislead many Western readers regarding China's relative priorities in wartime. In various public statements, the Chinese often define the overall situation as "peace and development" or "regional peace and development," which are the terms they use to define their current assessment of the international strategic environment (i.e., peace is the "trend of the times," and development is the primary focus of most powers).[80] In many of these same statements, they also use this term to describe an emphasis by Chinese leaders on "looking ahead" and placing immediate problems or issues within the broader context of China's long-term interests as well as its self-described interest in global or regional stability. Moreover, the Chinese have developed an almost ritualistic emphasis on encouraging U.S. policymakers to "take the overall situation into account" when conducting bilateral relations. In so doing, this theme usually is accompanied by other themes that involve pressures on the United States to overlook or downplay various contentious issues in U.S.-China bilateral relations, especially related to controversial Chinese behavior in the human rights, proliferation, trade, and security arenas.[81]

In this context, there is a risk that emphasizing a Chinese propensity to evaluate military campaigns in the context of the overall strategic situation will convey unintentionally to readers that China is likely to weigh campaigns broadly, by only gauging the impact on China's long-term interest, self-professed stake in international stability, and stable bilateral relationships with many other powers, especially the United States. In reality, China's emphasis on weighing the direction and outcome of military affairs in the context of the "overall strategic situation" is primarily geared towards criteria that are largely internal in nature or focused squarely on China's own position in a regional military balance. The relative importance of global or regional stability or on specific bilateral relations with foreign powers is clearly secondary or tertiary in importance. Hence, there is no inherently inevitable likelihood that China will forego, curtail, or limit military campaigns if it believes the progression or outcome of a campaign would erode regional stability or China's relationship with a foreign power.

Second, the critical importance of "maintaining momentum in the

nation's central task" in peace or war can be easily misunderstood if one "straight-line" projects China's current approach to the "central task" in a wartime scenario. Since 1978, China's leadership has clearly prioritized economic development as the central task of the party and nation in developing comprehensive national power, based on an assumption that China is likely to face a generally peaceful security environment for the foreseeable future. Hence, many foreign observers of China are likely to assume that economics would be China's top priority, even in wartime. The practical implication of such an assumption is that it would suggest that economics would work as a "restraining factor" in the Chinese leadership's risk and cost calculus in wartime.

However, such an assumption is potentially deceptive in nature and could lead a foreign observer to underestimate China's willingness to incur costs and risks in wartime. The evidence available thus far suggests that China's definition of its "central task" in wartime is likely to be a function of China's threat assessment and the scale of the scenario that Beijing was involved in. Deng Xiaoping and CCP General Secretary Jiang Zemin have indicated, on separate occasions, that China's fundamental peacetime stake in maintaining momentum in the central task of economic development is based on an assumption that China faces a generally benign security environment. However, both leaders have indicated that China would change its central task to ensuring safety and national security" if a "world war" erupted, China faced the credible prospect of a "military invasion" of the mainland, or the nation was involved in a "large-scale war." In making these assertions, however, both leaders indicated that one of China's war aims in these circumstances would be to end the war on favorable terms "as soon as possible," so Beijing could refocus on the central task of national development.[82]

In this context, one should not necessarily assume that China's leaders would always evaluate military campaigns in circumstances where economic construction is the nation's central task, to include a Taiwan Strait war. Indeed, if China executes a major attack against the island of Taiwan itself, above and beyond a naval blockade or other limited actions, there is a very strong likelihood, at that point in time, that China's "central task" would have been reordered by the leadership to place safety and national security ahead of economic development. This would be especially true if the United

States intervened. Chinese media sources indicate China is likely to declare national, vice partial, defense mobilization if the United States intervenes on Taiwan's behalf.[83] Conversely, if China is conducting limited military actions against Taiwan — to include a show of force, the seizure of an offshore island, or the imposition of a naval blockade — this is probably a sign that the leadership intends to win a "local war" against Taiwan while simultaneously retaining its emphasis on economic development as the nation's "central task." Put simply, a Chinese leadership that prioritizes national security as its "central task" is more likely to tolerate risks and cost in wartime than a leadership that prioritizes "economic development" as the central task.

OUTLOOK AND TOPICS FOR ADDITIONAL RESEARCH

The key findings in this chapter should be viewed as an initial assessment of a very elusive subject matter rather than a finished assessment of how China will evaluate military campaigns in a future war. The assessment criteria that I have identified and characterized provide, at best, an initial understanding of how China's leadership intends to exercise "strategic leadership in wartime." As stated earlier, whether China's leadership has ever actually employed these criteria in evaluating the approximately 400 campaigns the PLA has conducted since 1927 remains to be tested and examined. Towards this end, a case study approach to prior campaigns or a series of campaigns has the potential to yield insights on whether and how the leadership uses these criteria or other ones in practice.

Moreover, there are a host of various human, organizational, and procedural variables that would need to be studied prior to gaining a more complete understanding of China's assessment propensities in wartime. As the Chinese themselves admit when conceptualizing the importance of the overall situation as the main criterion, these other variables could potentially complicate or erode the leadership's ability to exercise strategic leadership in wartime. In the end, the author judges that current and emerging leaders are likely to ultimately settle in wartime on assessment criteria that stress the importance of the concept of controlling the overall situation as the main criterion, since this concept seems to address many of the problems that current, past, and future Chinese leaders are likely to

have to cope with in wartime. However, there is likely to be some delay and internal friction as emerging leaders reach agreement on how to go about maintaining control in a society that has not experienced a major war in 20 years or more. Nonetheless, much remains to be learned regarding how China's fourth generation of leaders, who lack extensive wartime experience, would go about exercising strategic leadership in war, to include their likely assessment criteria for evaluating campaigns.

The key to gaining a deeper understanding of how China's leaders would evaluate military campaigns is to gain greater access to China's assessment criteria. The information that I used in completing this chapter, while relatively authoritative, nonetheless represents a limited body of material from which to draw insights. Continued translation of Chinese language material would be essential to carrying this research effort forward. Such material should be drawn from both military and civilian sources, given the likelihood that China's senior leadership group would be led primarily by party leaders in wartime. In general, these leaders have had limited exposure to Chinese military-strategic thinking. Moreover, our understanding of this subject would be enhanced if we examined any information available on how senior Chinese civilians involved in directing national development programs and overseeing economic affairs would evaluate military operations in wartime. Finally, critical examination of the following research topics could yield additional insights on the factors shaping the Chinese leadership's approach to strategic leadership in wartime.[84]

• **Organizing Strategic Leadership in Wartime**. The CCP Central Committee's Central Military Commission is frequently referenced by Chinese and foreign observers as China's "national command authority" in wartime. However, it is populated predominately by military officials and, hence, may not be well suited to integrate civil and military interests and perspectives in wartime. Moreover, the CCP reportedly organized a "Supreme Command" (*Tong Shuai Bu*) in the war with Japan and the Chinese Civil War. Although it has been difficult to identify this command operating in Chinese wars fought since 1949, Chinese officials frequently reference it when describing wars fought since then and in describing China's future national command and control arrangements. Examination of this

enigma might shed light into how China would go about assessing campaigns in wartime. It would seem the formation of a "Supreme Command" would better position China's leadership to base decisions on an integration of military and civilian interests than the CMC. The emergence of the State Council's National Defense Mobilization Office as a key wartime leadership organization would also facilitate the integration of political, military, and economic interests.

• **Establishing a Culminating Point for Victory**. China's emphasis on the need to maintain or enhance CCP control of the overall situation raises fundamental questions regarding Chinese concepts of what constitutes victory. If accurate, this concept implies that China's leadership could define victory in terms that are not a function of direct military, strategic, or political effects attained during the progression or outcome of military campaigns. In effect, this criterion implies that the Chinese could define any situation that does not degrade or destroy the CCP's ability to control the "overall strategic situation" as constituting "victory." This logic may explain China's termination of wars against India in 1962 and Vietnam in 1979 on terms that did not result in clear-cut military, strategic, or political success. Moreover, this logic implies that China's leadership might be willing to incur substantial military or strategic losses before it concludes that its ability to control the overall situation has been degraded or destroyed.

• **Determining an Exit Strategy**. China's current doctrine for conducting military campaigns is based on a hedging relationship between military campaigns of "fast resolve" and "protracted war." This doctrine asserts that the PLA should conduct a campaign of "fast resolve" to defeat the enemy and realize the campaign intention "in the shortest period of time possible."[85] If this short-war strategy does not work, China should shift to a "protracted war" strategy. However, this doctrine raises fundamental questions regarding how China would determine an exit strategy in a protracted war scenario in which continuation of a protracted strategy is degrading or destroying the CCP's ability to grasp and control the overall strategic situation? There appears to be a potential disconnect

between China's doctrine for conducting military campaigns and its likely criteria for measuring success. This disconnect could serve as a "blind spot" in China's strategic calculus that has its roots in the tension between China's tradition of protracted warfare and its transition into an increasingly modernized and developed society that generally lacks extensive wartime experience.

• **Setting a Ceiling for Acceptable Costs.**[86] China's approach to evaluating military campaigns implies the objective material costs of a campaign would weigh less in Beijing's calculus than its subjective assessment of the impact of a campaign on several political, strategic, and military sub-criteria that comprise its ability to control the overall situation. This logic suggests that Beijing may be willing to incur substantial economic losses and dislocations in pursuing a campaign before it concludes the campaign is degrading or eroding its ability to control the overall strategic situation. However, it remains to be seen whether Beijing would be willing to stick by these measures of effectiveness in wartime, especially a Taiwan Strait war. Approximately 60 percent of China's gross national product is consolidated in provinces along China's eastern seaboard, which has been referenced as an "economic center of gravity" by PLA strategists. Most of the facilities and infrastructure that support and sustain this product is located in fixed, unhardened, above-ground facilities or installations that would be vulnerable to conventional strikes by an adversary, including stand-off attacks. In this context, the author suspects there is tension between the CCP's traditional criterion for measuring military success and these economic realities. This tension probably manifests itself in a renewed emphasis by China on civil air defense (People's Air Defense) in recent years in tandem with periodic concerns expressed by PLA strategists regarding the military implications of China's coastal development strategy and the vulnerability of major infrastructure in developing China (the Three Gorges Dam, for example).

ENDNOTES - CHAPTER 7

1. This question is certainly a valid subject of inquiry. For an assessment that focuses on this level of analysis in the U.S. context see, Richard Darilek, Walter Perry, Jerome Bracken, John Gordon, and Brian Nichiporuk, *Measures*

of Effectiveness for the Information-Age Army, Santa Monica, CA: RAND Arroyo Center, MR-1155-A, 2001.

2. See Wang Houqing, *et al., On Military Campaigns*, Beijing: PLA National Defense University (NDU) Press, May 2000, Chapter One, p. 6. The Chinese also define military campaigns as "combat operations consisting of a series of battles conducted by army corps under a unified command to achieve a local or an overall objective in a war," *ibid.*, p. 6.

3. The term "Beijing" as used in this chapter should be viewed as synonymous with the term "national-level leadership."

4. For a solid assessment of the more general topic of China's decisionmaking process in wartime since 1949, see Dr. Michael D. Swaine, "China and the Use of Force: National Security Decisionmaking," 2000, Unclassified contracted research for DIA's China and the Use of Force Project. Also, there have been several excellent books published on China's war behavior since 1949, see especially works by Thomas Christensen, Chen Jian, Allen Whiting, Zhai Qiang, and Zhang Shuguang, and Liu Xiaobing.

5. See Scott Sigmund Gartner, *Strategic Assessment in War*, New Haven: Yale University Press, 1997. Deception, camouflage, and concealment techniques are ingrained in Chinese strategic culture and approach to warfare, so the tendency that Gartner detected in his study of U.S. and British leaders "hiding" their assessment criteria is likely to be evident in any study of Chinese assessment criteria.

6. According to Wang Houqing, *et al., On Military Campaigns*, p. 17, the PLA by its own account has completed "some 400 operations of various scales." The author does not reject the utility and value of such cases studies. However, this approach was simply not chosen at this juncture for resource reasons.

7. See Nehemia Geva and Alex Mintz, *Decisionmaking on War and Peace: The Cognitive-Rational Debate*, Boulder, CO: Lynne Rienner Publishers, Inc., 1997.

8. I am indebted to Franz Schurmann for providing very useful background information on the evolution of the CCP's doctrine for problem solving. See Franz Schurmann, *Ideology and Organization in Communist China*, Berkeley: University of California Press, 1966/68, especially chapter One.

9. The term "framing effects" is an oversimplification of a number of concepts related to perceptions that can be "unpackaged" into distinct sub-concepts, like the role of metaphors and historical analysis in shaping leadership perceptions. For path breaking work in this area, see Keith Shimko, "Metaphor and Foreign Policy Decisionmaking," *Political Psychology*, 1994.

10. For a groundbreaking assessment of the role of strategic culture in China, see Alastair Iain Johnston, *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History*, Princeton: Princeton University Press, 1995. For a more recent Chinese assessment of the role of strategic culture in China, see Zhang Tiejun, "Chinese Strategic Culture: Traditional and Present Features," *Comparative Strategy*, Vol. 21, 2002, pp. 73-90. Zhang is associated with Zhejiang University, Hangzhou, China.

11. Major General Lu Haozhong, President of the Second Artillery Command Institue, and Senior Colonel Zhang Jinxi, Professor at the Second Artillery Command Institute, "Sun Tzu, Contemporary Strategy of Nuclear Deterrence," *Zhongguo Junshi Kexue*, March 20, 1999.

12. Authors unknown or unidentified, *Fundamentals of the Art of Operations*, (*Zhan Yi Xue Ji Chu*), PLA NDU Press, September 1990, Chapter Nine, "The Art of Command: Theory and Practice."

13. The Chinese term "Da Ju" is frequently translated as either "the overall strategic situation" or "overall situation" in English language translations of Chinese characters. I will use these two terms interchangeably in the rest of this chapter. In the NDU textbook, the translated term was "the overall strategic situation."

14. Chinese criteria for measuring the direct military effects of campaign actions are likely to be undergoing change, with the Chinese probably developing new measures to gauge the use of more precise military force via "paralysis" vice "annihilation" campaigns. In general, China's operational art appears to be transitioning from an "encircle first, annihilate later" method of attacking the enemy to one that focuses on "paralyze first, annihilate later" methods of attack. Nonetheless, the notion of "direct military results" as an MOE in evaluating campaigns is likely to endure.

15. The Constitution of the Communist Party of China (amended by the 15th CCP National Congress and adopted on September 18, 1997), *Xinhua* Domestic Service in Chinese, September 22, 1997.

16. "Stand, viewpoint, and method" is translated from the Chinese characters "*lich'ang*."

17. See Zheng Bijian, "Keeping Abreast With the Overall Situation, Being Armed with Theories--Reflections on Deepening the Study of Deng Xiaoping Theory and the Spirit of the 15th Party Congress," *Qiushi*, No 13, in Chinese, July 1, 1998. Also see Zheng Bijian, "Historic Tests and Contemporary Chinese Marxism," *Jingji Ribao* in Chinese, December 28, 1998.

18. For a deeper explanation of this method of "aligning subjective command with objective reality," see PLA NDU, *The Fundamental Art of Operations*, chapter IX, "The Art of Command: Theory and Practice."

19. Zheng Bijian, "Grasping the Opportunity and Arming One's Mind With Theories," *Qiushi*, in Chinese, April 1, 1998.

20. Based on the author's research, approximately two-thirds of the references to the concept of the "overall situation" in open-source Chinese language source material are made in relation to civilian issues. The other one-third are made in reference to military issues.

21. The immediate situation could also involve an opportunity vice challenge for Beijing. The bulk of Chinese commentary on this problem solving method emphasizes "challenges" vice "opportunities."

22. Private unpublished chapter by the author, "China's Criteria for Measuring the Effectiveness of Operational Campaigns," 11 March 2002.

23. See Yu Ning, "Seriously Studying the Third Volume of the 'Selected Works of Deng Xiaoping'"; "Studying Command Deng Xiaoping's View on the Overall Situation," *Renmin Ribao* in Chinese, September 26, 1994.

24. For a Chinese assessment of the importance of maintaining central authority, see Chen Shun-wu, "On Guaranteeing Authority of the Central Leading Body," *Renmin Ribao* in Chinese, September 23, 1994. Also Ni Lexiong, "Confucian Thinking on War," *Cihai Xinzhi*, Shanghai, in Chinese, March 1, 2000, pp. 15-20; also Yang Linglong, "Firmly Uphold the Authority of the Central Committee," *Jiefang Ribao*, in Chinese, 31 October 1994.

25. See Chen Fujin, Party Secretary and Vice President of the National Institute of Administrative Studies, "Maintaining Unity of the State and Party," *Quishi* in Chinese, 16 December 2001, No 24; Zhao Chenggen, Beijing University, "The Center and the Localities During the Period of the Switch," *Strategy and Management* (*Zhanlue yu Guanli*), in Chinese, June 1, 2000, pp. 44-51; "Li Peng Stresses Need to Strengthen National Unity," *Renmin Ribao* in Chinese, March 8, 2000.

26. See Department of Defense, *Report of Congress Pursuant to the FY 2000 National Defense Authorization Act*, "Annual Report on the Military Power of the People's Republic of China," Section II, Goals and Trends in Chinese Strategy, p. 5-7.

27. Gao Rui, *Science of Strategy* (*Zhanlue Xue*), Beijing: PLA AMS, 1987, Chapter

10, Strategic Command and Support. The term "center of gravity" does not correspond exactly with the traditional Western notion of a center of gravity. In this context, it appears the Chinese are describing a posture or disposition that effectively "balances" a number of objectives simultaneously.

28. In defining this objective as the defeat of a challenge to China's territorial sovereignty or integrity, the author does not discount the possibility that Chinese objectives, in certain circumstances, could be more ambitious and offensive than simply "defending" China against a challenge to territory or sovereignty. However, this issue is not the primary focus of this chapter.

29. Gao Rui, Chapter ten, Section II, *Making Strategic Decisions*, 1987. Similar logic is evident in the updated AMS version of *Science of Strategy*, 2001.

30. The risk of mirror imaging our own views of measures of effectiveness was an issue in the study of the Soviet Union. See Andrew W. Marshall, "A Program to Improve Analytic Methods Related to Strategic Forces," *Policy Sciences*, November 1982, p. 48.

31. See Gartner, "Conclusion," pp. 163-177.

32. See Zhang Zuiliang, *et al., Military Operations Research*, Beijing: PLA AMS, 1993.

33. For a current assessment of the role of ancient statecraft in Chinese strategic culture, see Dr. Michael Pillsbury, *Ancient Influences on Chinese Strategy*, sponsored by the Office of Net Assessment, Office of the Secretary of Defense, forthcoming.

34. See DOD Report to Congress, FY 2000, p. 7.

35. For a different interpretation of various sources of strategic thought that have shaped the formation of CCP foreign policy, see Michael H. Hunt, *The Genesis of Chinese Communist Foreign Policy*, New York: Columbia University Press, 1996, especially chapter one.

36. See Wang Wenrong, *Science of Strategy* (*Zhanlue Xue*), Beijing: PLA NDU, 2000, *ibid.*, Chapter 10, Wartime Strategies.

37. While the Chinese cite this struggle as the first instance they were taught the importance of "daju," the author suspects this concept has even more ancient roots in China. The sections of *The Book of Lord Shang* on "the method of warfare" develop concepts that are very consistent with the concept of controlling the overall strategic situation. The Lord of Shang held high office in the state of Qin between 359 and 338 BC, before the struggle between Xiang Yu and Liu Bang took place. See Dr. J.J.L. Dyuvendak, *The Book of Lord Shang: A Classic of the Chinese*

School of Law, Chicago: The University of Chicago Press, 1963 (originally published in 1928).

38. For additional information on this battle, see Charles O. Hucker, *China's Imperial Past: An Introduction to Chinese History and Culture*, Stanford, CA: Stanford University Press, 1975, pp. 122-123. Also see Hucker, pp. 225-26, for a lengthy excerpt from Ssu-ma Ch'ien's (Sima Qian's) writings about the final stage of Xiang Yu's struggle with Liu Bang.

39. Wang Zhaoyao, "Correctly Understand, Handle Relationship Between Parts and Whole," *Qiushi* in Chinese, No. 16, August 16, 1991.

40. I am using the term "Marxist-Leninist" as a source of strategic thought since the Chinese trace the origins of materialist dialectics to certain documents produced in the early stages of socialism and communism in the West, specifically, Karl Marx's *Das Kapital*, and Freidrich Engels's *Anti-Dühring*. The Chinese also view dialectical material concepts as being rooted in Vladimir Lenin's definition of matter. See Chen Zhishang, "The Bedrock of the Dialectical Materialist World View — Correctly Understanding Lenin's Definition of Matter," *Qiushi*, in Chinese, No. 15, August 1, 1990.

41. *Selected Works of Mao Zedong*, Vol. 1, Beijing: People's Publishing House, June 1991, p. 175.

42. Qiu Jingping, "Fu Quanyou at Military Theory Report Meeting Held by GSD," *Jiefangjun Bao*, in Chinese, February 27, 1999.

43. Wang Zhaoyao. Also see *Qiushi*, August 16, 1991; and *Renmin Ribao*, October 30, 1995. Also, for more on the chess analogy, see PLA AMS, *Science of Strategy*, Chapter 1, "Principles of Strategic Action," Section Five, "Looking After the Whole Situation and Grasping the Center of Strategy."

44. Gao Rui, *Science of Strategy*, Chapter Ten, Principles of Strategic Action, p. 13.

45. This second dynamic was evident in a number of cases that Allen Whiting has studied in completing research for DIA on China's crisis action strategies. Specifically, individual PLA campaigns during the Korean war and in Mao's decisionmaking during the Taiwan Strait crises in the 1950s. See Allen Whiting, "China's Use of Force, 1950-1996, and Taiwan," contracted research chapter for DIA's China and the Use of Force Project.

46. Wang Houqing, *et al.*, *On Military Campaigns*, chapter one, p. 9.

47. Wang Wenrong, *Science of Strategy*, chapter 10, Wartime Strategies.

48. Wang Houqing, *et al., On Military Campaigns,* p. 9.

49. Retired Lieutenant General Mi Zhenyu is presently a CCP Consultative Conference member and a member of the State Council's Military Studies Review Committee.

50. The PLA reportedly has a National Institute of Military Dialectics and a Society of Military Dialectics that are chaired by the current President of the PLA AMS. See *Xinhua,* November 16, 1989; and *People's Daily,* December 15, 1990. In 1996, the PLA Air Force reportedly began using a new textbook, *The Application of Mao Zedong's Military Dialectics in Modern Air Force Combat Operations,* in basic coursework for Air Force officers.

51. Gao Rui, *Science of Strategy.* Chapter 1, p. 7. The project group director for this book was Major General Yao Youzhi, Director, Strategic Research Department, AMS. Major General Yao is also a tutor of doctoral candidates at AMS. See also *The Military Terminologies of the PLA,* 1997.

52. See Gao Rui, *Science of Strategy,* 2001, *ibid.,* p. 7.

53. *Ibid.,* Chapter, 3, The Development and Principles of the Strategic Theories, p. 17.

54. "Mao Zedong's Military Literary Works," *Science of Strategy,* Volume One, p. 695.

55. "The Three Stages of Protracted War," *Selected Military Writings of Mao Zedong,* Foreign Language Press, 1967, pp. 210-219.

56. See PLA NDU, *Fundamentals of the Art of Operations,* chapter five, Development of the PLA's Operational Practices and Theory, p. 20.

57. PLA AMS, *Science of Strategy,* Chapter 3, p. 17.

58. See Gao Rui, *Science of Strategy,* Chapter Four, Strategic Policy and Strategic Operational Principles, Section One, Strategic Policy.

59. *Ibid.,* chapter 10, Strategic Command and Support, p. 5.

60. Harrison Salisbury, *The Long March,* 1984.

61. See Gao Rui, *Science of Strategy,* Chapter Four.

62. For a citation in which the lesson of Dabieshan has current civilian

implications, see staff commentator, "Take the Interests of the Whole into Account, Strictly Observe Discipline," *Liaowang* in Chinese, No 27, July 5, 1993.

63. See Leng Rong, "Keeping the Overall Situation in Mind and Daring to Seek Victory--Studying Deng Xiaoping's Article on the Triumphant Situation of Moving Into the Central Plains and Future Policies and Strategies," *Renmin Ribao*, November 3, 1989.

64. For additional accounts of this campaign, see "Earthshaking Changes," part six of *Song of the Sun*, PLA General Political Department, ten part TV series, Beijing Central Television, in Mandarin, July 3, 1992; "An Abrupt Turn," film featuring Deng Xiaoping shown in Hong Kong, *Xinhua*, September 19, 1997; Ding Guangyang, "Retired General Recalls Years Under Deng," *Xinhua*, March 1, 1997; "Li Desheng and Wang Chenghan on You Taizhong, "*Renmin Ribao*, August 7, 1999; "Liu Huaqing and Zheng Zhen recall Su Yu, "*Renmin Ribao*, December 25, 1994; Wang Zhen, "Historical Events Concerning the Campaign of Breaking Out of Encirclement in the Central Plains: Li Xiannian and the Campaign of Breaking Out of Encirclement in the Central Plains," *Xinhua*, July 25 1992; and You Taizhong, "Carry Forward and Develop Mao Zedong's Military Thinking: Build a Modern, Regular, and Revolutionary Army," Guangzhou, *Yangcheng Wanbao*, July 29, 1987.

65. For the entire speech, see Deng Xiaoping, "The Situation Following Our Triumphant Advance to the Central Plains and Our Future Policies and Strategy," Report delivered at a joint meeting of the Henan-Shaanxi-Hubei Front and Rear Committees held in Lushan, Henan Province, April 25, 1948, in *Selected Works of Deng Xiaoping*, Vol. I, 1938-65, Beijing: Foreign Language Presses, July 1994.

66. Leng Rong.

67. See Gao Rui, *Science of Strategy*. Chapter 2, 2001, p. 27.

68. *Ibid.*, Chapter 10, Principles of Strategic Action. The other three strategic principles include "striving to accomplish the goals of strategic actions while paying a small price," "never fighting a battle unprepared or one that you cannot assure victory beforehand," and "seizing and keeping the strategic initiative."

69. *Ibid.*, Chapter 10, Section One.

70. The quotations in these two paragraphs are from *ibid.*

71. See Gao Rui, *Science of Strategy*, Chapter 10, Section Five, "Looking after the Whole Situation, and Grasping the Center of Strategy."

72. Several of the last few quotations are from *ibid.*

73. For a path-breaking case study of China's calculus in the Sino-Indian War of 1962 and in the earlier stages of the Second Vietnam War, see Allen Whiting, *The Chinese Calculus of Deterrence: India and Indochina*, Michigan Studies on China, University of Michigan Press, 1975.

74. Zheng makes an analogy between these different schools of thought and the Spring and Autumn period prior to the rise of the Qin Dynasty in 221 BC. See Zheng Bijian, *Qiushi*, No. 1, 1998.

75. See Yan Zheng, "National People's Congress Standing Committee Research Department Office," *Qiushi*, in Chinese, No. 23, December 1, 1989.

76. See Chen Jian, "The Essence of the Chinese Regime and China's Behavior of Crisis/Conflict Management," unclassified research, 2000. The eight cases studied were the Korean War, participation in the First Indochina War (1953-54), The First Taiwan Strait Crisis (1954-55), the Second Taiwan Strait Crisis (1958), Chinese-Indian Border War (1962), Involvement in the Second Vietnam War (1964-73), Chinese-Soviet border clashes (1969), Chinese-Vietnamese Border War (1979). Thomas Christensen's excellent book, *Useful Adversaries: Grand Strategy, Domestic Mobilization, and Sino-American Conflict, 1947-58*, Princeton, NJ: Princeton University Press, 1996, also examined domestic mobilization issues in the Maoist period.

77. The author is raising this question because it should be raised in doing analysis of the behavior and perceptions of another country or culture and because denial, concealment, and deception remain a central part of China's approach to military, foreign, and national security affairs. One of Deng Xiaoping's key directives to China's security and development establishment was the so-called "24-character strategy: "keep cool-headed to observe, be composed to make reactions, stand firmly, hide our capabilities and bide our time, never try to take the lead, and be able to accomplish something." The post-Deng leadership (third and fourth generation) is abiding by these principles when managing national security affairs. Indeed, CCP General Secretary Jiang Zemin and his putative successor, Hu Yaobang, have referenced this 24-character strategy on numerous occasions in various public speeches and statements.

78. For more on China's approach to deception, see the chapter presented at this conference by Michael Pillsbury, "China's Deception Doctrine," September 2002.

79. Andrew W. Marshall, J.J. Martin, Henry, S. Rowen, *On Not Confusing Ourselves: Essays on National Security in Honor of Albert and Roberta Wohlstetter*, Boulder, CO: Westview Press, 1991.

80. See Yuan Zongze, "Pursue Extensive Peripheral Diplomacy in New Century," *Liaowang*, No. 38, September 17, 2001.

81. See Gu Ping, 'How to View China's Development--An Important Issue of Understanding in Sino-US Relations," *Renmin Ribao*, August 31, 2001; "Qian Qichen Visits US to Implement Consensus Between Chinese and US Heads of State," *Wen Wei Po*, March 19, 2001; Sung Ch'eng, "US China Policy is Harmful to Others, Disadvantageous to Self," *Wen Wei Po*, May 26, 2001, for illustrative examples.

82. See U.S. Defense Department, *Report to Congress Pursuant to the FY2000 National Defense Authorization Act*, Annual Report on the Military Power of the People's Republic of China, pp. 6-7.

83. Wang Xiaohua and Li Mingliang, "On Improving Logistics Support Capability for Joint Campaigns," *Conmilit* in Chinese, February 11, 2000, pp. 44-46.

84. This list of key questions is drawn in part from the excellent recent essay on the subject of strategy in wartime by Richard K. Betts, "The Trouble With Strategy: Bridging Policy and Operations," *Joint Forces Quarterly*, Autumn/Winter, 2001-02.

85. See Wang Houqing, *On Military Campaigns*, Chapter Two, "Objective Factors in a Campaign," p. 36.

86. For solid analysis of cost issues, see Andrew Scobell, ed., *The Costs of Conflict: The Impact on China of a Future War*, Carlisle Barracks, PA: Army War College, Strategic Studies Institute, October 2001.

CHAPTER 8

FROM SURPRISE TO STALEMATE: WHAT THE PEOPLE'S LIBERATION ARMY LEARNED FROM THE KOREAN WAR – A HALF-CENTURY LATER

John J. Tkacik, Jr.

INTRODUCTION

It is a paradox that the Korean War – the People's Liberation Army's (PLA) first real taste of "positional warfare" – is held out by the PLA's historians and tactical instructors as proof of Mao Zedong's theories on "mobile warfare." While it is true that Chinese "mobile war" tactics and operations yielded tremendous successes in the early months of the Korean War against an enemy with superior firepower, total air supremacy, and an advanced armor, mechanized transport, and supply infrastructure, victories were purchased at terrifying costs. United Nations (U.N.) forces were vastly outnumbered and their technical advantages served as "force multipliers" that prevented them from being completely annihilated by human waves of marauding Chinese interlopers. But Chinese troopers died by the tens of thousands--killed by their two greatest enemies of the war, the overwhelming mass of enemy weaponry and lack of adequate logistical preparation and supply.

The Chinese People's Volunteers' (CPV) wins came with tactical surprise and good mobility off-road and away from heavily patrolled highways, but after 7 months of vicious combat in five separate campaigns, the battlefront finally stabilized at roughly the mid-line of the Korean Peninsula on the 38th Parallel. From then on, the CPV and their North Korean People's Army (NKPA) comrades found themselves locked in "positional" battle. Their bitterest lessons from the Korean War came in the trenches and deep tunnels of the front line and under the incessant storm of American bombing, strafing, and cannonade which deprived them of adequate food, ammunition, sleep, sanity, and – in the case of "several hundred thousand troops" – their lives.[1] Nonetheless, in the end the Chinese wrestled American-led U.N. forces with superior weaponry and total command of air and sea to an utter deadlock.

The lesson? It is simplistic to say the PLA took away from the Korean Conflict the lesson "never fight positional war." Indeed, after the summer of 1951, Beijing's political aims could also be achieved by simply avoiding defeat on the battlefield. It seems likely that after the initial failure to destroy the U.N.-South Korean forces in the first surprise campaigns, the Chinese resigned themselves to a war of attrition because any effort to expand the bounds of that particular war could result in the war spreading to China's homeland. By the end of the war, Chinese commanders had basically learned to cope with their Sisyphean existence. Sheer endurance, it seems, was a valuable lesson in how to succeed against a superior enemy.

The PLA also learned some broader strategic lessons from the Conflict that will not be addressed in this chapter. They learned, for instance, never to take for granted their military allies — especially the Soviet Union — whose ulterior war aims were opaque to them. Moscow's political behavior rarely made sense, and Comrade Josef Stalin's promises of military support were rarely translated into prompt action.[2]

How might the PLA practice the lessons of the Korean War in future campaigns — particularly in a Taiwan scenario? Consider that the two key lessons are, first, that complete and utter tactical surprise are essential to early victories; and second, that without adequate logistical preparations or the means to defend supply lines, patient endurance of years of punishment in a limited war may be necessary to avoid defeat against a technologically superior foe. One final thought might be that that a well-timed coup or some other "regime change" in a key enemy government can bring about an ultimate political victory when a military one is denied on the battlefield.

THE IMPERATIVE OF MOBILE WAR

The Korean War really was the exception that proved Mao Zedong's rule — mobile warfare is preferable to positional battle. In Korea, Chinese forces were effective at both mobile fighting so long as they had surprise and initiative on their side and positional battle after being beaten to a standstill. Mao's generals were acutely aware of Mao's own teachings "on protracted war." Mao's "Selected Military Writings" were standard issue in the PLA.[3] Mao had little

use for positional warfare and preferred to concentrate forces against enemy armies rather than stand and hold territory. As such, Mao had inculcated in his generals an appreciation for "deliberately creating misconceptions for the enemy and then springing surprise attacks on him."[4]

As the commander of the "Chinese People's Volunteers" (CPV) Marshal Peng Dehuai[5] prepared to move his armies into North Korea, Chairman Mao telegraphed him instructions. First, Mao cautioned, the battle will turn on whether or not Chinese troops can use "total surprise" to swiftly destroy "two, three, or even four puppet divisions." If the initial attacks fail to throw the enemy into a "passive position," then the enemy will quickly regroup and gain the upper hand. Second, enemy air power has the potential to inflict massive losses on Chinese troops and paralyze unit movements. Mao asked if Peng's troops had practiced night movements sufficiently to carry out operations under the threat of massive U.S. air power. Finally, Mao asked if the Americans could increase their troop presence by five-to-ten divisions, "or if, before the Americans were able to bring up reserves, the Chinese troops could destroy another few U.S. or South Korean divisions in a mobile campaign against their isolated positions."[6]

Whether Chairman Mao indeed sent such prescient instructions is debatable. Certainly it has become the stuff of legend, and many Chinese memoirs of the Korean War are filled with page after page of Mao's cables, instructions, and general musings among officers of "what would Mao do?"[7] Even General Hong Xuezhi who commanded the CPV logistical effort, recalls that in the very first days of the Chinese entry, Marshal Peng received a cable from Mao advising that

> at present there are two key objectives to the campaign, first to isolate the Puppet [i.e., Republic of Korea or "ROK"] Seventh Division at [Guchang Chu], to not let them escape, and this will force the Puppet 1st, 6th, and 8th Divisions to bring up reinforcements — there you can fight them! Second, the full force of three armies should be moved to [*Qikai*][8] to complete the launch the campaign, and this will give us maximum momentum at the time of attack and guarantee annihilation of the enemy.[9]

While it is hard to believe that Marshal Peng appreciated this kind

of micromanagement from Zhongnanhai, he kept his grumbling to himself. Nonetheless, it is clear that the Chinese PLA cherishes to this day these brilliant insights of Mao Zedong as the apotheosis of "Lessons Learned" in the Korean War.

HEALTHY RESPECT FOR AIR POWER

In any event, it is doubtful that Marshal Peng, General Hong, or anyone else needed the gifted eye of Mao to see that the key to a victory in Korea was avoiding American airpower to fullest extent.

In fact, General Hong's memoirs open by recounting a crisp autumn evening in the Chinese border city of Andong on October 7, 1950. He and General Deng Hua had just finished dinner — it was the day they learned that U.S. forces had crossed the 38th Parallel. Suddenly, Hong recalled, there came a "whump-whump-whump" sound from the south, getting louder, and presently there appeared a large black spot in the southern sky. General Deng shouted "aircraft, American aircraft!" It was a flight of dozens of huge B-29 bombers accompanied by smaller P-51 Mustang fighters tightly arranged in layers.

Within moments, the phantom bombing fleet droned over the North Korean city of Sinuiju just opposite Andong on the Korean side of the Yalu River. "With my own eyes," said General Hong, "I saw Sinuiju become a vast sea of fire in the space of just a few minutes. The fires soon turned into a "towering pillar of thick, smoky cloud and soon the entire city was shrouded in the pall." The next morning, Sinuiju was a plain of rubble. The emotion of his prose reflects how profoundly the incident colored his assessment of America's air supremacy in Korea.

At the time, General Hong noted that the U.S. bombers failed to hit the bridges crossing the Yalu from North Korea, and it was only years later that he understood the U.S. Government had issued orders that the bridges were not to be touched because "it would mean war with China, and a war without limits."[10] Nonetheless, the Chinese high command understood throughout the war that their supply lines and their own aircraft would have sanctuary north of the Yalu — but no mercy south of it. Unfortunately, Beijing didn't.

On the afternoon of October 17, 1950, even as Chinese troops had already crossed into Korea, General Hong and General Deng Hua

phoned Marshal Peng (then in Shenyang) to report

> we concluded the river-crossing deployment conference yesterday, and after quite a bit of discussion the comrades feel that the air-defense artillery is insufficient and we have no air cover, the enemy can concentrate major air strikes, artillery barrages and tank forces without any fear that we can counterattack in strength. Moreover, the Korean mountains, lowlands and paddy fields are frozen solid and impossible to dig in for shelter. If the enemy launches a massive attack, our positions would be very difficult to support.[11]

Then General Hong advised that was "everyone's recommendation" that because the forces had not been sufficiently indoctrinated, "it would be suitable to wait out the winter and move next spring."[12] Unfortunately, Marshal Peng had just received orders from Mao Zedong to return to Beijing to consult with Premier Zhou Enlai. Zhou had just returned from Moscow, and the date was set. Marshal Peng showed General Hong's telegram to Mao, but the die had been cast. The CPV would continue deployments into Korea in force. Peng relayed the order back to CPV headquarters in Andong — under Mao's name.[13]

THE ELEMENT OF SURPRISE

Surely, no one in PLA headquarters was under any illusion that the CPV mission would be a straightforward task. Secrecy and deception were essential to frustrating American air power. In hindsight, there can be little gainsaying the conventional Chinese wisdom that American "arrogance" — or at least complaisance — was the source of the surprise.

In the first month of the CPV entry into Korean War — from October 16 to mid November — the U.N. command had little idea of the scale of the Chinese intervention. From August to early October, in utter silence and tremendous discipline, endless trainloads of 240,000 CPV personnel in nine armies comprising thirty infantry divisions and four artillery divisions from Southern and Central China had converged on the Chinese side of the Yalu River.[14] There they joined more than 160,000 Chinese troops already in Manchuria. After months of careful observation of American reconnaissance

aircraft hovering over northern Korea, Chinese commanders timed the infiltration of their divisions to avoid aerial observation. Under cover of night 18 Chinese CPV divisions, about 200,000 men,[15] slipped across the Yalu "all at once" and proceeded by secondary roads and trails to wooded staging areas to await their initial offensive.[16] Surprisingly, Chinese sources do not describe the CPV tactics for infiltrating into northern Korea. American historians credit Chinese fighter aircraft with keeping U.S. RB-29 aircraft away from the Yalu River and "excellent camouflage discipline" for concealing the CPVs once they penetrated the Korean mountains.[17]

What was left of Kim Il-sung's NKPA probably had ample intelligence on the disposition of the increasingly diffused American and South Korean forces. But how intelligence sources communicated with operations staffs at headquarters is a mystery. When Marshal Peng Dehuai had his first conference inside Korea with North Korean President Kim Il-sung on October 22, 1950, General Hong Xuezhi was dismayed to learn from a female cadre in Kim's entourage that "we here don't have a telephone, nor a radio set, nor a car, so we can only send people on foot with messages."[18] Chinese reticence to analyze the success of their deception may also signal that they did not, in fact, get intelligence from Korean sources, but rather through separate channels. The lack of discussion in Chinese sources may, therefore, be a continued effort to protect half-century-old intelligence sources and methods.

Both Chinese and American historians agree on what happened next. Over the coming weeks, small American and ROK units, some as small as battalion strength, found themselves isolated along a thin front line, or simply clumped in forward area outposts, surrounded by superior numbers of Chinese troops — and though they did not know it at the time, the Chinese were often at division strength or more of 10,000 combat fighters. Following Mao's dicta on mobile warfare and surprise attack, the Chinese would deploy their formations in strength around unsuspecting U.N. positions and on high ground along escape routes hoping to "lure reinforcements into pockets."[19] Battle maps drawn by both Chinese and American historians agree — these battles often involved at least one, sometimes two and three Chinese armies ranged against battalions or regiments of American, ROK, or U.N. forces.

But even for Marshal Peng, the First Campaign was a "battle

of chance encounters."[20] On October 21, a division of the Chinese 40th Army (some 30,000 men) ran into ROK soldiers near Bukjin and wiped out the unit. On October 29, 1950, the CPV 39th Army tightened the noose on the ROK First Infantry Division at Unsan from the northeast, the northwest and the southwest, while the CPV 66th Army, again over 30,000 men, moved toward Kusong and prepared to interdict elements of the U.S. 24th division, which it anticipated would advance to relieve its Korean allies. General Hong describes several other encounters with ROK forces between October 25 and November 1, including some that were hampered by the backrush of retreating NKPA troops and North Korean civilians trying to avoid the shooting. The 112th Division of the 38th Army was struck by a sudden attack near [*Miaoxiang Shan*] hill and were slowed in getting to their rendezvous point.[21]

Marshal Peng's writings say the "First Campaign ended in victory" on October 25, 1950, but noted that "because of their high level of mechanization, the U.S. British and Puppet troops were able to withdraw speedily" to the Chongchon River where they dug in. Peng explained "it would have been unfavorable for our Volunteers to engage the enemy in positional warfare with the equipment they had at the time. They might have suffered defeat."[22]

Even as late as November 6, it was still quite apparent that the Americans had no idea of the magnitude of Chinese strength against them. U.N. Commander General Douglas MacArthur's intelligence identified elements of five Chinese divisions, the largest element being a regiment.[23] When mauled by a full Chinese army, neither the Americans nor their ROK allies knew what hit them. U.S. Eighth Army commander General Walton Walker attributed the collapse of the ROK divisions, not to overwhelming enemy numbers and firepower, but to "psychological fear of Chinese intervention, and previous complacency and overconfidence in all ROK ranks."[24]

Of course, the Chinese were keeping out of sight on purpose. "Although the enemy had regrouped, they were still dispersed and unclear about our armies' situation," General Hong notes with pride. The Chinese, on the other hand, were quite clear about the locations and strengths of all the U.N. units: "north of the Chongchon River, the enemy only had a bit more than 50,000 combat personnel, while we could concentrate 10 to 12 divisions, 120,000-150,000 men, two or three times the size of the enemy."[25]

Given his vast numerical superiority, plus the fact that the ROK troops were completely clueless about the Chinese dispositions, Marshal Peng proposed to swiftly outflank the ROK 8th, 7th, and 1st infantry divisions, come in behind them, annihilate them, and then move on to strike the American and British forces further west.

Peng then cleared the plan with Mao in Beijing, who approved it, and wrote back helpfully

> for this battle, you want the full force of the 38th Army and one division of the 42nd Army to guarantee cutting off the enemy retreat line from the Chongchon River, the other armies and divisions should boldly interdict escape routes from the enemy flanks and rear, and then carry out a piecemeal destruction of their forces, thus will victory be achieved.[26]

It was, no doubt, a comfort to Marshal Peng to have Mao's personal attention and expert guidance. In any event, there is always the unexpected. Peng's 39th Army was ready to hit the ROK 1st Infantry Division at Unsan at 1930 hours the evening of November 1. But at 1350 that afternoon, CPV spotters saw signs the ROK division was withdrawing from its position. (In fact, the ROK division was changing places with the 8th Regimental Combat Team (RCT) of the U.S. 1st Cavalry division, which took up the ROK positions in Unsan.)

Unaware that the well-equipped American armor-supported regimental combat team had changed places with the ROK, the Chinese enveloped the position with eight infantry regiments, two regiments, and an independent battalion of artillery, and at 1700 hrs launched the attack. The battle raged until the early hours of November 2, by which time "a large portion of the American and Puppet troops were annihilated and over 70 U.S. tanks and trucks destroyed."

The 3rd Battalion of the 8th RCT was retreating along the road south from Unsan when it was surrounded and badly treated. Only with fierce and persistent air and armor support were the Americans able to survive until November 3, but attempts to break out of the encirclement were fruitless. By evening November 3, the CPV 39th Army finally overran the American positions.[27]

The action was the first time in the war that Chinese forces had inflicted such punishment on the well-armed U.N. forces, and General

Hong believed it to be one of the most significant actions of the war. Nonetheless, Chairman Mao, ever looking over the shoulders of his commanders, cabled the front at 1900 hrs on November 2:

> pay attention how you use the 38th Army to control ground in the Anju, [*Junyu li*] and [*Qiuchang*] sectors, construct strong fortifications, focus on [*Junyu Li*] as the strong point, focus on cutting the enemy's north-south lines at [*Qingzhou*], destroy the American 2nd Division moving north (from Pyongyang) to relieve the remnants of the ROK 6th, 7th and 8th Divisions, then it is highly likely that you can extend lines southward to Pyongyang. If this is successful, it will be a strategic victory.[28]

The purpose of this chapter is not to recount verbatim the Chinese version of each of these battles, but simply to underscore that the Chinese were most in their element in mobile fighting. Marshal Peng convened his first headquarters staff meeting of the war on November 13 to review the lessons of the first campaign. In general, Peng may have been pleased with progress, but his face did not reflect it. General Liang Xingchu's 38th Army had been unable to keep pace, fought poorly, let the enemy slip away, and Marshal Peng berated him in front of his colleagues.[29]

While the old Marshal may have been crotchety, he rarely turned on his subordinates. But winter was locking in, and Peng no doubt was feeling the pressure of lost initiative, regrouping U.N. forces, increasingly powerful U.S. air strikes, freezing temperatures, and ill-clothed and fed CPV. Along the western sector, the CPV 4th Group Army failed to make headway "primarily because the enemy artillery was highly concentrated, it was impossible to divide forces and simultaneously confront the enemy."[30]

But the CPV also appreciated the U.N. forces' ability to organize a coordinated retreat supported by overwhelming air and artillery cover. In both the east and west sectors of the battlefront, the story was the same. "Because the enemy forces were entirely motorized, the attackers had no way to keep up, and had to satisfy themselves by wiping out a small number of covering forces."[31]

Moreover, as the element of surprise wore off, the U.N. forces quickly comprehended the CPV tactic: "to launch large-scale night time point attacks and penetrate to the rear of the enemy positions to control the entire battle area."[32]

But Marshal Peng knew his surprise offensive had not run out of steam purely because of "a hundred aircraft above and a hundred tanks ahead," but because his own units were running out of ammunition. In two separate fights, the 3rd Brigade of the 337th division at [*Longyuan Li*] and the 3rd brigade of the 335 division at [*Songgu Feng*], "used up their ammo, and used rocks, fists and teeth in their fight to the death with the enemy."[33] By December 27, food and supplies shipped from China could only supply one-quarter of the minimum requirements of six CPV armies (the 38th, 39th, 40th, 42nd, 50th, and 66th), and the Chinese had to rely on requisitions of 30,000 tons of grain from Korean peasants to keep the armies moving.[34]

LOGISTICS, THE CPV'S FATAL FLAW

Marshal Peng, therefore, was acutely sensitive to the slapdash nature of the PLA's logistical network. In PLA doctrine up to the Korean War, logistics was mostly a matter of relying upon the goodwill of the local population for food and relying upon the cowardice of the defeated Kuomintang (KMT) troops for captured weapons and ammunition. It is interesting to note General Hong's recollection that the first time his CPV happened across a retreating column of NKPA, the Koreans were puzzled. The Chinese CPV were wearing Korean-style uniforms, but were carrying American weapons. "You're Chinese, aren't you?" a Korean officer asked. The NKPA soldiers were all carrying Soviet arms.[35]

Marshal Nie Rongzhen[36] who oversaw PLA logistics at the Central Military Commission headquarters in Beijing describes how the PLA prepositioned stockpiles at the Korean border in the months before China entered the war.[37]

> . . . For example, during the Second Campaign, we had originally planned that two armies plus two divisions could handle campaign responsibilities in the western sector of the advance. But because we couldn't transport the required amounts of rations up to the front, we were forced to cancel the two extra divisions and this had an impact on our failure to achieve greater results from the operation. In the East sector, the troops which entered Korea had not made sufficient preparations and faced even greater difficulties. Not only did these troops not have

> enough to eat, their winter uniforms were too thin and could not protect their bodies from the cold. As a result, there occurred a large number of non-combat casualties. If we hadn't had these logistical problems as well as certain other problems, the soldiers would have wiped out the U.S. First Marine Division at Chongjin Reservoir. In fact, the Americans announced the loss of that division on their radio broadcasts, but they subsequently were able to evacuate them by sea.[38]

Marshal Nie's prose fails to convey the full horror of that campaign, however. According to prisoner of war debriefs by U.S. Army intelligence, in the 2 weeks between November 27 and December 12, General Song Shilun's 9th Group Army lost an estimated 45,000 soldiers and coolies to "death by freezing."[39]

General Song's 9th Group Army was a case in point. Surprise is best when it is preceded by adequate planning. The 9th Group Army suffered from "inexperience" and "lacked both doctrinal and material preparations." The Army only received orders from the Central Military Commission (CMC) to deploy to Korea when it was entrained for Manchuria from Central China, and was given its winter uniforms as it changed trains in Shenyang--but "a portion" of the troops failed to be given their winter kit and went into Korea without adequate clothing. They were left to make do by wrapping cotton scarves around their heads and covering themselves with "carpets" they had managed to pick up on the way. The 9th Group Army's artillery units remained in Manchuria to be reoutfitted with Soviet cannon, and the Group Army's divisions entered Korea with only ten "old American 75mm mountain guns." According to a non-PLA history, "these troops braced temperatures of 30-below, as they snuck their way through the high mountains, dense forests, and narrow paths of eastern Korea."[40] Needless to say, that history failed to recount the fate of the ill-clad CPV soldiers.

As the battle lines moved southward, the CPV supply lines stretched out and the logistical problems multiplied.[41] By the time of the Fourth Campaign in early 1951, food and ammunition stocks dwindled, and attacking CPV infantry could never get adequate artillery cover. It was quite common for CPVs to run out of ammunition completely, Marshal Nie recalled. Often, the CPV offensives finished up with bayonets, adrenalin, and a din of trumpets and screams. During the Fifth Campaign (April 22 to June 10), "our

troops were able to break through enemy lines in the [*Xianli*] Sector, but because they didn't have food or bullets, they stopped the attack for three days and lost the initiative." Nie explained:

> Our troops also surrounded brigade and battalion-sized formations of enemy forces, but because we lacked the firepower, we were unable to complete their destruction. Other units, because they were insufficiently supplied, were obliged to retreat, and this seriously affected their combat morale. In sum, during the actual operational battle stages of the Korean War, there were a fair number of examples of the CPV's having to cease an attack in the midst of battle or of incurring heavy casualties because of insufficient rations and ammunition.[42]

General Hong Xuezhi recalls that on April 8, 1951, a massive American napalm bombing run set 84 rail cars afire, destroying 1,500 tons of grain, 408,000 uniforms, and 190,000 pairs of boots. General Hong reports that as much as 40 percent of all supplies were destroyed by U.N. aircraft while being transported to the front line by truck and rail. "The U.S. airmen were experienced World War II veterans," Hong explains, "with over 1,000 hours of flight time each." During the day, "they'd prowl the mountains and ravines, at night they search for lights." One day, said Hong, "I saw with my own eyes a P-51 Mustang fly underneath an electric high-voltage cable."[43] These fliers, Hong complained, destroyed over 3,000 Chinese trucks in the first 7 months of the war, "over 400 trucks a month."[44] To hide from the American fliers, Hong said, trains and truck convoys would drive deep into train and road tunnels, but the Americans "steering with one hand, aiming with the other," would loose missiles into the tunnel mouth, and "the bombs would streak 70 meters inside the tunnel" destroying all inside.[45] Marshal Nie was more pointed. Loss of over 70 percent of a transport column or train set was not a rare event, and air strikes often destroyed 80 percent of the materiel at staging depots.[46]

That Marshal Nie had a high regard for U.S. air power was apparent in his description of its effects. Because of enemy air strikes, Korean rail lines and highways were in a chronic state of impassability. Equipment in need of repair on the front could not be returned to the rear areas for service, and after transport trucks reached the front lines, it was equally difficult for them to get back

in a timely manner to the rear areas for reloads. By the autumn of 1951, the number of rail cars needed to supply the Korean War was fully 20 percent of the entire domestic rolling stock in China. For example, from late September to mid-October 1951, Chinese troops needed about 12,000 railcars of food, cooking oil, ammunition, and other supplies, but they were only able to get about 6,000 rail cars through.[47]

The effects of this constriction of supplies on Chinese foot soldiers was profound.

> For instance, the rations problem was like this. Because of enemy bomb and rocket strikes, we couldn't get enough food up to the front, and when we could get it up there, the troops didn't dare cook it because the campfire smoke would draw enemy strafing runs. There was just no way. In the heat of battle, for instance, quite a few soldiers could only rely on the 'handful of fried noodles, and a handful of snow' to keep body and soul together. One ought to say that fried noodles had their use during the active combat part of the war. However, when fried noodles were mixed with snow-water, they readily caused diarrhea.[48]

> One visitor from Beijing who went to the front lines during the beginning of the Truce Talks recalled that the CPV troopers referred to the U.S. Aviators as the "iron and steel magnates" because they profligately dumped their iron and steel on the Korean market.[49]

However, July 20, 1951, brought an enemy even more devastating than the American aircraft. A flood which raised river levels three to four meters, sometimes as high as 11 meters above normal, with flows four, six, and even seven meters per second, hit the frontlines hard. It washed out campgrounds, supply depots, ruined hand guns and rifles, flooded medic tents, and even destroyed heavy weapons. In the rear areas, electric power lines collapsed, hundreds of miles of roadbeds eroded, 205 highway bridges were washed away, and all transportation was halted for over 20 days. In fact, bridges that were rebuilt were flooded away again in short order as torrents continued to stream off mountain sides. An anti-aircraft battalion at Samtong was decimated when a high-voltage line crashed into the flooded artillery revetments. The personnel had no experience in dealing with power lines, and 167 men were killed by electrocution. The

cannons and tractors were washed away as well.[50]

U.S. Air Force and Navy bombers and fighters took advantage of the disaster to plaster the CPVs in their chaos. Their bombing, napalming, and strafing continued mercilessly in a 6-month air campaign that both the Americans and the Chinese termed "Operation STRANGLE."[51] At this point, resupply to the front line became desperate. Road and rail repairs were solely the work of the rear-echelon logistics department, which had assigned "a few regiments of construction troops" to the job. CPV logistics chief General Hong approached CPV deputy commander General Chen Geng to put every available CPV trooper not already at the front line to work rebuilding road and rail lines.

He also wanted North Korean civilians dragooned into labor corvees. Whether it took General Hong 6 weeks to get his act together or whether the proposal was just slow working its way up to Marshal Peng and Korean leader Kim Il-sung is not known. But on September 8, 1951, the order for all hands — and Korean peasants, too — to join the road gangs was finally issued from CPV headquarters. Second line troops from eleven armies, nine construction brigades and three engineering brigades, over 100,000 workers in total, managed to repair their rear area transport lines in 25 days — presumably by October 3. There was one big problem, however, with the trains. The inexpertly repaired bridges couldn't bear the weight of the locomotive engines, so locomotives simply pushed long strings of lighter train cars across the rickety bridges, where engines on the other side would hitch up and pull them down the track to the next bridge.[52] Still, in the strategic Sinanju-[*Xipu*]-[*Jiechuan*] "rail triangle" trains could run only 7 days a month from September to December 1951. With the rail lines all but out of commission, the CPVs resorted to trucks, donkey-carts, and human backs to get supplies from the Yalu River down back roads and footpaths through mountains and forests to the front lines.[53]

But for nearly 3 months the entire mass of the CPV forces were on half-and third-rations. Marshal Peng demanded that General Hong find at least a 5-day supply for the troops on the east flank of the front line. Hong was reduced to salvaging 300,000 waterlogged ration units by raking them into the sun, drying them out and re-bagging them. Hong had to report twice daily to the Marshal on

the food situation: how much was *en route* from China, how much didn't make it, and how much actually got to the frontline fighters.

On September 18, 1951, Marshal Peng asked Kim Il-sung for permission to "raise funds" for Korean food, using a term (*choucuo*) which makes it sound like the CPVs would hold yard-sales to finance their purchases, but was probably closer to outright uncompensated requisitioning of grain from North Korean peasants. Kim replied that life was just as rough for Koreans as for the CPVs, but promised to help. By November, Kim had begun food and grain disbursals to the CPV, which totalled at least 58,000 tons by the end of the war. Evidently Kim was also worried about the inflationary impact of simply confiscating grain from the peasants and paying with increasingly worthless North Korean paper money. Kim demanded the CPVs set up commercial canteens in which Korean peasants might be able to buy commodities with their stacks of North Korean currency notes. In the end, the CPV logistics department had set up civilian supply centers in Pyongyang, [*Shali Yuan*], [*Yangde*], [*Chengchuan*], [*Qiuchang*], Anju, [*Dingzhou*], [*Xuzhou*],[*Dezhou*] and [*Yichuan*].[54]

But with most of the countryside pockmarked with bomb craters, farming was useless. Korean peasants near the front lines were without food and had to be evacuated to the rear or starve. On October 22, Kim Il-sung reached an agreement with the CPV to transport Korean farming families and their goods from the battlefronts back to the rear in the empty resupply trucks returning to China.[55]

The Korean peasants, it seems, were also well sensitized to the American air attacks. In late October, as General Hong Xuezhi returned to the front lines from business in Pyongyang, his jeep was waved off the road by a young Korean boy with a knife. The boy kept pointing his dagger to the sky and beckoned the General's old American Jeep to follow him along the streambed into a wood. Within minutes, a flight of 20 P-51 Mustangs zoomed overhead, and soon disappeared following the highway into the distance. As the road of aircraft engines silenced, the general's driver whistled, "you've got some real good luck, boss."[56]

CHINESE TROOPS COPE WITH U.N. AIR POWER

All along the battle lines and well into the rear areas, the countryside was a moonscape, especially so along roadbeds. U.N. aircraft dropped 500-1,000 kilogram bombs that left craters eight meters deep and rubble middens ten meters high for miles on end. In heavy rain, these would fill with water, making them look like shallow potholes – deadly at night. At this point, Chinese lorry-drivers only drove at night, but all too often their heavily laden trucks barreling along in the dark without lights would drive into a bomb crater, wrecking the vehicle, injuring personnel and, if the crater was filled with water, soaking the cargo. General Hong Xuezhi complained that "even with a hundred men it took forever to fill in a crater," and even before it was refilled, it would be replaced quickly with yet another crater nearby.[57]

Because the Americans controlled the air, there was "basically no movement in daytime." Another Chinese general, Wu Xiuquan, described what it was like in November 1951 to drive in the darkness with headlights off, feeling the way at a snail's pace under the enemy's night patrols overhead.

> . . . suddenly a rifle shot. It was an air raid warning shot. Several vehicles raced across to a fortified area; others scattered to hiding places. All one could hear was the enemy aircraft flying across overhead. The air was filled with parachute-flares dropped by the planes. Hills, forests, rivers and roads hidden in the darkness just moments earlier were in a burst illuminated in bright light. The light of drifting flares then flickered uncertainly, and as one died out another flashed into brilliance . . . The enemy had discovered some target or another and a squadron of night patrol planes was circling the area not far from us, dropping bombs and firing repeated bursts. The scorched earth was already a mass of smoke and flame.[58]

Days later, General Wu moved nearer to the front.

> There were considerable numbers of vehicles coming and going. What's more, their drivers went at speeds that terrified us. One night, we had a rare adventure. As we drove ahead nervously without lights, a huge dark shape suddenly appeared in front of us, gradually getting bigger and bigger. As our eyes focused, we

> realized it was a big truck! Right before our vehicles collided, our driver veered sharply to the right. We felt only a smooth rumble of our jeep as it soared up rapidly lightening its load – then expelling all of us with a slamming jolt before we knew what had happened. Had we collided on rocks or against tree trunks we would have been smashed to bits, or at least have been very badly injured. As it was, we crashed into a puddle. Feeling chilly, we found our woolen overcoats soaked through.[59]

General Wu and his men righted their overturned American Jeep, and the driver found that it started-up without a problem. Several miles down the road, they managed to find a CPV camp where they dried out their clothes. But the incident clearly left its mark on the general. Almost all the towns and cities Wu had driven through in North Korea had been leveled by "indiscriminate bombing," and only rarely did he ever even see a countryside building intact. Wu was to be the Chinese negotiator at the 1951 peace talks in Kaesong – which was the only place on the front line relatively untouched. To identify it as the site for negotiations, the area was surrounded by large barrage balloons, and at night searchlights swept the sky.

Throughout 1951, General Hong was constantly tormented by the CPV's feeble resupply infrastructure and its vulnerability to U.N. air power. So much so that he claims to have personally warned Premier Zhou Enlai that "our soldiers now have three worries: first that they have no food to eat; second that they have no bullets to shoot; and third, nobody to take care of them after they are wounded."[60] Indeed, the Chinese commanders had to adopt severe measures to increase the efficiency of their supply lines. As the Fifth Campaign battle lines stabilized along the 38th Parallel, logistics and supply continued to be Hong's biggest headache. So much so that Chairman Mao himself ordered 300,000 troops be withdrawn from the battle areas and returned to Manchuria. This, said Marshal Nie, made clear improvements in the CPV's logistical situation.[61]

POSITIONAL WAR: IN THE TRENCHES

No doubt there was considerable bickering among the CPV troopers to see who would be rotated back to sunny Manchuria for rest and recuperation. Those who remained at the front line would surely be pounded relentlessly day and night by air and cannon,

so much so that they dug deep underground to shelter themselves. General Yang Dezhi, 19th Group Army commander, says a random sample of one square foot of earth he dug at the Chinese front lines contained 287 bomb and cannon fragments of different sizes. His Group Army's positions, he said, had been hit by an estimated 7,784,000 shells, and he marveled that the Chinese would need at least 51,000 trucks or 4,400 rail cars just to transport such an inventory.[62]

The devastating onslaught, of course, had the effect of driving the CPVs deep into their trenches and tunnels — mostly the latter. The CPVs adopted a practice of digging "J" shaped "cat ear caves" well into hillsides as protection against bombardment. General Yang proposed "under the principle of protracted warfare" the integration of defense breastworks, trenches, and tunnels from "mountaintops, slopes and bases, coordinate those on plain and hill areas, and construct open shelters and tunnel embrasures." He also designed a "fish-scale" pattern of "cat-ear" tunnels and trenches in triangle patterns to deny the enemy the ability to outflank the Chinese positions.[63] Within these patterns two "cat-ear" caves together formed a "U" shaped tunnel with two exits — in which the CPVs could withstand heavy artillery shelling, and when the enemy overran their positions, the CPVs could "burst out and kill them."[64] At least that was the theory. At any rate, the cave-dwelling proved one way to equalize the survivability of the CPVs with the U.N. and ROK forces which didn't get quite the same type of pummeling from Chinese guns.[65]

With the Chinese literally dug in to stay, there was little substantial movement at the front lines for the balance of the war. Each Chinese soldier "had a rifle in one hand and a shovel in the other," says General Hong. There was so much steel on the ground that the 12th Army alone set up 40 blacksmith forges and made tools from the scrap, 16,000 new tools, and repaired 75,000 other tools to boot. After a time, the CPVs settled in, expanded their tunnels, dug more exits, raised headroom, excavated bigger galleries. The Americans, for their part, developed heavier bombs and used deeper, more penetrating artillery shells.

This was positional warfare in its purest form. In May 1952, the CPV Command ordered a "third defensive belt" of trench and tunnel fortifications be dug from [*Zhonghe*] to [*Shali Yuan*], [*Yichuan*] and on

to [*Huiyang*], in which an additional CPV armies could be deployed. By the end of August 1952, the CPVs had dug almost 200 kilometers of tunnels and an additional 650 km of defensive trenches and dry transportation canals big enough for motorized vehicles.

By this time, tunnel and trench fortifications were the backbone of China's strategy to endure the Korean Conflict, and indeed they had "marked a new phase in the war."[66] They protected the men against the onslaught of bombs and artillery and occasionally served as a springboard for the CPV's frequent but short-lived offensives. Although the CPV counterattacks from tunnel fortifications were often effective, by mid-1952 U.N. Command forces had developed countermeasures. Once a tunneled acre of real estate was taken by UNC troops, UNC soldiers would immediately seal tunnel entrances. After a period of time the tunnels were opened and any surviving CPV soldiers would readily give up. According to prisoner of war interrogations, Chinese officers in the tunnels shot soldiers who tried to dig out and surrender.[67]

As Americans routinely used napalm and machine-gun strafing against the CPV supply depots small and large, by the first half of 1952 virtually all CPV warehousing was underground, either in thick rammed-earth revetments or, more desirable, in rock-face tunnels. In open country, the covered revetments could withstand napalm but flooded easily in rain, and it took the Chinese engineers some time to design standardized drainage systems for them. In mountainous areas, abandoned mines were ideal supply depots. One refurbished mine near Namtang-Ri held 600 truckloads of ammunition. On May 8, 1951, it was struck in a raid by 368 sorties of U.N. aircraft, but suffered no losses. On August 4, 1952, almost 2 years after China decided to enter the war, Mao Zedong reported joyfully to the Chinese People's Political Consultative Congress that "food problems, in fact problems with our entire military supply, were unsolvable for a very long time. Then, we didn't know to dig tunnels, to store our food in tunnels, but now we know. Now every division has three months provisions, the all have storehouses . . ."

SURVIVAL IN THE TUNNELS

This is not to say that the tunnels were ideal living. Under a steady rain of U.N. bombs and artillery shells, CPV troopers spent

weeks on end deep inside their bunkers, "with the biggest problem being not seeing daylight for days and days." Again, the biggest CPV victories seemed to be in little things, like how to cope with the darkness of the caves. Infantrymen fashioned oil lamps out of anything they could lay their hands on; old crockery, tea caddies, tin cans, shell casings. Fix a cotton wick, fill it with some kind of oil, and *fiat lux*. In a 60 meter length of tunnel, there would be at least eight lamps, 30 lamps would light an entire subterranean channel. For an entire battalion in 16 trench-tunnels, however, keeping the fires lit continuously would use 200 kg of cooking oil a month. An army would burn 50 tons of valuable vegetable oils each month.

Of course, that meant there wasn't enough oil for cooking, let alone lighting. But the real problem with the lamps was the fact that there was still too little light and too much smoke. General Hong spends a page of his memoirs describing the ingenious hand crafted lamps his men fashioned. Still, he had to admit life in the tunnels was "difficult."

One of the biggest trials of the tunnels was the lack of water during dry summers and autumns. All water had to be brought in from outside, and at the 38th Parallel most springs were far from the tunnels and close to enemy lines where artillery bombardment was heavy. Water was not only necessary to survive but, more importantly, without it men in the caves began to develop mouth and throat lesions and chronic nosebleeds. Resolving water supply problems became a top priority for General Hong's logistical troops and by the war's end, most tunnels had concrete wells and water troughs. In the winter of 1951-52, troops feverishly sliced large ice blocks from rivers and lakes and stored them in underground icehouses. This alleviated the problem somewhat and was repeated the following winter.

Tunnel fighting confounded another bit of conventional wisdom that the CPVs cherished from their early "mobile war" campaigns: that "the sunshine belongs to the American Devils, and the moonlight belongs to the CPVs." Because the CPV had no air cover, all operations were at night. Daytime was spent in cavernous darkness. But without sunlight, the Chinese troopers developed serious vitamin deficiencies.[68] With a diet almost exclusively of "fried noodles" and not getting out in the day time, lack of biotin caused chronic night-blindness for CPV troopers, making them

useless for any offensive maneuvers in the dark.

Needless to say, this caused serious alarm among CPV logistics planners, who made frantic orders for massive shipments of peanuts, yellow beans, egg powder, and liver. But "because the shipments were small in quantity, the troops vast in numbers, these shipments were a drop in the bucket, and the problem was not solved easily." Then, *mirable dictu*, Korean peasants revealed an herbal medicine treatment for night-blindness in the form of a complicated distillation of "pine needle tea." The decoction was extremely bitter without sugar, but sure enough, after a week of drinking the stuff, night-sight returned. Of course, this also meant one had to find the proper evergreens on the denuded slopes of the Korean landscape. Nonetheless, the logistical department gathered as much as possible from the rear areas and shipped all they could to the fighters at the front.

The helpful Korean country folk also noted that tadpole embryos just sprouting limbs were also a rich source of dietary vitamins. Just scoop a handful of the little black wrigglers out of a water-filled crater, "pop them into a tea pot with some water — best with some sugar, but okay without — and gulp, gulp them down alive, three times a day, and in two days you begin to see results." There were rivers and streams, not to mention bomb craters, all across the countryside which provided a constant and abundant source of tadpoles in the summer. "We got every unit mobilized to play with this clever beverage." Says General Hong, "once again, the night returned to us."

MORE THAN SURPRISE IS NEEDED

This chapter is not meant to be a recitation of all the tactical, operational and strategic lessons the PLA learned from the Korean War — only the important ones. First, operational surprise is essential if the PLA is to make use of its massive numerical superiority against an enemy massively superior in advanced weaponry. Second, when the surprise wears off, the PLA must be prepared to suffer horrendous pain for extended periods in a "protracted" war — unless, of course, one side or the other abandons constraints of limited war and escalates to total war.

The surprise achieved as China entered the Korean War may

have been serendipitous. Chinese Premier Zhou Enlai had, after all, told the Indian Ambassador in Beijing, K. M. Panikkar, twice, once in August and again on October 1, 1950, that China would enter Korea if U.S. troops crossed the 38th Parallel. Surely Zhou's warning should have alerted U.N. Command forces that China was prepared to enter the war – hardly a recipe for surprise.[69] Moreover, the question of China's possible entry into the Korean War was a regular feature of political debate in Washington, as well as in most capitals allied in the United Nations Command. To be sure, Beijing did not go out of its way to announce troop movements to Manchuria, and the infiltration of several hundred thousand CPVs into Korea was done in the utmost secrecy.

The lesson for future PLA strategists, therefore, must be to strike decisively and hard without operational warning. With this lesson in mind, a 21st century attack on Taiwan, for example, will be in a context of an extended period of political warnings – such as Zhou's to Panikkar – which establish the *casus belli* over time but do not alert the enemy to observe any mobilization along China's East Coast.

Moreover, every effort should be taken to prevent the enemy from knowing he's been hit decisively – *possibly for several days after the attack has begun* – as in the Korean War. Again, a future operation against Taiwan would involve military strikes masked somehow.

SCENARIO FOR A SURPRISE?

One wins no prizes for pointing out the PLA's reverence for the power of tactical surprise. It is amply documented and is a central feature of the Pentagon's 2002 Report on the *Military Power of the People's Republic of China*.[70] But do the lessons of the Korean War help understand how the PLA would operationalize the "role of surprise and preemption in local conflicts"? The Pentagon Report stresses:

> PLA operational theory reflects the transition undertaken during the 1990s to shift from predominately annihilative to coercive war-fighting strategies. Shock and surprise are considered by PLA strategists as crucial to successful coercion. Accordingly,

> PLA operational theory emphasizes achieving surprise and accruing "shock power" during the opening phase of a campaign. The pre-eminent role that surprise and pre-emption have in potential conflicts is best illustrated in the fundamental principles of "Actively Taking the Initiative" and "Catching the Enemy Unprepared" in PLA operational doctrine.
>
> - "Actively Taking the Initiative" stresses the necessity of attack at the optimal point and time to catch the enemy unprepared.
>
> - "Catching the Enemy Unprepared" emphasizes the role of concealment of intentions and capabilities through camouflage, deception, feints, and the use of stratagem to allow a relatively small amount of force to dominate the enemy through surprise.[71]

In a Taiwan invasion scenario, how would the PLA mask such an attack for such an extended period in an age of satellite reconnaissance, internet communications and a very densely populated battle area? Over the past 4 years, there have been several incidents highlighting Taiwan's infrastructure vulnerabilities that offer clues.

Identifying Taiwan's Achilles Heels.

The first one occurred suspiciously in July 1999, 3 weeks after Taiwan President Lee Teng-hui articulated a "special state-to-state relationship" with China which Beijing saw as setting Taiwan on a road to independence. At 11:31:18 pm – exactly – on Thursday night, July 29, 1999, a 34.5 kilovolt cable tower at Tso-chen township near Tainan collapsed in a landslide, breaking circuits at all North Taiwan power transformers and sinking nine million households into Taiwan's biggest blackout in 50 years.[72] Although Kaohsiung, Pingtung, Taitung, and Hualien were spared, 34 trains on the north-south rail line, businesses, hospitals, television and radio stations, in fact, everything hooked into Taiwan Power Company's North Taiwan grid, came to a halt. With tensions across the Taiwan Strait already strained, rumors spread that the Chinese had caused the blackout in preparation for an invasion.

A more spectacular incident several weeks later was not so suspicious – it was seen on seismographs across the globe and

was immediately identified as a natural phenomenon. At 1:47 am Tuesday morning, September 21, 1999, a massive earthquake blasted whole city blocks off their foundations throughout central Taiwan, killing thousands and destroying transportation, power, and sanitation infrastructures. It wasn't until 32 hours later at 8:00 am Wednesday morning, September 22, that power was restored to three-quarters of the 6,497,800 households blacked-out during the quake. Taiwan's six nuclear power units, which shut off automatically during the quake, were not back on-line until 7:00 pm Friday evening, September 24. Power lines and broken ultra-high voltage transformers destroyed by the quake in isolated locations were more difficult to repair quickly, and little electricity from down-Island power plants was able get onto the north-Island grid.[73]

Other incidents, however, appear to have been man-made — by PRC actors. Twice in 2001, on February 9 and March 9, undersea cable problems cut off Taiwan web surfers from North American-based internet sites. The first incident was reportedly caused by an "electrical malfunction" in the cable. A fishing trawler severed the cable in the second instance. Both incidents occurred off the coast of China near Chongmingdao, an island near Shanghai. Although internet service for Taiwan was rerouted within 24 hours through an older cable to Japan and the United States, service was spotty for 10 days thereafter.[74]

Exploiting Infrastructure Vulnerabilities.

An obvious scenario, therefore, would incorporate a massive, early evening shock attack on Taiwan's electric power grids, its communications infrastructure, and its airports, harbors, and rail and highway lines. The Pentagon Report is explicit that the PLA is studying "lightning attacks and powerful first strikes" against "radar, radio stations, communications facilities, and command ships as priority targets vulnerable to smart weapons, electronic attack, and electromagnetic pulse (EMP) weapons." Radiofrequency attacks could jam wireless transmissions not already debilitated by strikes on central mobile-phone exchanges. At the same time, Taiwan's international telecommunications would be blocked, and substitute data transmissions would mask the attack to the outside world. Initially, a spectrum of counterfeit news reporting would indicate

that another earthquake had hit Taipei causing massive damage. After several hours, or as day broke, additional reports would note that key figures in the central government were missing.

Without electric power, or domestic telecommunications, and with rumors spreading of seismic activity, Taiwan's own military command and control systems would be challenged beyond their limits.

In November 1950, the appearance of MiG-15 fighters and heavy anti-aircraft fire from the Chinese side of the Yalu River discouraged UNC RB-29s from peering too closely at the Yalu bridges while Chinese troops were crossing. The U.S. Air Force's limited reconnaissance assets also degraded the quality of intelligence the U.N. Command received on the magnitude of the Chinese intervention.

An integrated PLA strike on Taiwan in the 21st century, therefore, would also focus on disguising a missile attack on the island. Whether that would require direct blinding of U.S. space surveillance platforms, and/or striking only on days where severe weather would complicate satellite optics, or simply waiting until there is a long lag time between satellite overflights, are doubtless tactics the PLA is seriously studying. At any event, the lesson of the Korean War must be that optimal results demand that neither the Taiwan nor the American command authorities are even aware that an attack has struck until several hours, or indeed days, afterwards.

DECAPITATING POLITICAL LEADERSHIP

The June 2002 Pentagon Report notes that "the PLA also could adopt a decapitation strategy, seeking to neutralize Taiwan's political and military leadership on the assumption that their successors would adopt policies more favorable to Beijing."

This, too, is a lesson from the Korean War. There is documentation that the Chinese leadership suspected Stalin started the Korean War in order to prevent the PLA from liberating Taiwan.[75] Looking back on the War several decades later with the benefit of documents from both the Soviet and American (and perhaps even their own) archives, it may well seem to the leaders of the PLA that they were closer to reclaiming Taiwan in the summer of 1950 than they ever imagined at the time.

The outbreak of the Korean conflict aborted an incipient military coup against the Nationalist Chinese leader on Taiwan, Generalissimo Chiang Kai-shek, by one of Chiang's most respected soldiers, General Sun Li-jen (Sun Liren).[76] General Sun, it seems, was one of the very few Nationalist Chinese leaders on Taiwan with whom the Chinese Communist leadership believed they could deal. A military coup and the installation of a friendly regime in Taipei in 1950 would have saved the PLA the massive bloodshed and treasure they had prepared for a Taiwan invasion, which was to take place sometime after August 1950.

Indeed, documents from U.S. Department of State Archives report that credible intermediaries of Marshal Chen Yi, then chairman of the PRC's "East China Bureau" headquartered in Shanghai, had approached the still-resident U.S. Consul General in the city, Walter P. McConaughy, in January and February 1950 to propose that strained relations between the Chinese Communists and Washington would ease once there was a regime in Taipei that the Communists "could deal with."[77] One name mentioned by Marshal Chen's intermediary was General Sun. Chen's cutout explained that the Marshal feared a "pro-Soviet" faction in Beijing would emerge preeminent in the Chinese Communist Party leadership, and Chen hoped to counteract their influence by a warming in ties with the United States. Chen's overture came several months after a similar approach by Zhou Enlai (June 1949) to the U.S. Consul General in Peiping, O. Edmund Clubb.[78] By early June 1950, the groundwork had been laid in Taipei for a coup, and the State Department had prepared plans for General Sun's imminent takeover.[79]

It was, however, not imminent enough. The outbreak of the Korean War on June 25 put plans on hold, and eventually they were abandoned altogether. Some scholars, Chinese and American, saw this as the real reason Stalin was persuaded to unleash Kim Il-sung: to strangle prospects either for a U.S.-China rapprochement or for a successful PLA invasion of Taiwan later in the summer of 1950.[80] It seems clear that PLA historians are well versed in the circumstances of General Sun's abortive coup.

A final lesson of the Korean War, then, is that a friendly political-military leadership must be installed in Taiwan simultaneously with a PLA "shock attack." Somehow, the existing political leadership on Taiwan must be liquidated and replaced with a local politician with

some reasonable color of legitimacy. Some praetorian guard must be emplaced as a bulwark while the new Taiwan leaders contact the United States to ensure them that all is well and there is no need to get involved. It would also help if Taiwan's military leadership is sufficiently ambivalent to dither about a reaction.

The Pentagon Report notes that PLA special operations units "are expected to play an important role in achieving objectives in which limited goals, scale of force and time would be crucial to victory." SOF missions likely include conducting denial and deception and information operations – and no doubt political "decapitation" operations.

CONCLUSION: SURPRISE TO STALEMATE

It takes no inordinate leaps of imagination to see that with the lessons of the Korean War in mind the PLA could manage to invest Taiwan in a sudden shock attack. Surprise could indeed afford the PLA an ample bridgehead in Taiwan along the lines of the Argentine investment of the Falklands in 1982 or the Iraqi occupation of Kuwait in 1990.

The test of the PLA would then come in the subsequent stalemate of a "protracted war" with the United States – and, hopefully, with the rest of the civilized world – that would follow. How the international community would react in the months and years after an attack, and how Beijing's occupation would sustain itself in a prolonged stalemate faced with an unruly populace in Taiwan and an indignant, possibly hostile, international world would determine who wins the ultimate victory.

At what point would the Chinese leadership capitulate under global economic sanctions if not military blockade; at what point would the Taiwanese populace simply give up and accept Beijing suzerainty; at what point would the international community support a Thatcherite reclamation of the illegally seized Island or a Bushesque coalition to liberate the benighted Taiwanese people?

The PLA's lessons from the Korean War promise that a swift surprise attack would yield initial success in occupying the Island and enduring the protracted pain of the invasion's aftermath would eventually yield a grudging, East Timor-like international acquiescence in their occupation and eventual acceptance of the new

status quo. Of course, Indonesia was eventually obliged to give up East Timor--but that is not a lesson the Chinese are likely to take away from the Korean War.

ENDNOTES - CHAPTER 8

1. Hong Xuezhi, *Recollection of the War to Resist U.S. Aggression and Aid Korea* (*Kang Mei Yuanxhao Zhanzheng Huiyi*); Beijing: People's Liberation Army Cultural Press, 1990, p. 275.

2. See Zhang Ling, *et al., The Biography of Xu Xiangqian* (*Xu Xianqian Zhuan*); Beijing: Contemporary China Publishers, 1991. Pp. 510-519 deal with Marshal Xu's negotiations in Moscow for Korean War materiel.

3. Mao Zedong, *Selected Military Writings of Mao Tsetung* (in English); Peking: Foreign Languages Press, 1972. "On Protracted War" was an essay written in May 1938. See pp. 187-267.

4. *Ibid.*, p.239.

5. Peng was promoted to the rank of Marshal of the PLA on September 23,1955, but for clarity of identification, he is referred to as "Marshal." See Jurgen Domes, *Peng Te-huai, The Man and the Image*; Palo Alto: Stanford University Press, 1985, p. 67.

6. Wang Xingye ed, *History of the Development of Campaign Thought* (*Zhanyi Sixiang Fazhan Shi*); Beijing: National Defense University Publishers, 1997, pp. 314-315.

7. Wang Bo's *Peng Dehuai-Record of Entering Korea to do Battle* (*Peng Dehuai Ru Chao Zuo Zhan Jishi*); Shijiazhuang: Huashan Cultural Publishers, 1992, pp. 146-153, is particularly egregious in this regard, citing long verbatim exchanges among Peng's general staff on Chairman Mao's detailed instructions for the Second Campaign.

8. Chinese Pinyin romanizations of Korean place names are in [brackets] where the standard rendition of the Korean name is unavailable.

9. Hong Xuezhi, p.54.

10. *Ibid.*, p. 13.

11. Zhang Xi, "Peng Dehuai Receives Command, the Context of the anti-America, Support Korea War Peng" (*Dehuai Shou Ming Shuai Shi, Kang Mei*

Yuan Chao Qianqian Houhou) in *Historical Materials of the Chinese Communist Party* (*Zhonggong Dangshi Ziliao*) Vol. 31, Beijing: CCP Historical Materials Press, October 1989, p. 157.

12. *Ibid.*

13. *Ibid.*

14. For a full order of battle of the CPV forces from October to December 1950, including names of field commanders down to division level, see Shen Zonghong and Meng Zhaohui, eds., *The Chinese People's Volunteer Army History of the War Against American and Aid to Korea* (*Zhongguo Renmin Zhiyuan Jun Kang Mei Yuan Chao Zhanshi*), Beijing: Military Sciences Publishing House, 1990, Appendix A following p. 243. See also William W. Whitson, *The Chinese High Command*; New York: Praeger Publishers, 1973, p. 96. Marshal Nie Rongzhen notes that the alert order went to General Deng Hua's 42nd Army "Strategic Reserve Force" located in Henan province and to the Fourth Field Army in Southern China on August 5. *Memoirs of Nie Rongzhen* (*Nie Rongzhen Huiyi Lu*); Beijing: People's Liberation Army Press, 1986, p. 739.

15. Hong Xuezhi, p. 44. Earlier U.S. estimates put the Chinese force at about 180,000. See Alan S. Whiting, *China Crosses the Yalu*, RAND Corporation Research Study R-356, New York: Macmillan, November 1960, p. 118. By November 24, there were "a total of 450,000 Chinese troops in Korea, including 380,000 combat fighters" — also see Li Jian, ed., *A True Account of New China's Six Wars Against Aggression* (*Xin Zhongguo Liuci Fan Qinlue Zhanzheng Shilu*), Beijing: China Broadcast Television Publishers, 1992.

16. Marshal Nie Rongzhen notes that China's original plan was to send in only six divisions to face the widely scattered U.S.-U.N.-ROK forces. See *Nie*, p. 741. Hong Xuezhi says there were "twelve infantry divisions, three artillery divisions," with an additional 24 divisions concentrating on the border. Hong, p. 44. Also see Billy C. Mossman, *U.S. Army in the Korean War: Ebb and Flow November 1950-July 1951*; Washington DC: Center for Military History, 1990, p.55.

17. Robert Frank Futrell, *The United States Air Force in Korea 1950-1953*, Washington, DC: Center for Air Force History, 1983, pp. 228-229.

18. Hong Xuezhi, p. 38.

19. *Ibid.*, p. 54. See also *Volunteer Army History*, appendix map 3.

20. Peng Dehuai, *Peng Dehuai's Testament* (*Peng Dehuai Zishu*), Beijing: People's Publishing House, 1981, p. 259. A servicable English translation was published in 1984 by the Foreign Languages Press in Beijing under the title *Memoirs of a Chinese*

Marshal, p.475.

21. Hong Xuezhi, p. 55.

22. *Ibid.* The official Chinese dates for the First Campaign are October 25 to November 5, 1950 — See *The Great Chinese Encyclopedia*, "Military," Vol. 1 (*Zhongguo Dabaike Quanshu: Junshi*, 1), Beijing: Encyclopedia Press 1989, p. 631.

23. James F. Schnabel, *Policy and Direction, the First Year;* Washington DC: Center for Military History, 1972, p. 234. As late as November 9, the Joint Chiefs were still considering the possibility that the Chinese merely wanted to gain time for the defeated, disorganized NKPA to pull itself together. Schnabel, p. 252.

24. *Ibid.*, p. 235.

25. Hong Xuezhi, p. 56.

26. *Ibid.*

27. Hong Xuezhi, p. 57. MG Charles L. Bolte, then Assistant Chief of Staff of the Army, had arrived in Korea, as he described it, "just after the Chinese had destroyed the 8th Cavalry Regimental Combat Team." A memo by Bolte on November 14 indicated that the Americans still had no idea what they were up against. See Schnabel, p. 257.

28. *Ibid.*

29. *Ibid.*, p. 67.

30. Li Jian, p. 48.

31. *Ibid.*, p. 52.

32. *Ibid.*, p. 49. Li Jian cites a study prepared by the US Army Command and General Staff College for this assessment.

33. *Ibid.*, p. 50.

34. *Ibid.*, p. 51.

35. Hong Xuezhi, p. 36.

36. Like Peng Dehuai, Nie was named a Marshal in 1955, but he is identified here as "Marshal" for ease of identification.

37. Nie Rongzhen, p. 741.

38. *Ibid.*, p. 754.

39. Whitson, p. 96. The CPV History lists Gen. Song's 9th Group Army as comprising twelve infantry divisions of the 20th, 26th, and 27th Armies.

40. Li Jian, p.47.

41. Toward the end of the "Third Campaign" on December 31, the 2nd and 5th Group Armies had crossed below the 38th Parallel in the eastern sector, but only had 100 heavy guns with 100 rounds each. The CPV howitzers had limited mobility and were vulnerable to air attack. When the ammunition ran out, the CPV offensive relied entirely on small arms to break through ROK lines. See Li Jian, p. 51.

42 Nie Rongzhen, p. 754.

43. Hong Xuezhi, p.215. Hong noted that another pilot who did the same thing tore off his vertical stabilizer and crashed some miles away.

44. *Ibid.*

45. *Ibid.*, p. 218.

46. Nie Rongzhen, p. 759.

47. *Ibid.*

48. Nie Rongzhen, p. 757.

49. Wu Xiuquan, *Eight Years in the Ministry of Foreign Affairs* (*Zai Waijiaobu Baniande Jingli*), Beijing: World Knowledge Publishing House, 1983, p. 74.

50. Hong Xuezhi, p. 196.

51. See Futrell, pp. 441-448.

52. Hong Xuezhi, pp. 198-199.

53. *Ibid.*, pp. 221-222.

54. *Ibid.*, pp. 204-205.

55. *Ibid.*, p. 209.

56. *Ibid.*, p. 210.

57. *Ibid.*, p. 228.

58. Wu Xiuquan, pp. 73-74.

59. *Ibid.*, pp. 75-76.

60. Cited in English Translation in Xiaobing Li, Allan R. Millet, and Bin Yu, *Mao's Generals Remember Korea*, Lawrence: University of Kansas Press, 2002, p. 126.

61. Nie Rongzhen, p. 755.

62. General Yang did not give the time-frame within which 7 million pieces of ordnance landed on his troops' positions. See *Mao's Generals Remember Korea*, p. 148.

63. *Mao's Generals Remember Korea*, p. 152.

64. Hong Xuezhi, p. 234.

65. Unless otherwise noted, information on Chinese trench and tunnel warfare is from *Ibid.*, pp. 234 -241.

66. see also Qi Zhengjun, ed., *An Outline of the Art of War* (*Zhanshuxue Gailun*), Beijing: People's Liberation Army Publishers, 1986, p. 34-45.

67. Walter G. Hermes, *Truce Tent and Fighting Front*; Washington, DC: Center for Military History, 1966, p. 289.

68. General Hong describes this as a "biotin" deficiency (*weishengshu* 'H quefanbing); it also seems likely that lack of sunlight would cause a Vitamin D deficiency.

69. But Alan Whiting's analysis puts that warning in the context of other warnings regarding Taiwan which were not acted upon. Zhou's warnings, he speculates, were meant to justify the Chinese action after the fact, not signal the UNC before it. Whiting, pp. 107-109.

70. *Annual Report on the Military Power of the People's Republic of China*, a Report to Congress prepared by the Department of Defense Pursuant to the FY2000 National Defense Authorization Act. Text is available at *http://www.defenselink.mil/news/Jul2002/d20020712china.pdf.*

71. *Ibid.*, p. 13.

72. See the *Taiwan Weekly Business Bulletin* (TWBB) for the week ending August 4, 1999, published by China Online. The TWBB cites the *United Daily News*, Saturday, July 31, 1999, as the source of the information. Text available at *http://www.chinaonline.com/features/taiwan_wrpt/open/c9080521taiwan811.pdf.*

73. TWBB for September 22, 1999, at *http://www.chinaonline.com/features/taiwan_wrpt/open/c9092320taiwanA4.PDF.*

74. Dan Nystedt, "Undersea cable troubles bode well for new companies," *Taipei Times*, Internet edition, March 24, 2001, available at *http://www.taipeitimes.com/news/2001/03/24.*

75. See Li, *et al.*, *Mao's Generals Remember Korea,* pp. 246-247, citing Chinese historian Shen Zhihua. See also Shen Zhihua, footnote 78 below.

76. Thomas J. Schoenbaum, *Waging Peace and War: Dean Rusk in the Truman, Kennedy, and Johnson Years*, New York: Simon and Schuster, 1988, p. 209.

77. See *Foreign Relations of the United States* (FRUS), Vol. VI, 1950, pp. 291, 304. Although the names of Nationalist Chinese civilian and military figures on Taiwan who the Chinese believed would cooperate with the PRC are excised in the published version, copies of the documents later released include General Sun's name.

78. Clubb's communications in June-July 1949, reported in *FRUS*, Vol. VIII, 1949, pp. 357-410, were sent via the British Legation code facilities. Soviet spy Guy Burgess was in the British Foreign Office China division at the time. Soviet spy Kim Philby arrived in Washington as the MI-6 liaison to the CIA and FBI at the British Embassy in the fall of 1949, according to Chapman Pincher, *Too Secret, Too Long*, New York: St. Martin's Press, 1984, pp. 171-185.

79. See "Hypothetical Development of the Formosan Situation," a six page memorandum classified "Top Secret" (control number 793.00/5350) dated May 3, 1950. It is unsigned, but handwritten initials at the bottom of the last page read "PHN," possibly Paul H. Nitze, then Director of Policy Planning for the Secretary of State.

80.. See Shen Zhihua, *Mao Zedong, Stalin and the Korean War: Chinese and Soviet Top Secret Documents* (*Mao Zedong, Sidalin yu Hanzhan: Zhong Su Zuigao Jimi Dangan*), Hong Kong: Cosmos Books, 1998, pp. 199, 209-210, 220-221. See also Bruce Cumings, *The Origins of the Korean War, Volume II: The Roaring Cataract 1947-1950*, Princeton, NJ: Princeton University Press, 1990, pp. 509-544. Cumings

makes a point of noting that Soviet agents, particularly Guy Burgess, had access to a great deal of U.S. intelligence and foreign policy information on China, probably including the planned Sun Li-jen coup. The circumstantial evidence would have persuaded the Chinese at the time. The precise timing of the North Korean invasion of the South apparently was determined by Stalin. Prisoner of war interrogations of a number of senior NKPA officers including the chiefs of staff of two separate divisions indicated they were given no specific orders to launch until about one week before the invasion actually took place. They uniformly reported that KNPA logistics were completely controlled by Soviet military advisors, and that "they did not supply the trucks required to make the army mobile or the tanks and heavy guns calculated to give it an edge over south Korea in firepower until April and May 1950. Finally the USSR was able to keep close check over the movement of the north Korean Army by allocating gasoline to the army on a monthly basis." See U.S. Department of State, *North Korea: A Case Study in the Techniques of Takeover*; Department of State publication 7118, Far Eastern Series 103, released January 1961, pp. 113-114.

CHAPTER 9

CONCENTRATING FORCES AND AUDACIOUS ACTION: PLA LESSONS FROM THE SINO-INDIAN WAR

Larry M. Wortzel

The Sino-Indian War of 1962 is a source of great pride for China's Peoples Liberation Army (PLA). It followed on the heels of an embarrassing Korean War campaign where China sustained heavy losses and suffered a strategic geopolitical defeat. During the Sino-Indian War, however, the PLA inflicted more damage than it suffered. According to PLA records, more than 8,000 Indian soldiers were killed, wounded, or captured, while Chinese casualties barely exceeded 2,000. More importantly, China's aggressive defense of its borders established the paramount importance of sovereignty to its national identity.

The recipe for war was familiar: a territorial dispute aggravated by excess nationalism. The partition of Kashmir, which followed the Indo-Pakistan War of 1947, resulted in a vaguely defined border between China and India. While India recognized the so-called "McMahon line," China never formally accepted it, opting instead for the "borders of habit" that had existed between adjoining peoples for decades previous. India eventually amassed its troops along its border and orchestrated several gradual incursions that followed a "forward policy" that China characterized as a policy of "nibbling." After failed diplomatic overtures, China pursued "audacious action," engaging in a war of two phases. It first repelled Indian forces from the border and then penetrated deep into Indian territory to destroy India's fighting capacity.

> China's overwhelming victory can be attributed to strong political leadership and proper use of military strategy, or campaign art (*zhanyi zhudong quan*). PLA records show that some 160 small unit leaders were cited for heroism while the much-maligned commissar system did not seem to adversely affect leadership hierarchy or overall morale. Furthermore, in what it characterizes as the "Counterattack in Self Defense on the China-India Border," the PLA exhibited brilliant strategic and tactical decision-making. The PLA deployed a strong force decisively, concentrating strength

at critical points with the ultimate objective of encirclement. They also utilized the element of surprise whenever possible and took better advantage of the weather and terrain, establishing better lines of transport and communication.

The maintenance and defense of definable borders is one of the most important missions of the PLA.[1] Indeed, the sovereignty of borders is a matter of the utmost national importance to China. And to demonstrate just how important sovereignty is to China, in the Sino-Indian War in 1962, Beijing used the PLA and "border defense troops" to demonstrate to the Indian Army that China insisted on observing the borders defined in 1959,[2] and further, did not want to see military exercises, military patrolling, or the firing of rifles or artillery in close proximity to the border.[3]

The PLA took a number of important lessons from its experience in the war against India in 1962. In what it characterizes for itself as the "Counterattack in Self Defense on the China-India Border,"[4] the PLA destroyed the fighting strength and captured personnel of three brigades of the Indian Army. The Indian 7th Brigade, including its commander Brigadier Dalvi, the 62nd Brigade, and the 4th Artillery Brigade were all rendered ineffective. In addition, the PLA seriously mauled five other Indian brigades (the 11th, 48th, 65th, 67th, and 114th).[5]

The PLA is quite proud of its record in the war, especially since it suffered such heavy losses in combat in the Korean War. China's military historians have attributed this success to a combination of audacious action on the battlefield, good leadership, taking advantage of the terrain, good logistics, and strong ideological preparation.[6] By "audacious action" PLA leaders mean the use of initiative and a vigorous offense. On the whole, China's victory was characterized as an example of good strategy and strong initiative in campaign art (*zhanyi zhudong quan).*[7] PLA theorists and historians point to Mao Zedong's discussion of the need to "create local superiority in the campaign" by concentrating strength at decisive points as the inspiration for the conduct of the campaign against India.[8]

THE BACKGROUND OF THE SINO-INDIAN WAR[9]

After India gained independence from Britain, it was split with the formation of a Muslim-majority Pakistan in 1947. A dispute between the two new nations broke out almost immediately over the states of Jammu and Kashmir (hereafter, Kashmir), located along the northernmost part of the border with China.[10] Although Kashmir was predominantly Muslim, at the time of the partition of India and Pakistan the region was ruled by a Hindu who opted to join India when offered the choice to align with either of the two new nations.[11] The first India-Pakistan War of 1947 gave India control of about two-thirds of Kashmir, resulting in a shared border with China of about 600 kilometers within an already disputed piece of terrain in the western sector of the Sino-Indian border.

The Sino-Indian boundary, although not continuous, is about 2,000 kilometers long, and may be subdivided into three sectors: the east, middle, and west. The eastern sector, about 650 kilometers long, runs from the juncture of the borders of China, India, and Bhutan to the juncture of the borders of China, India, and Burma (Myanmar), with southeastern Tibet on the Chinese side and Arunachal Pradesh province on the Indian side. The middle sector extends about 450 kilometers, with the Ali administrative area of western Tibet on the Chinese side and Himachal Pradesh and Uttar Pradesh provinces on the Indian side. The 600-kilometer western sector overlaps areas of Xinjiang and western Tibet on the Chinese side, and the Ladakh Range region of Kashmir on the Indian side.

Although these three sectors of the Sino-Indian boundary have never been formally stipulated in treaty, the traditional borders took shape and were accepted by the peoples of the adjoining countries who maintained generally friendly trade relations across the borders for a long time. The eastern sector of the traditional "borders of habit" (i.e., the traditionally accepted border) was disrupted by Britain and India from time to time during the 19th century. After India's establishment as a sovereign state in 1947, the Indian Government declared that its boundary with China, as delineated by New Delhi, had been fixed according to international treaty law, but the Chinese government disputed this.

THE SECTORS OF THE BORDER

Beginning in about 1950, the Indian Government maintained that the eastern sector of the Sino-Indian boundary was along a partially surveyed feature, "the McMahon Line." British Foreign Secretary Henry McMahon had drawn this line during the Simla Conference held in northern India from October 13, 1913, through July 3, 1914. Representatives from British India, the new but weak Republic of China, and Tibet attended the Simla conference, which, among other goals, sought a "common understanding of the political and geographical meaning of the term Tibet."[12] The government of the People's Republic of China (PRC) has never recognized either the resulting treaty or the McMahon Line. Beijing maintains that the Nationalist (Republic of China) plenipotentiary at Simla, Chen Yifan, did not sign the treaty.[13] One British goal in 1914, the time of the Simla Conference, was to undermine both Chinese sovereignty over Tibet and the authority of its officials within Tibet.

Notwithstanding Chen Yifan's refusal to sign the Simla Treaty, representatives of the pre-1911 Qing dynasty government and the successor Republic of China (Nationalist) government had signed a series of trade agreements and treaties concerning Tibet and the Sino-Indian border area during the period between 1865 (the Anglo-Bhutanese Treaty of Sinchula, November 11, 1865) and the 1914 Simla Conference.[14]

From the time of the establishment of the PRC in October 1949 and throughout the 1950s, India adhered to a policy that emphasized friendly relations with the PRC. Moreover, until 1950, the middle sector of the Sino-Indian boundary had been marked as "not stipulated" on official maps of India. Indeed, as late as March 1959 Indian Prime Minister Jawaharlal Nehru admitted in a letter to Chinese Premier Zhou Enlai that no treaty had stipulated that sector of the boundary.[15] With respect to the western sector of the border, the Indian government likewise admitted in 1959 that the specifics of the boundary had not been stipulated in an exchange of notes between local Tibetan and Kashmir authorities in 1842.[16]

Nonetheless, despite maintaining generally friendly relations and the Indian admissions regarding the ambiguity of the border, India maintained its inherited territorial claims along the disputed border, maintained military border outposts, and involved

itself in the continuing problems China had in reestablishing its traditional control over Tibet.[17] From early 1951 on, Indian troops took advantage of the fact that the PLA had not yet reached and consolidated all parts of its borders, and advanced north, occupying the Tawang Tract in the eastern sector of the border, but not crossing the McMahon Line. Authorities in Tibet vigorously protested but the Indian government ignored them.[18] Then in 1953, Indian troops pushed forward from their positions, which then were called the "line of actual control," to the McMahon Line. In doing so, they occupied about 90,000 square kilometers of territory that, although south of the McMahon Line, was claimed by Tibet.

THE OUTBREAK OF CONFLICT

On August 25, 1959 a squad of Indian troops crossed into the Longju area north of the McMahon Line and opened fire on a team of Chinese frontier guards in a village called Migyitun.[19] The Chinese forces responded to the small arms fire, fighting back in self-defense, in the first armed clash between the two countries. The village of Migyitun was important as a place along a pilgrimage route for Tibetans. According to Neville Maxwell, McMahon had drawn his line in 1914 for the area of Migyitun in a way that did not follow the high points of topography on the map. To facilitate the pilgrimage of Tibetan Buddhists from India and maintain good relations with the Tibetans, McMahon left Migyitun inside Tibet.[20]

In the western sector of the border, on October 21, 1959, a team of Indian troops crossed the traditional border at Kongka Pass, entering Chinese territory. Another firefight developed, during which the Indians again reportedly opened fire first, at least according to Chinese sources, wounding a Chinese frontier soldier. Although Maxwell is unsure of which side actually fired first in these incidents, he notes that the Indian Army suffered one soldier killed and one wounded at Longju.[21]

It is also important to note that the Indian forces in these two incidents were most probably in conflict with Chinese frontier forces (or border defense units), not the PLA main force infantry divisions that were thrown against the Indian Army in 1962. This fact becomes obscured in many of the statements from China, which consistently refer to China's frontier or border forces.[22] The PLA at that time

(as it does today) maintained border defense units with military and public security functions that were more or less permanently assigned to patrol and outpost duties along frontiers. These were light infantry units often supported by artillery or mortars, but they did not have the same training in combat, fire support, maneuver, and communications as the main force divisions of the Chinese combat armies.

After these two clashes, the Chinese government sought a means to relax the tension and resolve the border disputes through dialogue. To prevent the armed conflict from extending or escalating into war, the Chinese government in November 1959 proposed an immediate mutual withdrawal of troops to 20 kilometers from the McMahon Line in the eastern sector of the border, and mutual withdrawal of 20 kilometers from the line of actual control in the western sector. However, Nehru and the Indian government did not respond, and Indian troops remained deployed in their forward positions. The Chinese response was a unilateral decision to withdraw its forces twenty kilometers from the line of actual control between the two countries.[23] In his book *India's China War*, Neville Maxwell says of the incidents:

> After the Longju and Kongka Pass incidents of late 1959, with the realization that an intractable dispute might develop over the boundary question, the expansion of the (Indian) Army became more purposeful, and faster. In November-December 1959, 4 Division was hurriedly transferred from the Punjab to the northeast, and a new division, the 17th created.... 4 Division's responsibility was the McMahon Line, from Bhutan to Burma, about 360 miles.[24]

The Indian government subsequently ordered its own forces to suspend temporarily patrols along the line of actual control. The armed forces of the two sides therefore disengaged, but the calm along the border was sustained for less than 2 years as India initiated its "forward policy" in response to domestic political pressure.

THE "FORWARD POLICY" OF INDIA CHANGES THE SITUATION

During early 1960 India formulated its "forward policy."

Indian forces were to keep continuous pressure along the border, advancing its forces slowly forward to what India sought to define as the delineation, in order to change the status quo of the China-India border. In the spring of 1961, the Nehru administration, under severe pressure from the Parliament to act against China, considered conditions mature enough to implement the policy. International matters, aside from internal politics, also forced Nehru to act on the border. Part of this pressure was a result of the successful Indian military seizure of the territory of Goa from Portugal.

Neville Maxwell makes the point that the Indian Parliament did not tell Nehru to invade Goa, the last colony left on the Indian subcontinent, but that public pressure, particularly pressure from the press, led Nehru to that decision.[25] After the successful invasion of Goa in December 1961, Nehru, Defense Minister Krishna Menon, and the Indian press and Parliament all turned their attention to the Aksai Chin and China.

Once attempts at a negotiated settlement to the border dispute had broken down after the 1959 Longju and Kongka pass incidents, the Indian government decided that its claims would have to be reinforced by continuous patrolling along the border, including active patrolling into disputed areas. Maxwell quotes this from an October 1959 editorial in the *Times of India*:

> New Delhi must assert its rights by dispatching properly equipped patrols into the areas currently occupied by the Chinese, since any prolonged failure to do so will imply a tacit acceptance of Chinese occupation, and a surrender to Peking's threat to cross the McMahon Line in force should Indian patrols penetrate into the disputed areas of Ladakh.[26]

Nehru's other goal was to establish an Indian presence in the Aksai Chin area, where it was clear that China had been building roads approaching to within three miles of the border in addition to the strategic highway that served as the main line of communication for the PLA, linking far western Xinjiang with Tibet.[27] Maxwell believes that the forward policy foreshadowed by the *Times of India* editorial began almost without discussion (he terms it a "virgin birth") in response to the failure of talks between Nehru and Premier Zhou Enlai in April 1960. Various political actors in India, including

Prime Minister Nehru, Defense Minister Menon, and chief of the General Staff of India, Lieutenant General B.M. Kaul, have all taken early credit and later disavowed responsibility for the policy.[28]

Whatever its origins, the forward policy of India rankled Beijing. China's press referred to it as a policy of *can shi,* that is, roughly translated as a policy of "nibbling" at another country's territory. And this is the term used by China's negotiators in talks with India. (The ideograph for silkworm, *can,* is used for this image of "nibbling away;" the literal translation of *can shi* is food or forage for the silk worm, which would destroy a leaf or whole plant by gradually consuming it.[29])

The Chinese government position was still to seek resolution of the border disputes through peaceful means, but sovereignty increasingly became a critical issue for Beijing. During the 1960s, the American Cold War containment strategy against Communism was in full swing. China had fought the United States in Korea and faced the U.S. Navy in the Taiwan Strait crises of 1954-55 and 1958. By the early 1960s, China was faced with what was seen as a "crescent" or half-moon encirclement by the United States based on its military alliances stretching from South Korea and Japan through Okinawa and the Ryukyus to Taiwan and the Philippines. China's strategic focus, therefore, was to the east and the Western Pacific, and China could ill-afford to make an enemy of India.

Serious concerns remained for Beijing, however. The United States had modified its South Asia policy, attaching more importance to India in the Cold War. The 1959 border incidents enabled the Nehru government to approach the United States for more aid, and economic assistance grew substantially between 1959 and 1963. India also received about $60 million worth of military assistance from the United States, including aircraft and radar.[30]

THE GUERILLA WAR BY THE UNITED STATES AND INDIA'S SUPPORT

If the border dispute between India and China was not enough to create conditions leading to war, a continuing clandestine effort to insert guerillas into Tibet by the U.S. Central Intelligence Agency

(CIA) added to the pressures on China. The CIA had worked to develop a guerilla effort in Tibet from the time of the Korean War, and India tacitly, and later between 1959 and 1962 more actively, supported this effort.[31]

The CIA not only sought to have guerillas attack Chinese supply lines through Tibet, but as soon as it became clear that a military confrontation on the border between India and China was likely, guerilla forces were directed to attack Chinese supply lines. Many of the guerillas were inserted by parachute from Nepal, Eastern Pakistan, or Thailand, and few missions were successful.[32] Many of the guerillas were quickly captured or killed, but certainly Beijing had increasing evidence of U.S.-Indian cooperation in the war.

A FALSE WAR OF "NIBBLING" AWAY AT CHINESE-CLAIMED TERRITORY: APRIL 1961 TO SEPTEMBER 1962

From April 1961 onward, as they implemented the "forward policy," Indian troops regularly dispatched patrols into what China viewed as its territory and established a number of fortified points along the border. After February 1962, Indian patrolling intensified, and intrusions into areas claimed by China became more frequent. On the western sector of the boundary, Indian troops established positions on and forward of some of the strategic border passes, further penetrating into Chinese-claimed territory.

It looked to Beijing like New Delhi had embarked upon a slow process of occupation of the entire Aksai Chin. This was a region where China could least afford any compromise. As early as 1956, China had begun to build the road from Xinjiang to Tibet through the Aksai Chin, improving the existing Xinjiang-Tibet link. The road was all within Chinese territory on Chinese maps, but some 112 miles of the 750 mile-long road cut through territory claimed by India.[33] India had been aware of this activity throughout the 1950s, and it was a factor prompting the forward policy. For Beijing, however, this was a vital strategic link consolidating PRC control over both Xinjiang and Tibet. The road was the main, indeed the only, developed road link along China's western border between the two provinces.

India's forward policy, creeping in to the proximity of the road as it did, seriously threatened the security of China's highway and

flanked PLA border outposts, aggravating the tension on the China-India border. China's political leaders sought to exercise restraint. Orders from the PLA's General Staff Department to Chinese forces were that they should not open fire first and should try to avert any armed conflict with Indian troops.[34] At the same time, the Chinese government repeated its appeals to the Indian government to resolve the border dispute through negotiations. In April 1960, Zhou Enlai made a week-long visit to India and concentrated considerable effort on resolution of the territorial disputes. The proposals put forward by the Chinese side included settling the boundary question between the two countries through discussion, while both sides refrained from patrolling along all sectors of the boundary. More meetings were held between June and December 1960, without results. From December 1961 to April 1962, the Chinese government again appealed several times to the Indian government for peaceful resolution of the border disputes, but the Indian government refused. After the diplomatic efforts failed, Chinese troops resumed the patrols within 20 kilometers inside China's side of the line of actual control that had been suspended in November 1959.[35]

BEIJING'S "ANTI-NIBBLING" OPERATIONS: CHINA ISSUES RULES OF ENGAGEMENT

In July 1962 Chairman Mao Zedong instructed the PLA on the guiding principles to counter India's *can shi zheng ce*, or "nibbling policy." Briefly stated, China's "anti-nibbling" rules told PLA troops: "Never make a concession, but try your best to avert bleeding; form a jagged, interlocking pattern to secure the border; and prepare for long-time armed co-existence."[36] The PLA General Staff Department headquarters told Chinese troops to implement the rules of engagement strictly, and explained the guiding principles in greater detail:

- If Indian troops do not open fire, Chinese frontier guards should not open fire.

- If Indian troops press on toward a Chinese sentry post from one direction, Chinese frontier guards should press on towards

the Indian stronghold from another direction.

- If Indian troops encircle Chinese frontier guards, another Chinese force should encircle the Indian troops.

- If Indian troops cut off a retreat route for Chinese forces, Chinese frontier guards should cut off the Indian troops' retreat.

- Chinese forces should keep a distance away from Indian troops, leaving them some leeway, and withdraw if Indian forces permit withdrawal.[37]

On the western sector of the border, Chinese frontier sentry posts formed the jagged, interlocking defense pattern designed to neutralize Indian strongholds that was suggested by Mao Zedong. On several occasions, Indian troops opened fire at Chinese forces, but the Chinese frontier guards maintained restraint. Meanwhile, the PLA implemented its own "anti-nibbling measures and special tactics." The PLA increased both its forces and its security positions on the border, increased the size and frequency of its patrols, and established control of forward strategic positions. When PLA forces encountered Indian forces, they first fired warning shots if they believed that Indian troops were guilty of intentional provocations. Finally, they returned fire or attacked in self-defense if fighting broke out.[38] During this "anti-nibbling" phase of hostilities, the PLA focused on the western sector of the China-India border, because the Indian forward policy was primarily intended to secure Indian claims to the Aksai Chin area.

On the eastern sector of the border, on September 9, 1962, the Indian Army gave an urgent order to some of its best troops, the Seventh Brigade of the Fourth Division, to cross the McMahon Line. The brigade occupied Kejielang (Khinzemane is the Indian name for the position), north of the McMahon Line. The Indian action was taken despite the fact that the area was marked on many Indian Army maps of the time as China's territory. This helped lead China's leaders to a final decision to launch a counterattack.

THE COURSE OF THE BORDER WAR

The course of what Beijing defined as a "self-defensive counterattack" can be divided into two phases. The initial reaction by China's Central Military Commission (CMC) in September 1962 was to react rather passively to Indian incursions and any Indian presence on the Chinese side of what Beijing saw as the line of control and the disputed border. Beijing first sought only to drive invading troops back across the border. Then, later in this phase, when faced with a strong Indian military reaction, it sought to wipe them out. In the second phase, beginning in late October, Beijing sought to penetrate deeply into Indian territory to punish the Indian Army and to destroy its fighting capacity.

The First Phase.

By September 8, 1962, the headquarters of Indian Army had ordered the Seventh Brigade of its Fourth Division, commanded by Brigadier John S. Dalvi, to cross the Thag La Ridge and establish forward posts. The brigade was stationed in Kejielang, and on that day a Chinese patrol advanced toward and surrounded an Indian outpost at Dhola, which was inside Chinese territory.[39] The Chinese force in this affair was about 60 soldiers, but the Indian post commander reported to his headquarters that he was facing a force of 600 from the PLA.[40] The Indian Army reacted by sending more troops into the Thag La Ridge area to relieve the Dhola outpost and push back what it mistakenly believed to be a battalion-sized force of PLA. By September 14, the inaccurate report of the size of the Chinese force had been corrected, but New Delhi still went forward with its plan to evict the Chinese, since the Indian Army had already dispatched a strong reaction force and it felt assured of success.

Meanwhile, Beijing launched a diplomatic protest against the Indian advances on September 16, seeking to avoid combat. For some time, both sides engaged in a tense dance, building up their forces, occupying better positions, storing ammunition, and preparing for combat, while letters of protest and demarche were exchanged between the two capitals.

On October 10, 1962, the Indian Brigade moved against PLA

troops garrisoned about one kilometer east of Che Dong, on the Thag La Ridge. In a particularly well-coordinated and effective attack, Indian forces killed five Chinese soldiers and injured five others.[41] Then, on October 12, Indian Prime Minister Nehru issued the order to launch an all-out attack against Chinese frontier guards on the border.

At this juncture, having been stung, China seems to have reached a decision that the provocations were no longer tolerable, especially given New Delhi's arrogance and imperviousness to Chinese diplomatic protests. On October 16, 1962, the Chinese CMC decided on a counterattack designed to destroy Indian forces that had crossed the McMahon Line. In the western sector, according to the same order, Chinese troops were to play a supporting and coordinating role. On October 17, the CMC issued its operations order, and the General Staff Department of the PLA sought in its plans to muster and concentrate its forces for a quick, decisive battle against the Indian Army, seeking first to encircle the invading Indian troops, and then to wipe them out.[42]

The major operational orientation of the Chinese offensive was on the eastern sector of the border, along India's North-East Frontier Agency (NEFA) and the McMahon Line. The PLA chose to focus on the eastern sector since this was where Indian troops had launched their own large-scale attacks starting in September 1962. Another decisive factor drove tactical orientation in the campaign toward the eastern sector: the terrain and geographical features there were more advantageous for the PLA, permitting it to attack and defeat major units of the Indian Army.

By October India had deployed the Fourth Division, three other brigades under the command of the Fourth Army, and some garrison forces on the eastern sector of the boundary—a total of about 16,000 troops. Among them, the Seventh Brigade commanded by Brigadier Dalvi had about 3,000 troops, including four infantry battalions and some supporting artillery units. Dalvi's Seventh Brigade contained the decisive combat strength of the Fourth Division and had compiled a solid combat record in North Africa and the Middle East during the Second World War.

The Chinese assembled a smaller force of about 10,000 troops on the eastern sector, under the command of the Tibetan Military Region

and consisting of five infantry regiments and some artillery units. In contrast to the Indian forces, however, PLA troops were acclimated to the terrain and had better roads and supply lines approaching the border. On October 20 the PLA began its counterattack against the Indian troops, focusing on Kejielang north of the McMahon Line. At 7:30 am, Chinese artillery began 15 minutes of preparatory shelling, destroying Indian artillery positions and parts of Indian fortifications. Chinese infantry then broke through the Indian fortifications. Within 1 day, the PLA wiped out the Indian Seventh Brigade and captured its commander Brigadier Dalvi. One day later, the PLA forces again crossed the McMahon Line, recovering the area around Zimithang.[43]

Chinese troops counterattacked simultaneously on the western sector of the border, where by October the Indian Army had deployed about 6,000 troops, including the 114th Brigade with six battalions. Of these forces, about 1,300 Indian troops had been stationed in some 40 strongholds or outposts placed in what China viewed as its own territory. In response, China had deployed about 6,300 troops, including two infantry regiments, some independent battalions, and supporting artillery units, forces that operated under the command of the Kangxiwa Headquarters of the Xinjiang Military Region. At 8:25 a.m. on October 20, Chinese troops initiated a general artillery barrage assault and followed with an infantry assault on the Indian positions. The first Indian stronghold was captured in only eighty minutes, according to Chinese archives.[44] The PLA then followed up with a series of actions against each of the Indian garrisons, surrounding them and eliminating them one after another. By October 29, Chinese troops had mopped up all of the Indian strongholds around the banks of Pangong Lake, eliminated parts of the four Indian battalions that made up the 114th Brigade, and recovered 1,900 square kilometers of Chinese territory. The Indian Army was beaten by a force that left itself free to maneuver, even in that difficult terrain, while the Indians had tied themselves down to fixed, dispersed outposts, much as the Nationalist Army had done in the Chinese Civil War.[45]

The Second Phase.

While Chinese forces were engaged in combat in both the eastern

and western sectors of the border, Beijing still sought a negotiated solution. On October 24 the Chinese Foreign Ministry proposed three measures to resolve the border dispute and end the combat.[46] The Nehru administration, however, prodded to war by the Indian press and encouraged by American and Russian support, refused the proposals. The result was that by November 6, 1962, despite a vigorous counteroffensive called Operation LEGHORN, the PLA prevailed over the Indian Army.[47]

In mid-November 1962, the Indian government declared a state of national emergency throughout the country.[48] After intensive activity involving the movement of major Indian military forces, about 50,000 Indian troops had been sent as reinforcements to the China-Indian border, including a corps headquarters for command and control, the headquarters of three divisions, and 14 maneuver brigades subordinate to the respective division headquarters. The focus was still on the eastern sector where the Indian Army deployed about 22,000 troops, commanded by the corps headquarters; they made up three divisions, with a total of eight brigades. In all, India deployed 28 battalions to the border. Among them, the Fourth Division with its five brigades (including 15 battalions), which had a total strength of about 15,000 soldiers, was deployed in the area from the southern bank of Tawang River to Tezpur.[49]

To counter the Indian deployments, the PLA General Staff Department (GSD) sent two more divisions into Tibet. According to the noted historian of the PLA, William Whitson, both of these divisions came from the 46th Corps (or Army, since a PLA army at that time was equivalent to an Indian corps).[50] The GSD-directed deployment increased Chinese troop strength on the eastern sector of the border to five somewhat understrength divisions – in total, about 25,000 soldiers. With these deployments complete, the CMC on November 12, 1962, ratified the PLA second phase plan of operation. Chinese troops were to begin an offensive designed to wipe out three to four Indian brigades, including the brigades in the Tawang Tract and the single brigade in Walong, also in the eastern sector near Burma. In the western sector, the operations plan called for the PLA to eliminate the invading Indian troops in strongholds in the area of Pangong Lake.[51]

On the morning of November 16, 1962, Chinese troops began a general counterattack against eastern sector Indian troops, starting

in Walong. By that evening, Chinese troops had seized Walong and wiped out more than 1,200 Indian troops. Then on November 18 the PLA launched a second successful eastern sector counteroffensive in the Se La-Bomdi La area. This effectively eliminated the strength and combat capability of most of three Indian brigades and recovered a great deal of Chinese territory south of the McMahon Line. Chinese troops reached a point about 30 kilometers from Tezpur, an important town in the eastern sector, and were faced by only an Indian battalion deployed north of Tezpur.

India had increased its troop strength to 15,000 on its western sector after its losses in the first phase of the war. The PLA launched its second phase western sector offensive on the morning of November 18, and by the morning of November 20, Chinese troops had wiped out all six Indian strongholds west of Spangur Lake.[52]

CHINA ANNOUNCES A UNILATERAL CEASE-FIRE

Under the circumstances, China had full capacity to realize the boundary it claimed, but Beijing exercised restraint. Zhou Enlai called the Indian *charge d'affaires* in Beijing to his residence on November 19 and informed him that, effective November 21, Chinese forces would cease fire; on December 1, Zhou said, Chinese forces would withdraw 20 kilometers from the line of actual control all along the disputed border.[53] For some reason, as reported by Maxwell based on his review of Indian archives, the *charge d'affaires* seems to have delayed a full day reporting this matter to New Delhi. As a consequence, India first learned of the Chinese cease-fire from an announcement made in Beijing before midnight on November 20.[54] Chinese troops ended the hostilities on November 21 and began an orderly withdrawal as promised along the entire border to positions 20 kilometers behind the line of actual control as determined in November 1959. These actions, in the Chinese view, reflected efforts to resolve the dispute peacefully and restore friendly relations. The disengagement of the armed forces of the two sides and the formation of a de facto 20 kilometer-wide demilitarized zone proved a positive step that has helped to maintain a peaceful border to this day. Moreover, Beijing's actions laid a foundation for the eventual improvement of relations during the late 1980s to mid 1990s.

LESSONS OF COMBAT LEADERSHIP AND COMMUNIST PARTY ACTIVITIES

Senior Chinese leaders argue that a major lesson of the Sino-Indian War is that the strong political leadership of the Communist Party contributed significantly to China's victory. In Western military literature, one of the main critiques of the PLA's political commissar system, and the function of the political commissar in a PLA unit, is that the political commissar system interferes with or usurps the duties of the commander. If this is true, the political commissar system, and the General Political Department (GPD) of the PLA that runs it, can be a hindrance in combat, preventing decisive action and costing lives. Senior PLA leaders deny that this is the case. Instead, they argue that the GPD and the political commissar system is a source of inspiration and esprit d'corps that helps the commander under the most difficult combat conditions.

One way to understand leadership style in the PLA and to gain some understanding of the role of the party member or political commissar is to look at the results of combat. Are PLA commanders leading? Are political commissars out doing the job of the commander leading troops in combat? Casualty rates and awards for heroism give some hint of the answer to these questions. An examination of one case study from the Sino-Indian War provides empirical evidence that supports the claims of senior PLA officers.[55]

The PLA showed great acumen in carefully executing the campaign according to the guidelines formulated by Chinese Communist Party (CCP) Central Military Commission: 1) "to beat Indian troops soundly," and 2) "to wipe out the invading Indian forces totally and rapidly."[56] According to PLA records from archives, Indian casualties during the war were 4,897 killed or wounded and 3,968 captured.[57] The Indian Defense Ministry, in 1965, showed 1,383 Indian soldiers killed, 1,696 missing in action, 3,968 soldiers captured, and 1,047 soldiers wounded.[58] In comparison, PLA casualties in the war were quite small, with 722 Chinese soldiers killed and 1,697 wounded.[59] In addition, no soldier of the PLA was captured during the war, a rarity in the history of warfare.[60] The PLA did all of this damage to the Indian Army with the equivalent of a reinforced corps (army), deployed and massed at the critical points along the border.[61]

In that war, according to an appendix of the PLA history of the "self-defensive counterattack," some 327 soldiers and officers of the Chinese force were given awards for heroism. Over half of these awards were given to members of the Chinese Communist Party or, in the case of younger soldiers, the Communist Youth League. This is a small case from which to extrapolate the data, but it seems clear that, unless party affiliation was a criterion for being considered a hero, the PLA's claims that CCP membership and the existence of the political commissar system may help build esprit d'corps. Moreover, it is clear that Chinese military leaders lead from the front and Communist Party members seem to follow them and emerge as leaders. That is, a substantial number of small unit leaders, whether squad leaders or platoon and company grade-officers, were given awards for heroism in combat. In fact, some 160 small unit leaders were cited for heroism, of which 114 were CCP members. Among basic soldiers, 158 "fighters" and medics were given awards, of which 54 were party members. Only three political commissars or political directors got awards.

These data are limited, and it is generally not a good idea to generalize from one case. But this may be the best case from which to work, since the PLA has not published all of its combat records and records of decorations for bravery in the public domain. That said, the examination of the combat decorations given for bravery in the Sino-Indian War suggests that PLA leaders lead from the front. Party membership seems to result in leadership behaviors in other situations, and the responsibility that seems to flow from being part of an elite organization like the communist party appears to make soldiers and leaders take greater risk. The work of the GPD in promoting unit lineage and history probably also contributes to the willingness of ordinary soldiers and leaders to take extraordinary risks. The award data seem to imply that political commissars, directors and instructors, if one can extrapolate from this single case, stay out of the way of the commander in combat. They may not have been a hindrance, but the data don't decisively prove they help. The GPD is changing its role, however. It is studying the ways that Western militaries build morale and esprit as well as the personnel, retirement, and legal systems of other armed forces.

LESSONS FROM COMBAT

One of the fundamental precepts in PLA literature on the Sino-Indian War is that troops should execute sudden attacks or counterattacks to catch the enemy unprepared *(Turan faqi fanji shi Yinjun cuo shou bu ji)*.[62] That is, the PLA values surprise. Second, PLA tactics emphasized the rapid concentration of force at decisive points to surround enemy forces and defeat them in detail (*Jizhong youshi bingli*).[63]

PLA histories also emphasize that the superior knowledge of the terrain and the region by Chinese border troops and reinforcing main forces gave them the ability to take advantage of difficult terrain. For example, the PLA was able to operate more effectively in deep valleys and densely forested areas, in darkness, or when cloud or mist obscured visibility. PLA histories also take note of the need to be flexible in applying traditional warfighting and altering tactics and doctrine because of the complexity of the terrain and the weather.[64] One way that the PLA adapted quickly to the challenges posed by the terrain was to advance on parallel routes to one point of attack. This was a tactic in the Sino-Japanese War, such as in the Hundred Regiments Campaign.[65]

The establishment and decisive use of a relatively strong reserve by battalion and regimental-sized units was also a significant lesson the PLA took from the war.[66] The use of reserves at the proper time contributed to the ability to mass combat power quickly and decisively at important points on the battlefield. As a general rule, "PLA border forces were able to mass three and one-half to four times the combat power of Indian forces at the decisive point of combat."[67] Massing fire effectively was also a critical factor in combat. At one point cited in the PLA history, an Indian platoon surrendered to a seven-man squad that concentrated its fire at the decisive place and time. At another point, five platoons of the PLA concentrated at the right point forced the surrender of an Indian infantry battalion.[68]

Throughout the first phase of the war the PLA believed that Indian forces generally enjoyed the advantage of better lines of transport and better communications in the rear area. They believed that this was because during the period of executing the "forward policy" the Indian Army had developed an effective infrastructure

along the border. The lesson the PLA took to the second phase of the war was to work harder at coordinating more carefully among its own arms and support services.[69]

The PLA adjusted the military force employed in a particular situation to the terrain and the Lines of Communication available. This was especially critical in the west, which was harder to re-supply. Thus the classic formula of METT (mission, enemy, terrain, and troops) is one that the PLA values as a consideration in combat as much as any western army.[70] In the east, mobility in difficult terrain was the most important factor. Indian forces in this area feared most the ability of the PLA to flank them, surround them, and take away Indian lines of communication and re-supply.[71] The 11th Infantry Division of the PLA, especially, was able to run effective combat operations against the Indian Army through aggressive combat reconnaissance that ultimately isolated Indian positions, surrounded Indian forces, and caused them to collapse in such situations,

The PLA was able to exploit the difficult terrain and the large gaps between Indian forces through the maneuver of small units that eventually surrounded Indian outposts and combat positions. The PLA thus planned to divide the Indian positions into segments and take them one at a time.[72]

The PLA focused on attacking both flanks of an isolated unit, rolling it up from the flanks in a double envelopment, while pinning down the center with automatic weapons and mortar fire. Units then collapsed if taken by surprise in such an attack.

CONCLUSIONS

The lessons the PLA takes from the Sino-Indian War reinforce the most enduring principles of war: surprise, mass, maneuver, and use of terrain and weather. For the PLA, the terrain and the weather conditions made it extremely important that its forces focus on tactical movement, careful campaign planning, coordinated logistics, and effective command and control.[73]

The political leadership of the Central Military Commission was cited as extremely important in ensuring that the use of military initiative created the political conditions conducive to resolving the

conflict on Beijing's terms in the "diplomatic struggle."[74]

ENDNOTES - CHAPTER 9

1. Mao Zhenfa, *Bianfang Lun* (*On border defense*), Beijing: Junshi Kexue Chubanshe, 1996, p. 1.

2. The Chinese government complained to India that on August 25, 1959, Indian troops opened fire on Chinese border patrols troops. This period also began the start of New Delhi's "Forward Policy," which pushed Indian forces toward borders recognized by India and increasingly pressured Chinese border forces to move away from contested areas. This incident led to a series of exchanged between Chinese Premier Shout Inlay and Indian Prime Minister Nehru on the mutual border, patrolling, and demarcation. Deng Lifeng, *Zhong-Yin Bianzheng* (*The Sino-Indian Border War*), Department of History, Academy of Military Science, China, on *http://argo.virtualave.net/_private/wars/zhiyin.htm*.

3. Specifically, the Chinese position was that there should be no shooting or patrolling within 30 kilometers of the border and no military exercises within 20 kilometers. Ma Zhenfa, *Bianfang Lun*, p. 119.

4. *Zhong-Yin Bianjing Ziwei Fanji Zhan*. See Tong Bai, *et al.*, eds, *Junren Shouce* (*Soldier's Manual*), Beijing: Changzheng Chubanshe, 1987, p. 59.

5. Xu Yan, *Zhong-Yin Bianjie Zhizhan Lishi Zhenxiang* (*The historic truth of the Sino-Indian border war*), Hong Kong: Tian Di Publishing Co., 1993, p. 184. Cited hereafter as *Zhong-Yin Bianjie*.

6. Jiang Siyi and Li Hui, *et al.*, eds., *Zhong-Yin Bianjing Ziwei Fanji Zuozhan Shi* (*The history of China's counterattack in self-defense on the Sino-Indian border*), Beijing: Junshi Kexue Chubanshe, 1994, pp. 391-424. Cited hereafter as *Zhong-Yin Bianjing Ziwei*.

7. The relationship between effective strategy and initiative in conducting a campaign in PLA doctrine is explained in Li Jijun, *Junshi Zhanlue Siwei* (*Thinking about military strategy*), Beijing: Junshi Kexue Chubanshe, 1996, pp. 115-117. Lieutenant General Li bases his discussion on Mao's essay "*On Protracted War.*" See Mao Zedong, "On Protracted War," in *Selected Works of Mao Zedong, Vol II*, Peking: Foreign Languages Press, 1965, pp. 113-184.

8. Mao Zedong, "On Protracted War," pp. 165-166.

9. This section of the chapter draws on a paper prepared by Zheng Feng and Larry M. Wortzel for a conference hosted by the Center for Naval Analysis on PLA warfighting. That chapter is scheduled for publication as chapter 8 of a book on

PLA warfighting to be published by M. E. Sharpe. The discussion also draws on Larry M. Wortzel, *Dictionary of Contemporary Chinese Military History*, Westport, CT: Greenwood Press, 1999, pp. 224-225.

10. Edgar O'Balance, "The Strength of India," *Military Review*, January 1962, pp. 25-35.

11. Of note, several key leaders of India at the time of the Sino-Indian border war in 1962 were from Kashmir, including the Prime Minister, Jawaharlal Nehru; Defense Minister Krishna Menon; and the commander of Indian forces in the North-East Frontier Agency (NEFA), Lieutenant General B. M. Kaul.

12. In the view of China, which, after the 1911 revolution, had yet to regain traditional Chinese influence in Tibet, the Tibetan representative accepted the McMahon Line only secretly and under pressure from Mr. McMahon. McMahon put the map with the Line on it in the appendix of the Simla Treaty and the Chinese view is that the Chinese representative did not accept the McMahon Line and did not sign the Treaty formally during the Simla Conference. No Chinese government has ever recognized the McMahon Line and the Simla Treaty. An excellent description of the history of the McMahon Line and the process of the Simla Conference may be found in Neville Maxwell, *India's China War*, New York: Pantheon Books, 1970; Bombay: JAICO House, 1971, pp. 39-64. The quote is from Alistair Lamb, *The McMahon Line: A Study in Relations Between India, China and Tibet, 1904-1914*, two volumes, Vol. 1, London: Routledge and Kegan Paul, 1966, p. 3.

13. Chen Yifan had initialed an earlier draft of the treaty, on April 27, 1914. Chen, however, would neither initial nor sign later versions, particularly the text of July 3, 1914. Chen's refusal was over changes to the text, which referred to maps of the border. Alistair Lamb, *The McMahon Line: A Study in Relations between India, China and Tibet, 1914*, Vol. I, London: Rutledge and Kegan Paul, 1966, pp. 638-639.

14. Lamb, *The McMahon Line*, pp. 3-9. In the late years of a weakened Qing dynasty, the British-sponsored Sikkim Convention of 1890-1893 had defined Tibetan boundaries and established commercial relations with British India, and in 1904 Tibet and Great Britain signed an Anglo-Tibetan Convention.

15. Xu Yan, *Zhong-Yin Bian Jie*, p. 45.

16. Exchange of notes between Prime Minister Nehru of India and Prime Minister Zhou of China, August 28, 1959. Cited in Xu Yan, *Zhong-Yin Bian Jie*, p. 45.

17. Statement of Foreign Minister Chen Yi, *Survey of the Mainland China Press*, December 12, 1961, p. 27; Chou Chun-li, "Sino-Indian Border Situation Worsens,"

Peking Review, Vol. V, No. 29, July 29, 1962, pp. 14-16. On Indian involvement in Tibet, see Lowell Thomas, Jr., *The Silent War in Tibet*, New York: Doubleday and Co., 1959; Michel Piessel, *The Secret War in Tibet*, Boston: Little Brown and Co., 1972; George N. Patterson, *Tibet in Revolt*, London: Faber and Faber, 1960; Allen S. Whiting, *The Chinese Calculus of Deterrence: India and Indochina*, Ann Arbor: University of Michigan Press, 1975; Sam Marcy, *Facts Behind the China-India Border Dispute*, October 26, 1962, *http://www.workers.org/marcy/china/2_5.html*. Marcy is an American Communist who analyzes the border issue from a Marxist perspective.

18. Neville Maxwell, *India's China War*, p. 73.

19. Deng Lifeng, *Zhong-Yin Bianzheng*, p. 3.

20. Maxwell, *India's China War*, p. 107.

21. *Ibid.*, pp. 110-111.starthere

22. *Zhongguo Dabaike Quanshu: Junshi (A complete encyclopedia of China: Military)* Vol II, Beijing: Zhongguo Dabaike Quanshu Chubanshe, 1989, pp. 1371-72.

23. *Ibid.*, 174-176.

24. *Ibid.*, pp. 183-183.

25. *Ibid.*, pp. 226-227.

26. *Ibid.*, p. 174. The editorial was published on October 11, 1959.

27. Whiting, *The Chinese Calculus of Deterrence*, p. 107.

28. Lieutenant General B.M. Kaul, *The Untold Story*, New Delhi: Allied Publishers, 1967, p. 280; Maxwell, *India's China War*, p. 174. See also V.B. Karnik, *China Invades India*, New Delhi: Allied Publishers, 1963.

29. Xu Yan, *Zhong-Yin Bian Jie*, p. 87

30. Sarvepalli Gopal, *Jawaharlal Nehru: A Biography, Volume III: 1956-1964*, Cambridge, MA: Harvard University Press, 1984, p. 252; Rowland, *A History of Sino-Indian Relations*, pp. 97-99.

31. Kenneth Conboy and James Morrison, *The CIA's Secret War in Tibet*, Lawrence, KA: University of Kansas Press, 2002. See especially pages 120-145.

32. *Ibid.*, pp. 69-92.

33. Maxwell, *India's China War*, pp. 86-89, 181, 205, 254.

34. Deng, *Zhong-Yin Bianzheng*, pp. 4-5.

35. Maxwell, *India's China War*, pp. 205, 254.

36. Xu Yan, *Zhong-Yin Bian Jie*, p. 87.

37. Jiang and Li, *Zhong Yin Bian Jing Zi Wei*, p. 143.

38. Xu Yan, *Zhong-Yin Bian Jie*, pp. 88-91.

39. *Ibid.*

40. Maxwell, *India's China War*, pp. 296-297, 306-308.

41. Allen Whiting, *The Chinese Calculus of Deterrence*, Ann Arbor: University of Michigan Press, 1975, p. 107. Whiting was a U.S. government official at the time, and had good access to information on the situation.

42. Xu Yan, *Zhong-Yin Bian Jie*, pp. 103-105.

43. *Ibid.*, pp. 121-134.

44. *Ibid.*, pp. 134-139.

45. *Ibid.*, p. 139; Maxwell, *India's China War*, pp. 356-359.

46. Maxwell, pp. 360-362; *Collection of Documents on the Foreign Affairs of the People's Republic of China: 1962*, Beijing: World Affairs Press, 1964, p. 109.

47. Maxwell, pp. 366-373.

48. John Rowland, *A History of Sino-Indian Relations: Hostile Coexistence*, Princeton, NJ: D. Van Nostrand Co., 1967, p.169.

49. Xu Yan, *Zhong-Yin Bian Jie*, p. 145.

50. William W. Whitson with Chen-Hsia Huang, *The Chinese High Command: A History of Communist Military Politics*, New York: Praeger Publishers, 1973, pp. 488-489.

51. Xu Yan, *Zhong-Yin Bian Jie*, pp. 148-188.

52. *Ibid.*, p. 180-185.

53. Maxwell, *India's China War*, pp. 417-418.

54. *Ibid.*, p. 417.

55. Jiang Siyi, Li Hui, *et.al.*, eds., *Zhongyin Bianjing Ziwei Fanji Zuozhan Shi Zhong Yin Bian Jing Zi Wei Fan Ji Zuo Zhan Shi (The history of China's counterattack in self-defense on the Sino-Indian border)*, Beijing: Tian Di Publishing Co., 1994.

56. Xu Yan, *Zhong-Yin Bian Jie*, P. 184.

57. *Ibid.*, p. 185.

58. *Ibid.*

59. Deng Lifeng, *Zhong-Yin Bianzheng*, p. 10. Deng puts total Chinese casualties at approximately 2400.

60. Xu Yan, *Zhong-Yin Bian Jie Zhi Zhan Li Shi Zhen Xiang (The historic truth of the Sino-Indian border war)*, Hong Kong: Tian Di Publishing Co., 1993 cited hereafter as *Zhong-Yin Bian Jie*. The other major work to come out is Jiang Siyi and Li Hui, *et al.*, eds. *Zhong Yin Bian Jing Zi Wei Fan Ji Zuo Zhan Shi (The history of China's counterattack in self-defense on the Sino-Indian border)*, Beijing: Tian Di Publishing Co., 1994.

61. Cheng Feng and Larry M. Wortzel, "PLA Operational Principles and Limited War: The Sino-Indian War of 1962," a paper prepared for the Center for Naval Analyses, 1999.

62. Jiang and Li, *Zhong-Yin Bianjing Ziwei*, p. 398.

63. *Ibid.*

64. *Ibid.*, pp. 398-400.

65. Wortzel, *Dictionary of Contemporary Chinese Military History*, pp. 116-17.

66. Jiang and Li, *Zhong-Yin Bianjing Ziwei*, p. 399.

67. *Ibid.*

68. *Ibid.*, 399-400.

69. *Ibid.*, p. 400.

70. *Ibid.*

71. *Ibid.*, p. 401.

72. *Ibid.*, p. 402.

73. *Ibid.*, pp. 403-404.

74. *Ibid.*, p. 400.

CHAPTER 10

THE 1979 CHINESE CAMPAIGN IN VIETNAM: LESSONS LEARNED

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and
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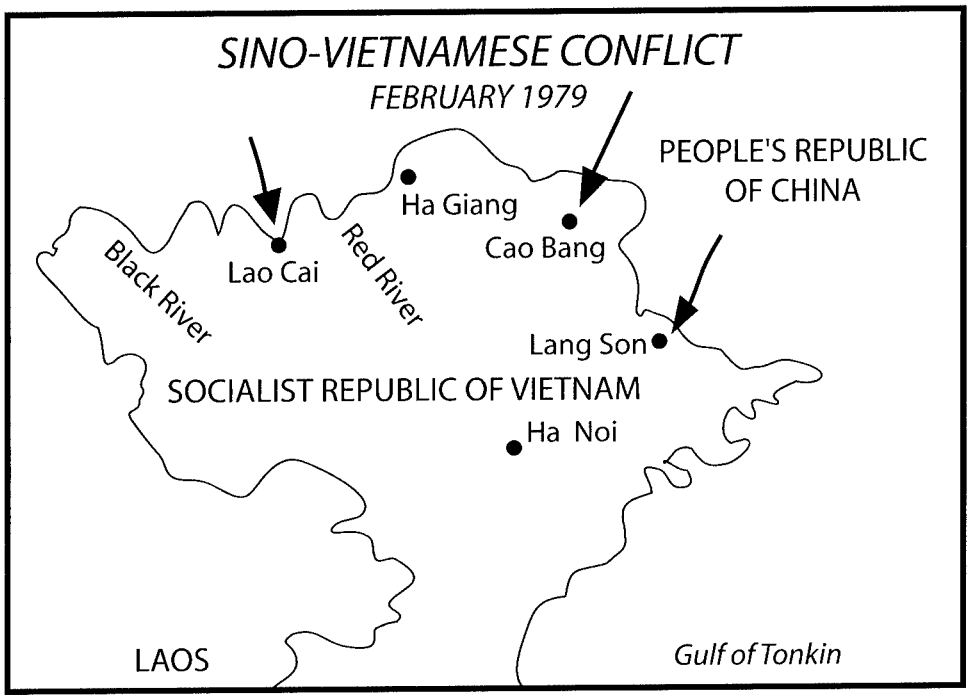
Overview of the Campaign.

At 5 a.m. on the morning of February 17, 1979, Chinese troops from at least 30 divisions raced across the Sino-Vietnamese border and into the fire of entrenched and experienced Vietnamese soldiers. The Chinese launched their attack as a response to a decade of deteriorating relations with Vietnam.[1] The mission of the Chinese soldiers was to teach the Vietnamese that Vietnam could not attack Chinese client states, in this case Cambodia, with impunity. The operational objectives of the Chinese attack were to seize three provincial capitals: Lao Cai, Cao Bang, and Lang Son. The Chinese also raided or feinted at about 25 smaller towns along the border. Although the Chinese ultimately seized the three cities, the Vietnamese defenders, a small force of five divisions and some local force units and militia, extracted a high price in men and materiel for the attack. On March 5, the day after their forces finally took Lang Son, the Chinese announced their withdrawal. After another 10 days of fighting, the Chinese completed their withdrawal on March 16. The Chinese probably lost about 63,000 dead and wounded soldiers in the attack.[2]

What lessons did the Chinese learn from the short, bitter campaign against the Vietnamese in 1979?[3] This chapter will examine the lessons the People's Liberation Army (PLA) learned from its incursion into Vietnam and look for evidence that the lessons of the 1979 Campaign shaped the PLA modernization program. To accomplish this task, we will explore, first, the lessons the Guangzhou Military Region Infantry School reported in 1979;[4] and, second, the lessons derived from an Academy of Military Sciences (AMS) study conducted in



Map 1.

1997.[5] Since the lessons the PLA published in 1997 vary in some significant ways from the lessons that were reported in 1979, it is likely that the Chinese continue to analyze the historical record and the lessons are having an impact on their current modernization program. It is interesting to note that there are problems the PLA did not highlight in their studies. These problems may be as important as the lessons they did. Therefore, we will examine areas we anticipated would have been deemed important by the PLA but were not highlighted in their analysis. We will seek to determine why the PLA did not bring these areas out in their lessons-learned analysis. If there were, in fact, significant lessons, we will try to determine what the PLA has done about them. Finally, we point out that there have been important changes in military affairs since the 1990s, and these changes are a significant intervening variable in our understanding of the lessons the Chinese learned from the 1979 Campaign.

Lessons Learned: The 1979 Assessment.

The faculty and students of the Guangzhou Military Region Infantry School (*Guangzhou Junqu Bubing Xuexiao*) had a unique perspective on the events of the 1979 Campaign.[6] At the direction of the Military Region headquarters, the school assigned its faculty and students to the Chinese armies that deployed to Vietnam from Guangxi province. Cadre and troops from the school served with the 41st Army and the 42nd Army during the attack on Cao Bang, and they served with the 43rd and 55th Armies during the attacks on Lang Son. The temporarily assigned schoolmen knew the way the PLA was trained to fight, and they saw the way the PLA actually fought. Therefore, the record of their observations is extremely helpful in developing an understanding of the lessons the PLA drew from their experience in Vietnam. The problems the cadre and students from the infantry school found in the four armies were very basic. In fact, the skills needed to solve these problems are frequently taught in basic training in other armies.

The faculty and students of the Infantry School thought that the Chinese troops used very poor basic infantry tactics. Although the Chinese infantry were fit and capable of making enormous sacrifices, the massed infantry attacks, favored by the Chinese, frequently failed.[7] Student Han Changyuan, who replaced a platoon leader during attacks on a Hill 480 (unlocated), observed the problem and experimented with a new tactical scheme to solve it. After failing to take the hill, Han broke his platoon down into small groups and returned to the attack. This time, however, Han ordered one small group to advance while the other groups fired on the enemy. As a result, Han's troops managed to get very close to the Vietnamese defenses without suffering a large number of losses. When it was time to destroy the defenders, the Chinese had a greater number of attackers in the right place to do the job. Switching from massed attacks to small fire and maneuver attacks changed the equation at the decisive point of the infantry attack.[8]

Chinese artillery was ineffective. Chinese gunners did not understand how to measure distances and calculate firing data. As a result, the Chinese artillery could not provide effective indirect

fire. The Chinese artillery was limited to large-scale barrage firings on prominent terrain features or inaccurate fire on smaller targets. The Chinese apparently did not have a "call for fire" procedure. Therefore, the Chinese artillery was no more effective than the artillery of the Napoleonic era or the early American Civil War. This situation appalled a pair of artillery instructors from the Infantry School. Zhang Shulin and Shi Ling held classes for the artillerymen and taught them how to improve the accuracy of their fire.[9]

Chinese combat engineering was crude. Although the Vietnamese were heavily outnumbered, they made up for their disadvantage, at least in part, by constructing strong bunker systems and surrounding the bunkers with mines. During the Campaign, the students from the Infantry School discovered that the PLA soldiers, at least those from the 43rd Army, could not detect and clear mine fields. While the 43rd Army was attempting to seize Hill 627, about five kilometers west of Lang Son, students Zhang Qingwu and Chen Dongsheng discovered that the soldiers they were accompanying did not know how to detect and clear the Vietnamese mines that blocked the route to the Vietnamese positions. Zhang and Chen solved the problem. After removing 23 Vietnamese mines, the Chinese resumed their successful advance on the hill.[10] In another part of the battlefield, the instructors and students had to help the attacking units build hasty bridges to ford rivers.[11]

Land navigation was another problem for the PLA. According to the report of the Infantry School, an instructor, Niu Chengju, from the school found that a regiment was unable to perform its mission because its leaders had a poor understanding of topography and map reading. The report does not say how Niu remedied this situation. Did he teach the leaders or simply do the navigation himself? Either way, it is very difficult to understand how a PLA unit that could not navigate its way to the objective could be considered ready for combat.[12]

The Chinese logistics system failed. The instructors and students of the Infantry School discovered that the hardships of war included wearing one pair of shoes and one set of clothes for over 10 days. Although this may not sound like a sacrifice too far beyond the call of duty for most soldiers with field experience, it struck the men of

the Infantry School as worth noting.[13] The men of the Infantry School do not record, either because they were spared the discomfort or because they chose to ignore it, the lack of food and water that some Chinese units reported. The Vietnamese had unexpected help in their defense against the Chinese attacks. Less that a week into the campaign when the fighting was most fierce, Chinese units began to report shortages of food and water. Unit 53514, a 55th Army unit engaged in the attack on a vital hill near Lang Son, reported that its higher unit had not sent food for several days, and the troops had not eaten in 2 days.[14] Unit 53515, another 55th Army unit, reported a food and water shortage.[15] Cadres acted "heroically" to insure that the troops and the wounded got the last scraps of food and the few drops of water that remained. The Chinese logistics system, although its lines of support extended a mere four or five kilometers into Vietnam and less than 30 kilometers from its railhead at Pingxiang (VN: Bang Tuong), apparently failed. These incidents happened near Lang Son, but the PLA's weak logistics created similar incidents in the other theaters of the war (e.g., Lao Cai, Cao Bang).

The Infantry School had a long list of "lessons learned" but it also had a list of prescriptive advice on the things the PLA needed to do to become an effective fighting force. The PLA, according to the Infantry School, needed to conduct practical and realistic tactical training. The PLA needed to emphasize technical and military subjects because these subjects were the basis of military tactics. Additionally, training had to be demanding and strenuous and suited to the geographical conditions in which the PLA had to be prepared to fight. The PLA needed to use "live fire" in its training. In summary, the Infantry School's response was to jettison the heavily politicized military program of the Maoists. The Infantry School recommended a return to "military basics"; tough training on basic skills was the key to success.[16]

The Guangzhou Military Region Infantry School identified problems in the PLA's performance that, at least in part, shaped important areas of the Chinese military modernization program that expanded after the 1979 Campaign and Deng Xiaoping's return to supreme power in 1981. The following portions of this chapter will provide an overview of the reforms that can be traced to the "muddy

boots" analysis of the Infantry School.[17] Many articles and books that shaped this field during the last 20 years have covered this material. The works of Ellis Joffe, Harlan Jencks, Lonnie Henley, June Dreyer, and Dennis Blasko are familiar to all students of Chinese military affairs. Therefore, there is no need to reiterate all the developments that occurred in the PLA in the years immediately after the 1979 Campaign. Instead, we will take a quick look at the areas the Guangzhou Military Region Infantry School criticized.

The Infantry School identified tactics, artillery skills, combat engineering (e.g., mine clearance and hasty river crossings), land navigation, logistics, and "live fire" field training as the flaws in the PLA's performance. What did the PLA do to correct these flaws?

After the 1979 Campaign, the PLA renewed its program for the tactical training of its infantrymen. The PLA did this by emphasizing "infantry technical training" (*bubing jishu xunlian*). In a fashion similar to other armies, the PLA broke down the key battlefield tasks of the infantryman and trained the skills that led to the successful accomplishment of these tasks. To be successful on the battlefield the PLA infantryman had to be able to accomplish five tasks. The soldier had to be able to shoot, throw a hand grenade, employ demolitions, construct earthworks, and use the bayonet.[18] Each of these tasks was further broken down. To shoot effectively the infantryman had to know about infantry weapons, the theory of shooting, the observation and surveying of the battlefield and the effects of weather conditions, terrain, and time of day on marksmanship.[19] These simple skills were a return to the soldier skills of the older PLA. They were a refutation of the "politics is everything" model of soldiering that dominated the PLA during the Lin Biao years, particularly during the height of the Great Proletarian Cultural Revolution, and had hampered the PLA in the 1979 Campaign.[20]

By the end of the 1980s, however, the PLA may not have completed a tactical renaissance. In Harlan Jencks' early 1980s study of the PLA, *From Muskets to Missiles*, he correctly criticizes the PLA for its tactic of pushing its infantrymen into close massed combat with their opponents.[21] Jencks terms this tactic "hugging" the enemy positions, and he criticizes the PLA because this tactic limits the ability of the PLA to use modern combined arms attacks with

artillery and aircraft. The same passion for close combat (*jinzhan*) appears in Song Shilun's "Basic Tactical Principles" at a time when the chief of the PLA's Academy of Military Sciences should have been advocating more modern tactical procedures.[22] The tactical reformers still had some work to do.

The performance of Chinese artillery did not meet the standards of the writers from the Infantry School. Chinese artillerymen did not provide flexible, "on call" artillery support for the maneuver forces. Artillerymen lacked the ability to perform accurate surveys, make firing calculations, and communicate with the maneuver forces. The PLA approached these problems in a way that was similar to the way it corrected the infantry's problems. The PLA broke down the artilleryman's mission into the essential battlefield tasks and prescribed training in each task. Among other areas to be studied, the Chinese artilleryman was to develop a mastery of artillery equipment, firing procedures, reconnaissance, artillery emplacements, and communications. If the Chinese gunners mastered all these areas, then the PLA had accomplished a major improvement in the combat effectiveness of its ground forces.[23]

It is impossible to determine the degree to which the PLA improved its effectiveness in combat engineering and land navigation and the extent to which it adopted "live fire" training to reinforce its' new training programs. The PLA infantrymen studied mines and the PLA artillerymen studied reconnaissance and survey. But did they know enough to improve the PLA's performance on the battlefield? There were endless conferences and numerous news articles like the following one:

> Comrades attending the [Guangzhou Political Work] Conference conscientiously studied such problems as how to improve military training on the basis of actual combat and how to most effectively raise the level of tactical skills. Everyone said we must compare ourselves with the actual combat of the war. . . . study each and every military training subject and train effectively . . .[24]

If the PLA did raise the level of its "tactical skills" as the comrades in the Work Conference set out to do, they took another major step in the development of effective ground forces.[25]

The PLA's logistics problems were, at first glance, a matter of numbers. The Chinese force of 30 divisions required 500 tons of supplies every day for each division (15,000 tons).[26] To move the 15,000 tons of supplies, the force needed trucks. The largest Chinese trucks (Zil-151, Zil-157, Ca-30) carried 9,900 lbs. (4,500 kg.) or 4.95 tons. Therefore, the PLA invasion force needed 3,030 trucks to carry the supplies necessary to keep operating for 1 day. The Chinese divisions had trucks, but the trucks were the prime movers for artillery and other heavy equipment. They were not supply trucks; further, the tactical formations did not have organic transportation regiments or battalions. An army that used prime mover trucks to move food, fuel, supplies and ammunition had no way to move its artillery, engineering materiel, or bridging equipment.

The PLA logistics troops had access to a few independent transportation regiments (702 transportation trucks each[27]), commune trucks, packhorses, and coolies to make up the difference between the requirement and the transportation capacity of their units, essentially zero. But managing four modes of transportation had to be a nightmare. As a result, food, water, and ammunition frequently failed to get to the right place at the right time. These management problems were symptomatic of a failed logistics system. It is curious that the faculty and students did not raise the issue in a more powerful way than to simply comment on the shortage of replacement clothing.

One of the less glamorous yet significant reforms that took place in the 1980s and 1990s was the comprehensive upgrade of organic transportation assets for PLA combat units. Most infantry units are now "motorized," meaning they have sufficient trucks assigned to the units to provide their own transportation. Motor transport units, usually regiments, with logistics responsibilities have also had their assigned trucks upgraded and the numbers of vehicles increased.[28]

The PLA reforms of its logistics system were slow and halting during the decade of the 1980s. The reforms started with the reopening of several logistics schools in the years right after the 1979 Campaign. The PLA Logistics Academy opened its doors on July 9, 1979, and the Logistics Engineering College, Transportation School, and Transportation Technical School opened their doors in 1980 and 1981.[29] The remainder of the Chinese attempt to reform the logistics

system appeared to be equal parts high level spin and low-level vagueness. For example, in 1982 Defense Minister Zhang Aiping said, "The mobilization of the armed forces in the event of war is not only a matter of mobilization of personnel. A more important and complicated job is the mobilization of logistics support.[30] In January of 1983, the *Liberation Army Daily* stated that since the 1979 Campaign the PLA had made significant progress in "regularization and logistics support."[31] But training lagged behind the press releases. By 1985, only about 50 percent of the PLA's logistics officers were graduates of specialized logistics courses.[32]

While these changes made the PLA logistics system slightly more responsive to the requirements of the soldiers, the single change that had the greatest impact on the logistics situation after the 1979 Campaign was the advent of the combined arms group army (*jituanjun*). In 1985 and 1986 the PLA changed the organization of the "army/corps" (*jun*). As noted above, the old army/corps had little or no organic logistic and transportation capability. The unit required support from independent transportation regiments, commune trucks, packhorses, and coolies. Support from these elements presented a management nightmare for the combat commander.[33] The new group armies solved some of the problems when they were established as the first PLA units with organic logistical units.[34]

Lessons Learned: The 1997 Assessment.

In recent years PLA analysts and historians have continued to think about the problems of the 1979 Campaign.[35] In some cases, however, they have come to different conclusions than the Chinese writers of the late 1970s. In 1997 the Military History Section of the Chinese Academy of Military Sciences published a thoughtful analysis of the problems of the 1979 Campaign as part of a volume commemorating the 70-year history of the PLA (1927-97).[36] Of course the PLA historians treated the war as an enormous success. The national policy that shaped the campaign was "strong" or correct (*xingqiang*). The PLA penetrated deeply into Vietnam, as far as 20-40 kilometers in some places. They captured the provincial capitals of Lang Son, Cao Bang, and Lao Cai. The PLA succeeded in attacking

and occupying 21 counties or towns in four Vietnamese provinces (Lai Chau, Lao Cai, Cao Bang, and Lang Son).[37] According to the AMS historians, everything went according to plan.

After deposing the "politically correct" facts, the historians turned to the problems of the campaign. The historians noted that few soldiers in the PLA had recent combat experience and, therefore, the PLA's preparations for the campaign were inadequate. Furthermore, the PLA had done very little field training and the small unit leaders did not have adequate military skills. The quality of troops was judged to be very low, Chinese tactics were not effective, and the level of coordination was inadequate.[38]

On a slightly higher level of military analysis the AMS historians noted that the PLA's "establishment (tables of organization) was not rational" (*bianzhi bu heli*) and that the PLA needed weapons and equipment suitable for modern warfare. Although the Chinese weapons were essentially the same as the weapons used by the Vietnamese, the AMS claimed the weapons the Chinese used in the campaign were not "up to the job" (*wuqi zhuangbei bu peitao*). Without elaborating, the historians noted that the PLA also learned lessons in the areas of security and militia.[39]

The source of all these problems was obvious. According to the AMS historians, the Cultural Revolution, Lin Biao, and the Gang of Four had undermined the PLA's fine traditions, and, as a result, the PLA was not an effective fighting force during the 1979 Campaign.[40]

The PLA took the first halting steps toward correcting the problems of the 1979 Campaign during the 1980s, but it was in the 1990s that the PLA really turned to solving its problems as an army. In the 1990s the PLA made important changes in every one of the areas the AMS historians identified as problematic, including reforms of its personnel, training, tactical, organizational, and logistics systems. This portion of the chapter will explore some of the changes that originated in the lessons learned from the 1979 Campaign.

Before going on to trace the evolution of these changes, however, it is important to note that the Chinese faced a dramatically different strategic and military situation in the 1990s. The Soviet Union had dissolved at the end of the 1980s and the long-term "local war" with Vietnam ended in November 1991. China perceived new threats,

the most important of which was the United States. Furthermore, the PLA began to realize the enormity of the shift from the era of attrition and maneuver warfare to one of "effects based warfare."[41] After the Gulf War of 1991, the tectonic plates of warfare shifted and the Chinese, like everyone else, reevaluated their priorities and capabilities.

It is difficult to say if the PLA of the 1990s had better troops in its ranks than did the PLA of 1979. In 1979 the PLA was a route of social mobility for peasants to escape the poverty of the countryside or, at least, to improve their situation if they returned to their home commune after demobilization. Most of the Chinese people respected the PLA in 1979, and they were happy to send their sons off to service. There were few economic alternatives for peasant men in the Maoist economy and men with PLA service frequently had leadership opportunities, which led to higher living standards when they returned to the commune. Additionally, many had the chance to join the Communist Party, the real door to upward social mobility at the time.

The new economic policies of Deng Xiaoping and Jiang Zemin changed the situation during the 1980s and 1990s. And, at roughly the same time, the 1989 Tiananmen Square Incident dealt a severe blow to the PLA's prestige. In the China of Jiang Zemin, there was very little incentive to join the army. For those with the levels of education that the PLA wanted to recruit, better jobs were available in the civilian sector of the economy, and service in the ranks of a tarnished institution did not improve a young man's prestige at home.

As a result of these factors, the PLA has not always achieved its goals of recruiting youngsters with middle school educations. Therefore, it will be difficult for the PLA to enter the world of high technology warfare with a corps of soldiers with very limited academic skills. Additionally, since service in the ranks is not attractive, it is reasonable to assume that it will be more difficult to motivate soldiers for whom service is an unattractive alternative.[42]

If it is not clear that the quality of the troops is any better today than it was in 1979, then what about the quality of the PLA officer corps? James C. Mulvenon, a political scientist at the Rand Corporation, examined the characteristics of the rising PLA officer

corps in very important study on *Professionalization of the Senior Chinese Officer Corps: Trends and Implications.*[43] By carefully tracking the careers of over 400 senior officers, Mulvenon concluded that the PLA officer corps that emerged in the late 1980s and 1990s was better educated, more specialized, and younger than the PLA leaders at the time of the 1979 Campaign. Mulvenon also found that very few of the rising Chinese generals had combat experience. Table 1 depicts the national-level PLA leadership[44] and the front commanders during the 1979 Campaign;[45] they did have extensive combat experience during the Liberation War, the Civil War, and, in some cases, the Korean War. Table 2 lists officers who were at the regimental and division level during the Campaign and later rose to senior ranks and, thus, were in a position to influence reforms during the 1990's and today.[46] Those now at the Military Commission level generally had prior combat experience in the Korean War; officers below that level likely experienced their first combat in 1979, and subsequent Vietnam border operations.

Hua Guofeng, Chairman of the Military Commission (MC)
Ye Jianying, Vice Chairman, and MC Standing Committee Executive
Xu Xiangqian, Minister of National Defense and MC Standing Committee Member
Deng Xiaoping, Chief of the General Staff Department and Vice Chairman of the MC
Wei Guoqing, Director of the General Political Department
Zhang Zhen, Director of the General Logistics Department
Xu Shiyou, Commander, Guangzhou Military Region; Front Commander
Yang Dezhi, Commander, Kunming Military Region, Deputy Front Commander
Zhang Tingfa, Commander, PLA Air Force, Front Chief of Staff

Table 1. Key National-level Chinese Leaders during the 1979 Campaign.

According to Mulvenon's study, 79 percent of the PLA leaders of 1994 had some form of advanced education.[47] In contrast, the officers of 1979, who entered the PLA in the 1950s and 1960s, rarely had educational levels beyond junior-high school.[48]

PLA officers followed more specialized career patterns in the 1990s than during earlier years, and the younger officers were more specialized than the older officers.[49]

As a result of an improved retirement system, the average age

of officers at every level of the PLA has declined. Mulvenon found that the average age of members of the Central Military Commission (CMC) declined by 13 years between the end of the 1980s and the middle of the 1990s. By 1994, according to Mulvenon's study, the holders of the senior positions in the PLA were at least 6 years younger than the maximum age for individuals eligible to hold these jobs.[50]

Zhang Wannian, GEN	Retired as Vice Chairman, Military Commission in Nov 2002	(division and deputy army commander)
Cao Gangchuan, GEN	Promoted from Director, General Armament Department to Vice Chairman, Military Commission in Nov 2002	(attached to infantry division)
Liang Guanglie, GEN	Promoted from Commander, Nanjing Military Region to Chief of General Staff Department in Nov 2002	(deputy division commander)
Liao Xilong, GEN	Promoted from Commander, Chengdu Military Region to Director, General Logistics Department in Nov 2002	(regimental deputy commander)
Xing Shizhong, GEN	President, National Defense University	(division chief of staff)
Liu Zhenwu, LTG	Commander, Guangzhou Military Region	(military region work team attached to infantry division)
Su Rongsheng, LTG	Deputy Commander, Beijing Military Region	(regimental commander)
Xiong Ziren, LTG	Commander, Hong Kong Garrison	(chief propoganda Section, infantry division political department)
Zhu Qi, LTG	Commander, Beijing Military Region	(probable regimental level)
Liu Yuejun, MG	Commander, 42d Group Army	(company commander)

Table 2. Officers from 1979 Campaign Who Later Rose to Senior Ranks (1979 position in parenthesis).

Fewer PLA officers have combat experience in today's PLA. According to the *Professionalization* study, only 46 percent of the PLA

officer corps in the study had combat experience.

If the AMS Historians were looking for a modern PLA with high quality troops, competent officers, and a cadre of combat experienced leaders, then the result is mixed. There is no evidence that today's PLA soldier is any better than his father was in 1979. There is very compelling evidence that the officer corps is better at least by the standards of education, age, and training. There still is no cadre of combat veterans to prod the PLA into preparations for "the real thing."

The AMS analysts identified the PLA's training program as one of the weaknesses of the force that invaded Vietnam in 1979. In the decade of the 1990s training reform was a high priority for the PLA. In contrast, the PLA of the late 1970s did very little real training. A writer in the *Liberation Army Daily* noted in 1978 that, "military training was not strict, or at times . . . no training at all was given. Some soldiers had been in the armed forces for several years without ever touching a rifle and some cadres could not lead troops. The combat capabilities of the whole armed forces declined markedly."[51]

To reverse the evidence of decline that they saw on the battlefields of Lang Son, Cao Bang, and Lao Cai, the leaders of the PLA began a series of new training programs for the PLA. These programs grew from a modest size in the 1980s to much greater size in the 1990s. In the 1980s, analysts as perceptive as Ellis Joffe were discussing single exercises and, perhaps, one significant exercise in 2 or 3 years. By the mid-1990s analysts identified ten to twenty exercises per year in the years from 1991 to 1995.[52] At the same time, the complexity of the training exercises grew. The PLA abandoned the single service, relatively static exercise for the large-scale multi-service and combined arms exercise. To make the training of these exercises even more challenging, the PLA frequently conducted the exercises in the area that the PLA expected to contest in the event of war. The training within the exercises also changed. The PLA renewed its training in tactics, small unit leadership, and military skills. If the PLA had a better corps of officers in the 1990s, the revitalized training program was the perfect way to stretch them to the degree that the errors of the 1979 Campaign would never be repeated.

The 1979 PLA did not have the noncommissioned officers that are the critical catalyst of small unit tactics. Noncommissioned officers are the leaders that motivate and direct the troops during the critical time when the unit is within a few meters of the enemy. Therefore, any real tactical change had to begin with the creation of a noncommissioned officer corps. In recent years there is evidence of soldiers staying in the enlisted ranks after their mandatory enlistment years have ended. Although we do not know the level of competency of these soldiers or the level of authority they exercise, the recognition of their existence is probably a step forward in the tactical area.

The basic tactical lesson of the 1979 Campaign was that PLA tactics more closely resembled the massed infantry attacks of the past than the fire and movement/fire and maneuver tactics of a modern army. Did the AMS researchers recognize this problem? Did the PLA solve the problem? Very little is known about the PLA's tactics in the 1990s. Some scholars have attempted to update our understanding of Chinese tactics but such explanations usually are little more than discussion about the latest terms the Chinese are using to describe an action that could easily fit at the tactical or operational level of war.[53] Therefore, it is not clear whether the Chinese have corrected the problems and learned the lessons of the 1979 Campaign or not.

The "establishment was not rational" is a simple statement by the AMS researchers that conveys a big idea. Military organizations are not for parades. They must make sense on the battlefield because the organization of a military unit, when combined with other factors, makes a unit an effective fighting force or a "circular firing squad." The PLA did not have a rational establishment for the 1979 Campaign because it was saddled with an establishment that grew up during the long, almost unbroken, lack of foreign hostilities from 1953 to 1979.[54]

The PLA took several steps to rationalize its establishment in the years after the 1979 Campaign. In 1985-86 the PLA transformed its 36 "army/corps" (*jun*) organizations into 24 "group armies" (*jituanjun*).[55] This change forced the diverse maneuver, fire support, combat support, and combat service support elements to coordinate closely. Because group armies had one commander and one staff

and their units could train and deploy together, the advent of the group army was a significant step towards rationalizing the PLA's establishment and solving some of the coordination problems that had plagued the PLA in 1979.

The next step the PLA took to rationalize its establishment was to reorganize several divisions as brigades.[56] Although there are obvious cost-cutting benefits available to the PLA from reducing the size of these units from divisions (about 13,000 men)[57] to brigades (about 5,000 men), there is a more important tactical reason for this transformation. A brigade is a compact and maneuverable fighting force. It can be deployed with a minimum of transportation support, and, since it is a combined arms organization, it brings a lot of power to the fight very quickly. The brigade structure also reduces the span of control of the unit commander and his staff and that change should translate into increased efficiency.

Finally, the PLA rationalized its establishment by introducing new arms to support the traditional combat arms: infantry, armor, and artillery. For example, during the late 1990s, the PLA began to deploy helicopter and special operations regiments and brigades. These units, which were key parts of the PLA's rapid reaction forces, deployed to provide a strong complement to the group armies and brigades. These new units gave the PLA a centralized set of assets that enhanced the regular combat arms forces. After the deployment of these types of forces,[58] the PLA had the building blocks needed to create tailored response forces for future contingencies.

The AMS analysts did not express strong criticisms of the PLA logistics system during the 1979 Campaign; nonetheless, in the late 1990s the PLA began to make a series of significant changes in the way it handled logistics at every level.[59] In 1979, five of the ten armies that invaded Vietnam were not assigned to the two military regions that bordered Vietnam (Kunming and Guangzhou), and, since the PLA supports its units from a system of fixed-depots, it was a significant problem to supply large units that were fighting a long distance from their home bases. The recent reforms that relate directly to the problems of the 1979 Campaign deal with mobile logistics, the standardization of supply procedures, skip echelon logistics, and transportation improvements. All these reforms, if

executed with thoroughness and imagination, will significantly change the problems the PLA encountered in "retail logistics," the supply system on the battlefield.

In 1979 the PLA needed a mobile logistics system to support large units operating as much as a thousand kilometers from their regular depot system. Recent experiments by the PLA have attempted to create a mobile logistics structure based on fixed depots, "emergency depots," and "emergency support brigades." This new system will allow the PLA to repair equipment at forward positions and to meet the supply requirements of deployed units. Although the new system is designed for the new Chinese rapid reaction units, the "fist" units, it also could be the solution to the problem the deployed units faced in 1979.[60]

The PLA is standardizing its equipment parts, supply procedures, and requisition system. The PLA of 1979 had a hodgepodge of equipment and procedures because, under Maoist military theory, every unit and every region had to be as self-sufficient as possible. As a result, small, local factories made a great deal of the PLA's equipment. Local manufacturers meant local standards, procedures and tolerances. A mortar tripod from Wuhan Military Region did not necessarily fit a Kunming Military Region mortar tube. A standardized system will rectify this situation.[61]

In addition to mobile or emergency logistics plans and standardization, the PLA of 1979 needed a faster system for delivering supplies to combat units. To solve this problem, if it should appear during the deployment of the "fist" units, the PLA is experimenting with "skip-echelon logistics" and faster throughput of shipped supplies. Skip-echelon logistics allows the logistics managers at the military region to maintain direct links to the lower level units operating at the front. This means a unit can request and receive supplies or equipment without channeling its requests through the various command layers of the organization. The military region depot sends the mortar tripod or the radio batteries directly to the brigade in contact that made the request.[62] Faster throughput means the PLA is trying to eliminate the long lags that plague supplies when they are sent to depots that dole them out to units and depots at lower levels. Like skip echelon logistics, improved throughput

rates increase the chances of getting materiel to the requestor in the shortest possible time.[63]

The key measure of effectiveness of any logistics system is: Does it get the right "stuff" to the right soldier at the right time? Measured by this standard, the PLA had a flawed logistics system in 1979. The millennium PLA has attempted to fix many of the problems because the types of logistics problems the "fist" units face today are very similar to the ones that the deployed units faced in 1979. Only time will tell if they have been successful.

Lessons Not Assessed.

Any effort to understand the lessons the PLA learned from the 1979 Campaign cannot avoid the feeling that the PLA is not being fully honest with itself. All the problems the various authors discuss were problems in areas that the PLA has attempted to reform in the last 2 decades. But, there were many other problems in the 1979 Campaign that the PLA has not discussed. These problems need correction. For example:

- The PLA authors do not mention air superiority or close air support. Even though the Vietnamese conducted several dozen-parachute resupply missions to support their forces in their defense against the Chinese forces, the Chinese do not comment on the desirability of an aerial supply line or air superiority to deny such supply line to the enemy.[64]

- Although the Chinese forces were drained by Vietnamese sapper attacks, the Chinese never mention their own lack of a similar capability. If there had been a Chinese sapper command, similar to the Vietnamese Sapper Command (Binh Chung Dac Cong), would the Chinese have been able to cut off the Vietnamese forces in Lang Son and bring that battle to a more favorable conclusion?

- In 1979, the PLA did not have ranks and insignia. This simple fact led to confusion on the battlefield. It was not until 1988

that this problem was rectified with the reinstitution of ranks.

The PLA has made so many changes in the years since the 1979 Campaign that it is hard to link specific reforms to specific problems. The impetus to reform the PLA's organizations almost certainly came from its experience in 1979. But during the intervening years, there have been other wars, and the Chinese have studied them all, including the British experience in the Falklands and the U.S. experiences in the Gulf War, Kosovo, Bosnia, and today in Iraq. As a result, it is difficult to distinguish the extent to which the PLA learned lessons from the 1979 Campaign or more recent campaigns. After looking at the problems and reforms it may be the case that while the 1979 Campaign was the impetus to reform, the reforms, as a whole, were the result of the PLA seeking solutions from a wide variety of sources.

ENDNOTES - CHAPTER 10

1. Anne Gilks, *The Breakdown of the Sino-Vietnamese Alliance, 1970-1979*, Berkeley: Institute of East Asian Studies, University of California, 1992, *passim.* For brief summaries of the situation leading up to the "self-defense counterattack" and stages of the operation, see Jiang Xiyi, ed., *Zhongguo Renmin Jiefangjun Dashidian (Chinese PLA Major Events)*, Tianjin: People's Publishers, 1992, pp. 1722-1724; and Deng Lixiang and Hong Wujie, eds., *Zhongguo Renmin Jiefangjun, shang (Chinese People's Liberation Army, first volume)*, Beijing: Modern China Publishers, 1984, pp. 329-333.

2. King C. Chen, *China's War With Vietnam, 1979: Issues, Decisions and Implications*, Stanford CA: Hoover Institution Press, 1987 p. 114. Chen says the Chinese lost 26,000 killed in action (KIA) and 37,000 wounded in action (WIA). He believes the Vietnamese had 30,000 KIA and 32,000 WIA. The Chinese exchanged 1,638 Vietnamese POWs for 260 Chinese POWs. Nayan Chanda reported the Chinese captured "some 2,000 Vietnamese" while Vietnam captured "fewer than 1,000 Chinese." See "A Breather Between Rounds" in *Far Eastern Economic Review (hereafter FEER)*, April 20, 1979, p. 17. A PRC-linked publication in Hong Kong reported 800 Vietnamese prisoners along the Guangxi front and another 700 along the Yunnan front. See "Sino-Vietnamese Leakout" in *Xiandai Junshi, CONMILIT*, May 1979, p. 32. *Beijing Review* provided partial POW figures when reporting the May 21, 1979, exchange of 120 Vietnamese and 43 Chinese prisoners. See "China Releases First Group of Captured Vietnamese Armed Personnel" in *Beijing Review*,

No. 21, May 25, 1979, p. 6; for the May 28 release of 118 Vietnamese and the June 5 release of 487 Vietnamese prisoners, see "China Releases Third Group of Captured Vietnamese" in *Beijing Review*, No 24, June 15, 1979, pp. 26-27.

3. The focus of this chapter is on lessons learned during the brief February to March 1979 campaign. Leadership experience, also, is addressed only in terms of this specific period. We acknowledge regimental and divisional sized clashes occurred in the subsequent stages of the Sino-Vietnamese conflict that continued until 1991, but analysis of that period is deferred for a future paper.

4. The primary source for the perspective of the students at the Guangzhou Military Region Infantry School is an internal document prepared by the Guangzhou Military Region Forward Political Department Cadre Section, *Zhong-Yue Bianjing Ziwei Haunji Zuozhan Ganbu Gongzuo Ziliao Huibian* (*Compilation of Materials on Cadre Work in the Counterattack in Self-defense on the Sino-Vietnamese Border*), No location: Published by the complier, May 1979, p. 222. Hereafter referred to as *GGZH*.

5. The Military History Section of the Academy of Military Sciences, *The Seventy Years of the Chinese Peoples's Liberation Army* (*Zhongguo Renmin Jiefangjunde Qishi Nian*), Beijing: Academy of Military Sciences Publishers, 1997. Hereafter cited as *QN*.

6. After 1981 the "infantry schools" became "army schools." Analysts recognize this school as the Guilin Army School. To reduce confusion,we have used the term "infantry school" throughout the chapter to be consistent with the unit's identification in our sources.

7. The criticism of Chinese tactics was not confined to internal assessments. Two years after the 1979 operations, a 190-page photo analysis of the war sympathetic to and apparently prepared with materials provided by the PLA reported:

> The Chinese soldiers were fine fighters. However, in the Sino-Vietnamese War, they had revealed defects—failure to adapt to modern warfare, to particular weakness in communications and transport. Moreover, large-formation warfare, using human wave tactics, was not suitable for operations in mountainous country. Owing to poor communications, some Chinese companies and platoons lost contact with the main forces and suffered heavy losses.

Li Man Kin, *Sino-Vietnamese War*, Hong Kong: Kingsway International Publications, Ltd., 1981, p. 189.

8. *GGZH*, p. 222.

9. *GGZH*, p. 222.

10. *GGZH*, p. 222-223. David Bonavia offers one solution in his report that attacking PLA troops were puzzled to see water buffalo hides hanging outside of Vietnamese homes in villages near the border. Then the troops "realized that their own advance units had driven the cattle across minefields laid by the Vietnamese army, in order to explode the mines before the troops followed." Bonavia attributed the original source of this report to *Zheng Ming*, a then pro-PRC monthly published in Hong Kong. See: "Lessons of the 16-Day Battle," in FEER, May 4, 1979, p. 11.

11. *GGZH*, p. 222-223.

12. *GGZH*, p. 223.

13. *GGZH*, p. 220.

14. Chinese People's Liberation Army General Political Department, *Zhong-Yue Bianjing Ziwei Huanji Zuozhan Zhengzhi Jingyan Xuanbian* (*Selection of Experiences of Political Work in the Counterattack in Self-defense on the Sino-Vietnamese Border*), Vol. 1, Beijing: Chinese People's Liberation Army Military Publishers, 1980, p. 161.

15. *Ibid.*, Vol. 2, p. 195.

16. *GGZH*, p. 224.

17. There almost certainly were other "muddy boots" analyses of the campaign by other units. Regrettably, the analysis by the Guangzhou Military Region Infantry School is the only one that was available at the time of this writing.

18. Song Shilun, Editor of Military Volumes, *Zhongguo Da Baike Quanshu* (*Chinese Great Encyclopedia*), Military Vols. I-II, Beijing: Chinese Encyclopedia Publishers, 1989; Vol. 1, p. 64. Hereafter referred to as *ZDBQ*.

19. *ZDBQ*, p. 64.

20. Deng Xiaoping, who was Chief of the General Staff Department during the 1979 War, cited the war experiences as part of the justification for major PLA structural and training reforms that were implemented in the 1980s following his March 12, 1980, speech at an enlarged meeting of the Military Commission. "Streamline the Army and Raise Its Combat Effectiveness," *Selected Works of Deng Xiaoping, 1975-1982*, Beijing: Foreign Languages Press, 1984, pp. 269-275.

21. Harlan W. Jencks, *From Muskets to Missiles: Politics and Professionalism in the Chinese Army, 1945-1981* , Boulder CO: Westview Press 1982, p.151.

22. *ZDBQ*, pp. 1232-1233. A more extensive explanation of the same tactical principles appears in Li Chengxiang, *et al., Zhanyixue Jiqu* (*The Basis for Tactical Studies*), Beijing: National Defense University Press, 1986, pp. 98-121.

23. *ZDBQ*, Vol. 2, pp. 809-810.

24. Nanfang Ribao, August 10, 1979; JPRS, No. 14, September 7, 1979, p. 13. I am indebted to Paul C. Marks, "The Sino-Vietnamese War of 1979 and China's Military Modernization," Unpublished M.A. Dissertation, School of Oriental and African Studies, University of London, 1988. p. 39.

25. The PLA has reviewed and drastically revamped its training program periodically over the years since the 1979 War. The most recent revision was announced in early 2002 in a Xinhua press report that stated:

> The Chinese military and armed police will carry out military training this year under a new general outline which was just issued by the Headquarters of the General Staff of the Chinese People's Liberation Army, PLA. The general outline sums up the experiences the PLA gained from its intensive military training programs in the past three years, and is a revolutionary leap forward compared with traditional theories on military training.

Beijing: Xinhua News Agency, in English, January 9, 2002, in *Foreign Broadcast Information Service* (hereafter *FBIS*), CPP20020109000126.

26. Defense Intelligence Agency, *Handbook of the Chinese People's Liberation Army*, Washington, DC: U.S. Government Printing Office, 1984, p. 51.

27. Defense Intelligence Agency, *Handbook on the Chinese Armed Forces*, Washington, DC: U.S. Government Printing Office, 1975, p. A-17.

28. This assessment is based on personal observation and interviews in China and Hong Kong.

29. Lonnie D. Henley "Officer Education in the Chinese PLA, *Problems of Communism*, May-June 1987, pp. 64-65.

30. *Jiefangjun Bao* (*Liberation Army Daily*), December 9, 1982. Quoted in Marks, p. 33.

31. *Ibid.*, January 15, 1983. Quoted in Marks, p. 34.

32. Tai Ming Chueng, "Reforming the Dragon's Tail" in James R. Lilley and David Shambaugh, *China's Military Faces the Future*, Armonk NY: M. E. Sharpe, 1999, p. 240.

33. In 1985 one of the authors escorted a PLA logistics delegation to the United States. In the course of several discussions, a PLA officer, a junior logistics staff officer in the 1979 Campaign, told the author that transportation, supply, and availability of parts were so bad, he was forced to send men from his unit to factories where some of his equipment was built to insure that he got the correct replacement parts. Obviously, this is the epitome of an inefficient logistics system.

34. Nan Li, "The PLA's Evolving Warfighting Doctrine, Strategy and Tactics, 1985-1995: A Chinese Perspective" in David Shambaugh and Richard H. Yang, *China's Military in Transition*, Oxford: Oxford University Press, 1997, p. 191.

35. The normalization with Vietnam reduced the possibility that the Chinese would be involved in a "second lesson" and the Gulf War gave the PLA a new, and very different, standard of military operations to match. If the Gulf War was the first "post-modern" war or "effects-based" war, then the urgency of analyzing the "modern" warfare of 1979 grew less and less by the day. See You Ji, *The Armed Forces of China*, London and New York: I. B. Tauris, 1999, for a preliminary assessment of the Gulf War on Chinese military modernization.

36. The Military History Section of the Academy of Military Sciences, *Zhongguo Renmin Jiefangjunde Qishi Nian (The Seventy Years of the Chinese People's Liberation Army)*, Beijing: Academy of Military Sciences Publishers, 1997.

37. *QN*, p. 612. There were about 80-90 counties and towns in the four provinces in 1979. Today there are 93 counties and towns in the same area.

38. *QN*, p. 613.

39. *QN*, p. 613.

40. *QN*, p. 613.

41. Effects-based warfare operations are actions that produce outcome-oriented activity focused on altering enemy behavior. These operations focus on the enemy's decisionmaking process and ability to take action in a coherent manner. The real payoff in conducting effects-based warfare is that it shortens combat by causing the enemy to yield long before his means to resist have been exhausted. Adapted from Edward A. Smith, "Network-centric Warfare: What's the Point" in *Naval War College Review*, Winter 1997, Vol. LIV, No. 1, p. 64.

42. This discussion of staffing draws on June Teufel Dreyer's chapter, "Recent Developments in the Chinese Military," in David A. Graff and Robin Higham, eds., *A Military History of China*, Boulder: CO: Westview Press, 2002, pp. 294-295.

43. James C. Mulvenon, *Professionalization of the Senior Chinese Officer Corps: Trends and Implications*, Santa Monica, CA: Rand, 1997.

44. Xiang Xu, ed., *Zhongguo Renmin Jiefangjun Junguan Shouce, Lujun Fence (Chinese People's Liberation Army Officer's Handbook, Army Vol.)*, Qingdao: Qingdao Publishers, 1991, pp. 797-805.

45. Harlan W. Jencks, "China's 'Punitive' War on Vietnam: A Military Assessment," in *Asian Survey*, Vol. XIX, No. 8, August 1979, pp. 805-806.

46. Source for Zhang Wannian is "Zhang Wannian Takes Command of Military Exercises" in *FBIS* HK1303050996, Hong Kong, *Sing Tao Jih Pao*, in Chinese, March 13, 1996, p. A3. Source for Cao Gangchuan is personal interview in Beijing. Source for Liang Guanglie is "New Shenyang, Lanzhou Commanders Profiled," in *FBIS OW2104021098, Kuang Chiao Ching, Wide Angle*, in Chinese, No 306, March 16, 1998, pp. 78-79; See also "Liang Guanglie—Member of CPC Central Military Commission," *Xinhua News Agency*, in *FBIS* CPP20021115000165, November 15, 2002. Source for Liao Xilong is "Liao Xilong Named Chengdu Region Commander" in *FBIS* HK2911043295, *Lien Ho Pao*, in Chinese, November 29, 1995, p. 8; see also Lin Chieh, "Liao Xilong's Accession to the Central Military Commission Will Help Hu Assume the Reins of Military Power," in *FBIS*, CPP20021121000017, *Hong Kong Hsin Pao (Hong Kong Economic Journal)*, in Chinese, November 21, 2002, p. 9. Source for Xing Shizhong is "Profiles of 10 Newly Promoted Generals," in *FBIS* OW0805092998, *Kuang Chiao Ching*, in Chinese, No 307, April 16, 1998, pp. 50-53. Source for Liu Zhenwu and Xiong Ziren is "Hong Kong Garrison Generals Profiled" in *FBIS* HK0107081797, *Renmin Ribao*, in Chinese, June 23, 1997, p. 7. For Xiong Ziren, also see "Political Commissar for HK Troops Profiled," in *FBIS* HK0708080596, *Wen Wei Po*, in Chinese, August 1, 1996. Source for Su Rongsheng is personal interview with PLA staff officers in Beijing. Source for Zhu Qi is "HK Magazine Views Reorganization of PLA Leadership, Rise of 'Princelings'," in *FBIS* CPP20020605000089, *Cheng Ming*, in Chinese, June 1, 2002, No. 296, pp. 47-48. Source for Liu Yuejun is "PLA Macao SAR Garrison Leaders Said Educated, Capable," in *FBIS* OW1211111799, *Xinhua News Agency*, in English, November 12, 1999.

47. Mulvenon, p. 18.

48. Henley, p. 70.

49. Mulvenon, p. 31.

50. Mulvenon, p. 42.

51. *Jiefangjun Bao* (*Liberation Army Daily*), February 24, 1978, in Ellis Joffe, *The Chinese Army after Mao*, p. 144.

52. Joffe, p. 144; and Dennis J. Blasko, Philip T. Klapakis, and John F. Corbett, Jr., "Training Tomorrow's PLA: A Mixed Bag of Tricks" in David Shambaugh and Richard H. Yang, *China's Military in Transition*, p. 252.

53. For an example, see Nan Li, "The PLA's Warfighting Doctrine, Strategy and Tactics, 1985-1995: A Chinese Perspective" in David Shambaugh and Richard H. Yang, *China's Military in Transition*, pp. 190-191.

54. For the purposes of this discussion, the establishment of an army or a unit within an army is the numbers, assignments and levels of soldiers and weapons that are assigned to the army or unit. In the United States the closest equivalent is the table of organization and equipment, TO&E.

55. Nan Li, p.191. The number has since been reduced to 21.

56. Dennis J. Blasko, "PLA Force Structure: A 20-Year Retrospective" in James C. Mulvenon and Andrew N.D. Yang, eds. *Seeking Truth from Facts: A Retrospective on Chinese Military Studies in the Post- Mao Era*, Santa Monica: Rand, 2001, p. 57. In the latest round of streamlining and restructuring during the later half of the 1990's, the PLA has reduced the number of divisions from over 100 to approximately 50. Many of the divisions reduced were restructured into brigades. See U.S. Department of Defense "Annual Report on the Military Power of the People's Republic of China," released on July 12, 2002, p. 16. During this same period, 14 PLA divisions also converted to People's Armed Police divisions; see Dennis Blasko and John F. Corbett, Jr. "No More Tiananmen's: The People's Armed Police and Stability in China, 1997," *The China Strategic Review*, Vol. III, Issue I, Spring 1998, pp. 80-103.

57. *Handbook on the Chinese Armed Forces*, p. A-3. Brigade strength is authors' estimate.

58. Of course, helicopter and special operations forces were not the only "complementary" units deployed. The PLA deployed signal, transportation, air defense, and units of other arms at the same time.

59. Lonnie Henley, "PLA Logistics and Doctrine Reform, 1999-2009" in Susan M. Puska, ed., *The People's Liberation Army After Next*, Carlisle, PA: The Strategic Studies Institute, 2000, pp. 55-77. We are indebted to Mr. Henley for making this article available to us. We have drawn heavily on his research.

60. *Ibid.*, pp. 62-63.

61. *Ibid.*, p. 64.

62. *Ibid.*, p. 66.

63. *Ibid.*, p. 67.

64. Chau Minh Vung, *Lich Su Su Doan Khong Quan 371* , History of the 371st Air Force Division, Hanoi: People's Army Publishing House, 1997, Merle L. Pribbenow, trans., p. 271.

CHAPTER 11

THE LESSONS OF THE 1995-1996 MILITARY TAIWAN STRAIT CRISIS: DEVELOPING A NEW STRATEGY TOWARD THE UNITED STATES AND TAIWAN[1]

Arthur S. Ding

> China's independence, security, integration, and being a world class power are of the utmost importance, while the Taiwan issue is not the top and overwhelming priority.[2]
>
> Facing the wave of globalization in the world, China must put priority on, and handle the Taiwan issue well.[3]

In July 1995/March 1996, China launched a series of large scale of military exercises in the Taiwan Strait. China's military exercises were made as responses to former Taiwan President Lee Teng-hui's private visit to the United States in 1995 and the perceived U.S. attempt to heighten the U.S.-Taiwan relationship as well as the perceived trend of seeking independence in Taiwan. In addition to mobilizing conventional forces, China fired several surface-to-surface missiles to the water area close to Taiwan.[4]

The U.S. response had been low profile before January 1996.[5] However, when the decision was made to launch another round of military exercises by China in late 1995,[6] and Chinese force was being mobilized, the United States started to make a firm response. The United States eventually demonstrated its firmness in maintaining stability and peace in the west Pacific region by deploying two aircraft carrier battle groups to the vicinity of the Taiwan Strait to stabilize the situation. The scale of the deployment was said to be the largest one in East Asia since the United States had withdrawn from the Vietnamese War in the mid-1970s.

After China's military exercises had been concluded, the United States and China started negotiations to resume relations. The Clinton administration adopted an "engagement policy" toward, and established "constructive strategic partnership relations" with China. Presidents Clinton and Jiang Zemin made mutual visits to

each other in 1997 and 1998. Both sides also accomplished several cooperation programs in some areas. It seemed that the looming Sino-U.S. crisis had been largely reversed.

What lessons has China learned from the crisis? Did China think the military exercises accomplished the goals it had set? If this type of coercive diplomacy worked in 1995-96, what show of force might the Chinese People's Liberation Army (PLA) think it would take to be successful next time? Has China learned that the United States will intervene again in case of another crisis? This chapter tries to address these questions.

There is a caveat at the beginning: a single event may not be enough to draw sufficient lessons. The other side of the coin is that people tend to learn more lessons after experiencing similar events. In other words, people learn lessons incrementally in the course of experiencing similar events. In that case, China did not learn sufficient lessons until 2000.

Goals of the Military Exercises.

There is a wide consensus on China's goals in launching large-scale military exercises, and the goals were two-fold.[7] The first one was to deter former Taiwan President Lee Teng-hui from pursuing a course of perceived further independence.

China's skepticism about Lee Teng-hui's policy direction toward reunification with mainland China began very early. China suspected that the National Re-Unification Guideline, proposed by Lee Teng-hui in early 1991, and relevant remarks were but a camouflage for the real intention of pursuing independence. Nevertheless, Beijing had been restrained from making the accusation. The skepticism later developed into distrust when he called the Republic of China (ROC) the "Republic of China on Taiwan," severely denounced China's mishandling of the "Thousand Lake" incident, and showing more signs of identifying himself with Japan when interviewed by a Japanese journalist in 1994.

After Lee Teng-hui's 1995 visit to the United States, China formally started to make the accusation.

> . . . Lee Teng-hui, who insists on Taiwan independence, ignores the strong desire of the people on both sides of the Taiwan Strait

> for re-unification and continues to take every opportunity to challenge the one-China principle. He says that he is the only person with courage to confront China. Lee Teng-hui's statements have severely poisoned the atmosphere for both sides. His action on Taiwan independence is the biggest danger, and is the source for the tension of both sides.[8]

China also pointed out potential problems brought by Lee Teng-hui's visit to the United States.

> Lee Teng-hui's remarks and actions not only have damaged cross-strait relations, they have also bolstered the influence of those advocating Taiwan independence on the island. This has created a turbulent political situation, low morale, and a massive outflow of immigration in Taiwan . . . As long as the separation actions are not stopped, we will not stop our struggle against the separation actions. If Taiwan continues to follow the course taken by Lee Teng-hui's dangerous road, Taiwan's economy will have no future as a result of small market size and lack of raw materials and the Taiwan people will suffer."[9]

China's emotion exploded after Lee Teng-hui's visit to his alma mater, Cornell University. China's accusation was made after carefully examining Lee's speech at Cornell, which contained no word on China's expected reunification. Chinese leaders judged that Lee intentionally did it that way. Hence, China also judged that Lee Teng-hui was pursuing independence.[10]

It could be conceived that China might have anticipated a "decapitation effect."[11] China might wish that, through the military exercise, a psychological paranoia would be created in Taiwan, along with a declining stock market, depreciation of Taiwan money, outflow of capital, and fighting among political elites.[12] Chinese leaders might expect that the decapitation effect would bring pressure toward the Lee Teng-hui government, forcing Lee to change his policy of pursuing independence.

Another target was the United States. There was a widespread conspiracy theory among many Chinese analysts[13] called "containment" or "soft containment" theory: the United States intended to contain China.[14] The theory started from the end of the Cold War when many U.S. strategic analysts started to downgrade the importance of China, arguing that China did not have value any

more because the Soviet Union's empire had collapsed.[15] If China was not important any more, then there was no need for the United States to care about China.

On the other hand, it was argued by the containment advocates, there was also a need for the United States to reorient its strategic focus.[16] With this reorientation, relations with some former friends, allies, and adversaries might be switched and turned upside down. In the early 1990s, China had survived the sanctions imposed by western countries for the June 4, 1989 Tiananmen suppression and kept its comprehensive national power growing. It was natural that China had become the next target for a reoriented U.S. policy.

China also felt a hostile attitude from U.S. society. Some religious groups accused China of violating religious freedom; labor organizations charged China with exporting slave labor-made products and undertaking unfair competition; human rights groups denounced the Chinese government's forced abortion policy; the media reported the "China threat" theory. The U.S. Olympic Committee, under the perceived influence of the United States Government, opposed China's bid to host the 2000 Olympic Games and voted against China's bid for the world game sponsorship.[17]

Against these circumstances, U.S. issuance of a visa to Lee Teng-hui was perceived by many Chinese analysts as a test against China by the United States. They, particularly those with a military background, argued that the United States had attempted to challenge established U.S.-China agreements since the early 1990s, including the sale of F-16 fighters to Taiwan and the upgrading of the Taiwan representative's office's status in Washington DC, in 1994. They perceived that Lee's visit was a coordinated plot between Taipei and Washington.[18] The United States, they believed, had attempted to drift away from its established one China policy, and took Lee Teng-hui's visit as a test.

Beijing was particularly concerned with the ramifications of Lee Teng-hui's visit to the United States. If Lee Teng-hui made a successful visit to his alma mater in the United States, Japan might follow suit and issue Lee Teng-hui a visa, allowing Lee Teng-hui to visit his alma mater in Japan, Kyoto University. Taiwan's attempt to reenter the international community would be materialized, it would be more difficult for China to isolate Taiwan internationally,

and the sacred task of reunification would be remote.

In brief, the second goal for China in launching the military exercises was to deter the United States from the perceived modification of its established one China policy. Through the forceful posture of the military exercises, China also wanted to show the United States that it would pay a heavy cost if the United States altered its China policy.[19]

Gains and Losses of the Military Exercises.

The evaluation of the crisis engineered by China has to be made against the two goals stated above. China has accomplished its goals, although the crisis created serious backlashes, and, on balance, the end results were mixed.

Chinese analysts argued that the military exercises cast a blow for those advocating Taiwan independence in Taiwan and helped deter Lee Teng-hui from seeking independence.[20] First, as Xue Litai pointed out, after the presidential election, the Democratic Progressive Party (DPP) split. Some radical Taiwan independence subgroups who denounced the DPP, claiming it had not placed Taiwan independence as its top priority, left the party and organized a Taiwan Independence Party, thus further making Taiwan independence a minority group in Taiwan. This was a serious blow for those radical elements. The consequence was that the DPP changed its tone over the Taiwan independence issue.

Other Chinese analysts echo Xue's observation. Dr. Wang Shaoguang, a U.S. trained political scientist, argued that China's missile test aimed at containing the further proliferation of the force of Taiwan independence by increasing the cost of Taiwan independence. "If China occasionally announces the information about missile tests, Taiwan's strength will be gradually exhausted because an outflow of capital and manpower will be caused." Wang made an analog between this strategy, and China's bombardment of Kinmen and Matsu every other day.[21]

As a corollary effect, a debate later emerged within the DPP in 1997-98. The debate, centering on policy toward China, was conducted between two schools. One, represented by former party chairman Xu Xin-liang (the head of the Formosa faction), argued

that the DPP has to adopt a "Dadan xijin" [bold move of western bound]. The other, represented by Qiu Yiren of the "New Trend" faction, advocated a "Jieji yongren" [more cautious measure]. In the end, a compromise was reached, and a slogan was proposed, "strengthening self and west bound" [*qiangben xijin*]. Although no specific definition was given, this reflected the serious thoughts of the DPP regarding its policy toward China.[22]

Secondly, the military exercises have accomplished the goal of reducing DPP's votes on the presidential election. Xue's argument was that, if China did nothing before the voting day, Peng Ming-min, the DPP candidate, would have more votes than expected, while Lee Teng-hui still could win the election. This was unfavorable to China, demonstrating that DPP support went higher and higher. The military exercise forced most Taiwanese to vote for Lee Teng-hui, who, at that time, superficially did not rule out the possibility of reunification, forcing the DPP to obtain only 21 percent of the total vote.[23]

Other Chinese analysts made a similar point. Li Jiaquan, a senior research staffer at the Institute for Taiwan Research of the Chinese Academy of Social Science, pointed out that the DPP's presidential candidate obtained many fewer votes than previous elections of around 30 percent. This implied that a total of one million votes switched from the DPP candidate to the Kuomintang (KMT) candidate, although the possibility of a backlash to protest China's military exercises could not be ruled out.[24]

Li Jiaquan pointed out two other signs of declining support for candidate's advocating independence. He says that it should be noted that two other independent presidential candidates, Lin Yangkang and Chen Lian, obtained 24 percent of the total vote, slightly higher than the DPP candidate's support of 21 percent. Another candidate, Lee Teng-hui, promised to stabilize cross-strait relations after the election.[25]

Secondly, the United States was aware of China's position on the Taiwan issue. Xue Litai pointed out that the United States should have received a clear signal of China's bottom line through the military exercises. That is, if the United States were to breach the one China policy, supporting Taiwan independence, or two Chinas, and offering Taiwan the opportunity to expand Taiwan's international

status, China definitely would not sit idly by and would definitely take action against the United States. Therefore, the United States would not commit the same mistake after the strong and intense military exercises[26].

Thirdly, the military exercise opened the door for establishing dialogue between the two sides of the Taiwan Strait. Xue pointed out that, when China was escalating the intensity of the military exercises, the United States started to pressure Taipei, requesting Taiwan to resume dialogue with Beijing in order to defuse the crisis and avoid direct conflict between the United States and China. This indicated that the exercises had accomplished the goal of forcing the United States to oppose Taiwan independence, and opening a window of opportunity for dialogue between Taiwan and China.[27]

In fact, Beijing's strategy was to gain a favorable position to pave the way for later cross-strait dialogue. China's calculation was that, after the relationship between China and the United States had improved, Taiwan would feel strong pressure from the United States to stabilize the cross-strait relations and would be forced to undertake dialogue with China. If the United States endorsed China's position on the Taiwan issue, it would strengthen Beijing's position and impact Taiwan's morale.[28]

Chinese analysts also observed negative impacts brought by the military exercises, although they reportedly had been in China's calculation. The first was the Taiwan people's further negative sentiment against reunification. Li Jiaquan vividly points out this problem. He says that the significance of anti-independence of the military exercises was seriously distorted, a new sentiment against reunification emerged accordingly, and it would become a new problem.[29]

Secondly, the military exercises heightened regional countries' security concerns. On the one hand, the "China threat," demonstrated by China's use of military force to address political issues, has become a concern for neighboring countries and the United States. On the other hand, China's military exercises encouraged the United States and Japan to conclude an agreement on security cooperation, concluding negotiations that had taken place since early the 1990s, and it is possible that the security cooperation included the Taiwan issue in their considerations. Further, China's test launch of surface-

to-surface missiles might open the door for U.S.-Japan cooperation on the joint collaborative development of the theater missile defense (TMD) system. Xue's observation points to this negative impact, arguing that the military balance in East Asia would be changed accordingly.[30]

Thirdly, the U.S.-Taiwan military-to-military relationship was upgraded across-the-board after the military exercises. Strategically, the United States and Taiwan started to undertake regular strategic dialogue to review how each will react in case of military conflict in the Taiwan Strait, the participants being composed of ranking civilian and military staff. In terms of personnel exchange, Taiwan's defense minister and other high level defense officials visited the United States more frequently. In terms of defense modernization, Washington has sent uniformed people to help Taiwan make an assessment of Taiwan's defense needs. Arms transfer was also strengthened: the United States approved more arms sales items to Taiwan, some items having offensive capabilities, the best instance being the approval of submarine sales. Taiwan was assisted in its efforts to integrate command, control, communications, computers and intelligence (C4I) systems among different services. Doctrinal development was also on the agenda for U.S. assistance: to have the United States send military experts to observe Taiwan's military exercises and provide expertise to assist Taiwan in this regard, particularly in the field of joint operations.

U.S. Factors.

What has Beijing learned? Several questions should be asked to provide a basis for drawing conclusions as to what lessons China has learned. The first one has to do with U.S. factors. Has China learned that the United States will intervene in the next crisis?

The answer is positive. The U.S. decision to intervene by sending two aircraft carrier battle groups has sent strong signals to Beijing, showing U.S. resolve in upholding the established principle that the Taiwan issue has to be handled in a peaceful way.

Some observers argue that Beijing might attempt to test the U.S. bottom line, or misperceive the meaning of peaceful settlement of the cross-strait issue.[31] China might have perceived that coercive

action does not transgress peaceful settlement, the principle set by the United States. However, Beijing's perception was proven wrong, and the United States responded firmly by sending the two battle groups, and a possible gray area perceived by China was sealed off quickly, decisively, and completely.

Further, the U.S. decision to intervene by sending the two aircraft carrier battle groups was a surprise to China.[32] As John W. Garver's research indicates, most Chinese had been misled by the low-profile action adopted earlier by the United States,[33] the U.S. decision to intervene was a shock, and the two battle groups could demonstrate enough U.S. resolve for the position of peaceful settlement of the Taiwan issue.[34]

In addition to the erroneous impression given by the low profile action taken by the United States earlier, Beijing might have miscalculated U.S. interest toward Taiwan. Some Chinese analysts, including Xue Litai, who have lived in the United States for a period of time, emphatically pointed out the unbalanced value of Taiwan for the United States and China. They argued that, for the United States, Taiwan was not a core interest although the United States is a global power. China, although only a regional power, had a core interest in the Taiwan issue. This perceived unbalanced value led them to conclude that the United States would seek a compromise with China, or even accommodate China's need in the end.[35]

The Chinese analysts' calculation was not correct. To some extent, they were correct to point out that Taiwan was not a core interest for the United States. However, their calculation isolated consideration for Taiwan from the issue of U.S. overall credibility as the prominent leader in this region. Ross's analysis points out the mistake that China made: "the United States used force not to defend its Taiwan policy, but to defend its strategic reputation by influencing perceptions of U.S. resolve."[36]

If the U.S. action adopted in March 1996 was not enough to show U.S. resolve to uphold the established principle of peaceful settlement of the Taiwan issue, what happened in the summer of 1999 should serve as another strong signal to Beijing.

In July 1999, Taiwan president Lee Teng-hui was interviewed and said that the China-Taiwan status should be defined as special state-to-state relations. China made a coercive action again by sending

sorties of jet fighters flying over the virtual middle line of the Taiwan Strait. The United States, aware of the serious consequence, sent strong words directly to China.

The 7th Fleet Commander warned China to ponder any action taken. He was interviewed and said that China had to think very carefully about any intimidation action taken beforehand. He further pointed out that the U.S. capability was stronger than that of the PLA. U.S. forces were well-trained, the United States had better readiness, and China should know it. If China launched another missile test like that of 1996, the United States would take resolute action.[37]

China's military program adopted in the aftermath of the 1996 crisis also reflected that they have learned of U.S. resolve. Chinese military has started to make various scenario assessments that the United States may intervene militarily and has worked out responding contingency plans for those scenarios.

One PLA magazine article revealed their preparation in this direction. The PLA Navy published *Dangdai Haijun* [*Contemporary Navy*] which analyzed possible modes of U.S. navy involvement in conflict in the Taiwan Strait in the future. The article takes the view that once a conflict breaks out in the strait, the U.S. Navy is likely to get involved. The modes of involvement range from the monitoring of PLA forces, the dispatching of U.S. forces to Taiwan to deter China from escalating the crisis, adopting limited military action to prevent China's military action against Taiwan, and undertaking confrontation actions such as launching forces against China's invading units and logistics units. In their mind, the last scenario is less likely, because an all-out war would subsequently break out between the United States and China. However, the possibility cannot be ruled out.[38]

Backlash in Taiwan.

To some extent, the military exercises did cast a blow at the Taiwan independence movement. The DPP was split, while the remaining DPP started to seriously rethink their China policy. Further, the DPP's decision to amend its Taiwan independence platform in 1999 to appeal to the moderate voters to prepare for the

presidential election in the year 2000 reflected the impact brought by the 1996 Taiwan Strait crisis.[39]

However, the military exercises also created a serious backlash in Taiwan. To be more specific, the stronger Beijing's intimidating actions and words, the stronger the backfire would be. This could be exemplified by the end result that those advocating a stronger position against China during the election won power, while those advocating better relations with China lost. In other words, Beijing did not comprehend the complex linkage between its intimidation and Taiwan's domestic politics.

The end result of the 1996 presidential election vividly testified to the above observation. Lee Teng-hui, who claimed that he was the only person daring to confront China, won a landslide victory: 54 percent of the total votes. Next to him was Peng Ming-min, obtaining 21 percent. The other two candidates, Chen Lian and Lin Yangkang, who denounced Lee Teng-hui's provocative action, only obtained 10 percent and 15 percent respectively. Despite the reiterated clarification by Chinese analysts that Lee's re-election had been in their expectation and the missile test was not aimed at Lee Teng-hui, Lee Teng-hui's landslide victory was still a little surprise to them. Li Jiaquan admitted that Lee's 54 percent of support was higher than he had expected.[40]

Two contrasting instances could explain the outcome. One Taiwanese military official said that he was forced by China to switch his vote to Lee Teng-hui, although such a decision contravened his own choice. The reason given was that, if Lee Teng-hui lost the election, Beijing would be justified in having conducted the exercise, and Taiwan would suffer more pressure in the future.[41] The military official decision conforms to the theory that incumbent leaders tend to win sympathy, and voters tend to rally behind them in the wake of an externally caused crisis. In fact, the Lin Yangkang camp had a similar complaint; one of his aides complained afterward that if there was no intimidation from Beijing, Lin would have gotten more votes.[42]

However, China did not comprehend the complexity at that time until the year 2000 presidential election. There were three candidates—KMT's Lian Chan, DPP's Chen Shui-bian, and independent James Soong. Lian Chan was regarded as Lee Teng-hui's protégé. James Soong earlier had had serious odds with Lee

Teng-hui and left the KMT.

In July 9, 1999, Lee Teng-hui, when interviewed by German media, described the cross-strait relations as "at least special state-to-state relations." One week later, candidate Chen Shui-bian praised Lee Teng-hui's statement, and suggested Lee Teng-hui take further action by dropping the National Reunification Guideline and amending the constitution in accordance with the special state-to-state theory.

However, James Soong criticized Lee Teng-hui's remark. He said that the special state-to-state theory was an irresponsible statement, and Taiwan would be labeled as troublemaker internationally, although he emphasized that Taiwan is not a province of China.

James Soong paid for criticizing the special state-to-state statement. According to an opinion poll made by the DPP on July 15 and 16, 1999, his popularity declined by 5 percent. Another poll made by *Chinatimes* on August 3-5, 1999, similarly concluded that James Soong's popularity fell by 4 percent from July 7-9 of the same year.[43]

China finally comprehended the complex linkage in March 2000. Three days before voting day, China's Premier Zhu Rongji, at a press conference of the annual National People Congress, warned that whoever pushes for Taiwan independence in Taiwan will go to hell. Zhu also warned that the growing support for Taiwan's independence will provoke war in the Taiwan Strait ". . . Chinese people will sacrifice blood and life to defend the reunification with the motherland, and dignity . . . Taiwan compatriots, you have to be aware of this."[44]

In the end, Chen Shui-bian won 39.3 percent of total votes, while Lian Chan obtained 23 percent and James Soong, 37 percent. Some said that Zhu Rongji's remark might have helped candidate Chen Shui-bian win the election with a margin of 2.4 percent in total votes.[45] The Chen Shui-bian camp had estimated that he had expected to win only 36 percent before the voting day. There might be some relation between Zhu's threatening words and Chen Shui-bian'e victory. In fact, after the election, China's response has been described by CIA Director George Tenet and DoD spokesman Kenneth Bacon as self-restrained.[46]

China finally learned something in the past several years. China

started to realize that it had better be careful when meddling in Taiwan's domestic politics. Beijing now knows that to make any comment, positive or negative, on Taiwan's domestic politics only generates an opposite effect that they do not want to see. That was why Beijing was relatively quiet when Taiwan had parliamentary elections in late 2001, even after President Chen Shui-bian made the remark on August 3, 2002 of "one country on each side of the Taiwan Strait" at a telecommunication speech to a Taiwanese group living in Japan.[47]

Related to the above is the realization that, the more Beijing employs pressure and coercive action, the stronger Taiwan will resist and the more remote reunification will be as a viable option will be in Taiwan. In other words, Beijing at least has to alter its tactics and methods for dealing with Taiwan, switching to the incentive-oriented approach and seeking ways to establish closer ties with Taiwan.

Internal Debate.

China faced a critical choice on the political use of military exercises in the future. If the theory advocating coercive action to deter Taiwan from seeking independence works, as many Chinese analysts believe, China should launch frequent and large scale military exercises. Moreover, the stronger military exercises are, the more likely Taiwan would be to bow to China's pressure.

However, this approach has not been proved successful. On the one hand, Lee Teng-hui continued to advocate his ideas. On the other hand, any military exercise to deter Lee Teng-hui from airing "independence" ideas would invite the United States to intervene in the Taiwan Strait and internationalize the cross-strait issue.[48]

Moreover, small scale and occasional military exercises will not achieve the goal of conveying strong warning messages against Taiwan. For one, small scale exercises will not shock the Taiwanese, forcing them to think over their future. Secondly, small scale exercises will not only enable the Taiwanese to get used gradually to the intimidation, but will force the Taiwanese to be sympathetic to and supportive of the Taiwan government in the long term.[49]

This catch-22 situation, in fact, reflected a dilemma, that is, Beijing felt that they were somewhat constrained. On the one hand, they were constrained by the realization of the complex linkage, and no alternative had been found. On the other hand, this constraint would give further opportunity to, at least, the independence fundamentalists to advocate whatever type of Taiwan independence they wished, while Beijing was left with no solution for immediate countermeasures.[50]

An internal debate arose in this context. In general, two schools can be discerned. The focus of the debate was what should China do in this context? How should China calculate its costs and benefits? It seemed that those moderates advocating modernization as the top priority prevailed.

There are several rationales behind the priority of modernization.[51] The first one is the possible U.S. involvement and the aftermath of large-scale confrontation between the United States and China. Moderate analysts have confidence that in an all out war with Taiwan, the United States can neither send large numbers of troops to the Taiwan Strait, nor bear high casualties if choosing to fighting with China. Meanwhile, the format for U.S. involvement may vary, depending upon conditions, but the United States may lack sustained will and determination comparable to those of China.

However, moderates argue that China should watch how the United States will react after the military confrontation. They are concerned that, if China reunifies Taiwan by force, a strong anti-China atmosphere will emerge in the United States, forcing it to launch a long-term cold war against China. This is particularly the case if China launches an attack without the prior provocation of Taiwan's announcing its independence.

What will happen for China in that case? Moderates argue that that will be the worst scenario for China, because China, which is still a developing country, will be forced to divert most of its resources to military buildup and political confrontation, and opportunity for further economic and political development will be lost. The consequence would be that China definitely will not become the most powerful country in the world, although a basic level of security can be maintained.[52]

The Taiwan Strait may further complicate China's military

calculation.[53] The average 90-mile distance of the strait makes offense difficult, and 50 years of separation has witnessed this difficulty. The other side of the coin is that the strait has easily enabled Taiwan to defend against China's potential attack with relative low cost.

Also, China is not well-prepared for launching an attack. Constrained by technological, economic, and political factors in the past decades, China has not built up a force able to carry out three dimensional offensive operations under high tech conditions. In contrast to China's lack of preparation, Taiwan, assisted by the United States, has been better prepared to defend an against attack from China.[54]

Secondly, closer military ties between the United States and Taiwan will make it difficult for China to launch low intensity war to deter Taiwan from separation and to force Taiwan to undertake reunification negotiations. Under this situation, Taiwan, assisted by the United States, is being prepared militarily for this kind of politically-oriented coercive action. China is not confident that it can achieve the original goal without creating the opposite result of making Taiwan announce independence.[55]

Further, China is not sure if the scale of the military conflict can be confined to low intensity war. There are many unforeseeable factors during the whole course of war, and these unexpected factors will inevitably escalate the scale of war. The escalation will make the war lose political direction, and consequences will be very serious.

For this school, the best alternative is to place priority on modernization. They argue that the solution of the Taiwan issue should be placed in a broader scope: China's overall development will influence the final solution of Taiwan. If China can persist in reforming the economic system and the political institutions, as well as developing military capabilities, this will project a good image of China to the Taiwanese, hence helping facilitate the eventual reunification.

In this sense, final accomplishment of reunification is a side product of China's overall modernization. China's independence, security, integration, and being a world-class power is of utmost importance, while the Taiwan issue is not the top and overwhelming priority. The overall modernization, if accomplished, should bring wealth and strength to China. By doing so, China can avoid the trap

of paying an extremely high cost for reunification.

For the modernization school, there is an implicit assumption. That is, both mainland Chinese and Taiwanese are of Han Chinese descent. Taiwan's reluctance to accept reunification has to do with China's lack of democracy and less-developed economic system. If China can accomplish modernization in both fields, it will be attractive enough for the Taiwanese, and the Taiwanese will drop separation, either keeping the status quo or changing the name of the government, and opt for reunification.

The opposite end from the moderates was the hawkish school.[56] The hawkish school argues that Lee Teng-hui's formula defining the cross-strait relations as special state-to state relations was not merely a passive strategy aiming at maintaining the status quo of two divided entities. The current temporary division, advocated by the former ruling KMT party, does not rule out the recognition that people on both sides of the Taiwan Strait are Chinese, and the possibility of eventual reunification is not ruled out by both sides.

Instead, these hawkish critics saw Lee Teng-hui's formula as an offensive strategy. They saw a conspiracy behind the strategy with the final goal of transforming and dismembering China and eventually ruining Chinese nationalism completely. It was a grand strategy based on a horrible conspiracy.

They reached this conclusion based on many of Lee Teng-hui's remarks. Lee said in his book, *Taiwan de zhuzhang* [*Taiwan's Position*], published in May 1999, that China should be divided into seven parts, including Taiwan, Tibet, Xinjiang, Inner Mongolia, and Manchuria. In their mind, Lee Teng-hui's real intention was to negate China and Chinese nationalism to pave the way for Taiwan independence, dismember China so as to solve the geopolitical obstacle for Taiwan's survival and development, as well as to dismember Chinese nationalism to reduce the political barrier for Taiwan's survival and development.

They pointed out that Lee Teng-hui attempted to market his idea to the United States and Japan. Lee advocated, they accused, that dividing China into seven parts was in the interest of the world, because once China is divided, there will be no Chinese hegemon and pax-Chinese nationalism, and the threat posed to this region will be reduced accordingly.

They particularly resent that Lee Teng-hui attempted to prop up Japan's militarism. They charged that Japan's *wei xin lun* [idealism], advocated by Lee Teng-hui in his book, is tantamount to Japan's *Bushido* idea, which was the source for Japan's pre-war militarism. Therefore, in their mind, Lee Teng-hui was promoting Japan's militarism.

In this context, the Taiwan issue was not an isolated one. The source of this issue could be dated back to the end of the Cold War. After the Soviet Union had collapsed, the United States and its allied states launched a containment policy toward China which has reached its pre-final stage. It heralded that the strategic security of China's coastal area would further worsen and a political storm would approach soon.

The hawkish school emphasized that, if timing is ripe, the United States and its allied states will not forgo any opportunity to dismember China. The new U.S.-Japan security guideline and the signing of the Visiting Force agreement between the United States and the Philippines could serve as a witness for the conspiracy of the United States and its allied states. Hence, the security environment of China's coastal area has approached a level next to war in this context.

Facing the above stated situation, this school proposed to take forceful measures. First, they voted to change the perception and modify the proposition of net assessment toward the world. They argued that peace and development, a conclusion reached earlier to describe the future trend, was an illusive vision that has not existed and China should wake up from it. If China did not wake up, it would encounter a dangerous future.

Secondly, they proposed to take military action. They emphasized that a military force should be mobilized to solve the Taiwan issue to assure that the objective of national development could be accomplished, because the Taiwan issue is the key to the objective, and, if the Taiwan issue can be solved, China will be able to break U.S. hegemonism and containment.

Judging from the most recent developments in cross-strait and U.S.-China relations, it seems that the moderate school prevailed. That partially can explain why Beijing's response has been mild toward President Chen Shui-bian's August 3, 2002, remark. There

is no doubt that Beijing did not like this statement and regarded it as consistent with Lee Teng-hui's special state-to-state theory of 1999. Vice Premier Qian Qichen, when hosting overseas Chinese from Africa, said that President Chen's remark was consistent with Lee Teng-hui's 1999 remark, setting up new obstacles to cross-strait relations, bringing new problems for Taiwan society, and acting as a troublemaker for international society.[57]

However, interestingly enough, Beijing did not make threatening words in their comments. Qian Qichen only said that Chinese in the world and international media should condemn President Chen's statement. China's Taiwan Affairs Office Director, Chen Yun-lin, had a similar response. Chen said that the three links continued to be China's policy.[58] Also, there was no PLA jet fighter flying over the virtual center line of the Taiwan Strait as that in August 1999 in response to Lee Teng-hui's remark, let alone the mobilization of military exercise targeting Taiwan.[59]

Conclusion: Lessons Learned.

What lessons has China learned? The foremost and core lesson is that the United States is the No. 1 obstacle for China's goal of reunifying Taiwan. Normalization of relations with the United States has not precluded it from giving up its concern for Taiwan at all, because its credibility is at stake.

As a consequence, the 1996 Taiwan Strait crisis and subsequent events enabled China to learn that the United States will not sit idly by in any future crisis in the Taiwan Strait. The United States will intervene in one way or another. China has also realized its existing capability gap with the United States. China has modified its strategy, placing priority on developing its economy and defense modernization.

However, the switched strategy and priority does not rule out the possibility of taking coercive action in the future. Many analysts pointed out that interaction between domestic and external factors led China to launch coercive diplomacy in the 1995-96 Taiwan Strait crisis.[60] This implies that, if a similar condition happens, China may take risks to launch coercive action in the future, while measures of risk management will be employed.

China has to find ways to handle possible U.S. intervention. Militarily, it has to build up its capability in order to reunify Taiwan and simultaneously deter the United States from intervening in the Taiwan Strait. In Chinese leaders' minds, an ideal military capability is able to paralyze Taiwan's military capability in a very short time, leaving the United States no time to response, and, at the same time, the PLA can, at least, hold U.S. forces. However, before that capability is achieved, China probably has to be *jieji yongren*, be patient.

CHAPTER 11 - ENDNOTES

1. This author would like to thank Andrew Scobell, Thomas Christensen, Harlan Jencks, and others at the conference for their comments, suggestions, and critiques.

2. Shi Yin-hong, *"Guanyu Taiwan de jixiang bixu zhengshi de dazhanlue wenti"* ("Some grand strategic issues with regard to Taiwan"), *Zhanlue yu guanli, Strategy and Management*), Vol. 39, No. 2, 2000, p. 32.

3. Xin Qi in *http://news.fm365.com/xinwen/guonei/20000713/98269.htm.*

4. For a comprehensive analysis of the crisis, see John W. Garver, *Face Off–China: the United States, and Taiwan's Democratization*, Seattle/London: University of Seattle Press, 1997.

5. For a comprehensive analysis of the process of U.S. involvement, see Robert S. Ross, "The 1995-96 Taiwan Strait Confrontation: Coercion, Credibility, and the Use of Force," *International Security*, Vol. 25, No. 2, Fall 2000, pp. 87-123.

6. Andrew Scobell's analysis indicates that China made up its mind on the 1996 military exercise in December 1995. Scobell argues that the July exercise was more of an instant response to the U.S. decision to issue a visa to Lee Teng-hui, while the March 1996 exercise was exclusively aimed at Taiwan after a longer time of consideration. Andrew Scobell, "Show of Force: Chinese Soldiers, Statemen, and the 1995-1996 Taiwan Strait Crisis," *Political Science Quarterly*, Vol. 115, No. 2, Summer 2000, pp. 227-246.

7. For a comprehensive analysis, see Garver, *Face Off*, pp. 118-126. Chinese analysts have different observations in this regard. Xin Qi indicated on July 12, 2002, that the March 1996 military exercise was not aimed at Lee Teng-hui, but was targeted at the United States only, because, he said, China already predicted that Lee Teng-hui would be elected president. However, You Ji's observation was more vague by arguing that the military exercise was targeted at Taiwanese in

general, attempting to warn the Taiwanese not to elect a president who was a Taiwan independence advocator. YouJi, "Changing Leadership Consensus: The Domestic Context of War Games," in Suisheng Zhao, ed., *Across the Taiwan Strait: Mainland China, Taiwan, and the 1995-1996 Crisis*, New York/London: Routledge, 1999, pp. 77-98.

8. "Lee Teng-hui's action on Taiwan independence is the biggest danger for Taiwan," *Jiefangjunbao* (*Liberation Army Daily*), LAD, March 9, 1996, p. 1. *People's Daily* carried an editorial comment completely identical with that of the LAD at the same day.

9. *Ibid.*

10. *Times* magazine's interview with Singapore's senior minister, Lee Kuan-yew, *United Daily News*, February 28, 1996, p. 2.

11. Robert Pape identifies three types of coercion--by punishment, by decapitation, and by denial. The 1996 crisis is of coercion by decapitation. See Pape, "Why a Chinese Preemptive Strike Would Fail?" paper presented at the Institute for Taiwan Defense and Strategic Studies sponsored Conference on Taiwan Security and Air Power, January 9, 2003 in Taipei, Taiwan.

12. Some oppositional leaders called for Lee Teng-hui to step down at that time. See *United Daily News*, March 6, 1996, p. 4.

13. This kind of conspiracy theory has been widely spread in China. To some extent, the Chinese government tacitly encouraged this view because it might rally support around the Chinese Communist Party, which had suffered a legitimacy crisis since the 1980s. It should be remembered that not all were in this school, nevertheless, it seems that this school prevailed along the course of rising nationalism.

14. Xin Qi, *"Guoji zhanlue huanjing de bianhua yu taiwan wenti,"* ("Change of International Strategic Environment and Taiwan Issue"), *Zhanlue yu guanli* (*Strategy and Management*), Vol. 17, No 4, 1996, pp. 18-27.

15. Xin Qi, *ibid.* Another theory, cited frequently, was that the military-industrial complex has suffered substantially after the end of the cold war. There was a strong need for them to find an outlet, and they lobbied the U.S. Government to alter the policy for promoting their products.

16. Xin Qi, *ibid.*

17. Harry Harding argues that Clinton administration had no China policy in the first 4-year term, and the consequence was that China policy was

completely dominated by the U.S. Congress, media, and many issue-oriented social organizations. That also contributed to disastrous consequence of U.S.-China relations in mid-1990s. Harding, "Asia Policy to the Brink" *Foreign Policy*, No. 96, Fall 1994, pp. 57-74.

18. Ross's article indicates that China's America experts were aware of pressure incurred from domestic politics in the United States, but they insisted that the U.S. Government exercise its power and influence to honor the international commitments that it has made. Ross, p. 93.

19. Other than this deterrence effect, people have different speculations on China's goal of the coercive diplomacy toward the United States. Garver argues that China attempted to pressure the United States to recognize that Taiwan is part of the PRC. Garver, p. 119. Ross maintains that China's goal was to press the United States to affirm its opposition to Taiwan independence and to reassure China that there would be no further erosion of U.S. policy toward Taiwan. Ross, pp. 90-91.

20. Xue Litai, *"Taihai weiji zhi wojian"* ("My View of the Taiwan Strait Crisis"), *Zhongguo yu shijie* (*China and the World*), No. 3, June 1996, pp. 63-64. It is interesting to see that many Chinese analysts regarded the military exercise as a successful one, while "minor problems" were created. Xue Litai's observation reflected this view. He concluded that, in general, positive effects far outweighed negative ones, and positive effects were long term while negative ones were short term.

21. *United Daily News*, January 11, 1996, p. 5.

22. For a comprehensive analysis of the various positions of DPP's different political factions on China, see Liu Jincai, *Dadan xijin? Jieji yongren? Minjindang dalu zhengce pouxi* (*West Bound Boldly? Going West Slowly? An Analysis of DPP's China Policy*), Taipei: Shiying Publisher, 1998.

23. Xue.

24. *United Daily News*, March 25, 1996, p. 4.

25. *Ibid.*

26. Xue.

27. *Ibid.*

28. *United Daily News*, March 26, 1996, p. 3.

29. *Ibid.*, March 25, 1996, p. 4.

30. Xue. However, Xue tries to downgrade the significance of this impact. He said that the negative image in the East Asian region as a result of the military exercises was in China's expectation. Xue argues that with the amelioration of the tension in the Taiwan Strait, the negative image would subside, and it would not be an issue anymore.

31. Scobell.

32. Some Chinese analysts might have predicted that the United States might send one battle group as a gesture of protest to China's coercive action. But they never anticipated that two groups would be sent. Xue Litai's accusation that the United States over-reacted because it should have known from the beginning that China had no intention to invade Taiwan and implied that the U.S. decision was not expected. Xue.

33. Garver, pp. 111-117.

34. For an explanation of this possible misperception, see Ross.

35. Xue.

36. Ross, p. 88.

37. *United Daily News*, August 12, 1999, p. 2.

38. *Ibid.*, August 8, 2002, p. 13.

39. The DPP's former party platform advocated that Taiwan, through referendum, should establish a new state based on the current divided sovereign reality (separation from China) and to work out a new constitution with a goal of establishing an independent and sovereign Republic of Taiwan. The platform said that this platform conforms to the world trend of self-determination, and no political party and administration has the right to decide the future of Taiwan. According to the DPP, the former party platform had been widely misperceived as the "Taiwan independence platform" despite the fact that the DPP had emphasized the referendum was the actual focus of the whole issue, and people on Taiwan could opt for reunification through referendum. Domestically, the former ruling party, KMT, took advantage of this misperception, charging that the DPP candidate, if elected president, would lead Taiwan into disaster. The party platform did scare the Taiwan people and drove votes to the KMT. It was apparent that the DPP's amendment of the former position toward China policy had to do with domestic concerns. The DPP had suffered failure in the 1996 presidential election, and they tried to avoid the same mistake for the 2000 presidential election. This necessity pushed the DPP to amend the party platform so as to win the Taiwan people's

confidence and trust. Tung Cheng-yuan, *"Chaoyue taidu danggang de wujie yu youlu"* (To Avoid Misunderstanding and Worry about the Taiwan Independence Platform), from *http://www.asiademo.org/1999/01/19990106a.htm.*

40. *United Daily News,* March 25, 1996, p. 4.

41. Personal interview, March 20, 1996.

42. Cited from John Copper, *As Taiwan Approaches the New Millennium,* Lanham, MD: University Press of America, 1999, pp. 64, 95-96.

43. *Chinatimes,* July 17 and August 7, 1999.

44. *International Herald Tribune,* March 16. p. 1

45. Chong-pin Lin, "Goodwill and Proactive Exchange Policy: How Taipei Manages the Cross-Strait Relations," in *http://taiwansecurity.org/TS/2001/CPLin-011201.htm.*

46. *United Daily News,* March 23, 2000, p. 14.

47. Zhang Nian-ci, reportedly an advisor for Wang Daohan, wrote that Beijing would fall into the trap set by Chen Shui-bian by launching coercive action. Instead, Zhang reportedly said that China should continue its policy of attracting Taiwanese businessmen and promoting closer economic tie between the two sides. *Chinatimes,* August 2002. For a formal analysis of Beijing's responses to President Chen's statement, see Bonnie Glaser, "Harbor no illusion, Pressure the US, and Accelerate Military Modernization: Beijing New Taiwan Policy," *http://www.csis.org/pacfor/pac0235.htm.*

48. Shi Yin-hong, *"Kunnan yu xuanze: dui Taiwan wenti de shikao"* ("Difficulties and Choices: Some Thoughts on Taiwan Issue"), *Zhanlue yu guanli* (*Strategy and Management*), Vol. 36, 1No. 5, 1999, p. 4.

49. *Ibid.*

50. Interview with a Chinese analyst, August 19, 2002, in Taipei. Recently, Beijing instructed local governments to recruit Taiwanese businessmen into local people's political consultation councils and to pay more heed to Taiwanese businessmen's needs. The purpose was reportedly to form coalitions (or political united fronts) with Taiwanese businessmen who, in turn, will pressure the Taiwan government not to seek independence. It was reported that some Taiwanese businessmen have joined county- or prefecture-level political consultative councils. See *Chinatimes,* August 24, 2002, p. 11.

51. This portion is drawn from Shi Yin-hong, *"Guanyu Taiwan de jixiang bixu zhengshi de dazhanlue wenti"* ("Some grand strategic issues with regard to Taiwan"), *Zhanlue yu guanli, (Strategy and Management)*, Vol. 39, No 2, 2000, pp. 27-32. Shi's view reflects a major portion of opinion pursuing long-term solution for Taiwan as long as there is no imminent need to launch military action.

52. Shi Yin-hong was quoted to say that China should adopt a "strategic patience" in China's policy toward Taiwan and the United States. Shi even pointed out that China's political reform and democratic construction are too slow, and this slow pace has brought a negative image toward U.S. and Taiwan public opinion. *Chinatimes*, September 4, 2002, p. 11.

53. Shi Yin-hong, *"Kunnan yu xuanze: dui Taiwan wenti de shikao"* ("Difficulties and Choices: Some Thoughts on Taiwan Issue"), *Zhanlue yu guanli*, Vol. 36, No. 5, 1999, pp. 1-4.

54. *Ibid.*

55. *Ibid.*, note 26.

56. See Zhang Wenmu, *"Taiwan wenti yu zhongguo qiantu,"* ("Taiwan Issue and China's Future"), *Zhanlue yu guanli*, Vol. 36, No. 5, 1999, pp. 5-15.

57. *Chinatimes*, August 22, 2002, p. 11.

58. *United Daily News*, August 23, 2002, p. 13.

59. The *United Daily News* reported that there were debates internally in China after Chen Shui-bian had made the statement, and there were two schools: those advocating "modernization first" versus those arguing for "war now." The final consensus adopted by the decisionmakers was modernization over immediate reunification unless Taiwan went independent. *Ibid.*

60. Garver, and Allen S. Whiting, "China's Use of Force, 1950-96; Taiwan," *International Security*, Vol. 26, No. 2, Fall 2001, pp. 103-131; You Ji.

PART IV:

DOMESTIC DEPLOYMENTS AND CIVIL-MILITARY RELATIONS

CHAPTER 12

LESSONS LEARNED FROM THE CULTURAL REVOLUTION AND THE TIANANMEN MASSACRE

June Teufel Dreyer

Epistomological Questions.

The experiences of the People's Liberation Army (PLA) during the Cultural Revolution of 1966-76 and its part in quelling the demonstrations in Tiananmen Square in 1989 were undoubtedly searing and left a deep impression on both those who witnessed them and on future generations. Before coming to a judgment on the lessons learned from these painful experiences, however, a few broader questions should be contemplated.

- Were any lessons learned?
- If so, were they the correct lessons?
- Even if the lessons learned were correct, are they appropriate as a guide for the PLA under current circumstances?
- Is there consensus on what these lessons were, or have different groups assessed the experiences differently?

It is possible for a society to learn nothing from past experience, as George Santayana lamented in his famous observation that those who cannot remember the past are condemned to repeat it. In this scenario, a compressed version of traditional China's dynastic cycle, the same mistakes will be made over and over again. It is also possible to learn the wrong lessons, as the French did after their defeat at the Battle of Crecy in 1346. French knights on horseback were defeated by British knights who fought on foot, supported by commoners armed with longbows. The French reasoned that their knights, like those of the British forces, should not ride into battle. Hence, at a rematch in Agincourt in 1417, French knights also fought on foot. The French were defeated again. It took a second battle for the correct lesson to be learned--that longbows will penetrate most armor, whether or not the wearer of the armor is mounted.

The vulnerability of knights rather than that of their horses was the problem.

In the case of the Chinese People's Liberation Army (PLA), public writings tend toward views that are, first, established by fiat at the highest levels rather than emerging from open debate, and second, ignore or give short shrift to factors that may not suit the heroic imagery that the leadership wants to inspire the troops with. Both may lead to simplistic explanations that mislead rather than provide guides for success in the future. Political correctness precludes probing analysis that could provide better explanations for what happened. Even assuming that the lessons learned were correct--for example, that luring the enemy deep into one's territory until his troops can be cut off from behind was responsible for major Chinese Communist victories against the party's adversaries--what worked in the 1940s might not be workable in 2010. And, of course, it is possible--outside China, at least--to challenge the lessons learned from that period. Perhaps, for example, what enabled the Chinese Communist Party (CCP) to win the war was not the brilliance of Mao Zedong's theory of People's War. The party's victory can also be attributed to a combination of two other factors: first, that the Japanese occupation fatally weakened the opposition Kuomintang by forcing it from the urban areas that constituted its power base and, second, that Kuomintang (KMT) leader Chiang Kai-shek employed a foolish military strategy.

The Cultural Revolution.

During the prelude to the Cultural Revolution,[1] the PLA was lionized. It had not always been such. An "officers to the ranks" program carried out at the time of the Great Leap Forward indicates the leadership's concern that the military was becoming dangerously elitist. The abolition of ranks in mid-1965, a decade after they had been instituted, also spoke to this concern. The official media explained that the rank system introduced in 1955 had proved not in conformity with "our army's glorious tradition, with the close relations between officers and men, between the higher and lower levels, and between the army and the people." Eliminating ranks would remove factors conducive to concern with wealth and fame; help officers to put themselves in the position of rank-and-file

soldiers, workers, and peasants; enable them to remold themselves ideologically; and solidify the ideal of whole-hearted service to party and people. A re-education effort was prescribed for the military. The press began to praise "five good" soldiers,[2] of whom there were a great many, and Lei Feng, the model soldier so good and true to Chairman Mao and his ideals that he was unique. Evidently, the leadership had chosen the PLA as a test case for techniques of ideological indoctrination before attempting to apply them to society as a whole.

If so, they must have deemed these techniques to be successful. By the mid-1960s, the PLA was being held up as the model for the rest of society to emulate. A "Learn From The PLA" campaign was launched, and the military was praised as a "great red school" in learning and implementing the thoughts of Mao Zedong. Additionally, Defense Minister and, until ranks were abolished, Marshal, Lin Biao compiled the little red book of selected quotations from Chairman Mao that became practically the only reading matter during the Cultural Revolution. These indicated to the population at large that the military's influence had been enhanced. When the Cultural Revolution was formally launched in 1966, however, it was not the military but a new force, the Red Guards, that Chairman Mao anointed as the vanguard of change. Speaking from the rostrum of Tiananmen, the chairman called upon these young people, many of them barely teenagers, to destroy the "bourgeois headquarters," by which he appeared to mean any organization with a hierarchy.

At least in theory, the PLA remained a respected institution and was called upon to assist the young guards. But this did not prevent its command structure from being purged repeatedly. Factionalism existed within the Red Guards, with each group describing itself as the true defenders of Mao and Marxism. Peasants and workers also organized, sometimes to protect themselves and their workplaces from the radicals' depredations. Stories of battles among factions became daily fare in the media. Since all sides claimed to be the real revolutionaries, it was difficult for PLA leaders to decide whom to assist, how, and to what degree. PLA units were themselves attacked, as the attackers acted on radical exhortations to "drag out the small handful [of counterrevolutionaries] in the military." Army weapons fell into civilian hands, sometimes because they had been

stolen or looted. Sometimes those who guarded the weapons feared that those who wanted them might, if refused, accuse the guards of counterrevolutionary sentiments and launch a struggle against them. Moreover, the PLA received conflicting signals: told to support the left, it was also at one point ordered not to intervene.[3] An October 1966 joint directive from the party's Central Military Commission (CMC) and the PLA's General Political Department called for more radical methods of "blooming and contending" within the PLA, but also instructed military schools and their students to stay out of local Cultural Revolution activities and confine their "exchange of revolutionary experiences" to visits to other military schools.[4] By late February 1967, fearing that widespread chaos might cause a sharp drop in the spring harvest, Mao ordered the PLA to stabilize the situation. Radicals bitterly opposed what they called "the February Adverse Current"; Mao as well became convinced that local military units were backing not revolutionaries but local leaders with whom they had been associated. Additional restraints on the military were issued.

The PLA was not itself immune from factionalism, with commissars somewhat more likely to be sympathetic to radicals than commanders. Although the rhetoric of the disputes focused on ideology, the reality was more likely to reflect personality differences and the quest for power of those involved. As a case in point, Unit 8341, the Party Central Committee's (PCC) Regiment of the Guards under the command of the Beijing garrison, was controlled by Wang Dongxing. Wang was known for his close relationship with Chairman Mao and was sympathetic to the radicals. However, he was also an opponent of Lin Biao,[5] who had taken the lead in publicizing the Cultural Revolution and whom the media typically referred to as "Chairman Mao's closest comrade-in-arms."

These personal relationships and loyalty networks played important parts in factionalism within the PLA. Through "special arrangements" (*teshu guanxi*), the children of top leaders could enter the military--considered far preferable than being sent "down to the countryside" to become one with the peasants--where they received special treatment. Lin Biao's son, for example, was a high-ranking officer in the air force; Mao's nephew was an officer in a missile unit in the northeast. Ambitious but less well-connected officers were

eager to associate with them and thereby promote their careers because of the opportunities that this could open up for them as confreres of the favored few.[6] Lin and others appeared to be using the Cultural Revolution as a way to diminish and even destroy their rivals within the military. These personal relationships and loyalty networks played into and magnified the rivalries among them.

In general, however, the PLA tended to intervene on the side of order and stability, meaning against the radicals. With icons of the revolution such as Marshal He Long being purged on such charges as "conspiracy," it must have seemed that no one was safe. It is known that after Deng Xiaoping was publicly humiliated and purged, he was sheltered by military officers;[7] it is likely that others were as well. Even in the Cultural Revolution's atmosphere of feverish suspension of disbelief, charges that old soldiers who had made huge personal sacrifices on behalf of the party were secret traitors must have rung hollow.

Another charge that brought down many officers was that of having a "narrowly military" point of view. Chairman Mao's actual words were that men equipped with correct political ideas were more important in war than weapons; this theme had been expounded on by Lin Biao as well.[8] However, in the grotesquely cartoon-like simplification of the era, one's enemies could construe any support for modern weapons or training as evidence of a narrowly military point of view. Hence, officers opted to have their troops engage in massive and repeated political study sessions. Another of Santayana's observations comes to mind: fanaticism consists in redoubling one's efforts after one has forgotten his aim.

A particularly bitter experience occurred in July 1967, when Chen Caidao, commander of the Wuhan Military Region, arrested central government radicals who had come to the city to arrange a truce between two factions. The central government quickly reasserted control, arresting Chen and his subordinates. But with the threat of anarchy increasing, Mao appears to have decided that order had to be restored, and in September 1967, gave the order to do so. Andrew Scobell's research indicates that even Mao's wife and leading radical Jiang Qing supported the directive.[9] During the next year, revolutionary committees were established to administer the provinces. Their composition was dominated by military men.

Troops also moved into university campuses to restore order. When the CCP's Ninth Party Congress was held in 1969, the Central Committee elected thereat also showed heavy military influence: 44 percent of those elected were members of the PLA. A revised party constitution adopted at the congress designated Lin Biao, by name, as Mao's chosen successor. PLA members associated with him, as compared with PLA members in general, were especially favored with high positions.

While the military, and particularly Lin's faction thereof, emerged well from the Cultural Revolution, the cost had been high. The command structure was destroyed. A number of officers had died; many more had had their reputations ruined. The PLA's prime reason for being, the defense of China's territory, was adversely affected by the depredations visited on the military. Border security in sensitive areas such as Xinjiang, bordering a then-hostile Soviet Union, and Tibet had badly deteriorated. In 1968, Tibet's leader, Ren Rong, a Han Chinese thought to be more sympathetic to the left than to conservatives, warned that factional infighting had reduced attention to national defense and cautioned against border incidents. Indian, Soviet, and American reconnaissance patrols had, he said, been detected along the border and "traitors and bandits" within Tibet were "itching for action" there.[10]

Lessons Learned.

Different entities must have learned different lessons from the Cultural Revolution. Mao Zedong presumably learned that the PLA played a critical role in maintaining the stability of the People's Republic, and that, once having unleashed the Red Guards in the name of social reform, neither he nor the society he had created could function without it. He also learned that a military called in to restore order might be reluctant to abandon the positions of authority its commanding officers had assumed. Radicals learned that they could not trust the military, since it proved fundamentally opposed to the kind of reform they were trying to bring about. They concluded that they would have to create a force that could serve as a counterweight to it.

Military leaders, though they did not publicly say so, surely felt

betrayed and embittered. It must have been difficult to descend from the favored position of "great red school" role model for society to being humiliated and attacked by radical factions. While continuing to profess unswerving loyalty to Chairman Mao, military men must have harbored profound private doubts. Rather than giving clear directions, the Chairman appeared to have been playing factions against one another, to the detriment of both the corporate interests of the military and to social welfare as a whole. PLA leaders may also have questioned the wisdom of intervention on the side of one faction or another to further Mao's schemes. Memoirs written years later profess joy at receiving Mao's command to intervene. But these were written after Mao's death and a time when it was safe to criticize the Cultural Revolution. They do not necessarily reflect what the parties involved thought at the time the action took place. As a case in point, Marshal Xu Shiyou, over a decade later, expressed relief at receiving the September 1967 order to intervene.[11] But he could not have known when he received the order that it would not prove ephemeral, as had the February 1967 order, and that the military's actions would not again be castigated as an "adverse current" at some later date. This should have taught the military that intervention should occur only on clear and unequivocal orders from the party. At this point in time, few doubted that the Chairman spoke for the party and, in the mystic aura created by the cult of Mao, that he embodied the party. But, particularly after the disastrous experience of the Great Leap Forward, many officers must have known that the Chairman was not infallible, and that he could be persuaded to change his policies on the basis of advice from different people around him.

A second, and less equivocal, lesson that both the PLA and Mao learned is that it is dangerous to allow the military's role in society to overwhelm its functional role of defending the nation against external enemies.

Lessons, Loyalties, and Policy Choices.

The policy choices conditioned by the different lessons learned by these major actors played themselves out over the next decade. It seems clear that the lesson Mao had learned about the pivotal

role of the military convinced him that the PLA's recently enhanced powers would have to be diminished. Fittingly, his first target was the PLA figure to have most profited by the Cultural Revolution, Lin Biao. In the normal course of events, the 1969 Party congress should have been followed by a National People's Congress, which would adopt a new state constitution that, like the 1969 Party constitution, would name Lin as Mao's chosen successor. No congress, and no constitution, appeared. At a conference held in Lushan in 1970, Mao criticized Lin and his faction; in the following year he accused them of plotting an "unaccomplished coup."[12] Mao's drastic reassessment of Lin was almost certainly influenced by another faction of radicals, the Gang of Four, that included his wife, Jiang Qing.

Extensive archival research and interviews conducted by Jin Qiu, the daughter of a member of Lin's faction indicate that Lin was loath to challenge Mao, even on this matter. Like other revolutionary veterans, he felt that to oppose Mao was to oppose the party, and to oppose the party was to negate the cause for which he and they had spent most of their lives fighting. Also, knowing that Mao cared intensely about the legacy of the Cultural Revolution, Lin doubted that Mao would wish to discredit him, as the chief cheerleader for the Revolution, too sharply. Lin's son, however, had learned a different lesson from the Cultural Revolution: that personal survival was more important than any cause, and that Mao was not a benign, god-like figure. Hence, he reasoned, he should remove his family to safety before Mao could destroy all of their careers, including his own.[13] Feeling that this would be a mistake, Lin's daughter made a mistake of her own: informing Unit 8341 of the planned escape. This enabled the 8341 commander, Wang Dongxing, to use the escape attempt as proof that a coup was being plotted and hence that his long-term rival, Lin Biao, was a traitor to his country.[14] While the broad outlines of this analysis can be corroborated by other materials, there are doubts as to the accuracy of some details. As the daughter of a central figure in the intrigue, Jin Qiu's ability to objectively analyze her sources can be questioned. Moreover, the people she interviewed had legitimate concerns for their own safety and may not have been completely truthful. Finally, the official CCP archives on the matter remain closed. Hence, it is not certain whether Lin was ignorant of his son's plans to protect him, as Jin Qiu argues,

or whether he himself was party to the scheme.[15] More importantly, however, there is no doubt that Mao Zedong turned against his loyal commander when it seemed that Lin and the PLA might be powerful enough to become a potential rival to his own authority.

Mao's efforts to reduce Lin Biao's power while reducing the power of the military in general was also evident in the fact that there was no Chief of the General Staff from 1971 until early 1975. This coincided with the efforts of the radical left to keep the central PLA leadership from being a significant political force. Probably inadvertently, considerable military power devolved to regional military commanders such as Chen Xilian, Li Desheng, and Xu Shiyou, who controlled revolutionary committees as well as holding membership in the Politburo. At the same time, however, the Cultural Revolution had shown that problems could arise from allowing the PLA's combat strength to deteriorate while it concentrated on domestic political missions. The Chinese leadership interpreted the Soviet Union's incursion into Czechoslovakia in August 1968 as a warning that the People's Republic of China (PRC) was next. Rebuilding the PLA's combat capabilities became a high priority.

Building up the PLA's military capabilities while simultaneously reducing its political clout is more easily accomplished in theory than in real life. The need to strengthen defense against an external attack reinforced already extant pressures to rehabilitate those experienced professional military leaders who had suffered during the Cultural Revolution. This process began in 1973, with Deng Xiaoping being one of the first to be restored to a position of honor. Men such as Luo Ruiqing, Wang Enmao, Yang Chengwu, and Xiao Hua were brought back and given positions in the regional and/or central military hierarchies, sometimes the same posts from which they had been purged a few years before. Doing so, however, simultaneously disadvantaged the inexperienced "helicopter people" who had risen rapidly during the Cultural Revolution. Not surprisingly, the return of the veterans was resented by the newcomers, and the veterans in turn were contemptuous of the newcomers. The interaction between the men who were recently rehabilitated and those who had persecuted them did little to enhance military efficiency. In the judgment of a U.S. Government analyst, when this uneasy combination was added to the factional tensions among

senior military leaders that had been exacerbated by the Cultural Revolution, the result was a serious problem of polarization within the military leadership.[16]

Initially, however, Mao Zedong felt that the preeminence of the military in the power structure that had resulted from the Cultural Revolution needed to be dealt with, as opposed to factions within the PLA. In December 1973, he announced the rotation of eight of the eleven commanders of the PRC's military regions. The chairman's statement that he "wanted to mix in some sand," accompanied by warnings against the creation of "independent kingdoms" and "warlord mentalities" indicates that he felt the commanders had become too entrenched in regional power structures--indeed, several held not only military command but top positions in the party and government as well.[17]

Radicals, having learned from the Cultural Revolution that they could not trust the military, sought to build a counterforce of their own: the urban militia. Efforts to do so began in 1973; 2 years later a change in the state constitution elevated the militia to parity with the PLA and reaffirmed the authority of the party over both.[18] At basic levels of society, the militia was used to support radical ideological goals: suspects were apprehended without warrants, detained without indictments, and convicted on the basis of forced "confessions." The militia was also used to support radical goals at the highest levels of power. It suppressed the Tiananmen demonstrations of April 1976 that led to Deng Xiaoping's redismissal from power. Radicals also planned to use the militia to ensure that their views would prevail after the death of the ailing Mao Zedong. Factories in Shanghai manufactured not only large quantities of rifles for militia use, but also heavy-duty weapons such as rockets, howitzers, and tank-like vehicles not normally used by militia units.

Wang Dongxing of the aforementioned 8341 guards unit, although regarded as a leftist, nonetheless arrested the Gang of Four soon after Mao's death, and military units took over media outlets and other areas where the Gang's influence was considered strong. Only in Shanghai, the bastion of the Gang of Four's power, was strong resistance encountered. Although Nanjing Military Region units obeyed CMC leader Ye Jianying's orders to surround

the city, commander Ding Sheng did not execute orders to disarm the militia. Xu Shiyou, who had been Nanjing Military Region commander before Mao's troop rotation of 1973 and who had been well connected with the power structure there--perhaps too well connected from Mao's point of view--was sent in to replace Ding and accomplished the task with little difficulty.[19] A salient lesson from this episode is that, although one might learn from the Cultural Revolution that a military too entrenched in the power structure was bad, such military people could be useful in specific situations such as putting down the militia revolt in Shanghai.

With the help of military leaders, Deng Xiaoping was re-rehabilitated. Although it might have seemed that Deng would rule China through, or perhaps on the sufferance of, this group, he was soon to move against most of those who had helped him. The 8341 unit was either disbanded or incorporated into the units of the Beijing Garrison and Beijing Military Region by the end of 1978,[20] and Wang Dongxing lost his position on the Politburo Standing Committee in 1980. Within months after his restoration to power, Deng differed with Ye Jianying on the issue of professionalism,[21] and with another of his erstwhile supporters, head of the PLA's General Political Department Wei Guoqing, on the liberalization of censorship over literature and art. Xu Shiyou was removed from his position in 1980, and Wei Guoqing in 1982. The lesson high-ranking PLA leaders should have learned from this is the same one that Lin Biao might have reflected upon had he lived to do so: loyalty to the paramount leader will not necessarily be reciprocated.

As chair of the party's CMC, Deng continued the process of removing military leaders from provincial Party committees, and in 1982 initiated a plan to separate and more clearly differentiate the functions of party, government, and military. While advantageous to efficiency, the plan had disadvantages as well. One can argue that at the time of the Cultural Revolution, the fusion of party, government, and military personnel at the highest levels made a military coup definitionally impossible, since the same people headed all three. Conversely, to separate those functions would create the preconditions under which a coup could occur. The process was resisted by some who felt that revolutionary traditions were being betrayed. A state military commission, created in 1982,

never gained a genuinely separate existence, much less absorbing the functions of the party CMC. The leadership personnel of the two commissions, for example, are identical. Deng had another setback when the military refused to agree that his chosen successor, Hu Yaobang, should become CMC chair in addition to head of the party. When Hu was ousted from his position as party head after student demonstrations in 1987, the military was believed to have played an important part in his political demise. The military also reportedly refused to accept the man who succeeded Hu as party head, Zhao Ziyang, as CMC chair.

But some progress was made in other areas. Military representation on the PCC declined, for example, and more officers were being trained in military academies, giving them a sense of rapport with each other as well as some distance from the civilian system. Military salons appeared in which questions of strategy were debated, apparently quite freely. Some questioned the wisdom of the battle plans of revolutionary war heroes, and even the question of whether the army should be a party army (*dangjun*) or a state army (*guojun*) was considered an acceptable topic. Whether this kind of discussion was acceptable to Deng at the time is unknown; it certainly became taboo later.

Tiananmen and the Lessons of the Cultural Revolution.

In the spring of 1989, accumulated grievances burst into student demonstrations in Beijing and scores of other Chinese cities.[22] They gained momentum after the death of Hu Yaobang, who was said to have been arguing in favor of a larger education budget when he succumbed to a fatal heart attack, and student demonstrators were soon joined by other segments of society. The leadership showed that it had learned several lessons from the Cultural Revolution. One was to avoid having the army become involved with the demonstrators. As a case in point, an April 28 directive from the Shenyang Military District stated that

> Any person sent out on business or a mission must be educated well and strictly instructed not to become a looker-on, not to join any debates, and not to participate in any trouble. No officers or soldiers are permitted to go among the students to network, and

still less should they ever allow students to come among them to network.[23]

Three weeks later, CMC vice-chair Yang Shangkun promised Deng Xiaoping that "These protests are not going to spread to officers or soldiers in the military."[24] In late May, the country's organizational machinery was mobilized to ensure that military officials, their staffs, and their families refrained from supporting the demonstrations.[25]

A second lesson of the Cultural Revolution that the leadership tried to apply to the demonstrations was to avoid factionalism. The need for officers to be "unified in their thinking" and to observe discipline was a constant theme. Military regions were expected to announce their support for the martial law order. Units from many parts of the country were brought in to quell the demonstrations in the capital city, presumably as a sign that the PLA was indeed unified and to avoid placing the responsibility for the suppression on any one army or commander.

A third lesson from the Cultural Revolution that the leadership tried to apply was to ensure support for the PLA among the population. Troops were mobilized to do good deeds for local people, and their activities in doing so were well-publicized.[26] Again and again, top leaders assured the population that the army would not use force.[27]

As previously mentioned, learning lessons from the past does not necessarily mean that the lessons can be successfully applied in new situations. And so it was in the spring of 1989. The attempt to create an appearance of unity within the PLA was far from perfect: there, as elsewhere in Chinese society, the declaration of martial law was controversial. Different military regions cabled their support for martial law at different times during the following weeks, leading to speculation that there was considerable disagreement within them on the wisdom of the leadership's decision. To the horror of senior leaders, one general, the commander of the 38th Army, refused to enforce the order and checked into a hospital.[28] Eight others signed a letter requesting that troops not enter Beijing and that martial law not be enforced there.[29] The PLA's General Political Department detailed four different kinds of "wrong thinking" that had gained some influence in the military:

- some officer and troops did not take seriously the student movement's threat to stability;
- some thought the movement might help to combat the rampant corruption in Chinese society;
- some were afraid that, if the troops got too actively involved in resolving civil disorders, they might be drawn into factional disputes among the masses, *as had happened in the Cultural Revolution* [emphasis added];
- some felt that stemming domestic social disorder was the job of civilian leaders, not the military.[30]

A report from the PLA navy revealed that doubts existed within its ranks as well. Some naval personnel continued to esteem Zhao Ziyang and did not wish to condemn him. Others worried about instability in the Party's leadership group, which had expelled Hu Yaobang only 2 years before Zhao. There was also reluctance to believe that a tiny minority of conspirators could have aroused such widespread popular support. Many navy men argued that the party leadership should examine why the turmoil had occurred and learn from it: they should take a strong stand against bourgeois liberalization, corruption, rising disparities in income levels, and the worsening crime rate.[31]

If the commander of the 38th had been sympathetic to the demonstrators, the commander of the 27th was perceived as much more hostile, thereby undercutting the leadership's aim of demonstrating that the PLA was united in support of the declaration of martial law. The 27th was commanded by a nephew of Chinese president and principal CMC vice-chair Yang Shangkun. As is clear from the *Tiananmen Papers*, Yang, with Premier Li Peng and Deng Xiaoping himself, were instrumental in decisionmaking regarding the demonstrations. A recently declassified June 6, 1989, cable from the American Embassy describes the 27th as guarding an overpass as if poised for attack by other PLA units.[32] The Secretary of State's briefing for the morning of the same day reported clashes between military units with more considered possible, especially if troops were ordered into other cities. It added that soldiers had been heard telling students that had they not been issued ammunition they

would have fired on other army units. In addition to confirming dissension among military units, this reinforces a large number of eyewitness accounts of fraternization between soldiers and demonstrators. The briefing goes on to mention that "the large number of armored vehicles and military trucks destroyed by protesters suggest collusion by troops in at least some cases."[33] The briefing for June 7 reports "widespread rumors and leaks to Hong Kong media suggest[ing] that at least some leaders may have envisioned an outcome that would blame most atrocities on the 27th Army, relieve its top commanders, and remove senior officials who ordered armed action against civilians."[34] A note of skepticism must be introduced here: American military and other government analysts who were in Beijing at the time have questioned the validity of several State Department cables, feeling that they exaggerate the degree of dissension among PLA units.[35] Clearly, the leadership had difficulty in applying its Cultural Revolution lesson that factionalism must be avoided.

Observers, noting the types of heavy weaponry present in the Tiananmen Square, opined that these were far in excess of what was needed to quell unarmed civilian demonstrators and surmised that a power struggle must be in progress. If so, the outcome had one clear loser: Deng's second chosen successor, Zhao Ziyang. Like his predecessor, Hu Yaobang, Zhao lacked support from the military. A heavily-excised Central Intelligence Agency document dated February 9, 1989--i.e., well *before* the demonstrations began--predicted

> . . . we suspect that Zhao could become increasingly vulnerable and even fall within the next twelve to eighteen months if China's economic and social problems persist or worsen . . . were some of Zhao's more powerful critics among party elders . . . join forces with senior military and security officials against Zhao in a crisis, as they did against Hu Yaobang, we doubt that Deng would be able or even willing to save him.[36]

This, of course, is precisely what happened. A new successor, Jiang Zemin, was promptly named. Although he had no military experience, the military, somewhat surprisingly, agreed to accept him as CMC chair, freeing Deng Xiaoping to resign that position

in November 1989. Speculations that Yang Shangkun and his half-brother, Yang Baibing, would actually be in charge of the day-to-day running of the military were initially reinforced when Jiang candidly admitted the obvious: he had no military experience, and his abilities fell far short of the demands of the position.[37] He asked for the help of seasoned veterans on the CMC. Yang Baibing did, in fact, do many troop inspections and "the Yang family village" remained powerful in the military--until 1992, when Deng Xiaoping removed them from office, presumably to clear the way for Jiang to establish his authority over the PLA and to reduce factionalism. Once again, PLA leaders should have reflected on the lack of rewards for loyalty. Thereafter, Jiang moved quickly to bolster his military support. He spent considerable time on well-publicized visits to military units, even those stationed in distant areas, and created new billets for full generals. Pay raises were enacted. Military region commanders and commissars were reshuffled and retirement ages lowered, allowing Jiang to more easily create an officer cadre that would be likely to back him. It is clear that Jiang had learned the lesson that the top leader of the party must have the support of the PLA.

The army emerged from the confrontation with its popular image badly scarred. In using force against mostly unarmed demonstrators, particularly after top leaders had repeatedly assured the population that this would not happen, it had ceased to become the *People's* Liberation Army--precisely as a number of commanders had argued would happen at the time the declaration of martial law was issued. The people's army had moved against the people. The leadership praised the PLA for its heroic efforts in smashing the subversive plots of a small number of "black hand" conspirators, though most civilians appeared to view these efforts to praise the military with great disdain. Despite the public manifestations of praise, the leadership was plainly worried about dissension within the military: troops and officers endured lengthy study sessions designed to internalize the idea that the army owed its allegiance exclusively to the party, whose orders it must obey unswervingly and unquestioningly. Officers and enlistees took loyalty oaths. Those who had refused to enforce martial law were punished, though with minimal publicity. This contrasted sharply with the leadership's willingness to vilify student leaders and put them on

trial.[38] The leaders may have been concerned that overt chastisement of military figures would draw unwanted attention to factional rifts within the PLA that it had taken considerable pains to deny. They may also have reasoned that, the more quietly conducted the purges, the less likely they were to elicit a defensive backlash from officers who feared that they might become the next target.

Predictions that PLA recruitment would suffer as a result of the military's actions at Tiananmen were not borne out: the economic contraction that occurred the next year encouraged many young men who might otherwise have sought to avoid military service to sign up. The military may have learned lessons from this as well: first, that the state of the economy has a more important effect on recruitment than the PLA's image. And second, that in China as elsewhere, memories tend to be short-term.

Conclusions.

The experiences of the Cultural Revolution and the Tiananmen Square demonstrations show that, in time of crisis, the leadership must rely on the military. Unfortunately, they also show that the leadership should not rely too heavily on the military, lest the rewards that the military demands be too high. In theory, a balance must be struck between reliance and over-reliance. A leader must have the support of the military, but must never allow the military, or any faction thereof, to become too dominant. In time of crisis, however, it is likely to be very difficult for the leader to decide precisely where this delicate balancing point lies. When his survival depends on immediate action, the leader's bargaining power may be severely constricted.

From the PLA's vantage point, the lessons must be that loyalty to the commander-in-chief has too often not resulted in reciprocal loyalty to the military, or to the factions within the military that supported him. Some commanders at both the time of the Cultural Revolution and Tiananmen were acutely aware of the pitfalls of intervention; those who spoke out suffered for doing so, even as the PLA as a whole suffered for obeying orders.

Some lessons do not need to be learned, since party leaders have always known them. But they are very difficult to operationalize

because they stem from fundamental contradictions in ideology. These relate, first, to the concept of a "people's" army and, second, to a people's army which is commanded by "*the* party." With regard to the first, if the army is the people's army but the military is told to suppress the expressed desires of the people, how will it react? During the Cultural Revolution, the PLA was unable to determine which factions were the true Maoists, and confusion resulted. During the Tiananmen demonstrations, it was told that, although the students' demands had some merit, a few "black hands" were manipulating the demonstrations. Yet in the end the PLA was ordered to move indiscriminately against all the demonstrators rather than a few black hands. Evidence presented above indicates that significant numbers of military men questioned the validity of such orders.

As for the second, a dilemma that emerges from the experiences of both the Cultural Revolution and the Tiananmen demonstrations is, if the PLA owes loyalty to *the* party, who speaks for the party? During the Cultural Revolution, it was unequivocally Mao Zedong --but even then, there were conflicting factional pressures on Mao that resulted in conflicting policies, causing confusion within the PLA. Deng Xiaoping, though not quite the commanding figure that Mao had been, could still claim to speak for the party, and was able to bring most reluctant commanders into line. In the Cultural Revolution, *the* party did not split to any meaningful degree between Mao and, for example, Liu Shaoqi. During the Tiananmen demonstrations, *the* Party in the person of Deng was able to give clear orders dismissing Zhao Ziyang--even though Zhao held the highest formal position in the party and Deng did not--and have the PLA back those orders. But no subsequent leader appears likely to possess the authority of Mao or Deng. Jiang Zemin has attempted to forestall any confusion on this issue by popularizing a mantra wherein everyone must pledge loyalty to the party leadership with himself as "the core." But should a future crisis arise with different leaders expressing different opinions on how to solve it, the PLA may not so readily fall into line. It could choose which leader to support, or split, with different segments of the PLA choosing to support different claimants to power. And an army ordered to suppress the popular will might, on the basis of experiences derived

from the Cultural Revolution and Tiananmen, opt not to do so.

To return to the questions posed at the beginning of this chapter, lessons *were* learned from both the Cultural Revolution and Tiananmen experiences, and in general they were: first, the correct lessons, and second, had application beyond the specific scenarios that brought them forth. Party and government learned somewhat different lessons than the PLA. Important lessons for future Chinese leaderships are, then, not to put the PLA in the position of having to decide who speaks for the party and not to put it in a position of having to challenge the popular will. Reciprocally, the military has learned that it should act only on the basis of unequivocally phrased and legally issued orders. It has also learned that loyalty in doing so does not necessarily guarantee the survival of individual PLA leaders, and that the higher the profile of the loyal military leader, the more likely he is to be removed. Whether these are lessons that, once learned, can actually be applied in future scenarios remains to be seen.

ENDNOTES - CHAPTER 12

1. For further reading about the Cultural Revolution, in addition to the works cited below, see Frederick Teiwes and Warren Sun, *The Tragedy of the Lin Biao: Riding the Tiger During the Cultural Revolution, 1966-1971*, Honolulu: University of Hawaii Press, 1996; Barbara Barnouin and Yu Changgen, *Ten Years of Turbulence: The Chinese Cultural Revolution*, London, 1993: Kegal Paul; Eberhard Sandschneider, *Militär und Politik in der Volksrepublik China, 1969-1985*, Hamburg: Institut für Asienkunde, 1987; J. Petras, "The Chinese Cultural Revolution in Historical Perspective," *Journal of Contemporary Asia*, Vol. 27, No. 4, 1997; Roderick MacFarquhar, *The Origins of the Cultural Revolution*, Vols. 1-2, New York: Columbia University Press, 1984.

2. Good in political thinking, military training, work style, task fulfillment, and physical training. In a process known as "remembering past bitterness and appreciation of present sweetness," soldiers interviewed veterans about the hardships they endured, visited exhibitions that recreated revolutionary experiences, read the memoirs of heroes of the era, and sang revolutionary songs.

3. Whitson, p. 380.

4. Trans. in U.S. Consulate-General, Hong Kong, *Current Background*, No. 852, May 6, 1968, p. 19.

5. Jin Qiu, *The Culture of Power: The Lin Biao Incident In The Cultural Revolution*, Stanford, CA: Stanford University Press, 1999, p. 173.

6. According to Jin Qiu, air force commander Wu Faxian, who was her father, had no problem with promoting Lin's children "as long as they did not outrank Li Na and Mao Yuanxin," who were Mao's daughter and niece, respectively. Jin, p. 157.

7. See, for example, Yasuaki Ishikawa, "Delayed Rehabilitation For Deng," *Sankei Shimbun*, Tokyo, April 4, 1977, p. 3; AFP, March 29, 1977, in *Foreign Broadcast Information Service* (hereafter *FBIS*)-*CHI*, March 30, 1977, p. E1.

8. Lin Biao, "March Ahead Under The Red Flag," September 29, 1959, Beijing, Foreign Languages Press, 1959, pp. 21-22.

> Some comrades take the view that modern warfare differs from warfare in the past, that since the weapons and equipment available to our army in the past were inferior, we had to emphasize dependence on man, on his bravery and wisdom, in order to win victories. They say that modern warfare is a war of technique, of steel and machinery, and that in the face of these things, man's role has to be relegated to a secondary place. They attach importance only to machinery and want to turn revolutionary soldiers into robots devoid of revolutionary initiative. Contrary to these people, *we believe that while equipment and technique are important, the human factor is even more so.* Technique also has to be mastered by man. Men and material must form a unity with men as the leading factor.

9. Andrew Scobell, *China's Use Of Military Force: Beyond the Great Wall and the Long March*, New York: Cambridge University Press, 2003, Chap. 5, citing "Important Talk Given By Comrade Chiang Ch'ing on September 5," in U.S. Consulate-General Hong Kong, *Survey of the China Mainland Press*, No. 4026, September 23, 1967, p. 5.

10. "Important Instructions of Premier Zhou Enlai, Chen Boda, Kang Sheng, and Other Leaders On the Question of Tibet," June 6, 1968, in U.S. Consulate-General, Hong Kong, *Survey of China Mainland Magazines*, No. 622, 1968, p. 2.

11. "Hsu Shih-you's Talk At A Group Discussion At The Third Plenum Of The Eleventh Central Committee," *Issues And Studies*, Vol. 16, May 1980, p. 78, in Scobell, p. 217.

12. Jin Qiu, p. 127.

13. *Ibid.*, p. 197.

14. *Ibid.*, pp. 173-180.

15. See, e.g., Larry Wortzel's review of Jin's book in *Journal of Asian Studies*, Vol. 59, No. 4, November 2000, pp. 998-999.

16. Robert Suettinger, "Deng Xiaoping And The Reform Of the People's Liberation Army," unpublished paper, 1985, p. 4, details these events.

17. Called revolutionary committees at this time.

18. "The Chinese PLA and the militia are the workers' and peasants' own armed forces led by the Communist Party of China"; text of constitution in *Beijing Review*, August 8, 1975, p. 15.

19. Suettinger, p. 7.

20. *Ibid.*, p. 10.

21. At a PLA work conference held in mid-1978, Deng emphasized the need for reorganization, better discipline, military management, and attention to logistics work. Ye's follow-up speech, by contrast, argued that revolutionary political work was "the lifeblood of our army" and that "whole-hearted service to the people is the sole purpose of our army." Ye pointedly absented himself from several other meetings at which Deng and his supporters were well represented, and was conspicuously missing from the group of leaders who reviewed the PRC's first large-scale combined military operations exercise in September 1981. Deng's speech, *Xinhua* June 5 1978, is translated in *FBIS-CHI*, June 6, 1978, pp. E/1-E/10; Yeh's, released by *Xinhua*, June 4, 1978, is in *ibid.*, June 5, 1978, pp. E/12-E/21, quotes are from p. E/13. Name list for attendees at September 1981 exercises is in *FBIS-CHI*, September 26, 1981, p. K/1.

22. For further reading about the demonstrations of spring 1989, in addition to the works cited below, see Timothy Brook, *Quelling the People: The Military Suppression of the Beijing Democracy Movement*, Stanford, CA: Stanford University Press, 1998 and 1992; "Was There a Tiananmen Massacre: the Visit of General Chi Haotian," Hearings Before the Subcommittee on International Operations and Human Rights of the Committee on International Relations, House of Representatives, 104th Congress, second session, December 18, 1996; Andrew Scobell, "Why the People's Army Fired On the People," in Roger Des Forges, *et al., Chinese Democracy and the Crisis of 1989*, New York: SUNY Press, 1993; *SCPS Yearbook on PLA Affairs, 1989/90*, Kaohsiung, Taiwan: Sun Yat-sen Institute for Policy Studies, 1990; June Teufel Dreyer, "The People's Liberation Army and the Power Struggle of 1989," *Problems of Communism*, September-October 1989, pp. 41-48.

23. Excerpts from Shenyang Military District, "Situation Report On Study of

the April 26th Editorial," April 28, 1989, in Andrew Nathan and Perry Link, eds., *The Tiananmen Papers*, New York: Public Affairs Books, 2002, p. 80.

24. Excerpt from memoranda of conversations among Deng Xiaoping, Zhao Ziyang, and Yang Shangkun, supplied by unidentified friend of Yang Shangkun, in *ibid.*, p. 149.

25. Editorial summary in *ibid.*, p. 297.

26. "Minutes From the [May] 20 Enlarged Meeting of the Central Military Commission," in *ibid.*, p. 241.

27. For example, on May 26, former Beijing mayor Peng Zhen reassured members of the National People's Congress that the PLA would not use force against the students. He expressed respect for the demonstrators' motives, adding that it was the Party's duty to help them avoid manipulation by a tiny minority of conspirators. *Ibid.*, p. 298.

28. Xu Qinxian, commander of the 38th Army. His father, Xu Haidong, had been a prominent commander in the War of Liberation, which seemed to add to the leadership's sense of shock over the apostasy. See, e.g., Nathan and Link, p. 219.

29. *Ibid.*, p. 265; a similar letter signed by seven generals appears in Suzanne Ogden, Kathleen Hartford, Lawrence Sullivan, and David Zweig, eds., *China's Search For Democracy: The Student and Mass Movement of 1989*, Armonk, NY: M. E. Sharpe, 1992, p. 292.

30. Cited in Nathan and Link, p. 220.

31. *Ibid.*, p. 321.

32. At *www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB16/documents/18-01.htm.*

33. At *www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB16/documents/19-09.htm.*

34. At *www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB16/documents/21-02.htm.*

35. Author's conversations, September 15, 2002. According to these informants, it is highly unlikely that the relevant cables will be declassified.

36. CIA Directorate of Intelligence, *China: Potential for Political Crisis*. February 9, 1989, p. 2, at *www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB47.*

37. Quoted in *Xinhua*, November 21, 1989, in *FBIS-CHI* November 21, 1989, p. 17.

38. See, for example, George Black and Robin Munro, *Black Hands of Beijing: Lives of Defiance In China's Democracy Movement*, New York: John Wiley and Sons, 1993, chs. 16-20.

CHAPTER 13

SEVENTY-FIVE YEARS OF CIVIL-MILITARY RELATIONS: LESSONS LEARNED

Andrew Scobell

The People's Liberation Army (PLA) officially celebrated its 75th anniversary in 2002. The date of the Nanchang Uprising--August 1, 1927--is taken as the birth date of the PLA. This anniversary also marked the passing of 75 years of civil-military relations in the Chinese communist era. This chapter examines the lessons the PLA and the Chinese Communist Party (CCP) have learned over the past 75 years, with a focus on the critical episodes in civil-military relations.

Of course, it is not just the PLA but also the CCP that survived these trials. The two entities have had been intimately linked over the past three-quarters of a century, and it sometimes has been hard to identify where one ended and the other one began. But this does not mean that the lessons of the history of communist civil-military relations in China are simply synonymous with party-army relations.[1] Certainly, the relationship between the CCP and the PLA has been the most important one in civil-military relations. Also important, however, are two other relationships: those between the armed forces and Chinese society and between the armed forces and the Chinese state. The former relationship tends to be under-appreciated, while the latter relationship is often ignored. Although these links obviously have not supplanted the PLA-CCP tie, I contend that these two relationships are becoming increasingly important. Moreover, soldiers are drawing lessons from the army-society and army-state relationships.

This chapter examines five critical episodes to consider what lessons the PLA and CCP have gleaned from each: the Long March (1934-35), the PLA intervention in the Cultural Revolution (1967), the Lin Biao incident (1971), the Tiananmen incident (1989), and what I call "creeping *Guojiahua*" (1980s to present). I contend that these are the five episodes that have had (and continue to have) the most significant impact on civil-military relations during the past

three-quarters of a century. I focus in particular on the fifth episode because it not only continues to unfold but also because it holds the most important ramifications for the future of civil-military relations in 21st century China. In each of the five cases, I present what I judge to be the official and unofficial lessons learned by the CCP and the PLA. Lastly, I assess what overall lesson(s) have been gleaned from these five episodes combined.

EPISODE ONE: THE LONG MARCH (1934-35)

The Long March is the most celebrated episode in Chinese Communist history and is legitimately considered to be a watershed event in 20th century China. While arguably marking the lowest point in the fortunes of the fledgling movement, it was certainly a turning point. The Long March was a strategic retreat begun in October 1934 by tens of thousands of communist fighters and supporters from the communist base area in Jiangxi Province in south central China to escape destruction at the hands of the military forces of the Kuomintang (KMT) government of Chiang Kai-shek. The trek ended a year and some 6,000 miles later in Shaanxi Province in northwest China when a ragtag band of survivors arrived and established a new base area. This move allowed the communist movement to survive, regroup, and launch its ultimately successful bid to seize power in Beijing.

Recent research suggests that some of the conventional assumptions about the Long March are questionable. For example, it now seems evident that Mao did not assume full control of the party and army until ***after*** the Long March.[2] Nevertheless, the Long March constitutes a seminal event in Mao's ascendancy to paramount leader of the Chinese communist movement.

Lessons of the Long March for the Party.

According to the official Party version of events, the primary lesson of the Long March was that Mao Zedong's accession to top leader of the Chinese Communist movement saved the day. Party history dates Mao's assumption of leadership of the CCP and PLA from the Zunyi Conference reportedly held in January 1935. The

"Resolution on Certain Questions in the History of Our Party Since the Founding of the People's Republic of China" proclaims:

> This [Mao taking the reins of power] saved the Red Army and the Central Committee of the Party which were then in critical danger and subsequently made it possible to defeat Zhang Guotao's splittism, bring the Long March to a triumphant conclusion and open up new vistas for the Chinese revolution.[3]

Lessons of the Long March for Army.

According to the official PLA interpretation, the Long March is today seen as the model of successful civil-military relations for decades in post-1949 China in at least two respects: (1) the close interrelationships between the Army and the Party, and between the Army the people; (2) and the Party commanding the gun.

The communist movement only survived the Long March because of the close cooperation between party and military leaders. In fact there was considerable leadership overlap between the Party and Army leaders. Dubbed "dual role elites," these people essentially doubled as both civilian and military leaders, were typified by individuals like Mao Zedong and Zhou Enlai.[4] "Under the leadership of the Party Center with Mao Zedong as the core, the entire Party, entire Army, and entire people together achieved great revolutionary unity on the Long March."[5] Overlapping party-army elites tended to translate into close civil-military coordination.[6] The second lesson was the necessity of the Army's subordination to Party control. According to the official 70-year anniversary history of the PLA produced by the Academy of Military Sciences: "The People's Army is loyal to the Party; the gun always listens to the orders of the Party--this is the most important historical lesson [*zui zhongyao de lishi jingyan*] of the Long March."[7]

The trek also highlighted the importance of cultivating popular support. The lesson for the PLA (and CCP) is that it would have to rely on close ties to the masses and strong popular support to survive. While people in most locales were friendly or at least not actively hostile to the Chinese communist forces, there were many groups who literally did battle with the Long Marchers. In the saga recounted by Edgar Snow in *Red Star Over China*, even though his

informants claimed the Reds were "welcomed everywhere by the mass of the peasantry," official statistics reveal that the Marchers fought "an average of almost a skirmish a day."[8] If the communist movement was going to wage a successful "People's War," then very careful attention would have to be paid to public relations, and particularly to the reputation of the movement's soldiers. The "three rules and eight points for attention" first formulated in 1928, were reemphasized in the aftermath of the Long March.

To sum up, the Long March was quite literally a near-death experience for the Party and the Army--one from which some sobering lessons were drawn.

EPISODE TWO: PLA INTERVENTION IN THE CULTURAL REVOLUTION (1967)

According to some interpretations, the Cultural Revolution has its origins in civil-military tensions. Certainly PLA propaganda and cultural entities were "center stage" in the preliminary phases.[9] Mao Zedong appeared to interpret the historical play "Hai Rui Dismissed from Office" as an allegorical attack on Mao's 1959 purge of Marshal Peng Dehuai. The most prominent critique of the play by Yao Wenyuan first appeared in the PLA's newspaper, the *Liberation Army Daily*, in November 1965--one day before it was published in the CCP's mouthpiece, the *People's Daily*. Then, in early 1966, Mao's wife Jiang Qing, used the "Seminar on Military Arts and Literature Work" for what turned out to be the prelude to the Cultural Revolution.

Nevertheless, the PLA proper remained on the periphery of the Cultural Revolution--with the notable exception of turmoil in military educational institutions--until early 1967 when Mao ordered the military to "support the left." Until quite recently, the PLA's intervention in the Cultural Revolution tended to be overlooked by both Chinese and overseas analysts. In China the most authoritative book about the Cultural Revolution, published in the mid-1980s by Yan Jiaqi and Gao Gao, had virtually nothing to say on the subject.[10] This changed with the publication of *Liberation Army in the Cultural Revolution* published in 1989 by the Chinese Communist Party Affairs Materials Publishing House.[11] The majority of the torrent

of military memoirs published in the Post-Mao era tends to gloss over the period although some, such as those by Chen Zaidao and Zhang Yunsheng, do address the experiences of soldiers during the Cultural Revolution in some detail.[12] Studies published outside China focusing on this as a case study then emerged in the 1990s, building on the work of earlier analyses of the Cultural Revolution and providing a richer, more nuanced understanding of this tumultuous event.[13]

In early January 1967 Mao and the Central Cultural Revolutionary Group (CCRG) ordered radicals to make "seizures of power" but the effort enjoyed little success. As a result, on January 23, 1967, the PLA was instructed to "support the masses of the revolutionary left." This, too, did not have the desired effect, so on March 19, the CMC ordered the PLA to intervene and restore public order. Officially the armed forces were directed to "support the Left, the workers, the peasants, and institute military control and military training."[14] In effect this meant that the PLA was ordered to intervene with one arm tied behind its back. Most units were not armed and had severe restrictions placed on the conditions in which they were permitted to use force.[15] It was not until early autumn that the military was permitted to take the kid gloves off. Finally, on September 5, 1967, the Central Committee, State Council, CMC and the CCRG, reflecting a remarkable degree of unity, jointly gave the PLA sweeping latitude to use any means necessary to reestablish law and order in the country.[16] By October 1968, every province and autonomous region in China was under military control (*jun guan*), formally governed by a "Revolutionary Committee" that was dominated by the PLA.[17]

Lessons of the Cultural Revolution for Party.

The Army was both the most energetic agent of the paramount party leader and his critical last line of defense. When the Cultural Revolution seemed to be faltering, Mao directed the PLA to "support the left." And when the Cultural Revolution was careening out of control and threatening to throw China into total chaos, Mao again turned to the PLA for rescue. Just as the critical role of the military in restoring order is officially recognized, so, too, is the destructive impact this effort had on the PLA. According to the "Resolution

on Certain Questions of Party History": "The chaos [of the Cultural Revolution] was such that it was necessary to send in the People's Liberation Army . . . [and] it played a positive role in stabilizing the situation but it also produced some negative consequences."[18]

Lessons of the Cultural Revolution for Army.

Mao declared that, for the "Three Supports and Two Militaries" policy to be successful, "[t]here must be no chaos in the army."[19] In other words, the PLA must avoid getting infected by the elite strife in the party-state and mass conflict rampant in Chinese society and every other institution. The overriding unofficial lesson of the Cultural Revolution was not to let political upheaval in the Party spill over into the Army. Because of the PLA's intimate relationship with the CCP, the military almost inevitably got embroiled in intense party elite power struggles. Senior generals were adamant that radicals should not be allowed to attack and destroy the PLA. This was the essence of views emotionally expressed by senior military leaders in verbal skirmishes with party radicals at a series of high level meetings in February 1967. These confrontations were collectively dubbed the "February Adverse Current" by Cultural Revolution radicals who sought to depict the military response as a negative reactionary effort aimed at sabotaging the Cultural Revolution.[20] At a February 13, 1967 meeting in Zhongnanhai, Marshal Xu Xiangqian stated emotionally: "We've devoted our whole lives to this army. Do you think the soldiers of the People's Army will simply let a few of you [radicals] destroy it?"[21] At a meeting of the CMC, also in early February 1967, Marshal Ye Jianying erupted in anger: "You [radicals] have made a mess of the party, government, and industry. But even that doesn't satisfy you, so now you want to wreck the army!"[22]

The PLA's relationship with the people also suffered as soldiers were forced to intervene in internal disturbances and attempt the virtually impossible task of distinguishing the good elements from the bad. There was tremendous frustration by soldiers at their inability to determine who were the good guys and who were the bad guys. Lin Biao's secretary, Zhang Yunsheng, recounts a telephone call his office received in early 1967 from a staff officer of the Jilin Military Region Commander:

> Chairman Mao advocates supporting the broad revolutionary masses of the left. We will follow this firmly. But, who are the rightists? In the Changchun area there are many mass organizations with different viewpoints. Who should we support? Because of this issue the provincial military commander has asked me to telephone you and ask for your instructions . . . .

Zhang recalls: "This telephone call troubled me. They didn't know 'who the leftists were,' and I didn't know either . . . ."[23]

To conclude, the PLA's wholesale intervention in the Cultural Revolution in the late 1960s and years of defacto military rule that followed at the provincial and local levels had a profound impact on civil-military relations in China. The negative consequences of this extensive and prolonged military involvement were only reinforced by the so-called "Lin Biao incident."

EPISODE THREE: LIN BIAO INCIDENT (1971)

In the official account of the incident, Lin Biao was guilty of launching a *coup d'etat*. After the alleged coup--code named "Project 571"--was discovered, Lin and his immediate entourage, including his wife and son, all conveniently perished in a mysterious airplane crash while trying to escape from China. According to the Resolution on Party history of 1981: "In 1970-71 the counter-revolutionary Lin Biao Clique plotted to capture supreme power and attempted an armed counter-revolutionary *coup d'etat*."[24]

The official account has been significantly called into question in recent years. Indeed the party line version seems implausible for a variety of reasons.[25] Carefully documented studies suggest that Lin Biao played little, if any, role in a coup effort. Indeed, Lin Biao seems to be an unjustly maligned figure.[26] In these accounts Lin Biao "comes across as reclusive, shy, eccentric, with a host of ailments both real and imagined."[27] This evidence makes it implausible to view Lin as much more than a virtual bystander to a *coup d'etat* attempt. It seems more likely that Lin Biao's son, Lin Liguo, and perhaps Lin Biao's wife, Ye Qun, were the prime instigators of an ill-conceived plot to engineer a family power seizure without the full knowledge of Lin.[28]

Lessons of the Lin Biao Incident for the Party.

The official Party lesson of the Lin Biao Affair is that it is *essential* to keep the Army loyal to the Party. Unofficially, the lesson of this episode was that a military revolt or coup d'etat cannot be completely ruled out.[29] Therefore it is critical to ensure that the *paramount leader commands the gun* because in reality it is he who controls the Army on behalf of the party via the CMC.[30]

Lessons of the Lin Biao Incident for the Army:

Keeping the Army outside of intra-party conflict is important (*but* Party conflict inevitably drags in the PLA). While it is difficult for the PLA to avoid getting drawn into elite conflict, this should be avoided if at all possible. Strengthening the party-army link, of course, is the official solution. But decades later for many in the Army, the answer is to loosen significantly the intimate links between the Party and the Army (see below).

EPISODE FOUR: TIANANMEN (1989)

The June 4 Incident, or "*liu si shijian*" (literally "six-four incident") as it is referred to in China, has probably attracted more international attention than any other event in post-1949 history.[31] While it is certainly recognized as a seminal event by security analysts within China, it has not been the focus of such study inside the country as it has outside. This, however, does not mean it has been ignored or that lessons for the PLA have not been drawn. Indeed, it is the subject of considerable attention. The official 70th year history of the PLA calls the episode a "serious trial" (*yansu de kaoyan*).[32]

While the PLA was reluctant to intervene in 1989, it eventually did so when given clear-cut orders that came from paramount leader Deng Xiaoping. The exchange between a Western journalist and a PLA officer shortly after martial law had been declared in Beijing is instructive. A reporter for the German news magazine *Der Spiegel* asked the soldier why the troops did not force their way through the human barrier of Beijing citizens blocking the column's way forward

to Tiananmen Square. The officer answered: "We have not received an order [to do so] yet."[33] By the time they did receive orders to use all means necessary to march to the Square, the crowds had turned ugly, and China's leaders appeared united in their desire to end the unrest. The soldiers became convinced that Beijing (and hence all of China) was hovering on the brink of chaos, and the PLA had no choice but to suppress the uprising in the capital.[34] Nevertheless, what is perhaps most striking to this writer after reading *The Tiananmen Papers* is "how marginalized or acquiescent almost all uniformed and retired military leaders appear to have been during the deliberations on how to respond to the demonstrations of 1989."[35]

Lessons of June 4 for Party.

The PLA is the critical last line of defense for the CCP. Therefore the Party must do everything it can to ensure the PLA remains loyal and capable. As Deng Xiaoping observed a few days after the massacre, the PLA is the Party's "great wall of steel." The late paramount leader also said on June 9 that the event was "a trial and that the Army had successfully passed the test [*yi ge kaoyan, kaoshi shi hegede*]."[36] The related lesson that the Party took from this experience was that the PLA continues to have a "dual mission": in addition to external defense, the Army bears ultimate responsibility for internal security. This lesson is very evident in the way the Army's dual mission has been stressed since 1989.[37] At the same time an unofficial lesson is that the Party must try to avoid putting the PLA is a similar situation. The development of an effective nonlethal internal security force capable of dealing decisively with domestic unrest is the answer, and, as a result, the paramilitary People's Army Police (PAP) has been expanded and beefed up.

The ultimate unofficial lesson of June 4 for the CCP is that the Army is all that stands between communism and post-communism in China. While officially the Army is lauded as the staunch defender of the CCP, the pause that gives cause for concern is PLA hesitation in the spring of 1989. Certainly this is far different from disobedience or revolt: while there were some instances of insubordination, they were few and scattered.[38] Of course, the prime reason for the

military's hesitation in 1989 was a very public split within the CCP leadership at the time. Deng Xiaoping's remarks days after the crackdown about the pivotal role of "veteran comrades" of the Long March generation in suppressing the "turmoil" serves to underscore what is left unsaid: what would have been outcome without these staunch Long Marchers?[39] When the events of 1989 in China--including the unrest in Tibet--are viewed as part of the turbulence of a larger "international macroclimate [*guoji daqihou*]" which swept the communist world, Beijing rode out the storm remarkably well.[40] In another sense though, the collapse of communist regimes in Eastern Europe and the Soviet Union only underscores for Beijing the frailty of party-army relations.[41]

Lessons of June 4 for Army.

The first official lesson of June 4 for the military was that the PLA must avoid getting dragged into confronting mass unrest, and the Party must try harder in future to ensure this by beefing up PAP, for example. In the Academy of Military Sciences' official 70-year anniversary history of the PLA ,the establishment of the PAP gets due attention.[42] The second official lesson of June 4 is that the PLA must continue to work hard at Army-Society relations. In the Army's official account of the June 4 incident, firsthand accounts of soldiers involved in the operation abound, and in many cases a sense of anger and outrage at the violence and indignities inflicted on them by the people of Beijing. As one soldier said, "Later, some people said those people surrounding military vehicles were relatively 'friendly.' Their symbols of friendship were bricks, stones, liquor bottles, and even things that couldn't be thrown.[43]

In the years since 1989, there has been a noticeable trend in official propaganda pronouncements to stress the PLA's loyalty to "the people." In the same breath that the Army's loyalty to the Party is mentioned, loyalty to the people, country, and socialism is included.[44] Moreover, it is no accident that Deng Xiaoping in post-June 4 pep talk to Army brass called the CCP's soldiers: "the most beloved people [*zui ke'ai de ren*]."[45] This harks back to the reportage literature [*baogao wenxue*] of the Chinese People's Volunteers in Korea that originally appeared in the *People's Daily* on April 11,

1951.[46] This is one of the most well-known and reprinted pieces of writing in post-1949 China--it has been read by generations of middle school students.

In the aftermath of June 4, there was a clear need to rebuild the PLA's reputation in the eyes of the masses. Many soldiers seem to believe that the people's army must maintain contact with people--and be seen to make contributions to economic construction and flood relief, for example. The contribution of the PLA to combating the serious floods of the late 1990s received widespread media attention. According to the October 2000 Chinese Defense White Paper, "more than 300,000 officers and men participated" in flood relief efforts around the country in 1998 alone.[47] The PLA takes seriously a commitment to continue its legacy of dedicated service to the Chinese people. The soldiers who marched in the military parade commemorating the 50th anniversary of the PRC in October 1999 chanted "serve the people."[48]

Implicitly there is a sense in the PLA that Party incompetence is to blame in permitting the protests of 1989 to get out of control. As a result, the Army was caught in the middle and forced to confront the people. The June 4 incident not only resulted in death and destruction in the PLA, but also severely damaged the PLA's prestige in the eyes of Beijing residents and many other Chinese.[49]

EPISODE FIVE: GUOJIAHUA: AN IDEA THAT WON'T DIE (1980s)

Since even before the incapacitation and death of Deng Xiaoping in the mid-1990s, civil-military relations in China have been in a state of flux. The party-army dual role elite configuration--also known as "interlocking directorates"--has gone the way of the dinosaurs.[50] The official mantra remains that the Army must obey the Party, especially the core of the so-called third generation of party leaders, and most in the Army do not vehemently oppose a continued link. Nevertheless, discussion of *guojiahua* ("statification" or "nationalization" and sometimes dubbed *"feizhengzhihua"* [depoliticization]) continues unabated.[51] What *guojiahua* refers to is the process of transforming the PLA from a purely party army into

more of a state military. Ideally, this would mean an armed forces bound to uphold a law-based state grounded in constitutionalism.[52] As Shiping Zheng underscores, there has been a natural ongoing tension between the party and the state in post-1949 China.[53]

Moreover, the PLA officially is supposed to owe its loyalty to the Party, State, Chinese people, and socialism. While the most important of these allegiances is clearly to the CCP, the others are also viewed as important, at least for propaganda purposes. However, there is no acknowledgement that there might be tensions or conflict between these loyalties.[54]

Of course the most important relationship for the PLA after that with the Party, is its link to the people; after all, it is the "People's Army." At least one U.S. analyst argues that the Army's links to society are becoming increasingly significant.[55] Indeed, the PLA claims to have a sacred bond with the people of China. According to the late Marshal He Long, the PLA was "the first army in history that . . . really belongs to the people."[56] It is supposed to serve the people, and work on their behalf for the betterment of the country. What distinguishes the PLA from other so-called "professional" militaries is that it is not merely a fighting force but a productive force that contributes to national construction.[57] This bond with the people requires the PLA to be out living and working among the civilian populace.[58] It also requires reaffirmation through regular well-publicized actions on the part of Chinese soldiers, such as the efforts of PLA personnel to combat floods in the late 1990s noted earlier.

The official Party line is that the PLA is NOT a professional army. Indeed, it is foreign-based analysts of Chinese civil-military relations (this author included!) who continually seek to impose this conceptual framework on the PLA.[59] In many cases--including the Army's performance in the spring of 1989--analysts might need to acknowledge that "professionalism" may have little or even nothing "to do with it."[60] The PLA prefers to evaluate itself in terms of modernization, revolutionization, and regularization, and this is the metric that at least one U.S. scholar of civil-military relations has used.[61]

What advocates of *guojiahua* hope is that the PLA is becoming more of a national or state army and less of a party one. It is hard to say with a high degree of certainty whether this is primarily a

military or civilian idea. What is clear is the topic has considerable appeal both among the officer corps and civilian elites.[62] Many soldiers find the idea appealing because they hope it will keep the PLA out of political turmoil while ensuring adequate funding and support. This will make the Chinese armed forces operate in a more stable and predictable environment more like the situation they believe their counterparts have in Western countries.[63] Younger civilian leaders probably find it appealing because without strong military ties or experience, they are concerned about how to ensure Army loyalty and maintain Party control. *Guojiahua* offers the promise of an effective institutionalized mechanism and model of civilian control which has been lacking in modern China.[64]

In fact, the PLA has been undergoing an evolution from a strictly party army to a party-state army for at least 20 years now. At least legally the state bureaucracy has strengthened its power of appointment and power of the purse over the military, although there are ambiguities and potential tensions evident.[65]

The Power of Appointment.

The key organ for controlling the PLA is the CCP's Central Military Commission (CMC), and the top position in this body is that of chairman. It is the Party CMC that makes all senior PLA personnel promotion and appointment decisions. But who decides the membership of this body? According to article 22 of the CCP constitution, "Members of the CMC are decided by the Central Committee."[66] Nevertheless, according to the current PRC constitution (adopted in 1982), the executive and legislative branches of the state have jurisdiction over the selection and then overall supervision of senior military leaders. This constitution also provides for a State CMC in addition to the Party one (of course, these two CMCs are in reality one and the same).[67] Hence, in September 1989, when Deng Xiaoping submitted his formal letter of resignation as chair of the Party CMC, he also had to submit a separate letter of resignation because he would also officially be stepping down from his post as chair of the State CMC.[68] According to article 62 of the PRC Constitution, the National People's Congress (NPC) "elects the Chairman of the CMC and, upon nomination by the Chairman, [the

power] to decide the choice of all other members of the CMC." In addition, technically (according to PRC Constitution article 94) the Chairman of the CMC is "responsible to" the NPC and its Standing Committee. Moreover, the Standing Committee is charged with "supervising the work of the CMC" (article 67). Finally, it is China's State Council that is constitutionally charged with "direct[ing] and administer[ing] the building of national defense" (article 89).

The Power of the Purse.

The defense budget must be approved by the NPC that is officially, according to the PRC Constitution (article 57), the "highest organ of state power." And constitutionally, it is the NPC that has the power of the purse over national defense. According to Article 62, the NPC has the power "to examine and approve the state budget and report on its implementation."

Moreover, the PLA is becoming more dependent on state funding as extra-budgetary sources of income become fewer and fewer. The PLA tradition of self-sufficiency, while still important rhetorically, reflects reality less and less. By the 1980s this comprised two dimensions: internal efforts either PLA-wide or by specific units to supply food and equipment to soldiers, and business operations for profit sanctioned by the CCP leadership to allow the military to supplement its modest defense budget. Military operation of its own farms, factories, etc., has a long history in China, and this tradition of producing significant amounts of its own food and supplies continues.[69] But by 1998, the business interests of the PLA were no longer considered desirable and the military was directed to divest its commercial concerns.

The ultimate goal of divestiture (yet to be realized) is to make the PLA totally dependent on state funds and as such this promotes *guojiahua.* According to article 35 of the 1997 National Defense Law: "The state shall ensure the necessary spending for national defense." Divestiture then is best conceived of not as the outcome of a civil-military struggle but rather as simply another chapter in a larger drama witnessing the evolution of the PLA from a strictly party army to a party-state army. The decision to divest the PLA of its commercial operations appears to have been a consensus party-

army decision--each agreed it was detrimental to its interests.[70]

For the Party, the lesson of the PLA's commercial activities was that the corruption it fostered undermined party supremacy. The corruption threatened to weaken the military's loyalty/ obedience to the CCP. Ironically, one result of divestiture was to make the PLA more a national army--to make it more dependent on state coffers. The lesson of the PLA's commercial ventures for the military itself was that it bred corruption that undermined morale, lessened combat readiness, and soiled the PLA's public reputation.[71]

Lessons of *Guojiahua* for the Party.

Officially, there is no contradiction or conflict between the PLA's loyalty to Party, its loyalty to the state, its loyalty to the people, and its loyalty to socialism. Nevertheless, unofficially some tensions are recognized to exist at least between the PLA's loyalty to the Party and its allegiance to the state. Because of this, it is important to hold the line on the primacy of the Army's link to the Party. Evidence of this lesson is the regular and vocal condemnations of *guojiahua* and continued political indoctrination in the PLA. Current political work is instrumentalist--stressing obedience to the CCP rather than inculcating the substance of Marxism-Leninism-Mao Zedong Thought.[72]

Lessons of *Guojiahua* for the Army.

The central official lesson for the Army is that the Party remains key but a quasi-official lesson for the PLA is that the state and people are of growing importance. Moreover, inherent tensions exist between the Army's multiple allegiances to Party and State, and Party and people. However, for the time being these are not considered to be contradictory in the eyes of Chinese soldiers.[73]

All this growing attention to codification and constitutionalism results in an evolving and complex set of relationships between the Army, the Party, and the state. And one of the unintended consequences of this process is to highlight the state as an alternate focal point for the PLA's allegiance.

CONCLUSION

The larger lessons drawn from these five episodes in civil-military relations are not terribly surprising for they tend to be consistent with the lessons drawn from specific critical episodes. The Party's lessons from 75 years of civil-military relations focus on ensuring continued Army loyalty, while PLA lessons focus on protecting the military's corporate interests, that are seen as increasingly distinct—but certainly not divorced—from those of the CCP. Significantly, the tensions are not between the official and unofficial lessons of the Party but between the official and unofficial lessons of the Army.

Lessons for the Party.

The official lesson for the CCP is that it must ensure the PLA's unquestioned loyalty. To this end, it is essential to justify continuously the logic of CCP control of the gun. Moreover, unofficially there is a recognition that the Party takes the Army for granted at its own risk. Ellis Joffe's concept of "conditional [PLA] compliance," co-opted by James Mulvenon, seems most appropriate here: the Party must buy or otherwise continually win the Army's loyalty. The results are increases (or at least no decreases) in defense spending and top Party leaders cultivating senior PLA officials. Another important unofficial lesson is that the intra-Party conflict becomes intra-army conflict. In late 1989, Deng Xiaoping reportedly remarked: "Turmoil in China will be unlike that in Eastern Europe or the Soviet Union. If it happens in China, one faction will control part of the army and the other another part. A civil war could then erupt."[74]

Lessons for the Army.

The official arguments made by Chinese military propagandists are that one cannot take the Army out of politics or the Party, or take the people out of the Army. A recent extremely authoritative articulation of the first tenet was published in the flagship academic journal of the PLA's premier research institute for strategic and military affairs. The Academy of Military Sciences' (AMS) journal, *Chinese Military Science*, published an article titled "Consistently

uphold the Party's absolute leadership over the Army and faithfully carry out the brilliant concept of the 'three represents'." While the title suggests nothing new, the article did contain at least one surprise. Wang Zongren, the Political Commissar of the AMS, in support of his point that there can be no such thing as a military without politics, went so far as to cite American military sociologist Morris Janowitz![75] Party leadership of the Army is essential. Further, close, positive, ties to the people are extremely important. Moreover, soldiers are like fish and the People are like the water—one cannot survive without the other.[76]

However, the official lessons for the PLA tend to contradict directly the unofficial lessons. One unofficial admonition is to keep the PLA out of Party infighting and above societal conflict. Yet, as Cheng Hsiao-shih observes under the party control model: "... conflicts between civilian and military elites are intra-Party elite conflicts first and civilian-military conflicts second."[77] Meanwhile, layoffs from state owned enterprises and disgruntled unemployed or underemployed workers in urban and rural areas threaten to put the PLA squarely in the midst of social upheaval again. Since the 1980s, a possible solution has emerged--what promises to be a "final solution" to these seemingly unresolvable problems: *guojiahua.* It is up to the Party to determine what the PLA does, but if the CCP botches it in the eyes of soldiers, then the Army may bolt. The shift from dual role elites to functional differentiated elites means this is possible even if it is not highly likely. It is not necessary for Party-Army ties to be severed, but it is certainly one extreme option.

So, why does the PLA stay a party army? The answer is because the PLA pretty much gets what it wants out of the existing relationship and the Party so far has skillfully conflated the party, state, and people. Thus, as Jeremy Paltiel notes: "The elaborate ambiguity of China's legal and political institutions has shielded the Chinese armed forces from a choice between loyalty to the Party and obedience to the state."[78] Moreover, the people have only emerged as an obvious object of Army allegiance separate and distinct from the Party once in the past 75 years: for a few chaotic weeks in the spring of 1989.

The civil-military lessons of the Long March fade into the PLA's institutional historical memory, and younger generations of

Chinese soldiers recall the more recent and vivid firsthand lessons of the Cultural Revolution (including the Lin Biao incident), June 4, and/or creeping *guojiahua*. The result may be a Party leadership that is becoming more paranoid about Army loyalty, and a military leadership that increasingly views the PLA's relationship to the CCP as sacrosanct no longer.

ENDNOTES - CHAPTER 13

1. Here I concur with David Shambaugh's assertion that "civil-military relations" is the best term to use when examining military politics in contemporary China. I disagree with James Mulvenon's contention that "party-military relations" is more apropos. See David Shambaugh, *Modernizing China's Military*, Berkeley and Los Angeles: University of California Press, forthcoming, chapter 2; and James Mulvenon, "China: Conditional Compliance," in Muthiah Alagappa, ed., *Coercion and Governance: The Declining Political Role of the Military in Asia*, Stanford, CA: Stanford University Press, 2001, p. 317.

2. See, for example, Thomas Kampen, *Mao Zedong, Zhou Enlai, and the Evolution of Chinese Communist Leadership*, Copenhagen, Denmark: Nordic Institute for Asian Studies, 2000; and Benjamin Yang, *From Revolution to Politics: Chinese Communists on the Long March*, Boulder, CO: Westview, 1990. For some journalistic narrative studies of the Long March published in English, see Dick Wilson, *The Long March, 1935: The Epic of Chinese Communism's Survival*, New York: Viking, 1971; and Harrison Salisbury, *The Long March: The Untold Story*, London: Macmillan, 1985.

3. "Resolution on Certain Questions in the History of Our Party Since the Founding of the People's Republic of China" adopted at the Sixth Plenum of the Eleventh Central Committee of the Chinese Communist Party on June 27, 1981, translated in *Foreign Broadcast Information Service* (hereafter *FBIS*)-CHI, July 1, 1981, p. K2.

4. Amos Perlmutter and William M. LeoGrande, "The Party in Uniform: Toward a Theory of Civil-Military Relations in Communist Political Systems," *American Political Science Review*, Vol. 76, No. 4, December 1982.

5. Junshi Kexueyuan Junshi Lishi Yanjiubu, compiler, *Zhongguo Renmin Jiefangjun de qishinian* (*Seventy years of the Chinese People's Liberation Army*), Beijing: Junshi Kexueyuan Chubanshe, 1997, p. 141.

6. See, for example, Perlmutter and LeoGrande, "The Party in Uniform."

7. *Zhongguo Renmin Jiefangjun de qishinian*, p. 141.

8. Edgar Snow, *Red Star Over China*, New York: Random House, 1938, quotes on pp. 191, 194. Personnel also reportedly did carry out significant propaganda activities. *Ibid.*, pp. 195-196.

9. Fang Zhu, *Gun Barrel Politics: Party-Army Relations in Mao's China*, Boulder, CO: Westview Press, 1998, pp. 111-114.

10. Yan Jiaqi and Gao Gao, *Zhongguo 'wenge' shinian shi* [*a history of China's ten year 'cultural revolution'*] n.p.: Zhongguo Wenti Yanjiu Chubanshe, n.d.

11. Li Ke and Chi Shengzhang, *'Wenhua dageming' zhong de Jiefangjun, (The Liberation Army in the Great Cultural Revolution)* Beijing: Zhonggong Dangshi Ziliao Chubanshe, 1989.

12. Chen Zaidao, *Chen Zaidao Huiyilu* [*Memoirs of Chen Zaidao*] 2 vols, Beijing: Jiefangjun Chubanshe, 1988-1991; Zhang Yunsheng, *Maojiawan jishi: Lin Biao mishu huiyilu* [*Maojiawan account: the memoirs of Lin Biao's secretary*], Beijing: Chunqiu Chubanshe, 1988.

13. Fang Zhu, *Gun Barrel Politics*; Andrew Charles Scobell, *Civil-Military Relations in the People's Republic of China in Comparative Perspective*, Doctoral dissertation, Columbia University, 1995, chapters 3 and 6. See also the earlier studies, including Ellis Joffe, "The Chinese Army After the Cultural Revolution: The Effects of Intervention," *China Quarterly*, No. 55, July-September 1971, pp. 450-77; and Harvey W. Nelson, *The Chinese Military System: An Organizational Study of the Chinese People's Liberation Army*, Boulder: Westview Press, 1977, chaps. 2 and 4.

14. Zhengzhi Xueyuan Zhonggong Dangshi Jiaoyanshi, ed., *Zhongguo Gongchandang liushinian dashi jianjie* [*a survey of major events in sixty years of Chinese Communist Party history*], Beijing: Guofang Daxue Chubanshe, 1986, p. 550.

15. "Order of the Military Commission of the CCP Central Committee (April 6, 1967) cited in *Current Background* [U.S. Consulate General Hong Kong] No. 852, May 6, 1968, pp. 1115-116.

16. *Zhongfa*, No. 288, cited *in Survey of China Mainland Press* [U.S. Consulate General Hong Kong] No. 4026, September 22, 1967, pp. 1-2; and Andrew Scobell, *China's Use of Military Force: Beyond the Great Wall and the Long March*, New York: Cambridge University Press, 2003, chap. 5.

17. On the establishment of these committees, see Jurgen Domes, "The Role of the Military in the Formation of Revolutionary Committees, 1967-68," *China Quarterly*, No. 44, October/December 1970, pp. 112-45.

18. "Resolution on Certain Questions in the History of Our Party," p. K17.

19. Nelson, *The Chinese Military System*, p. 37.

20. Scobell, *China's Use of Military Force*, chap. 5.

21. *Gongchandang liushinian dashi jianjie*, p. 552.

22. *Ibid.*, p. 551.

23. Zhang Yunsheng, *Maojiawan jishi*, pp. 84-85.

24. "Resolution on Certain Questions in the History of Our Party," p. K17.

25. For the official line, see Michael Y.M. Kau, *The Lin Piao Affair: Power Politics and Military Coup*, White Plains, New York: International Arts and Sciences Press, Inc., 1975; Yan Jiaqi and Gao Gao, *Zhongguo 'wenge' shinian shi.*

26. Frederick Teiwes and Warren Sun, *The Tragedy of Lin Biao: Riding the Tiger During the Cultural Revolution, 1966-1971*, Honolulu: University of Hawaii Press, 1996; Jin Qiu, *The Culture of Power: The Lin Biao Incident in the Cultural Revolution*, Stanford, CA: Stanford University, 1999.

27. Scobell, *China's Use of Military Force*, chap. 5

28. Andrew Scobell, "Military Coups in the People's Republic of China: Failure, Fabrication, or Fancy?" *Journal of Northeast Asian Studies*, Vol. XIV, No. 1, Spring 1995; and Fang Zhu, *Gun Barrel Politics*, chapter 7.

29. Fang Zhu, *Gun Barrel Politics*, p. 194.

30. Shiping Zheng, *Party vs. State in Post-1949 China: The Institutional Dilemma*, New York: Cambridge University Press, 1997, p. 115.

31. For some studies of the Tiananmen incident that focus on the PLA, see Timothy Brooks, *Quelling the People: The Military Suppression of the Beijing Democracy Movement*, New York: Oxford University Press, 1992; Michael T. Byrnes, "The Death of a People's Army," in George Hicks, ed., *The Broken Mirror: China After Tiananmen*, Harlow, Essex, United Kingdom: Longman Group, 1990; June Teufel Dreyer, "The People's Liberation Army and the Power Struggle of 1989," *Problems of Communism*, Vol. 38, No. 5, September-October 1989; Harlan Jencks, "The Losses at Tiananmen Square," *Air Force Magazine*, Vol. 72, November 1989; Andrew Scobell, "The Chinese Military and Tiananmen: Why the People's Army Fired on the People," *Armed Forces and Society*, Vol. 18, No. 2, Spring 2002;

Andrew Scobell, "Why the People's Army Fired on the People," in Roger V. Des Forges, *et al.*, eds., *Chinese Democracy and the Crisis of 1989: Chinese and American Reflections*, Albany: State University of New York Press, 1993. See also Zhang Liang (pseud.), ed., *Zhongguo 'liu si' zhen xiang* [*The true story of China's 'June 4'*] 2 vols., n.p.: Mingjing Chubanshe, 2001, and the translation: Zhang Liang, compiler, *The Tiananmen Papers*, edited by Andrew J. Nathan and Perry Link, New York: Public Affairs, 2001.

32. *Zhongguo Renmin Jiefangjun de qishinian*, p. 657.

33. *Der Spiegel* (in German), June 5, 1989, in *FBIS-CHI*, June 7, 1989, p. 30.

34. *Jieyan yi ri(jingxuan ben)* [*One day under martial law--selections*], Beijing: Jiefangjun Wenyi Chubanshe, 1990; and Scobell, *China's Use of Military Force*, chap. 7.

35. Review of *The Tiananmen Papers* in *Parameters*, Vol. XXXI, No. 3, Autumn 2001, p. 166.

36. *Zhongguo Renmin Jiefangjun de qishinian*, p. 660. For the full official text translated into English, see "Address to Officers at the Rank of General and Above in Command of the Troops Enforcing Martial Law in Beijing, June 9, 1989," in *Selected Works of Deng Xiaoping*, Vol. III (1982-1992), Beijing: Foreign Languages Press, 1994, pp. 294-299.

37. Scobell, *China's Use of Military Force*, chap. 3.

38. *Ibid.*, chap. 7.

39. "Address to Officers . . .," pp. 294, 295

40. *Zhongguo Renmin Jiefangjun de qishinian*, p. 657.

41. Scobell, "Why the People's Army Fired on the People."

42. *Zhongguo Renmin Jiefangjun de qishinian*, p. 660.

43. *Jieyan yi ri*, p. 223.

44. For one of the first such statements, see "Speech to Comrades Who Attended an Enlarged Meeting of the Military Commission of the Central Committee of the Communist Party of China," November 12, 1989, in *Selected Works of Deng Xiaoping (1982-1992)*, Beijing: Foreign Languages Press, 1994, p. 323.

45. *Zhongguo Renmin Jiefangjun de qishinian*, p. 660; "Address to Officers . . .,"

p. 296.

46. See Wei Wei, "Who are the Most Beloved People? [*shiu shi zui ke'ai de ren?*]" *Renmin Ribao*, April 11, 1951. For analysis of the significance of this story, see Philip West, "The Korean War and the Criteria of Significance in Chinese Popular Culture," *The Journal of American-East Asian Relations*, Vol. 1, No. 4, Winter 1992, pp. 383-408.

47. *200 nian: Zhongguo de guofang* [*Year 2000: China's national defense*], Beijing: Zhongguo Renmin Gongheguo Guowuyuan Xinwen Bangongshi, October 2000, p. 42. There was, however, some disapproval expressed by top soldiers that this duty was inappropriate for PLA members.

48. John Pomfret, "A Long March to Respect; Chinese Military Uses Anniversary to Polish Its Image," *Washington Post*, October 2, 1999.

49. Scobell, "Why the People's Army Fired on the People." See also Jeremy T. Paltiel, "PLA Allegiance on Parade: Civil-Military Relations in Transition," *The China Quarterly*, No. 143, September 1995, p. 787.

50. Perlmutter and LeoGrande, "The Party in Uniform,"; Monte R. Bullard, *China's Political-Military Evolution: The Party and the Military in the PRC*, Boulder, CO: Westview Press, 1985.

51. The best evidence of this is the regular condemnation that appears in the official media. For a recent scholarly rebuttal, see Lieutenant General Wen Zongren, "Shizhong jianchi dangdui jundui de juedui lingdao zhong shi luxing 'sange daibiao' de guanghui sixiang [Consistently uphold the Party's absolute leadership over the army and faithfully carry out the brilliant concept of the 'three represents'], *Zhongguo junshi kexue*, October 1, 2001, pp. 8-10.

52. Of course this outcome would not be "ideal" in the minds of many CCP leaders! For an illuminating discussion of civil-military relations in contemporary China within the context of constitutionalism, see Jeremy T. Paltiel, "Civil-Military Relations in China: Obstacle to Constitutionalism?" *Journal of Chinese Law*, Vol. 9, No. 1, Spring 1995, pp. 35-65.

53. Shiping Zheng, *Party vs. State in Post-1949 China.*

54. Scobell, *China's Use of Military Force*, chap. 3.

55. Major Nicholas R. Reisdorff, "The People's Army?: Evolving Civil-Military Relations in China" unpublished manuscript, January 1999, pp. 69-70. The author would like to thank Colonel Susan Puska for bringing this paper to his attention.

56. Wen Zongren, "Shizhong jianchi dangdui jundui de juedui lingdao," p. 4.

57. *Ibid.*, p. 7.

58. Author's interviews with analysts at PLA affiliated research institutes in Beijing, May 2002.

59. The prime adherents to this approach are Ellis Joffe and Harlan W. Jencks. See, respectively, *The Chinese Army After Mao*, Cambridge: Harvard University Press, 1987; and *From Muskets to Missiles: Politics and Professionalism in the Chinese Army, 1945-1981*, Boulder, CO: Westview Press, 1982. Other scholars have tried to frame professionalism in a more Chinese and/or communist context. June Dreyer suggests the term "professionalist" is more suitable. See "Civil-Military Relations in the People's Republic of China," *Comparative Strategy*, Vol. 5, No. 1, 1985.

60. Shiping Zheng, *Party vs. State in Post-1949 China*, p 234. To quote Zheng exactly: "What has military professionalism got to do with it [explaining the PLA's actions in the spring of 1989]?"

61. June Teufel Dreyer, "The Modernization of China's Military," *Problems of Communism*, Vol. XXXIX, No. 3, May-June 1990, pp. 104-108.

62. Author's interviews with analysts at civilian and military research institutes in Beijing, May 1998 and May 2002. Of course, it is impossible to gauge accurately the proportion of PLA officers who hold this view. For more analysis of the beliefs of PLA members, see Michael D. Swaine, *The Military and Political Succession in China: Leadership, Institutions, Beliefs*, Santa Monica, RAND, 1992, Part IV.

63. "After Deng, What?: Reconsidering the Prospects for a Democratic Transition in China," *Problems of Post-Communism*, Vol. 44, No. 5, September/ October 1997, pp. 26-27.

64. Andrew Scobell, *Chinese Army Building in the Era of Jiang Zemin*, Carlisle Barracks, PA: U.S. Army War College, August 2000, pp. 16-18. As Cheng Hsiao-shih noted in 1990: "party control of the military has never been institutionalized in the PRC." See his *Party-Army Relations in the PRC and Taiwan: The Paradoxes of Control*, Boulder, CO: Westview Press, 1990, p. 51.

65. Shambaugh, *Modernizing China's Military*, chap. 2. Paltiel remarks on the legal ambiguities, too. See Civil Military Relations in China," and "PLA Allegiance on Parade," p. 787.

66. See the discussion in Shiping Zheng, *Party vs. State in Post-Mao China*, p. 248.

67. Cheng Hsiao-shih, *Party-Army Relations in the PRC and Taiwan*, p 46. For the logic of this, see a commentary on the constitutionalism published in 1993 quoted in Paltiel, "Civil-Military Relations in China," pp. 48-49. Paltiel calls the State CMC "legal fiction" (p. 49).

68. "A Letter to the Politburo of the Central Committee of the Communist Party of China," in *Selected Works of Deng Xiaoping*, Vol. III, pp. 312-313.

69. Edward L. Dreyer, "Military Continuities: the PLA and Imperial China," in William W. Whitson, ed., *The Military and Political Power in China in the 1970s*, New York: Praeger, 1972.

70. Mulvenon, "China: Conditional Compliance," pp. 328-331.

71. Andrew Scobell, *Going Out of Business: Divesting the Commercial Interests of Asia's Socialist Soldiers*, Occasional Paper No. 3 Politics and Security Series, Honolulu: East-West Center, January 2000.

72. James C. Mulvenon, *Professionalization of the Senior Chinese Officer Corps: Trends and Implications*, Santa Monica, CA: RAND, 1997, p. 73.

73. This seems evident from May 2002 Interviews, and the comments of PLA officers quoted in Shambaugh, *Modernizing China's Military*, chap. 2.

74. Willy Wo-Lap Lam, *China After Deng Xiaoping: The Power Struggle in Beijing Since Tiananmen*, Hong Kong: P.A. Professional Consultants, Ltd., 1995, p. 220.

75. Wen Zongren, "Shizhong jianchi dangdui jundui de juedui lingdao zhong," p. 9.

76. *Ibid.*, p. 7.

77. Cheng Hsiao-shih, *The Paradoxes of Control*, p. 5.

78. Paltiel, "Civil-Military Relations in China," p. 64.

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