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General Chen Bingde (L) and Admiral Takashi Saito (R)

In a Fortnight

By L.C. Russell Hsiao

BIG MINISTRIES SYSTEM AND DEPUTIES GET NOD AT SECOND PLENUM

With the veils closed on February 27, the three-day session of the Second Plenum for the 17th National Congress that started on February 25 confirms for China watchers three things: Xi Jinping will replace Zeng Qinhong to become vice-president; Li Keqiang, a one-time favorite to become Hu Jintao's successor, will become standing vice-premier, setting Li up to take over for Wen Jiabao in 2012; and the State Council will be downsized from 28 to around 21 ministries according to the "big ministries system" (*dabuwei tizhi*) proposal (*China Times*, February 26; *China Brief*, January 4).

In the lead of becoming the executive vice-premier, Li is likely to be entrusted with the responsibility of reforming the State Council, a task that observers call "mission impossible," since implementing the "big ministries system" (*dabuwei tizhi*) will mean eliminating a quarter of the existing ministries, which includes over 100 ministers and vice-ministers. Moreover, Li has no prior experience working in the central committee (*China Times*, February 26). The big ministries will likely be structured around a Ministry of Energy (MOE), Ministry of Transportation (MOT) and Ministry of the Environment and Construction (MOEC) (*China Brief*, January 4; *China Daily News*, February 27). The transition to the "big ministries system," contrary to what some earlier observers expected, will likely take five years to complete as oppose to a leap from a to z as suggested by earlier observations. This new thinking is attributed in part to the belief that Li is expected to be very cautious with the reform process (*Ming Pao,* February 27). According to a source with intimate understanding of *Zhongnanhai* cited by *Wen Wei Pao*, the fact that the proposal will be deliberated at the 11th National People's Congress means that the structure of the "big ministries system" has already been determined (*Wen Wei Pao*, February 28).

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According to *China Daily News*, the National Congress also recommended that Politburo Member and former Mayor of Beijing Wang Qishan serve as vice premier in charge of finances; Politburo Member and former Guangdong Province Provincial Committee Secretary-General Zhang Dejiang serve as vice premier in charge of external trade; Politburo Member and former head of the United Front Work Department Liu Yandong as vice premier, with Hui Liangyu remaining as vice premier (*China Daily News*, February 27).

In similar news, the Politburo's oft stated approach to the Chinese economy in 2008 had been to take "two precautions": one, to an overheating economy and two, to acute inflation. In light of the blizzard in January 2008 that struck a severe blow to the Chinese economy, and increasing risks in the U.S. financial sector that are affecting the global economy, Zhou Tianyong, a professor at the Central Party School, says that the "two precautions" may become only "one precaution." Zhou claims that China's export will ultimately be affected by the U.S. decline and that economic growth, if uncontrolled, will also drop, so the amount of control that can be exerted will need to be adjusted (*Sing Tao Daily*, February 28).

"HONEYMOON" FOR SINO-JAPANESE DEFENSE RELATIONS

On February 26, Admiral Takashi Saito, chief of the Joint Staff Office of Japan's Self-Defense Forces (SDF), started a four-day visit to China at the invitation of Chen Binde, chief of general staff of the People's Liberation Army (PLA). Saito's trip marks the highest-ranking visit to China by a decorated Japanese military officer in eight years. The last visit was made in June 2000 by General Yuji Fujinawa, who was then chairman of the Joint Staff Council of the Japan Self-Defense Forces. Saito's visit was credited to a November 2006 visit to Japan by Chen, who extended an invitation for Saito to visit China.

Saito exchanged views with Chinese Defense Minister General Cao Gangchuan and General Chen Binde. During their meeting, the Chinese side expressed concerns over Japan's robust development of its missile defense system. Additionally, Chen was particular concerned over the 2+2 joint statement made by the United States and Japan in 2005, which listed Taiwan as a joint strategic objective. Beijing claims that Taiwan is a territory of China, and the United States and Japan should not intervene on the issue. Saito responded that the U.S.-Japan missile defense system is explicitly classified as defensive in nature and has nothing to do with Taiwan (*Liberty Times* [Taiwan], February 27).

In a news report cited by *China Times*, Yang Bojiang—director of the Institute of Japanese Studies at the China Institute for International Relations (CICIR)—said that three issues were also likely to be on the agenda for discussions: arrangements for Japan Maritime Self Defense Force (JMSDF) naval vessels to visit China, the oil fields in the East China Sea and China's military transparency (*China Times*, February 28).

According to a report carried by Kyodo News, during their meeting Saito expressed the hope that Chen would make a return visit to Japan soon. In the press conference following, however, Chen stated that he will not visit Japan this year because he is concerned of Taiwan's president, Chen Shui-bian, causing trouble and he must be prepared for a Taiwan Strait contingency (*China Times*, February 28).

Some Chinese news media are calling this period the "honeymoon" of Sino-Japanese defense relations given the frequent defense exchanges at the levels of the chief of staff, defense ministry and reciprocal port visits by naval vessels that have taken place in recent years.

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PLA Navy Modernization: Preparing for "Informatized" War at Sea

By Andrew S. Erickson and Michael S. Chase

In recent years, senior Chinese Communist Party (CCP) leaders and high-ranking military officers have repeatedly emphasized the importance of naval modernization. Most prominently, CCP General Secretary, President and Central Military Commission (CMC) Chairman Hu Jintao in a December 2006 speech to People's Liberation Army Navy (PLAN) officers underscored the need "to build a powerful People's navy that can adapt to its historical mission during a new century and a new period" (*International Herald Tribune*, December 26, 2006). Similarly, PLAN Commander Wu Shengli and Political Commissar Hu Yanlin promoted the importance of naval modernization in an article that appeared in the authoritative CCP journal *Seeking Truth* [1]. This growing sense of urgency about naval modernization appears to be a function of increasing concern about maritime security issues, particularly Taiwan, the protection of maritime resources and energy security. These missions drive the PLAN's requirements,

not only for new platforms, but also for command, control, communications, computer, intelligence, surveillance and reconnaissance (C4ISR) capabilities.

Enhancing the PLAN's information technology and communications capabilities is thus seen as critical to the success of Chinese naval modernization. According to one recent article in *Modern Navy*, a PLAN magazine, "[t]he informatization of shipboard weapons and equipment is the core of maritime joint combat … the Chinese Navy should vigorously build data links for maritime military actions and fundamentally change the way to carry out tasks in the future," ultimately creating a "networked fleet" [2]. Reaching this goal hinges on narrowing the gap between the PLAN and the world's most advanced navies through the development, acquisition and integration of advanced information technology.

PLAN "Informatization"

The PLAN is undergoing an unprecedented transformation from what was essentially a coastal defense force to a more offensively oriented service capable of executing a variety of regional missions. As part of this impressive modernization program, a number of new surface ships and submarines have entered service in recent years. China's new surface ships include Russian-built *Sovremennyy* guided missile destroyers (DDGs), indigenously developed *Luzhou* and *Luyang* I and II DDGs as well as *Jiangkai* I and II guided missile frigates (FFGs), in addition to *Houbei*-class PTG wave piercing catamarans. Among the PLAN's new submarines are *Kilo*-class diesels acquired from Russia and the domestically developed *Shang* nuclear-powered and *Song* and *Yuan* conventional attack submarines. With the addition of these new platforms, the PLAN is improving its surface warfare, undersea warfare and air defense capabilities. The PLAN also appears poised to become an increasingly important part of China's nuclear deterrence posture with the addition of several *Jin*-class SSBNs, which will be armed with JL-2 SLBMs. According to China's 2006 Defense White Paper, the PLAN "aims at gradual extension of the strategic depth for offshore defensive operations and enhancing its capabilities in integrated maritime operations and nuclear counterattacks" [3].

China's leaders perceive their nation to be confronting a strategic environment in which "[m]ilitary competition based on informatization is intensifying" [4]. This view both highlights the growing importance of information technology in military modernization and places a heavy premium on striving for information dominance in any future conflict. Indeed, many Chinese analysts write about the role of information in a style reminiscent of U.S. publications on "network centric warfare." For example, according to one recent article by three PLAN researchers, "[i]n the information age, information has become one of the main sources of combat power" [5].

PLAN C4ISR Systems

For many years, the entire PLA, including the PLAN, faced major shortcomings in its C4ISR capabilities, but Beijing has embarked on a massive effort to modernize, upgrade and expand its communications infrastructure. One of the key results of this communications upgrade, which has been bolstered by the rapid development of China's civilian information technology and telecommunications industries, was the construction of a national fiber-optic communications network that provides the PLA with much greater communications capacity, reliability and security. According to one source, "in the coastal military commands, a gigantic optic-cable communication network has been set up, which guarantees the optic-cable communication among the headquarters of each military command. Meanwhile, satellite communication has been applied more widely, which ensures smooth communication between the top commanding organ and the headquarters at different levels of the military commands" [6]. Chinese research institutes have also "developed a VSAT [Very Small Aperture Terminal] communication system consisting of mobile vehicle-borne components" as well as new microwave and troposcatter communication systems [7]. Additionally, China is upgrading some of its traditional HV, VHF and UHF communication systems [8]. Improving military computer networks and making them available to more and more units also has been a priority for the PLA as it expands its communications networks, another key "informatization" development that has major implications for the PLAN. Indeed, recent reports indicate that all PLAN units at the division level and above are now connected to military computer networks, and that current plans focus on extending coverage to lower-level units [9].

Beijing has likewise intensified its efforts to improve its space-based C4ISR capabilities, which are particularly crucial for naval informatization. Navigation and positioning has been another major area of emphasis with implications for military modernization and the informatization of the PLAN. In addition to using GPS and GLONASS and working with the EU on the Galileo navigation satellite system, China has deployed the indigenous built *Beidou* Navigation System-1 comprised of four satellites, and plans to develop a larger system called Compass (or Beidou-2) comprised of thirty-five satellites. Chinese developments in small satellites and maritime observation satellites are also of particular interest from the perspective of naval informatization. In addition, the PLAN is improving the capabilities of its ocean survey and reconnaissance ships,

which are responsible for a number of tasks, including surveying, gathering meteorological and hydrographic information, laying and repairing undersea cables, and intelligence collection.

Trends in C4ISR Research and Development and Naval Training

One major area of emphasis appears to be the development of C4ISR capabilities required to implement an access denial strategy. According to the 2007 Department of Defense report on Chinese military capabilities, "[t]o prevent deployment of naval forces into western Pacific waters, PLA planners are focused on targeting surface ships at long ranges … One area of apparent investment emphasis involves a combination of medium-range ballistic missiles, C4ISR for geo-location of targets, and onboard guidance systems for terminal homing to strike surface ships on the high seas or their onshore support infrastructure" [10]. China is already developing the capability to target U.S. ships with ballistic missiles, such as the DF-21 MRBM [11]. "China is equipping theater ballistic missiles with maneuvering reentry vehicles (MaRVs) with radar or IR seekers to provide the accuracy necessary to attack a ship at sea," according to the Office of Naval Intelligence [12]. If supplied with accurate real-time target data from China's growing constellation of ISR satellites or other sources, terminal seekers and maneuvering warheads could threaten targets such as airbases and aircraft carriers [13].

Chinese researchers also emphasize the importance of linking platforms together into an integrated whole, suggesting that this will continue to be a major focus of defense R&D programs. This is considered particularly important for the PLAN. According to an article by Wang Hangyu, a researcher at the PLA's Naval Engineering University, "[a] platform-centric navy cannot bring into full play the potentials of its sensors and weapons," but "effective networks formed with multiple platforms and multiple sensors can enable the resources of military strength to grow steadily" and "resource sharing among various platforms and coordinated allocation of the resources of all operational forces can enable the currently available resources of military strength to be fully utilized" [14]. According to an article by Li Qiang, a researcher affiliated with the PLA's Academy of Equipment Command & Technology, "[i]n order to effectively fuse all C4ISR system elements and achieve a seamless connection from sensors to shooters it is necessary to solve the problems of data integration" [15].

Unmanned reconnaissance systems appear to be another area of emphasis in Chinese C4ISR-related research. Indeed, recent technical articles indicate that Chinese scientists and engineers are conducting research on various types of unmanned aerial vehicles (UAVs) [16]. Chinese researchers are also working on unmanned underwater vehicles (UUVs). For example, one recent article by PLAN researchers addresses the sonar capabilities of remotely operated vehicles (ROVs), which could have applications in ISR and a number of other maritime warfare mission areas [17].

The PLAN's focus on technological developments notwithstanding, Chinese planners realize that rapid improvements in hardware will not be fully effective without corresponding increases in the ability of military personnel to operate them under realistic combat conditions. In keeping with recent PLA-wide guidance from the General Staff Department that stresses making training more realistic and challenging, the PLAN has emphasized making training approximate the actual battlefield environment as much as possible. Official sources indicate that the PLAN is striving to make training more rigorous [18].

Chinese reports frequently highlight the importance of conducting training under "complex electromagnetic conditions," which necessitates such activities as jamming, electronic attacks, reconnaissance and electronic deception [19]. The PLAN is also conducting opposing forces training featuring "Blue Force" detachments playing the role of enemy units and making extensive use of modeling and simulation to enhance training. Another area of emphasis for the PLAN is joint training. According to one recent article in the PLAN's official newspaper, "[a]s profound changes take place in the form of war, future warfare will be integrated joint operations under informatized conditions. Training is the rehearsal for war, and what kind of a war we fight determines what kind of training we should conduct" [20]. Articles in the same official newspaper highlight the PLAN's recent involvement in "informatized" multi-service training activities, some of which have focused specifically on enhancing joint communications capabilities [21].

Conclusion: How Good is Good Enough?

Enhancing China's naval capabilities is a key component of China's military transformation, as reflected by recent leadership statements and the development of several new classes of surface ships and submarines. Moreover, informatization is clearly a central aspect of PLAN modernization and naval C4ISR modernization will have important implications in areas such as joint operations and command and control. Chinese C4ISR modernization has become a top priority and PLAN informatization appears to have made some impressive progress in recent years. It remains unclear, however, how close the Chinese actually are to achieving the so-called "informatized force." The

PRC's 2006 Defense White Paper established a goal of being able to fight and win informatized wars by the mid-21st century. This reflects a perceived gap between the Chinese armed forces and the world's most advanced militaries, which Chinese writers often suggest will take decades to overcome. At the same time, however, it also raises the issue of distinguishing between the "ideal" capability the Chinese navy seeks to establish in the long term and that which might simply prove "good enough" in the short term. Indeed, even a relatively simple system of deconfliction by time or geographic area might be sufficient in a Taiwan scenario. This suggests that the PLAN might achieve an employable capability with surprising rapidity, especially if it pursues one that falls short of the standards set by U.S. proponents of "network centric warfare," but that is nonetheless capable of contributing to the achievement of China's operational and strategic objectives.

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18. For example, see Liu Tongqing and Xu Feng, "East China Sea Fleet Makes Breakthrough in New Fighter Training," *PLA Daily*, February 9, 2004.
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The PLA's Evolving Operational Doctrine: Experiments in Modularity

By Martin Andrew

The People's Liberation Army's (PLA) focus on creating modular combined arms forces is part of its plan to create a Hardened and Networked Army (HNA) [1]. It is mechanizing the force while introducing information operations doctrine and equipment. The first PLA division developed as part of this new doctrine is designed for operations in urbanized and high altitude environments and has armored command vehicles at the company level, to enable a company commander command and control of

any assigned forces (*China Brief*, May 16, 2007). "Complex Warfighting" is the key concept underpinning the HNA, which identifies the contemporary combat environment as complex, diverse, diffuse and highly lethal. Land forces will be required to undertake an extremely wide range of tasks simultaneously within the same geographical area, at short notice and in complex, urbanized terrain [2].

This mechanized division is based in Xinjiang to ensure the protection of the oil refineries and infrastructure, which will be a key component of China's near-term energy requirements. This includes operations outside of China's borders, and these forces need to be versatile, agile and able to orchestrate attacks in a precise fashion, which demands modular, highly skilled forces with a capacity for network-enabled operations, optimized for close combat in combined arms teams. These teams will be semi-autonomous and highly networked with a capacity for protracted independent operations within a joint interagency framework. The team could be as small as a squad or as large as a battalion.

The PLA is modifying unit structures to meet the requirements of complex war fighting, enabling them to make the best use of the new equipment being delivered by its defense industries and their optimum employment in combined arms battle groups [3]. This is done by increasing the use of firepower for protected mobility—enabling battle groups to be network capable and increasing their combat readiness so that units are deployable at short notice without significant augmentation [4].

The combined arms approach—whereby infantry, armor, artillery, aviation and engineers work together to support and protect each other—is the key to achieving success on the battlefield. The PLA is expected to continue organizing unit structures in barracks, but will ensure that those units can quickly transition to form combined arms battle groups for training and operations. In this way, a battle group can be ideally structured for a particular operation and can be easily modified in theatre, as the situation requires (*China Brief*, May 16, 2007).

HNA organizational platforms are being developed so unit headquarters are capable of deploying as battle group headquarters and all capable of commanding combat teams from any other unit. To do this, battle groups and headquarters are constructed with robust command and control structures and first-line logistics control. Recently the PLA experimented with a Cavalry brigade by bringing together under a battle group's headquarters a mechanized infantry battalion, a transport and an attack helicopter squadron and support elements. Under a HNA modular structure, combat support—such as artillery, engineers and signals and combat service support units providing the necessary logistics—are attached to combined arms battle groups in support of the maneuver (combat) elements. This is not new to the PLA, as early as the 1960s, moves toward the use of battle groups was in trial period. In the early 1960s, the PLA based its combat maneuver and power around the infantry company [5]. Its training regimen was concentrated at the platoon and squad level, with the infantry company being the basic tactical unit. This meant it was also easier to create more ready reaction force units when funding allowed. Platoons and companies were to have artillery, armor and flame-throwing units attached. Training at the battalion level and above was to be combined arms, and at the regimental level and above for command and control training [6]. Due to funding constraints, training at the operational level was not emphasized; the focus was on the tactical and close combat levels [7].

After years of evolution in its operational doctrine, the operational art of the PLA is now firmly rooted in the concepts and doctrine of *pei shu* (attaching troops to a subordinate unit) creating independent battle groups within the division, or augmenting a division seamlessly with heavier forces if a major offensive or heavy armor is required. The new mechanized infantry division can call on the Sixth Armored Division and extra self-propelled artillery and air defense forces for breakthrough operations or when enemy main battle tanks and air support are expected to be encountered [8]. Battle groups are generally based around a battalion and the PLA is going toward a three-level command structure of corps, brigade and battalion. The divisional structure remains for administrative purposes in many military regions containing brigades instead of regiments to accommodate the battle group concept. The idea behind these brigades is to "adapt to informationalized warfare and to enable more rapid decision making on the battlefield" (*China Brief*, May 16, 2007). In the PLA, the primary difference between a regiment and a brigade is that the brigade is capable of independent operations whereas a regiment is directly subordinate to the division and does not have the headquarters staff to carry out independent operations. The other important concept is *zhi chi* (to support) meaning the creation of a battlefield logistics organization able to supply and support forces far behind the enemy line (*Xinhua*, July 13, 2005).

The Sino-Russian *Peace Mission 2007* exercise held in Russia in August 2007 demonstrates the PLA's move towards a HNA with modular forces. The PLA created a cavalry brigade in what was the first major test of the *pei shu* concept. This composite brigade of light armor and helicopters was created from existing forces and was able to conduct light infantry operations, including counter-terrorism, reconnaissance and screening operations across

a wide area.

In *Peace Mission 2007*, the PLA forces deployed:

- A battalion of wheeled mechanized infantry battalion comprising 40 Type 92 wheeled infantry fighting vehicles, each mounting an enclosed turret-mounted 25mm automatic cannon, and 15 Type 92 wheeled infantry fighting vehicles, each mounting an open turret-mounted 12.7mm machine gun;
- Two companies of 18 PL02 assault guns, each mounting an enclosed turret with a 100mm cannon and co-axial 7.62mm machine gun;
- One battalion of 16 Z-9W attack helicopters;
- One battalion of 16 Mi-17 transport helicopters;
- A company of 12 ZBD05 airborne vehicles each mounting a 30mm automatic cannon.

The Type 92 wheeled infantry fighting vehicles and Type 02 assault guns use the WZ551 six-wheeled armored chassis (*China Brief*, May 16, 2007).

The force was a composite of a cavalry brigade combining both ground and heliborne assets. This force integrated both mechanized and airmobile infantry, fire support from the 100mm assault guns and the attack helicopters, reconnaissance from the helicopters and some of the six wheeled IFVs, and logistics from the Mi-17 and 12.7mm armed Type 92 vehicles.

The deployed Type 92s could transport a mechanized infantry battalion of three companies with the support provided by two companies of the assault guns, which is an unusually large amount of *huoli* (firepower) for a mechanized infantry battalion. The Type 92A's would have provided the vehicles for the battalion headquarters and company support weapons. Infantry support weapons deployed include the QBZ87 35mm automatic grenade launcher, PF98 anti-tank rocket launcher and Type 58 backpack flame throwers. The Mi-17s could lift two infantry companies with their support elements providing the brigade commander with six company level maneuver elements. The Z-9W attack helicopters provided aerial reconnaissance, fire support and liaison.

A cavalry brigade like this force could act as the corps reconnaissance and screening force, provide flank protection and act as an assault force to seize high-value targets as part of the PLA's new heavy corps. The ZDB05 airborne vehicles would have been used to test their use in airborne operations.

The influences of p*ei shu* and *zhi chi* are seen in the PLA's new mechanized infantry division unveiled in 2006, which are claimed by the PLA to be two generations ahead of its predecessor (*China Brief*, May 16, 2007). The division is organized and equipped to fight as independent battle groups on mountainous and urban terrain, its equipment being lighter in weight and firepower than those of the PLA's divisions tasked to defend the nation against aggressors with main battle tanks. Its theatres of operation are Xinjiang and Tibet where the division's lighter vehicles and support weapons can operate in areas with—at best—poor communications infrastructure. Nine of Asia's main river systems including the Mekong and Brahmaputra originate from the Tibetan Plateau. The Chinese are damming these and hope to be able to divert some of these waters to areas of China currently too dry for agriculture [9]. The governments of India, Bangladesh, Laos, Thailand, Vietnam and Cambodia are unhappy with this, which could lead to conflict [10]. The new mechanized infantry division is ideally suited to intervene in the event of attacks on the Tibetan Plateau if other countries try to destroy the dams to increase their water flow. The cavalry brigade/battle group created for the *Peace Mission 2007* exercise mentioned earlier—besides being the first major test of the *pei shu* concept—showed how an easily created composite brigade of light armor and helicopters could be used on the Tibetan Plateau along with the helicopter-borne light mechanized infantry experimental group.

The PLA is now firmly committed to hardening the army with both tracked and wheeled armored vehicles and the doctrine of information operations. Existing equipment is being updated and new equipment introduced. Divisions are being reorganized into brigades and their battalions and companies turned into independent modular forces to enable them to perform combined arms operations at the company level if required. Units are also being designated as support units to thicken the firepower and provide heavy armor and artillery to forces on China's periphery. The People's Liberation Army is transforming into a force able to operate for sustained periods in combined arms operations along and deep beyond China's frontiers. The new light mechanized division in Xinjiang is the first unit capable with its augmenting units already identified and equipped. This is a capability the PLA has previously lacked and places it along the few modern armies that can operate out of area.

Mr. Martin Andrew retired from the Australian Defence Force after 28 years of service and holds a Masters Degree in Asian Studies.

NOTES

1. The term "hardened and networked army" has been taken from *The Hardened and Networked Army*, Australian

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China's "Revolution in Military Affairs": Rhetoric Versus Reality

By Richard A. Bitzinger

China is currently engaged in a determined effort to transform its military from an army based on Mao Zedong's principles of mass-oriented, infantry-heavy "People's War," to what many foreign observers perceive to be an agile, high-technology force capable of projecting power throughout the Asia-Pacific. A corollary to this assertion is that this modernization process is nothing less than a larger effort by the People's Liberation Army (PLA) to engage in a comprehensive "revolution in military affairs" (RMA) that would radically alter the way it conducts warfare, given that the PLA is in the midst of perhaps the most ambitious upgrading of its combat capabilities since the early 1960s—both quantitatively and qualitatively—to its arsenal of military equipments.

An RMA is a process of discontinuous, disruptive and revolutionary change. For its proponents, the RMA is a fundamental change—a "paradigm shift"—in the character and conduct of warfare. Basically, an RMA occurs when new technologies are combined with new operational and organizational concepts so that it "fundamentally alters the character and conduct" of conflict and produces a "dramatic increase in the combat potential and military effectiveness of armed forces" [1].

An RMA is not an overlay of modernized equipment over an existing force structure, and encompasses much more than just force modernization—hardware and technology are obviously crucial and primary components. A "true" RMA, however, entails fundamentally changing the way a military conducts its business—doctrinally, organizationally and institutionally.

The conventional wisdom is that the current RMA is being primarily driven by the ongoing revolution in information technologies (IT), which in turn has made possible significant advances in the areas of sensors, seekers, computing, communications and precision-strike. Therefore, the current RMA is particularly and inexorably linked to emerging concepts of network-centric warfare (NCW): it is more than just vastly improved and more capable command, control, communications, computing, intelligence, surveillance, and reconnaissance (C4ISR) infrastructures; it is additionally about networking these C4ISR capabilities with weapons and combat platforms in order to achieve holistic and synergistic payoffs in terms of battlefield knowledge, agility, jointness, and lethality [2].

"RMA" with Chinese Characteristics

The PLA's current national defense strategy is centered on the ability to fight "Limited Local Wars under Conditions of 'Informatization.'" This entails short-duration, high-intensity conflicts characterized by mobility, speed and long-range attack; employing joint operations fought simultaneously throughout the entire air, land, sea, space, and electromagnetic battlespace; and relying heavily upon extremely lethal high-technology weapons. PLA operational doctrine also increasingly emphasizes preemption, surprise and shock value, given that the earliest stages of conflict

may be crucial to the outcome of a war [3].

As such, the PLA has acquired or is in the process of acquiring a number of new high-tech weapons systems, including fourth-generation fighter aircraft, large surface combatants, new nuclear and diesel-electric attack submarines, precision-guided munitions (PGMs, including land-attack cruise missiles and supersonic antiship missiles), airborne early warning aircraft, air-to-air refueling aircraft, improved air defenses, and the like. China also puts unique emphasis on the use of tactical ballistic missiles for precision-strike against land and sea targets [4]. Of particular note, the PLA is forming a core of approximately a dozen division—or brigade-sized rapid reaction units (RRUs), including three airborne, four amphibious or marine divisions, and several Special Operations units—shock troops that could be used for a variety of regional—particularly against Taiwan—or even out-of-area contingencies [5].

At the same time, China's military is increasingly focused on the information-technologies side of the RMA. According to You Ji, the PLA is currently engaged—as part of an ambitious "generation-leap" strategy—in a "double construction" transformational effort of simultaneously pursuing both the mechanization and "informatization" of its armed forces (*China Brief*, November 24, 2004). Initially, therefore, the PLA is attempting to upgrade its current arsenal of conventional "industrial age" weapons, through improved communications systems, new sensors and seekers, greater precision and night-vision capabilities.

Concurrently, and in accordance with the principles of informatization, the Chinese military has put considerable emphasis on upgrading its C4ISR assets—including launching a constellation of communication, surveillance, and navigation satellites—while also developing its capabilities to wage "integrated network electronic warfare"— an amalgam of electronic warfare (jamming the enemy's communications and intelligence-gathering assets), offensive information warfare (disrupting the enemy's computer networks), and physical attacks on the enemy's C4SIR network (*China Brief*, November 24, 2004; Defense News, September 11, 2006). In addition, similar to the U.S. Army's "Land Warrior" program, the PLA is reportedly experimenting with digitizing its ground forces, right down to outfitting the individual soldier with electronic gadgetry in order to provide him with real-time tactical C4ISR [6].

It is important to note that informatization represents a critical new development in the PLA's warfighting strategy, which implies a fundamental shift away from platform-centric and toward network-centric warfare. In particular, the Chinese are reportedly trying to exploit informatization and "knowledge-based warfare" in order to leapfrog weapons development, to accelerate the pace of military modernization, and to create new levers of military power for the PLA (*China Brief*, November 24, 2004).

A "True" RMA?

Long-term trends in Chinese military modernization have the potential, in the words of the Department of Defense, to "pose credible threats to modern militaries operating in the region" [7]. Ultimately, the PLA hopes to turn itself into a modern, network-enabled fighting force, capable of projecting sustained power far throughout the Asia-Pacific region. Ironically, too, the PLA, more than any armed force in the Asia-Pacific region, appear to have mimicked the United States in terms of the ambition and scope of its own transformational efforts—and therefore challenge the U.S. military at its own game [8].

Can the military modernization undertaken by the PLA be technically considered an RMA? In this regard, it is worth making five observations. First, there is a lack of available evidence that the Chinese military is engaged in an RMA-like overhaul of its organizational or institutional structures. According to the authoritative Jane's, the PLA "has yet to promulgate a definitive military doctrine to guide the development of capabilities and operations" according to the principles of "Limited Local Wars under Conditions of 'Informatization'" [9]. Additionally, the bulk of the PLA ground forces remain traditional infantry units, hobbled by a shortage of rapid mobility assets (e.g., helicopters, airlift, or amphibious lift) [10]. The PLA's highly hierarchical and top-down command structure and interservice compartmentalization does not seem to have changed, and even the Pentagon acknowledges the PLA's deficiencies when it comes to jointness [11].

Second, while the Chinese military is certainly acquiring new and better equipment, little of it could be construed as particularly "revolutionary," or be seen as "leap-frogging" a generation of weapons development. For example, using short-and medium-range ballistic missiles as precision-attack systems may be a unique approach, but in China's case this may be more a matter of making a virtue out of a necessity—the PLA simply lacks sufficient numbers of other types of PGMs—particularly for land attack.

In addition, systems such as the J-10 fighter jet, the *Song*-class diesel-electric submarine, and the Type-52C *Luyang II*-class destroyer—which is equipped with an Aegis-type air-defense radar—while advanced for the PLA, are basically 1980s-era weaponry in terms of their technology.

The J-10, for instance, is operationally comparable to the F-16C, which first entered service in the mid-1980s. Even the equipment that the Chinese have acquired from Russia—Su-27 fighters, *Sovremennyy*-class destroyers, *Kilo*-class submarines, and S-300 surface-to-air missiles—arguably the sharpest edges in the pointy end of the PLA spear—are hardly cutting-edge, transformational weapons systems.

Most Chinese weapons systems coming online today were more or less developed sequentially—that is, following along the lines of traditional patterns of incremental research and development (R&D). For example, Chinese fighter aircraft development has moved in a fairly routine fashion from second-generation (J-7/MiG-21) to third-generation (J-8) to fourth-generation (J-10) systems—acknowledging, of course, the 20-year period of near-total absence of new R&D from the mid-1960s to the mid-1980s, in which case, one could argue that the Chinese are more engaged in a frantic game of "catch-up," as opposed to leap-frogging.

Third, it is also worth noting that much of the RMA-related activities being undertaken by the Chinese military are still very embryonic and even experimental, and we possess only a vague idea as to the PLA's paths and progress in many areas of informatization, such as information warfare or digitization, or whether these programs will ever be effectively implemented" (*China Brief*, November 24, 2004).

Fourth, recapitalizing the Chinese military with modern equipment—and in particular pursuing improvements in C4ISR—does not in and of itself constitute an RMA; on the contrary, acquiring these systems makes perfect sense even without worrying about "transforming the force." Overall, a military does not need to believe in the RMA in order to appreciate the importance of precision-guided weapons, modern fighter jets and submarines and better intelligence.

21st Century People's War

Finally, it is possible that PLA transformation may turn out to be much less revolutionary in practice. According to Dennis Blasko, the current concept of limited, informationalized war is, in many ways, People's War adapted to 21st century requirements and capabilities. He argues that the Chinese actually see "no contradiction" between using the "most advanced weapons and technologies available to them," while at the same time relying on the principles of People's War. In fact, he argues, People's War is still seen as China's "secret weapon" [12].

In particular, he points out that while the PLA appreciates the effectiveness of such "transformational" concepts as information warfare and massed, conventional missile attack, it does not see these weapons in and of themselves as decisive in battle. He quotes the PLA officer's training manual, which states that "in the employment of forces, one should mainly rely on high tech 'magic weapons'… while at the same time maximizing one's superiority in conducting a People's War…" [13].

On the whole, the PLA seems to have done a better job pursuing a "modernization-plus" approach to transforming itself. China's current military buildup is ambitious and far-reaching, but it is still more indicative of a process of evolutionary, steady-state, and sustaining—rather than disruptive or revolutionary—innovation and change.

Not that this is necessarily a wrong path for the Chinese military, nor is it one that should fail to give other nations considerable cause for apprehension and even alarm. China is undeniably emerging as a military—as well as economic and political—power in the Asia-Pacific to be reckoned with. Perfection, it is said, is the enemy of good enough, and even absent a full-blown RMA, the PLA is adding considerably to its conventional combat capabilities. At the same time, there is particularly worrisome military potential in the PLA's nascent abilities to wage offensive information warfare against technology-dependent adversaries such as the United States. Overall, it certainly behooves potential adversaries to continue to closely monitor Chinese military modernization activities. For better or for worse, the PLA is emerging as a much more potent military force, and that, in turn, will increasingly complicate regional security dynamics in the Asia-Pacific and even beyond.

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Notes

1. Andrew Krepinevich, "From Cavalry to Computer: The Pattern of Military Revolutions," *The National Interest*, Fall 1994, p. 30.
2. Office of Defense Transformation, *Network-Centric Warfare: Creating a Decisive Warfighting Advantage* (U.S. Department of Defense, 2003).
3. Office the Secretary of Defense (OSD), *Annual Report on the Military Power of the People's Republic of China 2007* (Washington, DC: U.S. Department of Defense, 2007), pp. 5, 11-14.
4. *Annual Report on the Military Power of the People's Republic of China 2007, pp. 3-5, 14-24.*
5. Timothy Hu, "China–Marching Forward," *Jane's Defense Weekly*, April 25, 2007.
6. See http://www.sinodefence.com/electronics/c3i/

digitisedarmy.asp
7. Office the Secretary of Defense, *Annual Report on the Military Power of the People's Republic of China 2006* (U.S. Department of Defense, 2006), p. i.
8. See Richard A. Bitzinger, *U.S. Defense Transformation and the Asia-Pacific Region: Implications and Responses* (Australian Strategy Policy Institute, 2006)
9. Timothy Hu, "China – Marching Forward," *Jane's Defense Weekly*, April 25, 2007
10. *Ibid.*
11. Office the Secretary of Defense, *Annual Report on the Military Power of the People's Republic of China 2007* (U.S. Department of Defense, 2007), p. 15.
12. Dennis J. Blasko, *The Chinese Army Today: Tradition and Transformation for the 21st Century* (Routledge, 2006), p. 95.
13. *Ibid.*, p. 101.

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Guarded Walls within the Chinese Stock Market

By Anton Smitsendonk

The Chinese stock market continues to intrigue and perplex international spectators [1]. While Beijing is experimenting with some corrective measures at a macro level to avoid overheating and bubbles, now seems to be a good time to revisit the fundamentals and study the structure and make-up of the Chinese stock market. The article will address the structural particularities of the Chinese securities markets as well as the historical factors that influence volumes and consequently the current price levels. In China, volumes of stock are divided between different local markets and between different classes of stocks—this fragmentation and the lack of arbitration affect price levels. There are, however, readily available tools for Beijing to address these challenges, for instance, promoting the transformation of "non-tradable" into "tradable" securities. The volume of tradable securities—the "free float"—is still small in China. Continued efforts to make non-tradable shares tradable will increase the free float and bring down the present high price-earnings ratios.

Beijing Policy Styles

The segmentation of markets and of problems in general has over time become a rather common solution for Chinese policymaking. Beijing, while in isolation, often had to solve problems by trial and error, and such trials are better attempted on a limited territorial or sectorial basis, as opposed to a grand design. "Feeling the stones while crossing a river" is an age old adage originating from the ancient Chinese proverb that has been carried over to nearly every walk of contemporary Chinese walk of life.

The vastness of the country and uncertainties with communication lines made it desirable to keep lines of food transport short in order to prevent famines. That same vastness in the provinces, which are still rather unconnected, made it possible to proceed gradually with various reforms in separate regions by trial and error. That was shown when attempts to introduce a bankruptcy law were made in a single province.

The time, however, in which such methods could hold sway, may be close to an end as the country becomes more and more integrated both in a geographical sense and in various sectors of activity, and as policy lines become intertwined. The recent proposal to create a few coordinating "super-ministries" may be intended to foster the linkages between various policy domains (*China Brief*, January 4) [2].

The General Viewpoint

If we approach the Chinese stock markets from a more general economic point of view, many imbalances can be observed that for convenience can be labeled as "excesses" (*China Brief*, December 13, 2007).

Partly because of the absence of sufficient services like retirement plans, healthcare and education for children—after state enterprises were liberated from these social burdens and the "barefoot doctors" disappeared—costs for these services have risen exponentially. Moreover, people feel a need to save more in order to hedge the risks of increasing vagaries in life's security. An excessive portion of these savings has been going into low-earning bank deposits because no other investment vehicles are available. The banks in turn used the barrage of deposits to finance loans to enterprises, often without sufficient credit analysis and at the party's directives. As a result, many loans are currently non-performing. The chain continues: too many loans and internal financing are directed towards export industries, and an excessive amount of that export activity is based on foreign technology, which in turn is causing a dangerous level of environmental damage through cement and steel production, in quantities that are not proportionate with what is needed inside the country. The emergence of China as a production platform involves many overlapping variables, which at one time seemed innocuous, but were not well planned and now cause unexpected and unfavorable externalities like pollution and large trade surpluses.

These "excesses" and their corollary "deficiencies" are now being recognized at higher levels of government. Unfortunately, the relevant government offices—often understaffed—have difficulty in disciplining the provincial authorities. This is partially explained by the fact that local public officials see (often unnecessary) project expansion as the best way for their career advancement.

Insufficiencies of the Capital Market

Stock markets, as part of the wider capital and financial markets, suffer from similar fragmentation. For instance, the absence of bond markets in sufficient depth leads to cash hoarding, equity, and real estate investment (*International Herald Tribune*, September 7, 2007).

Enterprises then rely too much on self-financing. The state-owned firms can do that with relative ease since they did not have to pay out dividends to their shareholders—state or public—and paid little in the form of taxes [3].

The picture of the Chinese capital market is therefore still one of an unbalanced and not fully integrated system. There is a growing framework of surveying and controlling government agencies in the field, but their cooperation is not always guaranteed. The preference for vertical and "imperial" lines of authority and hesitation about engaging in lateral links and cooperation is still common.

Walls between the Markets

The insularities found with the institutions mentioned above are also visible in the securities markets. There is for instance a division between tradable and non-tradable securities.

The non-tradable securities—which still account for about 50 percent of all shares held—were justified in Beijing by the chaotic and unwieldy privatization process in Eastern Europe. Keeping state property untradable may have been a reasonable measure when looking at the mistakes made in Russia in the 1990s, and the current redirection of some privatization deals by President Vladimir Putin.

The Chinese choice for enterprise reform was to start with conversion of state companies by incorporation. This allowed for increased legal autonomy, clearer responsibility, and introduced the possibility of adopting some further professional forms of corporate governance.

All the while, the shares were kept firmly in government's hands and safe from private owners. Keeping separate classes of stockholders had its drawbacks, however, in the formation of an open, national stock market.

In recent years, corporations were allowed to negotiate with the owners of their tradable shares ways to convert the remaining non-tradable-shares into tradable shares, or floating shares. The negotiators had to ensure that the previous owners of tradable shares did not suffer losses. Previously, the very prospect of converting non-tradable shares created the fear of an overhung market—a possible tsunami of state-owned shares flooding the markets. The fear of such an inundation of new tradable stocks has kept the Chinese stock market in the doldrums for years. The general economy and the stock market have been highly disconnected in China. When the overall economy was in malaise from 1995-2000 the stock market was booming. When the real economy was booming from 2001 to 2005, the stock market was sluggish [4].

Only recently has that anxiety been somewhat allayed. A variety of agreements with holders of floated shares to make more "non-tradables" shares tradable has been concluded. Various methods were adopted including providing options and cash payments. By now, most state-owned enterprises have negotiated such formulas to make the non-tradable shares gradually tradable after a lock-up period. The completion of that process however may take many more years. The free float of Chinese stocks is still comparatively very low [5].

However, if there are still a lot of concerns about Chinese bubbles, many would argue that part of the recent price increases is simply a correction against earlier years' accumulation of economic woes [6].

Walls within the Market

Apart from keeping shares divided between tradable and non-tradable securities, there are other insularities in the Chinese system that prevent its various parts from acting like a system of communicating vessels. For instance the Chinese stock market is carved up into locations like Shanghai and Shenzhen, where foreigners cannot deal—until the recent exception made for a few institutional investors—and Hong Kong—where the floated shares are the basis of the American Deposit Receipts traded on the New York Stock Exchange. While foreigners can freely trade on the Hong Kong market, the Chinese investors are kept away in so far as their Chinese currency accounts are not yet convertible.

By keeping the markets in various locations separate, "arbitration" between them is not possible. As a result, the same shares may command different prices in the different locations. Shanghai and Shenzhen price-earnings ratios, in some instances, do not follow logic, but they have their origin in the present fragmented institutional make-up as described earlier.

The shielding of domestic exchanges from international arbitration has lead to less discipline on corporate governance over the enterprises concerned. The Chinese companies with quotations in the United States are usually subject to better governance and often command more reasonable price-earnings ratios [7]. Even then, some forms of "reverse mergers" allow immediate selling of the former owners without a lock-up period. Meanwhile, those Chinese corporations that have not only a quotation in the United States, but are fully incorporated under U.S. laws, are of course fully subject to U.S. governance discipline. Those incorporated under Hong Kong laws and registered in the United States as "foreign private issuer" also have to follow strict U.S. governance requirements.

Ideas of ending the separation of markets are not mute. Recently the State Administration for Foreign Exchange (SAFE) suggested that China was going to experiment with allowing its citizens a limited freedom to deal outside China, namely in Hong Kong, provided that they had an account with the Bank of China in the city of Tianjin.

If that measure had been implemented, the law of communicating vessels could then function. Where Chinese corporations had double quotations, the Shanghai quotation might drop, and the Hong Kong quotations might rise by arbitration. In fact, Hong Kong and other foreign investors have anticipated this. Nevertheless, it seems that there has been reflection and considerable doubt on this idea of opening trading possibilities for accounts in Tianjin. Indeed the proposal still had the characteristics of Chinese policymaking habits. The long accustomed habit of preferring to "crossing the river while still feeling the stones," and try something out on a limited geographic scale before applying it to the country as a whole. In the current example, the opening would be made only through accounts in the Bank of China and only in the city of Tianjin. In the end, the idea was shelved, since it could have undermined the Chinese long-term preparations for currency convertibility on capital accounts.

In conversations with shareholders of Chinese companies—when this author asked why so few shareholders were present—the typical answer, unfortunately, was that they did not yet have much confidence that their voice would be heard. It was tempting to say: "no wonder" [8]. The Securities Association of China, a trade association of the professions involved, is aware of this general disinterest. It found that of 136 million private individual stockowners, more than 70 percent had a monthly income below $700. "[They] have little awareness of their rights as shareholders. Most of them are just interested in short-term speculation," said Huang Xiangping, president of the association. A private association for the protection of shareholders does not yet exist (China Daily, January 16).

China stock markets share the general lack of mutual trust, which still characterizes Chinese society today. Investors not infrequently rely rather on speculation and lucky examples. The lack of trust needed for an operational stock market and a flourishing economy goes deep in China. The old authoritarian past and the effects of the Cultural Revolution are still present in modern China. The structure of a stock exchange also depends on an independent press and on shareholder's active interest, in addition to transparency and trust [9].

In this field and in other fields of Chinese policymaking, one is reminded of the astute observer of old Datong. Arriving in that city a long time ago, this author was surprised by its vast and high city walls, but even more surprised by the same high and thick walls within the city itself, closing off neighborhoods from each other. Why those high internal walls? Perhaps against fires which might break out in one part and could easily spread to other parts? Or could the prudence be aimed at preventing social disturbances, such as riots? With high walls inside the city, the authorities could close off parts of the town and send in either the fire brigade, or their soldiers.

This view of old Datong, a city in the northern Shanxi Province in China, resonates when one sees the Chinese predilection to carve up big fields into small segments, and to install division gates in various domains of policymaking. The habit of segmentation is still engrained in the system. The time, however, when that was a possibly prudent strategy is no more. Many lines of policymaking are now intertwined and require cross-sectional management. It is high time for the "Datong internal walls" syndrome to end.

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Notes

1. In the 1980s, the author spoke in Beijing and Shanghai publicly on the history and basic requirements for any successful stock exchange. This was done at a time when that topic was generally dealt with in whispers and in some academic circles.
2. Jianwu He and Louis Kuijs, "Rebalancing China's Economy—modeling a policy package," World Bank China Research Paper no. 7., September 2007.
3. The OECD now sees and applauds Chinese initiatives in increasing corporate taxes.
4. Jonathan Anderson: "Bling! Bang! Boom! China's stock markets zoom. Far Eastern Economic Review December 2007
5. Ibid.
6. See Cao Hong Hui and Yan Xiaona, "Recent Development of Macro Economy and Finance in China," World Bank Working Paper.
7. One of the bad habits, which tend to creep in locally, is

insider dealings associated with the Initial Public Offers. In many IPO's, large amounts of stock are allocated to friends, who count on immediate hefty gains in the stock market on the first day of trading. The stocks then are very quickly sold and the difference pocketed.

8. When the author attended a Chinese company shareholders' meeting, he was told that these function seldom see a foreign shareholder. The company is one of China's big power providers, quoted on the New York Stock Exchange with a market value of $3 billion. In spite of being there in person, the author was given a proxy form, and told that one of his neighbors, who represents one of the big government related financing institutions supporting the company, was going to represent him in any voting, since the representation of all American Depository Receipts was entrusted to that company. If the procedure followed in this instance was according to rules, one wonders why holders of "American Deposit Receipts" receive any invitation to participate in such meetings. If in other Chinese companies the experience should be similar, one wonders whether sending invitations to holders of ADR's of Chinese companies is not useless.

9. Alain Peyrefitte has shed light on the need for trust in a modern economy "La societe de confiance, essai sur les origins et la nature du developpement." Odile Jacob 1995.

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