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SSN: The Queen of the Seas

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The United States' need for maritime superiority stands as the fundamental goal of this country's naval forces. Discussions of strategies maritime are in danger of losing focus in the excitement over the Persian Gulf war and potential Third World conflicts and in the concern over the coming reduction of force levels resulting from the apparent end of the Cold War. But despite these events and concerns, one should not be misled by myopic emphasis on low-intensity conflicts or requirements for power projection. The first mission of a navy is to control the sea.

For this mission, submarines will have to be the primary component of naval forces for any country which is seriously concerned about maritime superiority, even though submarines have little utility in power projection scenarios such as recently occurred in the Middle East. Indeed, historian John Keegan flatly asserts that "the era of the submarine as the predominant weapon of power at sea must therefore be recognized as having begun. It is already the ultimate deterrent . . . It is now also the ultimate capital ship, deploying the means to destroy any surface fleet that enters its zone of operations."¹

Serious students of naval power have to agree with Keegan. Arguments in favor of other forces do not diminish or disguise the truth that in the future, the nuclear attack submarine will control the battlefield at sea. The Falkland Islands campaign demonstrated clearly how nuclear submarines now set the conditions of maritime war. Other naval forces are unable to function when opposed by even a few nuclear submarines. For the foreseeable future, possession of nuclear-powered submarines will be the *sine qua non* of maritime power.

Nuclear-powered submarines can operate with impunity in the open ocean, the littoral, and even the coastal plains, up to and in some

Rear Admiral Holland entered the submarine force in 1957 and, except for three assignments of less than five years, served in submarine-related assignments until 1987. He commanded U.S.S. *Pintado* (SSN 672), U.S.S. *Plunger* (SSN 595), Submarine Squadrons One and Seven, Submarine Group Five, and the Submarine School.

circumstances inside the hundred-foot curve.² They presently have no real opposition, and no effective opponent other than another nuclear submarine can be envisioned. Nuclear submarines threaten surface forces with extinction. Against surface forces, so one-sided is the situation that nuclear submarines are able to determine the time and place of battle, select the most advantageous line of attack, and seek or avoid engagement as they choose. Moreover, the submarine's intrinsic characteristic—invisibility—compels an adversary to operate as if it is present. Its mere existence capitalizes on the proclivity of all intelligence activities to predict the worst-case threats. Thus, like the Soviets or the Argentines, any power seeking to use the seas when faced with a force of nuclear attack submarines will have to create expensive ASW bastions or retire from the battlefield.

The parallel between the SSN and the queen on a chessboard is instructive. Mobility makes the queen more powerful and self-sufficient than any other piece, or indeed even most combinations of other pieces. Properly handled, the queen is very difficult to take unless enormously one-sided circumstances exist. Like the queen, the SSN can intrude and operate alone in otherwise enemy-controlled territory. Most chess players will sacrifice many less powerful pieces in order to protect and use their queens. Similarly, in constructing a navy of global dimensions, a fascination with less powerful though useful pieces should not distract one's attention from the importance of the capital piece.

The principles underlying the U.S. Maritime Strategy apply to all conflicts which have a maritime dimension. Submarines serve as the primary instrument to carry the attack early and decisively into enemy waters. In the only maritime war since the invention of nuclear power, the Falklands campaign, the Royal Navy's plan was in essence the Maritime Strategy set in the Southern Hemisphere. Nuclear submarines arrived on scene first and effectively eliminated any and all threats from enemy carrier-based and surface forces. Argentina did not have a weak or bad navy; in fact, it was far better than most countries' and in some respects a formidable opponent. Yet this navy, in the face of a few British nuclear submarines, lost its major capital ship and retreated ignominiously into port. Its future useful role in the campaign was limited to using its attack aircraft from bases in the homeland.

The difficulty of antisubmarine warfare has been continuously underestimated since the submarine was invented. Every opponent of submarines has overestimated his ability to counteract the submarine threat and has underestimated the potential of enemy submarines to

interdict his lines of communication. That condition exists in most of the world today. Inexperienced in ASW, with little understanding of the true potential dangers, even the majority of naval officers consider the submarine threat to be overstated until operating in the presence of a potentially hostile submarine.

Those who have actually faced a submarine threat agree with the Chief of Naval Operations' position in his 1990 Posture Statement: "Detecting and killing modern quiet submarines (nuclear and diesel) is the most difficult task in modern warfare." The editor of *Jane's Fighting Ships* asserts that the United States has the only navy in the world which can field the forces, both in quantity and quality, to wield an effective defense against submarines. Among those who have been involved more than casually with the U.S. Navy's efforts in ASW, there is universal agreement that no defense can be foolproof and that the resources required for effective defense against even one submarine are very large. Appreciation for these difficulties seems to be limited to those within the dedicated ASW communities. Yet those who downplay or ignore the future submarine threat risk becoming kin of those devotees of the bayonet who sent thousands "over-the-top" in World War I to walk into machine-gun fire.

By being able to arrive early at any scene (even waters ostensibly "controlled" by an enemy), to operate wherever in the water column is most beneficial to either hunt or hide, and to endure unsupported throughout long periods, the nuclear submarine has innate advantages that other platforms lack. These advantages make the nuclear submarine the first line of attack against enemy shipping of any kind. Nuclear submarines can be particularly effective when operating in well-defined areas against conventionally powered submarines. Nuclear submarines are vastly superior to diesel submarines in any circumstance; but when the conflict allows time for prolonged ASW operations, the SSN versus SS contest is totally one-sided. It is folly to maintain a conventionally powered submarine force with any expectation that it will be of any use against nuclear-powered submarines.

Nevertheless, while conventionally powered submarines do not possess the overwhelming advantages of those with nuclear power, they do pose a serious threat to surface ships. The Argentine submarines made life difficult, though not unbearable, for the Royal Navy. Even had the Argentines been able to get more than half of their submarine force underway or had those deployed been handled better, it is unlikely that they would have substantially changed the outcome of the campaign. On

the other hand, John Keegan notes that the Royal Navy's nuclear submarines drove the Argentine fleet from the sea, "risking in the process no effective retaliation whatsoever."³

For presence missions, blockades, and demonstrations, submarines are probably less effective than almost any other force except airplanes. Their virtue, invisibility, becomes a drawback. In contrast, against developed nations which have some investment in seaborne traffic or states which have littoral interests, they can be an effective political weapon because of their obvious capability for disruption of that traffic and domination of coastal waters. Now that the evidence of the Falklands campaign exists, every maritime user must acknowledge the potential of the submarine's power. The swift mobility and the endurance of nuclear submarines means that opponents must consider that they will be on station almost at the inception of any confrontation.

Unlike most other military entities, one submarine is an effective unit which can be deployed as soon as it is ready for action. A single submarine is a meaningful and effective task force. No critical mass exists; the ship need not wait for escorts, supply ships, or air-wing modifications. The ability to be dispatched instantly and to transit faster than any other force more than compensates for the limitations imposed on concentration arising from considerations of mutual interference.

Once shooting starts in a conflict, regardless of its size, the submarine will exercise that control of the maritime battlefield demonstrated by the Royal Navy in the Falklands. This total dominance foreclosed any realistic alternative to the Argentines except surrender. Similar leverage will exist in persuading the political leadership of any country which uses the sea of the futility of combat in the face of such forces.

In future operations both large and small, large magazine capacity will be of immense advantage. Magazine capacity has always been a limiting feature of submarine operations. While the *Seawolf's* torpedo room is large in order to take advantage of the target-rich environments presented by Soviet bastions, it will have even greater advantage in future sea-control and interdiction missions. With plenty of weapons space, submarines can routinely be armed with a substantial number of mines and missiles in addition to torpedoes. This will enable them to engage quickly in a wide variety of situations over an extended period of time.

These arguments bear on the design and construction of future submarines. Navies are likely to return to the mode of the nineteenth century, when few ships were built and those constructed served for a very long time. This practice dictates that the portions of the ships which cannot be replaced or modified after construction, i.e., hulls and

propulsion systems, should be the best that can be built and large enough to accommodate change and improvement. Weapon systems now are being changed at least twice and the electronics four times in the life of a hull. This pace will probably increase as the number of hulls goes down and the life of the ships goes up. Because the vast range of situations which may be faced by a ship being constructed to last up to forty years cannot be predicted, any design should include the latest technology known at the time and space to add or change contents over the ship's life.

Another consideration in planning for a distant future is the evidence that shipbuilding in the United States is likely to become a public works project related more to the economy and political power than to the needs of the international arena. In such a case, ships will be built in small numbers to employ a working-voter population. The number of ships built will be small but steady. As potential threats become less obvious, the worth of units and systems built for narrowly defined scenarios or special purposes will decline. Since the future is only dimly perceived, the most valuable investments will be in flexible, mobile forces with a wide range of capabilities.

These considerations are of greater importance in high rather than low technology applications. The submarine is not only a high technology vehicle, but it has gained more from advancing technologies than almost any other military force, component or system. Technological advances in sensors, processing, propulsion, quieting, and weapons have made today's submarine a much more formidable opponent to its foes than its ancestors of World War I and II were to their adversaries. Nothing seems to promise to change this relationship; the gap between the submarine and its adversaries will continue to widen. There is no known phenomena which will substantially reduce the submarine's invisibility. The increasing capability of space surveillance coupled with precision navigation, direct communications, and concentrated processing equipments threatens all targets above and on the face of the earth, while aiding those below it. Autonomous and remotely operated vehicles launched in the sea can extend the submarine's reach into the most tightly contained and controlled sanctuaries, just as cruise missiles already extend the reach of submarine weapons well inland to the most difficult and heavily defended land targets.

The United States needs the oceans, economically and politically. This country must be able to exercise the leverage that maritime superiority grants. For the foreseeable future, the nuclear submarine will remain the most powerful weapon on the maritime battlefield. Although a monopoly

or even dominance of this weapon by one nation cannot be assured, its wide proliferation is unlikely. Like aircraft carriers and nuclear weapons, nuclear submarines are not only very expensive but require extensive infrastructure, specialized industrial talents, and skilled personnel to such an extent that the vast majority of maritime states cannot consider acquiring or operating them.

Even if there are not a lot of major threats, even if the Soviet submarine force should mysteriously sink at its piers, the nuclear submarine must remain as the offensive core of our navy. Serious efforts and major resources must be devoted to this weapon system because of its importance, and not denied because its immediate utility in small or isolated contests seems slight. To maintain the superiority on the oceans developed during World War II, the United States must continue to field the most powerful and advanced nuclear submarines, the queens of the sea.

Notes

1. John Keegan, *The Price of Admiralty*, quoted in "Military History Quarterly," Vol I, No 1, Autumn 1988, p. 9.
2. I know the "hundred-foot curve" is a shocker, but I've been there.
3. Keegan, *op. cit.*, p. 9.



. . . a mode of warfare which they who commanded the seas did not want, and which if successful would deprive them of it.

Lord St. Vincent: Comment on
William Pitt's negotiations with
Robert Fulton for construction of
a submarine (October 1805)