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“China’s Military Modernization
and its Impact on the United States and the Asia-Pacific”

Chairman Bartholomew, Vice Chairman Blumenthal, Commissioners Reinsch and Wortzel, Commissioners, thank you for this opportunity to discuss the important topic of China’s military modernization with you today. I must give substantial credit to my fellow scholars at the Naval War College’s China Maritime Studies Institute (CMSI), especially Director Lyle Goldstein and Professor William Murray. With your permission, I would like to submit for the record some of our collaborative research concerning China’s naval modernization, which draws extensively on Chinese-language sources. Finally, let me emphasize that everything I am about to say represents my personal opinion as a scholar, and should in no way be construed to represent the policy or estimates of the Naval War College, the U.S. Navy, or any other element of the U.S. Government.

You asked me to comment on China’s ability to conduct joint warfare. There is little doubt that the People’s Liberation Army (PLA) realizes that conducting joint warfare is a critical element of conducting limited local war under high tech conditions. The PLA has observed the U.S. closely, particularly in Operations Desert Storm/Desert Shield and Operation Iraqi Freedom, and recognizes the need to improve its joint capabilities. The question of how good the PLA is at conducting joint warfare, however, is difficult to answer. We see some indications that PLA exercises are moving towards jointness, but our research has not yet revealed how successful the PLA has been in actually accomplishing its goals.

There is no doubt that the PLA is fully committed to being able to dominate the battlespace of the littorals around China, with an intense focus on the waters and air around Taiwan. Everything the PLA is developing, with the exception of its ICBM force, ballistic missile submarines (SSBNs), and perhaps its nuclear-powered submarines (SSNs) and landing platform dock (LPD), seems to be devoted to this cause. Some of the PLA’s more modern ships and aircraft will allow it to extend its combat power slightly further, into the South China Sea, and to a limited extent, into parts of the Western Pacific. As you know, the PLA Navy (PLAN) is also capable of sending some limited numbers of warships on occasional trips across oceans. These deployments, however, are severely limited by the limited number of replenishment vessels. While China’s shipyards are fully capable of building vessels that could perform those replenishment operations, such ships, apparently, are not being built. This suggests that, at least for the time being, China is limiting its military focus to matters closer to home.

China's power projection capabilities are focused on the Taiwan contingency. There is little evidence to show that the PLAN is developing the capabilities necessary to extend its ability to project power, as the U.S. would conceive of it, much beyond China's claimed territorial waters. Granted, PLAN ships carry sophisticated long range anti-ship cruise missiles (ASCMs), and some of their aircraft can carry land attack cruise missiles (LACMs). Their newest SSNs might be similarly equipped, as well. But, the PLAN does not have the capability to deploy to distant areas and establish a sanctuary on the ocean from which it can conduct military strikes against opposing navies or targets on shore.

China continues to devote substantial effort to its submarine force. Our book, *China's Future Nuclear Submarine Force*, just published by Naval Institute Press, offers detailed information. China does not appear to have made significant progress in correcting its weakness in anti-submarine warfare (ASW), however. Although its newer large surface combatants certainly can carry helicopters, and might carry ASW helicopters, none appear to have modern hull-mounted or towed sonars. There is also little evidence that China is devoting much effort to developing planes equivalent to the U.S. P-3 maritime patrol aircraft. Thus PLAN ASW capabilities, while perhaps slowly improving, cannot yet be counted on to provide a reasonable degree of security in open waters.

Large-deck aviation would likely be needed for the PLAN to truly project power in blue water 'beyond Taiwan.' A small but determined contingent of PLA leaders has long advocated aircraft carrier development. Perhaps because of Beijing's determination to be respected universally as a great power and its growing maritime interests, the PLAN is now apparently contemplating various alternatives for developing aircraft carriers. Increasingly numerous statements and writings on this subject offer critical insights into Beijing's emerging maritime strategy. To date, however, Beijing appears to have devoted more effort to analyzing and developing the ability to target potential enemy carriers than to building its own. Chinese recognition of the increasing vulnerability of carriers, particularly less-sophisticated versions such as China might develop, may thus retard Beijing's indigenous carrier development.

China has already purchased four decommissioned aircraft carriers. China's old carriers, especially *Minsk* and *Kiev*, were probably purchased for dissection to inform future indigenous design. *Varyag*, the largest and most advanced Soviet carrier design, may ultimately also somehow be used as a "test platform" for general research and China's development of relevant ship-board systems. To this end, *Varyag* may be retrofitted with a power plant, shafts, and screws (which it was said not to have at time of sale to China), so that it can go to sea under its own power. Eventually, a modestly capable *Varyag* might become a centerpiece of PLAN diplomacy, humanitarian operations, and disaster relief. *Varyag*, or even a more advanced PLAN carrier, would have little role in a near-term Taiwan scenario, however, as land-based PLAAF and PLANAF aircraft could cover all required air operations across the narrow Taiwan Strait. Unless China were able to produce and incorporate a range of carriers in a cohesive and effective concept of operations, it is difficult to envision them as the centerpiece of PLAN doctrine in future decades.

Ultimately the aircraft carrier itself is essentially a platform for air operations--the system of systems that allows for the projection of air power from the sea. The acquisition of a

PLAN carrier vessel would merely be the first step (together with improvements in hardware, software, and training) toward true operational capability. PLAN aerial power-projection increases hinge on breakthroughs in sea-based aviation, mid-air refueling, PLAN doctrine, ASW, and PLANAF service culture. Without major improvements in ASW, for instance, any PLAN carrier would be vulnerable to submarines.

For the foreseeable future, therefore, any Chinese carrier(s) would most likely: (1) independently conduct humanitarian missions (i.e., disaster relief); or (2) support China's fleet in collective maritime security (e.g., SLOC protection and counter-piracy), and even allow modest force projection to assert Chinese claims in the South China Sea. For these relatively modest purposes, helicopter and other smaller deck aviation platforms are appropriate. We can thus expect China to be flexible in its definition of what constitutes an 'aircraft carrier.'

In the meantime, the PLA has recognized its overall naval weakness in air defense and surface warfare, and has taken impressive steps to overcome those problems. China's three most recent classes of surface combatants all have sophisticated air search and missile guidance radars, and also are said to have the advanced, long range surface-to-air missiles (SAMs) to afford these ships a respectable area air defense capability. Thus, the *Luyang* II destroyers (hulls 170 and 171) carry the HHQ-9 SAM, the two *Luzhou*-class destroyers have a marinized SA-20 SAM, and the now five *Jiangkai* II frigates have vertical launch cells and phased array and guidance radars that strongly suggest a similar capability.

We have recently completed a two-year-long study of over 1000 Chinese language articles concerning naval mine warfare (MIW). Our three most important findings are: (1) China has a large inventory of naval mines, many of which are obsolete but still deadly, and somewhat more limited numbers of sophisticated modern mines, some of which are optimized to destroy enemy submarines. (2) We think that China would rely heavily on offensive mining in any Taiwan scenario. (3) If China were able to employ these mines, (and we think that they could), it would greatly hinder operations, for an extended time, in waters where the mines were thought to have been laid. The obvious means of employing mines are through submarines and surface ships. Use of civilian assets should not be discounted. But we also see signs of Chinese recognition of the fact that aircraft offer the best means of quickly laying mines in significant quantity. These aircraft would be useless, however, without air superiority. China's increasingly impressive conventional ballistic missile force and inventory of SAMs and advanced tactical aircraft cast real doubts on Taiwan's ability to maintain air superiority over both the Taiwan Strait and the island itself.

Regarding air-to-air combat, you are certainly aware of China's new J-10 aircraft, and of the SU-27, SU-30, and J-11 aircraft programs. China recognizes that dominating the skies over Taiwan is a necessary precondition for successful coercion. These planes, and the weapons they can carry, reflect that fact. Although our group has not yet deeply examined that area, we are impressed by what we have seen thus far.

Every surface warship launched by China in the past decade (with the possible exception of the new LPD) carries sophisticated YJ series ASCMs. These missiles deserve a measure of respect. It is important to recall that a single, Chinese-made C-802 ASCM, which is less capable than China's newer ASCMs, disabled Israel's *Hanit* Sa'ar 5-class missile boat in 2006 and killed four sailors. Additionally, the *Houbei* class, or 2208, wave piercing catamarans (based on an Australian ferry design) are an impressive anti-surface weapons system, employing high speed (perhaps 45 knots or so), low observability, and two or four advanced cruise missiles. China is building dozens of these vessels at many shipyards. Although I am not an expert on surface warfare, I am told that these would be highly effective in attacking surface warships in the waters around China, but their limited endurance would not allow them to operate for extended periods at much greater distances.

Pictures of China's YJ-62, YJ-82, and YJ-83 ASCMs, as well as images of LACMs, appear increasingly on the Internet. These missiles, according to *Jane's*, are all long range, lethal, and most importantly perhaps, indigenously developed. China also has the SS-N-27 *Klub* supersonic ASCM, which it can launch from its eight newest *Kilo* submarines, and the formidable SS-N-22 *Sunburn* supersonic missile that it can, (and has) fired from its four *Sovremenny* class destroyers. China is also thought to be in the process of developing anti-ship homing warheads for its ballistic missiles, which is a very worrisome development. If they work, they would be extraordinarily difficult to defend against.

As for improvements in C4ISR capabilities, the PLA's obvious reliance on long-range cruise and ballistic missile systems strongly suggests that its leaders recognize the importance of robust C4ISR. One must assume that they have programs in place to overcome, or at least significantly offset, this traditional weakness. We have not yet performed dedicated research in this area, but it is on our list of subjects to examine.

Thank you very much for your time. I welcome your questions and comments.