

## Are the Seas Becoming a No-Man's Land?

Written by James Holmes

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JAMES HOLMES, JUN 18 2011

Surface warships have long labored at a disadvantage vis-à-vis land-based defenses. Those reared on C. S. Forester's *Horatio Hornblower* books, Patrick O'Brian's *Master and Commander* series, and other tales of nautical derring-do know the plotline. A man-of-war ventures within range of cannon mounted on the ramparts of a harbor fortress, only to be driven back by withering gunfire. Whereupon the seamen devise some ingenious stratagem or *ruse de guerre* — never in short supply for the likes of Hornblower or “Lucky Jack” Aubrey — that lets them carry the day from beyond gun range.

Mariners have to tap their ingenuity because ships seldom boast the firepower or rugged enough construction to outlast a toe-to-toe encounter with land fortifications. The balance generally favors shore gunners when the fleet stands into range.

Naval technology accounts for this gunnery mismatch. Ships are mobile, their size and capacity limited. Even the biggest warship has limited space for weapons (or anything else, for that matter). With more space to work with, defenders can deploy bigger weapons and stouter defenses. During the age of sail, shipboard gun batteries delivered smaller weight of shot than shore guns, their range was inferior, and they had to batter away at thick walls, all while dodging or absorbing heavy enemy fire. Think about the sad fate of the frigate USS *Philadelphia* in 1804 — aground, abandoned, and irretrievable under the pasha's guns in Tripoli harbor.

In short, land-based defenses long reigned supreme, but only in circumscribed sea areas around gun emplacements. To visualize this, trace a circle on the map centered on the firing platform. The radius of the circle equals the weapon's range. The area within the arc falls within gunners' crosshairs, making this a virtual no-go zone for enemy ships. Rudimentary cannon provided meager coverage. Not until well into the 20th century did guns' effective firing range exceed ten miles, cutting into surface ships' maneuver space. As Francis Bacon observed, the fleet commander long enjoyed the luxury to “take as much and as little of the war as he will.”

Not for nothing did coastal states' sovereignty extend only three miles seaward from their shores. That was the effective firing range of artillery, and thus of a government's ability to exercise control of its offshore belt. More accurately, a government could conduct “sea denial” within reach of coastal guns. It could hold off enemy fleets, even without fielding a sizable navy of its own. This logic impelled US maritime strategy during the United States' long 19th-century holiday from power politics. Coastal fortifications constituted the heart of US seaward defense until the 1880s, when the republic laid the keels for its first great-power battle fleet.

The coastal state ran risks despite its firepower edge. Continental powers were especially prone to think of the navy as a seaward extension of the fort. In theory, squadrons mounted a forward defense of harbors and other important sites, holding off enemy warships. In reality, naval commanders often kept the fleet within range of shore fire support to protect pricey assets like armored battleships. Capt. Alfred Thayer Mahan inveighed against this “fortress-fleet” mentality, terming it a “radically erroneous” way of naval warfare. It not only limited the fleet's freedom of maneuver but bred defensive instincts in naval commanders who should thrive on enterprise.

The Russo-Japanese War of 1904-1905 gave Mahan his point of reference. The main Russian Far East squadron was based at Port Arthur, abutting the Yellow Sea. With few exceptions, Russian commanders were a timid lot. The

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fleet sheltered under the port's guns to avoid clashing with Adm. Tōgō Heihachirō's Japanese Combined Fleet, which lurked offshore awaiting battle. It accomplished little in its few seaward forays. The fleet finally made a break for the high seas in August 1904, only to be destroyed or scattered. Remnants that limped back to Port Arthur were sunk at anchor — by Japanese *Army* gunners besieging the city, ironically enough.

Russia's fortress fleet itself fell to land-based gunnery. Now as then, bad things befall navies that come within striking distance of shore fire support. Worse from the US standpoint, advances in weapons technology have rendered Mahan's acute appraisal of the Russo-Japanese War largely moot, skewing the balance toward land defenders. Recall that Mahan condemned the Russian philosophy mainly for fettering the fleet's mobility and encouraging apathy among its leadership. Today, emerging weaponry promises to liberate the fleet while instilling offensive-mindedness in naval officers. The fortress fleet may be a concept whose time has come.

Look at the China seas and the Western Pacific through Chinese eyes. China-watchers generally concur that the People's Liberation Army (PLA) has set out to deny the US Navy "access" to these waters for at least a finite interval. This opens up options for Beijing, granting China's leadership time to handle contingencies in the Taiwan Strait or elsewhere along the periphery. The PLA Navy remains inferior to the US Navy on a ship-for-ship basis. That makes little difference if land-based PLA assets can strike effectively at US forces at long range, chasing them off or dissuading them from ever attempting to enter Asian seas.

China's surface navy would command the sea without fighting for command.

Dense, overlapping defenses could deny the United States access to the Western Pacific in times of peril, much as Russian artillerymen at Port Arthur kept the Imperial Japanese Navy at a distance. Now go back to the map. Extend the radius — the effective firing range — of shore-based weaponry from a few miles to hundreds of miles. Assume that such weaponry can be emplaced not at a few fixed sites, but at any point along China's borders. If so, it becomes plain that a PLA thus equipped could strike hundreds of miles offshore, toward every relevant point of the compass, all from land sites.

This amounts to sea denial on a grand scale. That's the story Pentagon reports on Chinese military power tell (scroll down to page 32). The yellow-hatched band on the map illustrates the range of the DF-21D/CSS-5 "antiship ballistic missile" (ASBM) being fielded with the PLA Second Artillery Corps, or missile force. The ASBM is the world's first land-fired missile able to strike at ships underway hundreds of miles distant. If it lives up to its hype — never a sure thing in technical questions — this lethal "bird" will represent an orders-of-magnitude increase in striking power over antiship cruise missiles (ASCMs) with ranges measured in scores of miles.

From China's external borders, ASBM range extends well eastward of Taiwan, Japan, and the Philippines while spanning the entire South China Sea, the Bay of Bengal, and parts of the Arabian Sea. Mahan's critique of the fortress fleet has lost force in these expanses. This is a truck-launched missile. It can be repositioned anywhere along China's frontiers or most anywhere in the country's deep interior. Given its compact size, furthermore, it could be forward-deployed with relative ease to, say, naval stations in the Indian Ocean. This would further expand the PLA Navy's safe operating zone.

In short, Second Artillery rocketeers can intercept Asia-bound shipping hundreds of miles from Asian coastlines. Should a defiant adversary like the US Pacific Fleet accept the losses from ASBM strikes, it would still have run a gauntlet, warding off ASCM strikes from land-based tactical aircraft, diesel submarines, and stealthy catamarans, not to mention submarine attacks featuring deadly "wake-homing" torpedoes. Only then, having survived this murderer's row, would the intervening force reach the combat theater. Only then could it *start* to do its work in the Taiwan Strait, the South China Sea, or wherever.

Had Port Arthur possessed guns boasting ASBM range, Russian commanders would have had little to fear from Tōgō's heroics.

As long as Beijing confines its interests within ASBM range of Asian shores, shore fire support will embolden PLA

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Navy skippers. They can carry out their missions without fretting about US interference. What sorts of countermeasures are available to the US Navy? It remains to be seen whether the “hard-kill” missiles carried on board Aegis surface ships can intercept maneuverable ballistic missiles like ASBMs. Exotic technologies like electromagnetic “railguns” are becoming feasible. Once perfected, railguns will expand the range of ship-launched projectiles to 250-300 miles. But they will not outrange the ASBM, whose range is estimated at 600-1,500 miles.

Shipboard lasers are another possibility, albeit a more hypothetical one. Fiber solid-state lasers, slab solid-state lasers, and free-electron lasers are at varying stages of development. The most promising device, a 100 kilowatt free-electron laser, will undergo testing in a laboratory setting through 2015. None of these systems has been tested against real-world targets, and none is remotely ready for combat use. In a word, shipboard defenses lag antiship missile technology. That leaves submarines, which inhabit an environment — seawater — that remains largely opaque to sensor technology. Undersea craft remain impervious to ASBMs or ASCMs.

To compete successfully with Chinese defenses, and to deflate Beijing’s ambitions for its fortress fleet, the US military needs to dive underwater. If the PLA can deny access to Asian waters from above, the US submarine force can do so from below. Doubling the inventory of nuclear-powered attack submarines — vessels eminently suited for assailing enemy surface forces and land targets — would be a welcome step. So would refitting additional *Ohio*-class ballistic-missile submarines to carry conventional cruise missiles in bulk. Four *Ohio* boats have undergone conversion to guided-missile submarine, or SSGN, status. More could do so.

The outlook for maritime Asia appears increasingly desolate. Should China rule the skies while the United States commands the depths, surface fleets on both sides — not to mention the merchantmen that transport the raw materials and finished goods that sustain our globalized economy — will be caught in the no-man’s land between. How US-China military interactions will unfold in the coming years is anyone’s guess. We have the mixed fortune to live in interesting times.

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