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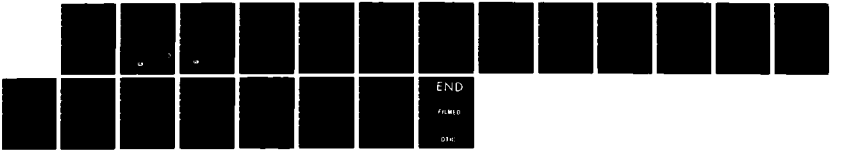

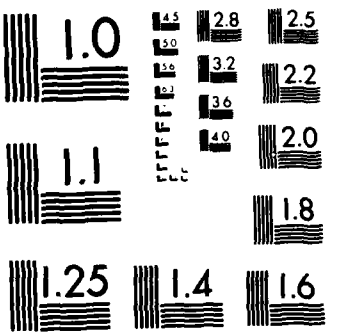

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A POSSIBLE CHANGE IN SOVIET VIEWS ON THE PROSPECTS FOR ANTI-SUBMARINE WARFARE

In the summer of 1982 there was an apparent shift in Soviet views on the future potential for combating submarines. The following points trace the perceived evolution of this shift.

- From the early 1970s, Soviet emphasis had been on the submarine's great capacity for concealment and the decreasing cost effectiveness of anti-submarine warfare (ASW) as a "law-governed" trend extending into the foreseeable future.

- The first sign of a new perspective came in 1979-80; here, the Soviets implied that no significant breakthrough in ASW was expected during the next five-year plan (1981-85), but they did not rule out an effective innovation after that.

- In 1982, however, the Soviets apparently saw an operational capability arising ahead of this schedule. Using alleged U.S. views as an almost certain surrogate for their own, they indicated that a "technological breakthrough" in ASW (possibly nonacoustic and space-based) was imminent, perhaps (this is the best interpretation) before the end of the current planning period in 1985. A new "law-governed" trend in naval affairs was set out: the growing susceptibility of submarines to detection and the increasing cost effectiveness of ASW.

- If Moscow is on the verge of a long-range detection capability, then one might want to speculate on the means they would develop for submarine kill. It is conceivable that they might revive the concept, abandoned in the 1970s, of using a submarine-launched ballistic-missile (SLBM) system for hitting mobile targets at sea.

Evidence for all this will be presented in the same order given above: earlier Soviet views on the lack of prospects for ASW; the first hint of more sanguine expectations in 1979-80; apparent claims of an imminent ASW breakthrough in 1982; and speculation on my part about the possible method of eliminating ballistic-missile submarines after detection.

The evidence is based entirely on Soviet open literature. Because of its obliqueness, this literature is not easy to read and interpret. To be successful, the analyst has to constantly bear in mind certain Soviet communications techniques: the tendency to imply rather than state; the use of elliptical logic and expression; the avoidance of

sustained arguments; the failure to highlight noteworthy items or new points of departure; and the presentation of information by particular authors and in particular media that, a priori, one might not expect to be frank. Above all, the analyst should be aware of the standard Soviet practice of attributing views, capabilities, and intentions to the West that are mirror images of Soviet counterparts. Their expressions of concern about a Western threat, whether real or fabricated, should normally be interpreted as tit-for-tat justification of a roughly symmetrical Soviet capability.

PREVIOUS SOVIET VIEWS ON ASW

Soviet statements on the detectability and survivability of submarines have varied greatly over time. In the last half of the 1950s, when Moscow had a monopoly on sea-based ballistic missiles, the submarine's "great invulnerability" was stressed.[1] By 1963, however, when the U.S. was rapidly forging ahead in SSBN construction and eliminating these platforms had become the main task of the Soviet Navy, scorn was poured on alleged Western boasting of the "invisibility," "inaccessibility," and "invulnerability" of sea-based missile systems.[2] A close examination of Soviet statements, however, reveals a conviction that SSBNs could not be readily detected at sea, and that the principal method of combating them had to be through strategic missile and air strikes against submarine basing, construction, and repair sites.[3]

Soviet declared "perceptions" of the submarine-ASW balance changed with the anticipated acquisition of Yankee-class SSBNs in the last half of the 1960s. Because these platforms were mainly intended for hitting nonnaval targets on land, the mission of combating the strike forces of the enemy fleet at sea and in their bases was downgraded relative to the mission of destroying ground military and urban-industrial targets. However, the emphasis was still on the use of SLBMs in the war's initial strikes; they were not to be withheld either for intrawar deterrence of U.S. attacks on Soviet cities or for subsequent war-waging objectives.[4] Moscow, therefore, had every incentive to tout the viability of SSBNs in their new, early-strike mission against ground targets. The declaratory accent was on the great survivability of naval strike forces "at the beginning of the war," but not in its later stages. Statistics on previous wars were paraded to show low submarine losses in the initial period but an escalation of these losses as the war proceeded, peaking toward the end.[5]

The Soviet line changed once again in the early 1970s with the anticipated acquisition of the Delta-class SSBN. At least a large proportion of the SS-N-8 SLBMs aboard the Delta were evidently intended to be withheld from the initial strike, primarily as an intrawar deterrent to American countervalue attacks. To carry out this mission, SSBNs had to survive over an extended period in a hostile environment. Once again, the Soviets rose to the occasion in their declaratory position. Whereas statistics on past wars had been presented in the 1960s to show

escalating submarine *losses* over time, comparable statistics from the 1970s testified to increasing numbers of *surviving* submarines over time, also peaking, we were pointedly told, "at the end of the war."[6]

Stress was on the "virtual invulnerability" of the submarine and the relative ineffectuality of the means for combating them. Admiral Gorshkov saw the decreasing cost effectiveness of ASW as a law-governed trend in history extending to the present day. In World War I, he calculated, "the cost of the combat means needed for overcoming submarines exceeded the expenditures required for building submarines by a factor of nineteen." The imbalance was even greater in World War II: "For each German submarine 25 surface ships and a hundred aircraft were required [for ASW] and for each German submariner at sea a hundred Englishmen and Americans." If that was true of the diesel era, he asked, "then what does the [ASW] superiority have to be today to counter nuclear-powered submarines, whose combat potential cannot be compared with that of the submarines of World War II?"[7]

The future was deemed equally bright for submarine survivability. According to Captain First Rank Shatrov, writing in the General Staff journal in 1972, in the competition between submarine and anti-submarine forces, "submarines are still the champion. It is assumed that their ability to operate undetected will also be an intrinsic feature of new generations of these vessels."[8]

REEVALUATION OF THE LONG-RUN POTENTIAL FOR ASW IN 1979-80

The first hint of a change in the Soviet perspective appeared in a late-1979 article in a foreign affairs journal by G. M. Sturua, who seems to have assumed the role of principal politico-naval specialist at Moscow's Institute for the U.S. and Canada. According to Sturua,

> The American press claims that the United States is approaching a "technological breakthrough" in anti-submarine warfare, connected with further improvements in acoustic and non-acoustic (infrared, laser and other) means of detection, as well as with new achievements in computer technology. These achievements are being widely introduced into the global system being created by the U.S. for monitoring the undersea medium.[9]

We will note that, in Sturua's account, the Americans were not claiming the actual achievement of a breakthrough, only that they were "approaching" a breakthrough. Sturua could have negated this allegation as a surrogate for Soviet views by declaring an ASW technological breakthrough, contrary to American claims, to be out of the question, but he did not choose to do so. We are left to infer, therefore, that the expectation of a breakthrough attributed to the United States is actually the Soviet expectation.

Sturua gave no indication of how far ahead in the future the breakthrough might materialize. More precision on this appeared in a brochure authored by Henry Trofimenko, Chief of the Foreign Policy Department of the same institute, and published by the Center for International and Strategic Affairs at UCLA in 1980. The brochure makes fascinating reading virtually throughout but, with respect to Soviet views on ASW, special interest attaches to Trofimenko's elaboration of a theme advanced by Brezhnev in his 1977 speech at Tula on the inability of either side to gain "superiority" in strategic warfare in the foreseeable future. It is important to understand the Soviet definition of "superiority," which is the same as that of many strategic thinkers in the West. It is defined as the achievement of a "first-strike" capability, that is, a potential, through some combination of offensive weapons and active and passive defensive systems, for disarming an opponent to the extent that he cannot inflict unacceptable damage in a strategic exchange. In the decade before Brezhnev's speech at Tula, the prevailing line had held that a means of defense would be found against nuclear weapons, permitting victory in all-out war at a tolerable price. Since Tula this has been universally denied.[10]

In expounding the new thesis, Trofimenko emphasized that only "radical breakthroughs," affecting all three legs of the triad, could yield military superiority. The most destabilizing effect, he argued, would be produced by the development of an effective antiballistic missile (ABM), but he saw little likelihood of the creation of such a system "within the next 10 to 15 years," that is, before 1990-95. He was even more pessimistic about the prospects for land-based offensive systems. The technical evolution in this sphere can be foreseen all the way out to the year 2000, he argued, and there will be no innovations--he specifically mentioned maneuverable reentry vehicles--that could not be nullified by either side with "unilateral compensatory measures" (presumably a reference to launch under attack). As for civil defense, it could only reduce the number of casualties by "several million," a drop in the bucket compared to the "hundreds of millions" that would perish in all-out nuclear war.[11]

Given the Tula line on military superiority, Trofimenko had every incentive to forecast a similar lack of opportunities for an effective ASW system. Superficially, his ASW forecast looks similar but in fact it was not. In ABMs, he had envisaged no breakthrough at least out to the 1990s; in land-based counterforce, nothing out to 2000; and in civil defense, apparently nothing at all on any time scale. However, in ASW he foresaw no especially efficient system only "at the current stage or in the near future."[12] There can be no question of the meaning of "current stage" and "near future." These are code expressions which together, by definition and usage, apply to the period up to five years away,[13] and are routinely used to designate the time-horizon of military doctrine,[14] which apparently coincides with the time-horizon of the five-year plans.[15] In effect, Trofimenko seems to have been implying

that there would be no breakthrough in ASW during the next doctrinal/planning period (1981-85), but was refusing to rule one out after that.

It must be emphasized that this is the typical method by which the Soviets communicate--obliquely, through the use of special terminology, and without flags to engage the reader's attention. In my experience, there are only a few chances in a hundred that Trofimenko chose this formulation carelessly and without full awareness of its implications.

The objection is often encountered that Soviet "think-tank" personnel do not know anything important about their own country's military affairs. It is a view encouraged by these personnel themselves when closely pressed; after all, their primary mission in contacting Westerners is to gain information, not give it away. There are, however, strong grounds for questioning the validity of this assessment. To take only one example, there seems to be general agreement today that the USSR plans to withhold some SSBNs from the initial strikes, establish their patrol areas in waters contiguous to the USSR, and protect them with naval general-purpose forces. One of the earliest indications of this intention appeared in a 1973 article by two analysts at the Institute for the U.S., both less highly placed than Henry Trofimenko.[16]

Another objection to attaching any significance to the Trofimenko and Sturua discussions is less easy to dismiss. An anticipated breakthrough in ASW is bound to be considered a security-sensitive matter in any regime; beyond that, why should Trofimenko choose as a vehicle for announcing it a brochure written in English and published in America for Americans? I have no ready answer for this, except to point out the tension that often exists between keeping a presumed advantage secret and, by announcing it, either making a political impact or sounding out the opponent's intentions and capabilities for matching it or coping with it, and so forth. It is fairly clear that, at least on occasion, the Soviets do want to communicate to the West something other than misleading information and propaganda, though they want to do this in an obscure form that permits them to avoid accountability to public opinion. A few years ago, Henry Trofimenko himself, in a letter to the editor of the U.S. Naval Institute ***Proceedings***, deplored the fact that few American experts on Soviet strategy can read Russian in the original, which made it impossible for them to take in the "subtleties and nuances" of Soviet strategic discourse.[17]

ADVANCE IN THE ASW TIMETABLE IN 1982

Judging by the Trofimenko discussion, Moscow did not enter on the doctrinal period 1981-85 with the expectation of a significant ASW operational capability within its timeframe. This seems to be confirmed by the low-key treatment of the anti-SSBN mission in the early part of the period. As late as April 1982, Admiral Gorshkov, in the typically oblique Soviet manner, seemed to be going out of his way to avoid implying any shift in the submarine/anti-submarine balance. The

occasion was an interview given by him on the eve of Victory Day in which U.S. Secretary of the Navy Lehman was taken to task for his inordinate naval ambitions, as expressed in an interview with the Helsinki newspaper ***Uusi Suomi***. Lehman had declared a need for the U.S. Navy to take the offensive in the Norwegian and Barents Seas, among other places.[18] In his commentary on the Lehman interview, however, Gorshkov acknowledged the "threat" posed by Lehman in all the other places but omitted any reference to an aggressive U.S. strategy against SSBN bastions in the Arctic Ocean or any of its components (such as the Norwegian, Barents, and Greenland Seas).[19]

This omission should probably be considered in light of the standard Soviet practice of maintaining silence about real Western capabilities for which Moscow has no counterpart, and only acknowledging threats (or postulating fictitious ones) that can be matched or overmatched. The classic example is from the late-Stalinist era, when the U.S. had a monopoly on nuclear weapons. During the entire period 1947-53, there was not a single article in the periodical press on these weapons.[20] It was only subsequently, after Moscow acquired its own nuclear arms, that Washington's nuclear capabilities were acknowledged and used to justify the Soviet development effort.[21]

It would pique our curiosity, therefore, when, shortly after the Gorshkov interview, the Soviets began to ***emphasize*** a Western threat to Soviet SSBN bastions. In June 1982, Captain First Rank Rumyantsev published the first of several Soviet articles charging that, "to combat missile and torpedo-attack submarines, American nuclear-powered torpedo-attack submarines (SSNs) are familiarizing themselves with Arctic areas, including the Barents, Greenland, and Norwegian Seas."[22] Later the charge was brought that the two new British SSNs, ***Trafalgar*** and ***Turbulent***, were "designed to search for and destroy Soviet nuclear-powered missile submarines" in support of America's counterforce strategy against the Soviet strategic triad.[23] Another writer credited Secretary Lehman with the intention not only of taking control of the Norwegian Sea but of establishing a naval presence "as close to Soviet borders as possible."[24] As one writer put it in ***Red Star***, Lehman has formulated a new aggressive approach to ASW:

> even the "anti-submarine barrier" created by his predecessors along the Greenland-Iceland-United Kingdom Gap, where NATO submarines, surface ships, aircraft and fixed underwater facilities are assigned the task of "blocking" the Soviet Navy from getting out into the Atlantic, he has pronounced a "losing defensive strategy." "You must station your forces north of this barrier, in the Norwegian and Barents Seas," Lehman lectures his admirals, "so that we do not have to defend against access to the Atlantic, but the Soviet Navy has to defend its own sorties from base."[25]

Gorshkov himself was an active participant in this campaign. America, he claimed, has adopted a "new oceanic strategy." The old oceanic strategy attributed to the U.S. since the early 1970s (paralleling, we might note, the Soviet acquisition of the Delta and the adoption of a withholding strategy) had given the central role to SSBNs--"a war from the sea against the shore."[26] According to Gorshkov at the time,

> This strategy proceeds from the fact that virtually all ground targets are open to strikes from ocean axes and that ocean-based nuclear systems themselves are highly mobile and not readily vulnerable, due to their ability to make use of the great water depths for protection and the vast space of the ocean for camouflage....[27]

As one might suspect, the Soviet "response" to the American "threat" from the sea was symmetrical. Moscow would not counter this threat by combating SSBNs; it would rather "offset" (*protivostoyat'*) the oceanic strategy[28] by matching it, that is, presenting an "analogous threat" to U.S. territory with Soviet SSBNs and thereby confronting "the potential aggressor with a need to solve those very same problems he had meant to create for our armed forces."[29]

The threat from the "new oceanic strategy" of the 1980s, as now depicted by Gorshkov, is somewhat different. The old strategy had emphasized fleet against shore; the new strategy, fleet against fleet--"an offensive against the Russians in their own territorial waters."[30] According to Gorshkov:

> The key to this strategy is the concept of "forward sea perimeters," through the creation of which NATO admirals dream of "transforming the Soviets into an isolated island" and forcing our fleet to limit its functions simply to "defending its own bases."[31]

Another participant in this campaign was G. M. Sturua of the Institute for the U.S., whose 1979 paper we discussed in the previous section. Already in June 1982 the Institute journal was publishing his view that American discussions of their naval buildup served to divert attention from a very important aspect--"the creation of an effective anti-submarine system targeted on Soviet submarine missile platforms."[32] The following November he returned once again to this theme, characterizing as "beneath criticism" the continued American assertions that their Navy is allegedly no more than a retaliatory strike force. "The fact is that the U.S. is not only putting counterforce-type submarines into service but is also simultaneously creating a system of antisubmarine forces and means capable of destroying an opponent's submarine missile-carriers on combat alert duty."

> On the whole, as is evident from authoritative publications, the American Navy's strategy is to an ever greater extent oriented on combating submarine missile platforms, in particular on conducting vigorous offensive action in areas where Soviet SSBNs are located. It is precisely the task of carrying out military operations near Soviet shores, i.e., in areas where it is especially hard to expect success, that J. Lehman uses to justify the need for major increases in American general-purpose forces....[33]

Had Sturua left off at this point, there would be no reason for us to single out his discussion, except to point out that the above passage constitutes the first overt acknowledgement that the USSR does have a bastion concept for its SSBNs. Since the early 1970s, when Moscow apparently first adopted the bastion concept, they had never claimed it for themselves but on numerous occasions had attributed the concept to the U.S.[34]

Sturua, however, did not drop the matter at that point; he went further. For a long time, he said, the technical difficulties involved in creating an effective ASW system were deemed in the U.S. to be, if surmountable, then "not in the near future." The Americans have now changed their mind: "Today, one can ever more frequently hear voices maintaining that...the U.S. is approaching the stage where effective weapons for combating SSBNs will be in its hands...." Indeed, Secretary of the Navy Lehman was said to have emphasized that a technological "breakthrough" in ASW would be achieved.[35]

Sturua had already charged much of this in his 1979 paper. The new element, which Henry Trofimenko had denied only two years earlier, was the implication that the breakthrough would become operational in the "near future." Since the near future applies to the period up to five years away, he might have been forecasting an operational capability by the end of 1987 (he was writing in November 1982). However, the term "near future" is normally tied to the planning cycle, and the best interpretation of his claim, in my view, is of a capability by the end of 1985. Had he meant "by 1987," he would probably have waited until the turn of 1985-86 to make his point. Experience indicates that the Soviets do not normally discuss the capabilities for an option until the arrival of the doctrinal/planning period in which the capabilities are to be put into operation. (Perhaps that is because only then do personnel have a "need to know.")

The projection of an American "breakthrough" in ASW should be understood as a surrogate for a projected Soviet breakthrough; that is the typical Soviet practice. Moreover, it is unlikely that Washington would be granted a potential that Moscow does not at least share, since it is inadmissible to confess weakness.

Those who believe that Sturua and other civilian politico-military analysts would be the "last to know" of any significant military innovation will have trouble reconciling this view with an article of much the same thrust published a couple of months before Sturua's, but in the Navy's professional journal, the ***Naval Digest***. The article was by a veteran commentator on naval reconnaissance systems, I. Kuz'min, whose association with the ***Digest*** dates back to at least 1964.[36] Kuz'min's depiction of the "law-governed" trend in the submarine-ASW balance directly contradicted that advanced by Gorshkov and others in the 1970s. According to Gorshkov, a comparison of data from World War I, World War II, and today shows ASW growing less and less cost effective over time due to the increase in submarine stealth. According to Kuz'min, however,

> it took 3.2 times more submarines, incurring 3.8 times more losses, to destroy one transport in World War II than in World War I. One cannot help but see in this a lag in submarine stealth behind the growth in potential of anti-submarine forces.

Today, he maintained, the cost-effectiveness ratio is even more favorable to ASW.

> First, in the opinion of a majority of Western naval specialists, the technical solution to a range of problems affecting submarine stealth lags well behind the level of development of ASW forces and means.
>
> Second, in the not-too-distant past, it took several times fewer appropriations to create submarines than to build major surface ships [to combat them]. Nuclear-powered submarines, however, are inordinately expensive. For example,...the expenditures per ton of standard displacement for the first American series-produced nuclear-powered multipurpose submarines came to $13-16,000 and for missile-carriers to $16-17,000. The total cost of a nuclear-powered boat of the Ohio class exceeds one billion dollars.[37]

Kuz'min further seems to imply that the alleged breakthrough will be nonacoustic. For one thing, he tells us that, "at present," acoustic detection is the principal method, the implication being that a different method might prevail in the future. Second, he indicates that a great deal can still be done to evade acoustic detection through submarine noise reduction.[38] If acoustic detection was envisaged by him as remaining the principal method in the future, his emphasis on the submarine's potential for evading such detection would be incompatible with

his point of departure--the law-governed trend militating against submarine stealth and in favor of ASW cost effectiveness.

There is a third point. According to Kuz'min, one of the principal reasons for the growing ASW advantage is the rise in the cost of submarines relative to the means for combating them. It is interesting that he does not identify these means, but if we think the matter through we may gain some insight. Under an acoustic regime, as the Soviets have told us on numerous occasions, the main means for ASW are nuclear-powered torpedo-attack submarines.[39] If nuclear-powered submarines (characterized by him as "inordinately expensive") are in the future to be tracked down by other nuclear-powered submarines (also "inordinately expensive") then where is the cost advantage postulated for ASW? Evidently Kuz'min had some other, cheaper means in mind than those currently in use.

With respect to a portion of these means, it is conceivable that a July 1981 article by a special correspondent of *Izvestiya* might be relevant. The article reported the views of B. A. Nelepo, Director of the Marine Hydrophysics Institute of the Ukrainian Academy of Sciences. Even at the time he assumed the post of director in 1974, Nelepo was said to have "believed that an effective study of the ocean is impossible without involving space systems", and since that time "space themes have gradually turned into the front line of research." The article continues the quotation:

> "As a matter of fact, we are taking only the first practical steps in the creation of a space service for observing the ocean. Soon the range of electromagnetic waves exploitable for surveillance will be expanded," says...Nelepo. "It is now becoming clear that, owing to satellites, we can have not only a surface but also a volumetric and depth picture of phenomena in the ocean. Internal waves are very widespread in the ocean. It is possible to register their manifestations at the surface from satellites and to judge what is taking place in that upper layer of several hundred meters which is of the utmost importance to us...."[40]

THE METHOD OF KILL

There is no hint in the literature as to how Moscow intends to eliminate submarines following their detection; we can only speculate. A great deal will depend, of course, on the method of detection. If detection is long range, as seems more likely from the little evidence we have, it might seem inappropriate to use traditional, relatively short-range kill platforms against SSBNs that can maneuver throughout the world's oceans, in an environment where Soviet ASW systems would be at a disadvantage. Some means of destruction at long range, either land- or sea-based, could be deemed more cost effective.

We will recall in this connection that Moscow has already manifested an interest in sea-based ballistic-missile strikes against mobile naval targets. We are referring here to the 400-n.m. SLBM designated in the West as the SS-NX-13. Though expected to reach operational status around 1974, the missile was never deployed, for reasons that have not been made clear. Attention in the West has tended to focus on the anti-surface capabilities of the SS-NX-13, but there was also some speculation of a possible extension of its mission to subsurface warfare, given a solution to the problem of target acquisition.[41] If the Soviets think they have to some extent solved the acquisition problem--and that is still a big "if"--they could very well consider an updated version of the SS-NX-13 concept attractive.

Aside from the interest already displayed in the past, there are other factors seemingly in favor of a sea-based strike solution. First, there is the interservice bureaucratic-politics factor; the Navy appears to have been ultimately successful in the past in securing for itself the preponderant role in hitting naval targets, whether on shore or at sea. Second, and perhaps more compelling to the political leadership, sea-based strikes provide the option of dissociating Soviet territory from a possible nuclear engagement at sea, which would not be the case with land-based strikes. There is even some evidence from a related field that Moscow might find this dissociation appealing. It is not generally appreciated in the West that one of the central Soviet rationales for fielding a sea-based response to the Pershing IIs deployed in Western Europe was to avoid having to retaliate against America with ICBMs launched from the USSR. As a result of the selection of a sea-based response, according to one Soviet commentator,

> The situation is changing also for the U.S. itself. Previously, it was threatening the socialist countries with its "forward-based systems" from the territory of NATO countries,...while the U.S. itself was left threatened only by a retaliatory strike from Soviet territory. Now Soviet systems are to be deployed in ocean areas and seas that are adequate in their characteristics to the threat being created for the USSR and its allies by the American missiles undergoing deployment in Europe.[42]

As Admiral Gorshkov has put it, the sea is "no-man's water, where there is no sovereign."[43] If Moscow is interested in keeping a general strategic exchange from following limited strikes against the superpower homelands, then it should be equally, if not more, interested in inhibiting any exchange of strikes against superpower territory arising from action against targets at sea. Sea-based ASW strikes, as opposed to land-based strikes, would make inhibiting easier, though it would not guarantee it.

FOOTNOTES

1. I. A. Bykhovskiy, *Atomnye podvodnye lodki* (Leningrad, 1957), p. 66.

2. S. Ruban and N. Antonov, "Above the Ocean Depths," *Krasnaya zvezda*, 5 June 1963; P. A. Astashenkov, *Sovetskie raketnye voyska* (Moscow, 1964), p. 180; S. G. Gorshkov, "Problems of the Navy," in A. A. Grechko (ed.), *Yadernyy vek i voyna* (Moscow, 1964), p. 66; Editorial, "On Guard Over the Fatherland's Sea Perimeters," *Kommunist vooruzhennykh sil*, No. 12, 1964, p. 54; V. P. Pavlov, "Problems of Employing Nuclear-Powered Missile Submarines," *Morskoy sbornik*, No. 7, 1964, p. 81; P. P. Nevzorov, "The Use of Aviation in Anti-Submarine Warfare," *ibid.*, No. 9, 1964, pp. 27, 33; V. D. Sokolovskiy and M. I. Cherednichenko, "The Military Art at a New Stage," *Krasnaya zvezda*, 28 August 1964; V. Zemskov, "Policy is Still an Arms Race," *ibid.*, 17 February 1965, p. 4.

3. N. I. Belavin and V. M. Kuplyanskiy, *Glavnoe oruzhie flota* (Moscow, 1965), pp. 239, 244-247. Also see: V. Grishanov, "Guardian of Our Sea Perimeters," *Izvestiya*, 28 July 1963; and Ruban and Antonov, *op. cit.*

4. J. M. McConnell, "The Gorshkov Articles, the New Gorshkov Book, and Their Relation to Policy," in Michael MccGwire and John McDonnell (eds.), *Soviet Naval Influence* (New York: Praeger, 1977), pp. 570-571, 585-586; J. M. McConnell, "Strategy and Missions of the Soviet Navy in the Year 2000," in James L. George (ed.), *Problems of Sea Power as We Approach the Twenty-First Century* (Washington: American Enterprise Institute, 1978), pp. 47-48.

5. J. M. McConnell, *The Interacting Evolution of Soviet and American Military Doctrines* (Alexandria: Center for Naval Analyses (CNA), Professional Paper 412, September 1980), p. 60.

6. J. M. McConnell, "Military-Political Tasks of the Soviet Navy in War and Peace," in John Hardt and Herman Franssen (eds.), *Soviet Oceans Development* (Washington: GPO, 1976), pp. 193-209; McConnell, *The Interacting Evolution of Soviet and American Military Doctrines*, pp. 50-60.

7. McConnell, in MccGwire and McDonnell, *op. cit.*, pp. 592-596.

8. N. Shatrov, "Trends in the Development and Use of Navies," *Voennaya mysl'*, No. 1, 1972, p. 45.

9. G. Sturua, "Naval Forces in U.S. Expansionist Policy," *Mezhdunarodnaya zhizn'*, No. 10, 1979, p. 121. I am indebted to Jeff Fenton for bringing this passage to my attention.

10. J. M. McConnell, ***The Soviet Shift in Emphasis from Nuclear to Conventional*** (Alexandria: CNA, CRC 490, June 1983), Vol. I, pp. 6-16.

11. H. Trofimenko, ***Changing Attitudes Toward Deterrence*** (Los Angeles: Center for International and Strategic Affairs, UCLA, ACIS Working Paper No. 25, July 1980), pp. 30-36.

12. ***Ibid.***, p. 33. I pointed out the significance of this passage in my paper, ***Possible Counterforce Role for the Typhoon*** (Alexandria: CNA, Professional Paper 347, March 1982), p. 15.

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15. McConnell, ***The Soviet Shift in Emphasis from Nuclear to Conventional***, Vol. II, p. 1 and ***passim***.

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17. ***Proceedings***, March 1980, p. 96.

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