

Rising Airpower: The People's Liberation Army Air Force in the Early 21st Century

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At the dawn of the 21st century, the military arm of the People's Republic of China (PRC) stands at a crossroads. As the ambitions of China grow, all branches of the PRC's military forces must prepare to fight and win different types of battles. The People's Liberation Army Air Force (PLAAF) merits special attention because, as British Field Marshal Bernard Montgomery said, "If we lose the war in the air, we lose the war and we lose it quickly" (Meilinger 3). To function as a globally powerful 21st century air service, the PLAAF has begun to focus on the development of four specific disciplines: conventional warfare, training, asymmetric or non-traditional warfare, and using asymmetric tactics well within information warfare.

Conventional Warfare

Thanks to a deserved reputation as the world's most powerful air force, the USAF often does not need to engage the enemy to win a stand off. The USAF serves as the world's model for air power in that it stands closest to the definition of air and space superiority. According to the Air Force Doctrine Document 1, Air Force Basic Doctrine,

Air and space superiority rarely is an end in itself but is a means to the end of attaining military objectives. It is an important first step in military operations...It provides freedom to attack as well as freedom from attack. Success in air, land, sea, and space operations depends upon air and space superiority (AFBD 29).

The U.S. places tremendous stock in the importance of airpower in overall military supremacy and China has begun to grasp this concept, developing a powerful air force to succeed first regionally and eventually on the global scale.

Open-source military forecasts out of China have yet to indicate a goal of becoming the world's leading military power. Rather, "The eventual end state of the current post-Cold War transitional period is always proclaimed to be 'multipolarity' among five equal powers, each of which will have its own sphere of influence" (Pillsbury 277). An important first step towards multipolarity comes within East Asia, China's future sphere of influence.

In 1985, China's Central Military Commission (CMC) recognized that a war with either superpower was remote, but a local war was possible and therefore important to prepare for. The doctrine adopted here, and hammered home during and after the 1991 Gulf War was described as "local war under high-tech conditions" (Van Vracken Hickey 73).

In order to establish air and space superiority within East Asia, the PLAAF has focused on developing affordable air and space weapons with maximum impact. China, with expansive

borders and lofty global aims, must develop weapons for impact in a variety of competitors. Over the next few years, China will approach relations with Taiwan, Japan and the Koreans very carefully. The US is also involved as a player in many intra-theater scenarios; however, traditional competition with the US will follow after China attains local hegemony.

While dealing with intra-theater problems, Taiwan (and by extension, the US) remains a constant thorn in the PRC's side. In mid 2002, a report out of Hong Kong announced, "Taiwan's air force has held a drill practicing retaliatory strikes in case of an attack by China" (AFP 14 May). Reports such as these prove bothersome to China, as the Chinese realize they must deal with on competitor who is supplied by another competitor. Taiwan maintains it will not strike first despite Beijing's repeated threats to invade the island should Taipei declare formal independence. Mainland China considers Taiwan part of its territory although the island has been separated from the mainland in 1949 after a civil war.

Taiwan's air arm flies U.S.-made F-16s (similar to those of the USAF inventory) and Taiwanese pilots train to fly the F-16 at Luke Air Force Base, Arizona—the location where U.S. F-16 pilots train. According to one account, "(Taiwanese) Air force pilots working to master the F-16 fighter plane at Luke Air Force Base in the US have been performing well, often winning top prizes in bombing and shooting tests taken by all foreign F-16 trainees at the base" (Hsu 8 July). In May 2002, the USAF was shown training Taiwanese pilots in mid-air refueling. This capability, currently not possessed by the PLAAF, will enable Taiwanese aircraft to fly with much longer range.

All Taiwanese advanced training and weaponry may end up helping the PLAAF, as an interesting scenario arises if China reclaims Taiwan. Taiwan's F-16s and American weapons systems may then become property of the PRC (and the PLAAF), and lead to the U.S. eventually having to prepare to fight against some of its own weaponry.

North Korea, which borders China in the northeast, now admits to having a nuclear weapons development program. By sharing borders Pakistan, India, and Russia, China has many nuclear-capable neighbors. The U.S. military exerts its presence in South Korea and installations on Japan's archipelago. All of these actors cause China tremendous concern, and stress the importance of the PLAAF providing viable power projection.

The PLAAF has begun to challenge and prepare for potential engagement with both its neighbors and the U.S. by investing in air and space science and technology (S&T). The key to a powerful air and space force, and by extension a powerful military, is maximizing returns from S&T investment.

A culture heavily based on tradition, China often keeps an old-fashioned mindset while heading into the future. The influence of Mao Zedong continues to cast a shadow over the modern China's military. China's history is filled with many inspired victories and comebacks, some under the leadership of Mao. Facing odds nearly impossible to overcome, Mao led the communists over the nationalists during the 1940's. Mao's victory came in the wake of the Long March, another event firmly etched in China's proud history. Within the PLAAF, there is a strong desire to learn from and implement experiences of foreign militaries, however,

"Indigenous Maoist traditions substantially constrain adoption an integration of foreign practices" (Shambaugh 285).

Home grown military R&D, the staple of the U.S. armed forces, will provide the most benefit to the PLAAF, and move it beyond some of the Maoist constraints. This task is easier said than done, as scientists and engineers are not created overnight, and require high-maintenance facilities. In China's emerging free market, these technological minds, worth large salaries in the private sector, must be recruited to serve in less glamorous positions in the military.

Unfortunately, many in China's armed forces currently have a "country bumpkin" stigma. Observers have noted that the Chinese military, "is not attracting the best and brightest entrants, since the prestige of the military is fairly low and many other professions offer far greater financial rewards" (Dreyer 320). The CMC recognizes this stigma, and recently announced that among the whole military, more than 26,000 troops earned an advanced (doctorate or master's).¹ These advanced degrees will best help the Chinese military if they are focused in high tech areas.

A key element of new technology is a strong corps of scientists and engineers with a constant infusion of new thoughts, usually brought about by the natural turnover of a military force. More than the typical bureaucracy, the PLAAF is often guilty of an unhealthy stasis of leadership. In late 1994, PLAAF commander Cao Shuangming retired on reaching 65, only two years after assuming command. Cao's retirement came five years before the mandatory retirement age. Cao's predecessor had been in office seven years. Two central figures of the Chinese Military Commission, Liu Huaqing, 79, and Zhang Zhen, 81, served at an age that Western military forces never would have allowed. This often causes mid-level officers, stifled in their middle management, to complain about promotions as common saying bemoans, "one's chances of being promoted is about the same as that of climbing to the heavens; one might as well enjoy oneself" (Dreyer2 318).

Developing and retaining scientists and engineers may be accomplished through a thorough recruiting and retention campaign. Currently, the USAF deals with similar attrition problems, and they attack it through benefit-laden programs such as the technology-heavy United States Air Force Academy and Reserve Officer Training Corps, where students earn scholarships for college while incurring a service commitment. Scientists and engineers need not solely be military. The USAF has a strong corps of civilians and contractors in technical positions that do not have to deal with many responsibilities facing the military, but earn many similar benefits.

China recently began looking outside its borders to attract some great minds, as "The Pentagon now believes that Russia has secretly helped the PRC modernize its nuclear forces" (Van Vracken Hickey 86). Soviet aid for the Chinese military traces its roots back to the early days of Mao's army, and increased towards the end of the Korean War.² During the waning days of the Korean conflict and for several years thereafter, the Soviet Union sent tanks, planes, artillery and ordnance to China. This equipment tended to be poor and outdated, "Nonetheless, it significantly upgraded the PLA's arsenal" (Dreyer 192). In addition, "With this material came several thousand Soviet advisers... The net effect was a strong Soviet influence over the development of the PLA" (Dreyer 192). History shows a definite schism occurred between the two nations

shortly over the next few years, however, this relationship is mending, and doors began to reopen with the end of the Soviet Union.

Much like post World War II Germany, the former Soviet Union experienced an exodus of its scientists and engineers during the 1990's. Many went to the West, although some of these expatriates headed to China. This movement has bolstered and will continue to enhance China's home-grown technology. This open market could lead China into a bidding war for some of the world's best technological minds. Much like a sports team with a good general manager, a quick and efficient way to a championship is to buy top-notch free agents, while simultaneously developing home-grown talent. In order for the PLAAF to compete on a global stage, they must invest wisely, and there are many indications the service is doing so. Some estimates show that up to "2,000 Russian technicians are employed by Chinese research institutes working on laser technology; the miniaturization of nuclear weapons; cruise missiles; (and) space-based weapons" (Van Vracken Hickey 88).

Perhaps a new "Cold War" battle will commence, with China fighting for talent against the U.S. U.S. counterintelligence now claims China has and will continue to recruit foreign scientists to spy for China. Compared to the U.S.'s regimented military bureaucracy, China's looser bureaucracy may allow for paying these budding minds more money out of college than the U.S.

As the PLAAF attains and develops scientists and engineers, the next step is to gainfully utilize their talents into attaining power projection. The PLAAF currently hopes to produce powerful planes and space platforms to work together for successful power projection. Powerful planes are, by definition, those equipped with the most modern technology and capabilities. Many aircraft in the PLAAF's inventory of 5,000 warplanes are obsolete variants of Soviet aircraft (Van Vracken Hickey 82). The PLAAF's inventory is still primarily of 1950s-1960s Soviet Vintage. The fighter force includes Chinese-equivalent Mig-17s, 19s and 21s (the J-5, J-6Q/Q-5 and J-7 respectively) (Shambaugh 293).

The PLAAF's firepower must not be totally underestimated. Dreyer wrote, "In several cases, the PLA possesses pieces of systems rather than the systems themselves. It has over-the-horizon missiles, but has yet to develop the targeting techniques to make them effective" (Dreyer 323). Yet, the U.S. recently learned, "China recently test-fired a new cruise missile with twice the range U.S. intelligence agencies initially estimated" (Gertz). In early November 2002, China fired a YJ-83 anti-ship cruise missile from a JH-7 fighter bomber, showing the range of the missile to be about 155 miles. The missile, previously estimated with a range of 75 miles, enables the Chinese military to run "over-the-horizon" attack capability. The YJ-83 can travel at supersonic speeds, making it very difficult for ships to stop (Gertz).

Going over the horizon, into the depths of space, has recently become a major goal of the Chinese military, as "The Country's top officials make it clear that they intend to challenge the United States in space" (Kahn). By 2010, China looks to not only reach the moon, but also explore and possibly mine it. PLAAF leadership, such as Colonel Min Zengfu of the Air Force Command Institute, grasp the importance of the space arena. "The air battlefield will become decisively significant", Min said, speaking of modern warfare, continuing, "He who controls

outer space controls the earth," and "To maintain air superiority, one must control outer space" (Pillsbury 296).

The Chinese hope to surpass U.S. and Soviet benchmarks set on those nations' first manned flights, by sending more men and spending more time in orbit. Talk of Mars colonization and a Chinese space station have also entered Chinese goal setting.

China, which has recently spent a reported \$1.3 to \$3 billion on their space program, which, some scientists believe focuses China's focus on the wrong goals. "When the United States and Russia embarked on their space programs, ... they were already leaders in making conventional aircraft. China, despite repeated attempts, does not build airliners or high-quality fighter jets" (Kahn). Although the PLAAF possesses more than 4,000 fighter-interceptors, "they are so antiquated as to be meaningless deterrent against USAF F-15 and 16s" (Shambaugh 293). Its bomber force of H-5 and H-6 although equally slow and vulnerable, do have nuclear capability.³

As the PLAAF continues to modernize, they are increasingly dependent on Russian military industry. "The PRC has indeed used the profits from its burgeoning commercial economy to purchase a number of advanced weapons systems. The most notable of these include the purchase from Russia of 50 Sukhoi SU-27 jet fighters and the production rights for 200 more" (Van Vracken Hickey 76).

The 26 Sukhoi-27 (Su-27) fighter-bombers bought from Russia give the PLAAF a capable state-of-the-art aircraft. The SU-27 is prepared for concurrent advances such as in-flight refueling and airborne warning and control (AWAC) remote guidance. The plane can carry short and medium-range air-to-air missiles as well as air-to-ground pods for cluster bombs, it has a combat radius of 1,500 kilometers and can fly at mach 2 speeds.

The PLAAF is also dealing with aerospace company Antonov, which still has close connections to the Russian military establishment. The company is trying to sell the Chinese its "soon-to-be-certified Antonov AN-70, a short take-off and landing transport aircraft" (Exelby 8 Nov). This capability mirrors a major capability of the F-35, a U.S./U.K. combined/joint-service fighter currently under development, which boasts Short Take Off Vertical Landing capabilities. Antonov believes the AN-70's design will, "Improve secrecy and abruptness of military transport operations 1.5 times which will improve the survivability of the airplane and the paratroopers approximately tenfold" (Exelby 8 Nov).

The PLAAF's dealings are not limited to Russia. The U.S., along with Israel, France and Britain have all supplied weapons systems and components to China, including air-to-air missiles, much needed air-refueling technology, Global Positioning System (GPS) technology, helicopter parts and assorted avionics (Van Vracken Hickey 76). However, the U.S., no longer a weapons supplier to the PRC, in 2000 blocked a deal that would have sent the Chinese an Israeli-made AWAC systems. Without AWAC and mid-air refueling capabilities the PLAAF understands, "there can be no force projection of serious interdiction capability" (Shambaugh 294).

The PLAAF is developing the Jian-10 fighter-bomber (J-10). The plane is reportedly a hybrid of the U.S. F-16 A/B with some Chinese and Israeli Lavi elements. China received a single

prototype F-16 from Pakistan and has been working with Israeli Aircraft Industries to develop the plane. The PLAAF is set to deploy the fighters in coastal areas, believing "With 'J-10' fighters deployed, it will be able to upgrade its offensive capabilities by a large margin" (Hong Kong Sing Tao Jih Pao 29 May).

The PLAAF expects to have 50 J-10s by 2005. The J-10, displayed at an air show in May, has received rave reviews from the pilots flying them. Wing Commander Wang Yunhui, a special-grade Su-27 pilot, praised J-10 aircraft and admitted, "During three rounds of "dog fight" in the mid-air, his Su-27 had lost to a J-10 fighter" (Hong Kong Sing Tao Jih Pao 29 May).

The Su-27's have had their share of problems, and China's competitors have noticed. One article out of Taiwan trumpeted, "Four Su-27 fighter planes of the Chinese air force have crashed or have been severely damaged during flight training over the past six months, Taiwanese defense sources said... attributing the poor performance to human error" (Hsu Taipei Times 21 Jun). Again, the training of PLAAF forces remains questionable. Many air forces incorporate the use of flight simulators into pilot training and skills maintenance; however, China only has one adequate Su-27 trainer, forcing many pilots to wait months at a time to gain access. One article reports, "The accidents bring to 15 the number of Chinese air force Su-27s that have been taken out of service due to crashes" (Hsu 21 Jun). The Taiwan press compares the specific training regimens of the two services, "By contrast, a fighter pilot in Taiwan has much more intensive flight training. Trainees are required to fly 15 hours a month, and sometimes fly as much as 20 hours" (Hsu 21 Jun).

Training

To truly project lasting power, the PLAAF must emphasize proper training. "As Iran learned many years ago, to possess state-of-the-art hardware is one thing; to possess the 'software' and pilot capability is another. PLAAF pilots are ill-equipped to handle these aircraft" (Shambaugh 294).

Now that the PLAAF will begin developing technology, it has to teach its troops how to use it properly, especially since the PLAAF "Has always been the technologically weakest leg of the PLA force structure" (Shambaugh 293). Within China's armed forces, a current problem exists due to poorly educated troops. One story tells of the army's anti-chemical warfare unit discovering that the cause of the mass illness of an entire unit was "an apparently illiterate army cook mixing rat poison into the evening meal" (Dreyer2 323).

The PLAAF has a reputation within the Chinese armed forces as having troops with the lowest levels of education among the services, a major challenge for a force aspiring to compete in the most technically challenging discipline of warfare. The enlisted corps, in order to serve in their roles most effectively, must receive adequate education as well as the officers.

"You gotta walk the walk if you're gonna talk the talk," said Dallas Cowboys' Super Bowl-winning coach Jimmy Johnson. Many PLAAF airmen know the jargon surrounding the necessary advances their service must make, but few understand it. The CMC has sought, "To meet challenges of new military technological revolution, the PLA has readjusted and reformed

the education system of the academies over the past five years and built five new universities" (Beijing Xinhua Hong Kong 25 July). This provided the need for Professional Military Education (PME) institutions like the University of Air Force Engineering.

Other PME programs, such as China's National Defense University, also enable PLAAF leadership to "talk the talk". The National Defense University, founded in December 1985, is the "apex" of a three-tier system created to train junior, midlevel, and senior officers (Dreyer 199). The school offers a two-year course for those commanding divisions, generally colonels, and a one year course for division and corps/army commanders who are on track for the rank of general (Dreyer 320).

The NDU has many flaws. Unlike Western military schools, China's military academies have static staffs, with few instructors with field experience, and those who do, were in the field many years ago. Questions have long been raised as to whether or not these schools teach the future commanders to "walk the walk".

Additionally, sources outside China have educated China's military leaders, "Over the past five years, China's military has dispatched hundreds of officers to study in 22 countries, of who more than 300 have returned after completing their studies" (Beijing Xinhua Hong Kong 25 July). Typical Chinese number crunching aside, these numbers show initiative on the part of the Chinese, but beg the question: who is not coming back, and what are they doing?

Asymmetrical Warfare

China respects the U.S. strengths, and looks for a way to surpass having to face them. While the Persian Gulf conflict of the early 1990's opened China's eyes to the importance of technology and U.S. superiority, China's military conducted well-planned analysis of allied weaknesses highlighted by the conflict. Several books analyzed U.S. military weaknesses during the Gulf War, specifically, "Space satellites are vulnerable to direct attack... Ports and airfields are vulnerable to initial deployment... Each high-tech weapon has its own weaknesses" (Pillsbury 77). The U.S., already in the global spotlight for Operation Iraqi Freedom, can be assured that China has paid especially close attention to the conflict.

Several Chinese articles criticized Iraq for not exploiting U.S. weaknesses. "The Vietcong and North Vietnamese knew how to play on American weaknesses, but the Iraqis did not learn from those lessons... The Iraqi officer corps was not sufficiently trained in technology to master the advanced equipment it had purchased" (Pillsbury 179). China invokes the Vietcong and North Vietnamese, indicating China understands the U.S. was defeated in Vietnam and that there is a lesson to be learned from this conflict by any future U.S. rival.

The PLAAF gleaned many important lessons from the allied air component successes during Operation Desert Storm. They were impressed with USAF capabilities in stealth, precision strike capability, night vision, long-range attacks, lethality of smart munitions, and electronic warfare. The USAF further impressed the PLAAF after capturing all the high frequency and ultrahigh-frequency radio signals of the Iraqi army and process information from 34 reconnaissance

satellites, 260 reconnaissance planes and 40 early warning aircraft to "destroy the Iraqi communication system" (Pillsbury 296).

Only recently has the PLAAF begun to conduct night training. Control of the night skies has been key to recent U.S. military efforts. A decade after Operation Desert Storm, Beijing Jiefangjun Bao (JB) announced, "On the night of 6 August, a group of fighter planes... entered the runway one after another, rapidly took off, and soared into the vast sky, thus opening up the prelude to night flight training for this year" (Su 14 Aug). This announcement exemplifies at least a ten-year disparity between the PLAAF and the USAF.

As the PRC will attempt to become a major player in a multi-polar world, many experts put the PLAAF well behind the USAF. "It will be probably two decades or more before the PLA has the capacity to project and sustain force outside its borders (presuming it has the intention of doing so)" (Shambaugh 295). Other scholars are more optimistic; "Looking ahead, production of Chinese military aircraft is likely to remain at low levels for the next ten to 15 years" (Frankenstein and Gill 414). Another account states, "The PLA remains at least ten to 15 years behind the state-of-the-art in almost all weapons systems. It is still predominantly a land force with weak air and naval forces and minimal power projection capability... overall, it remains an antiquated force (Shambaugh 285)". Taiwan's air force commander-in-chief General Li Tien-yuthe has an interesting opinion, "The Chinese air force claims it will catch up with the Taiwan air force by 2005. I don't think so. I don't think they will be able to achieve the goal by 2500 if we continue to progress" (Hsu 15 Aug).⁴ Whatever the timeline, experts concur China is chasing other nations in air force power.

An adage states, "All is fair in love and war." The PRC should embrace this wisdom because it could open doors for their military. The easiest way to erase a technology gap of 20 years within a matter of 20 seconds is to steal it, making the most of asymmetric or non-traditional tactics. The PLAAF must continue spy operations in order to first dominate their region, and then rise to a position as a counterbalancing pole to the U.S. With the advent of satellites, the internet and the information age, the PRC has a tremendous advantage with the variety of outlets pipelining information to the public on a 24-hour cycle. By simply analyzing CNN, or reading www.nytimes.com, PLAAF officials are immediately privy to a wealth of knowledge about other nation's militaries. Nations provide blueprints for their own military doctrine in releasable documents.

A saying goes, "The best defense is a good offense," a statement almost always true in air war. The PLAAF does not have the firepower to use conventional weapons in competition with other nations.

To accomplish this, China will rely on asymmetric warfare. Again, the military can borrow from its heritage in this regard. Mao Zedong spoke of a "People's War", which would utilize guerilla attacks to defeat an objectively stronger enemy (Van Vracken Hickey 72). This style is credited with bringing the Chinese Communist Party (CCP) victories in World War II and the Chinese Civil War.

The doctrine is flawed in the sense that it relies on the enemy infiltrating China, putting the nation on the defensive. Under "people's war", the nation stood too great a chance of having the infrastructure destroyed, as the enemy would have access to vital industry and transportation nodes (Van Vranken Hickey 73). Sun Tzu, an ancient Chinese military leader, commented, "Being invincible lies with defense; the vulnerability of the enemy comes with the attack", however, many theorists would argue that a nation rarely wins a war by remaining defensive (Meilinger 15). Borrowing from the U.S., the PRC could take Sun's belief because "it is inappropriate in air war because it assumed one will wait to see what the strategy is, then move to counteract it. Not only is this risky business... it once again surrenders the initiative to the enemy" (Meilinger 18). Although under modern warfare these tenets would not hold up, the PLAAF may adapt some of these teachings in other areas of the 21st century battlefield.

China moved from "people's war" to a doctrine of "people's war under modern conditions" in the 1970's. This came on the heels of the successful explosion of China's first atomic bomb, launching of a nuclear missile and detonation of a hydrogen bomb. China's military adopted a more "forward defensive" posture during this era.

According to published reports, China has stolen information concerning the U.S.'s most advanced thermonuclear weapons, and has "stolen or otherwise illegally obtained missile and space technology that improves the PRC's military and intelligence capabilities" (Van Vranken Hickey 86). The likelihood of a nuclear war between the two nations is highly improbable; however China, by gaining information about the U.S. most prized weaponry, shows that it is embracing a key form of fighting, vital to a 21st century force, information warfare.

Information Warfare

Information control provides much of the vital advantages the USAF currently enjoys. China, with its authoritarian government, should understand this better than many countries. With the advent of the computer age, and US government dependence on electronic networks, a portal is opened—a portal that is custom-made for the Chinese style of warfighting.

Chang Mengxiong, the former senior engineer of the Beijing Institute of System Engineering of the defense science and technology establishment (COSTIND), suggests that, in the 21st century, both weapons and military units will be "information intensified" (Pillsbury 292). Chang uses the metaphor of a boxer to illustrate the importance of information to asymmetric warfare, "Information-intensified combat methods are like a Chinese boxer with a knowledge of vital body points who can bring an opponent to his knees with a minimum of movement" (Pillsbury 292). Chang describes "information superiority" as more important than air and sea power and views "information deterrence" on par with nuclear deterrence, writing, "Even if two adversaries are generally equal in weapons, unless the side having a weaker information capability is able effectively to weaken the information capability of the adversary, it has very little possibility of winning the war" (Pillsbury 293).

Some keen insight into high-tech informational warfare comes from a Chinese ruler who lived more than 2,400 years ago, Sun Tzu remains a fixture in worldwide military education centuries after his death. His book, *The Art of War*, is still considered essential reading for military leaders

and businessmen alike, especially within the United States. One Chinese military outlet notes, "Renowned US military academies including the West Point have always specified the Chinese book "Sun Tzu's Art of War" as mandatory reading for their trainees. US generals often take pride in quoting concepts and phrases from the book in their writings" (Yi 6 Feb).

Sun's teachings preach the art of a bloodless victory. This mindset will become important for the PLAAF as it remains decades behind the advances put forth by the USAF. Sun teaches that a good commander must, "Know the enemy and know yourself; in a hundred battles (they) will never be defeated" (Sun 86). Those words, written long ago still ring true today.

Borrowing from Sun's teachings, the USAF teaches Information Superiority as a core competency, and details why an air force is the best service to spearhead a nation's information warfare efforts:

Information superiority is the ability to collect, control, exploit, and defend information while denying the adversary the ability to do the same and, like air and space superiority, includes gaining control over the information realm and fully exploiting military information functions... Today, the Air Force is the major operator of sophisticated air- and space- based intelligence, surveillance, and reconnaissance systems, and is the service most able to quickly respond to the information they provide (AFBD 31).

With a platform based in the high ground provided by the sky, and the ultimate high ground in space, the PLAAF seeks to position itself to maintain and utilize the flow of information.

Oxford professor Norman Stone explains, "Sun Tzu's real trick is that he understands how to exploit the enemy's divisions and weaknesses and hence to use, to his own advantage, the enemy's strengths" (Sun 9). In a conventional war with the U.S., China is the clear underdog. However, China, ever the optimistic nation, seeks for "The mouse (China) to defeat the elephant (U.S.)" (China Debates 278). By moving competition with the U.S. from the traditional battlefield into an intelligence-driven chess match, China does stand a chance.

The best opportunity for China to focus an intelligence attack against USAF information systems comes thousands of miles from hostile lines. In fact, the PLAAF does not even need to centralize their troops while conducting these attacks. With solid training and wise investments the PLAAF could develop computer hackers who can monitor and possibly wreak havoc U.S. military infrastructure. Spread across China, these hackers can work unsupervised and become hidden from the reach of the USAF's might. As reported almost boastfully in a recent edition of JB,

"The cyberspy can sit in a neat and tidy laboratory in his own country while obtaining the other side's classified information, without having to worry about his own safety. This is what makes the cyberspy such a menace. He can even be thousands of kilometers away, sipping coffee while obtaining the other side's nuclear secrets, quietly opening a new Battlefield" (Mao 29 May).

Never before has air warfare seen an enemy strike from behind friendly lines without the use of a missile or airframe, and force a rival air service to go offensive to defend.

JB reported, "For a long time, the world's "espionage wars" have been very complex. Now, the battlefields have quietly extended to the intangible space of computer networks" (Mao 29 May). The paper explains the importance of using cyber spying against the U.S. with a convincing set of statistics:

The US military has the world's largest computer network system, called the "Defense Information Infrastructure." This gigantic system is composed of 210 million computer terminals, 10,000 local area networks, 100 wide area networks, 200 control centers, and 16 large scale computer centers. Of all the world's armed forces, the US military is the most reliant on computer networks, from military command and weapons preparation right on through to moving, paying, and provisioning the troops, everything relies to a high degree on computer networks (Mao 29 May).

People's War is a key to this strategy because the Chinese see a weakness in a U.S. strength, "As application of computer networks expands, and vast amounts of classified information is stored and transmitted via these nets, many spies are aiming at this new area, and cyber-espionage is rising to meet the demand" (Mao 29 May).

The PRC, which has used spies as a powerful instrument of war against the U.S., clearly sees a bright future for cyber spies,

Computer spies are highly efficient and a great threat. Once cyberspies have broken into an important computer system, especially if they have gained access privileges, they can make use of this foundation to obtain a constant stream of huge amounts of highly classified information, and the injured party may never be aware that damage is being done. Cyberspies have very few limitations of time and space, they are totally flexible in their work (Mao 29 May).

In one case, hackers traced back to Russia were found to have been quietly downloading millions of pages of sensitive data. Again, cases such as this open many doors for Sino-Russian relations. Here, trades concerning details gathered and techniques used to get past U.S. military defenses could become viable bargaining chips in this relationship.

With creative hacking, the Chinese could fully carry out a modern "people's war" by turning a competitor's strength against itself. A British hacker with the handle "Datastream Cowboy" was caught planting eavesdropping software on the USAF's Rome Laboratory in 1994 (Birdis). According to a Congressional review of security in cyberspace, "Datastream Cowboy" was a 16 year old "who liked to attack '.MIL' sites because they were so insecure.

New Scotland Yard eventually caught Datastream Cowboy, and discovered he had launched his attacks on "a very modest system that is very slow with very limited storage capacity (Security in Cyberspace). While the USAF and US military have beefed up cyberspace security, "computers

sold off the shelf today... are significantly more powerful (Security in Cyberspace). This simple attack, carried out by a 16-year-old without any formal training, cost the USAF an estimated \$211,722, and that number does not include the costs incurred while investigating the hacker, nor does it cover the difficult-to-quantify costs from the national security perspective.

The U.S. has had to move out of a comfort zone and resort to low-tech trickery to find the enemy in previous hacker cases concerning the military and international hackers. "Once, the FBI tricked two Russian computer experts, Vasily Gorshkov and Alexey Ivanov into traveling to the United States so they could be arrested rather than extradited" (Birdis).

Suspicious of information piracy have already begun to surround the early stages of China's space plans. In March, two U.S. space companies, including Boeing Co., agreed "to pay \$32 million to the U.S. government in a civil suit centering on 123 charges of violations of the Arms Export Control Act and the International Traffic in Arms Regulations" (Space Wire). Chinese officials have denied the charges, claiming that the accusations are not based on facts. "The charges date from before Boeing's acquisition of the satellite arm of Hughes Electronics... Hughes was reportedly charged with providing technology on guidance systems, telemetry, aerodynamics, and rocket failures that helped China's Long March program after launching disasters in 1995 and 1996" (Space Wire). If these accusations are true, they show Chinese initiative and willingness to exploit a valuable resource in catching up in areas where the U.S. is far superior.

Conclusion

China's history is riddled with five-year plans and programs that did not work. For the PLAAF to lead China's surge to global power, they must develop incremental short-term plans to accomplish a variety of goals over a long period of time.

First, the PLAAF must continue to develop the most important resource, its people. Scientists and Engineers should be developed in a similar fashion to a championship sports team, with an influx of "free agents" combined with homegrown talent. These Scientists and Engineers then must enhance the PLAAF with a fighter force capable of providing viable power projection in East Asia.

Once China becomes exerts control over their region, the nation can then set its sites on the "big picture", competing with the U.S. on a global scale. To accomplish this, the PLAAF will continue to depend on traditional and cyber-espionage to close the rift between the two nations. China's defense investments will continue to be information systems heavy, as satellites and high-tech monitoring equipment will dominate modern warfare. Wise investments and solid focus over the long term are the key ingredients to the building of a competitive PLAAF.

Notes

1. Here is an opportunity to employ the "Dreyer Rule." China scholar June Teufel Dreyer wrote, "Military statistics are, like most other statistics in China, subject to considerable manipulation

and distortion” (Dreyer2 316). Whenever the state-controlled press announces statistics, the “Dreyer Rule” should be invoked.

12. The Chinese refer to the Korean War as “War to Resist America and Aid Korea” (He 13 May 2002).

3. China has possessed nuclear capabilities since 1964. This article assumes that the status quo is maintained because, “The pace and scope of Chinese nuclear weapons modernization is in large measure dependent on what happens outside China’s borders (Johnston 549).”

14. For the record, Taiwan’s Ministry of National Defense (MND) also declined to comment on Li’s remarks, saying Li has the freedom to express his personal opinions (Hsu 15 Aug).

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