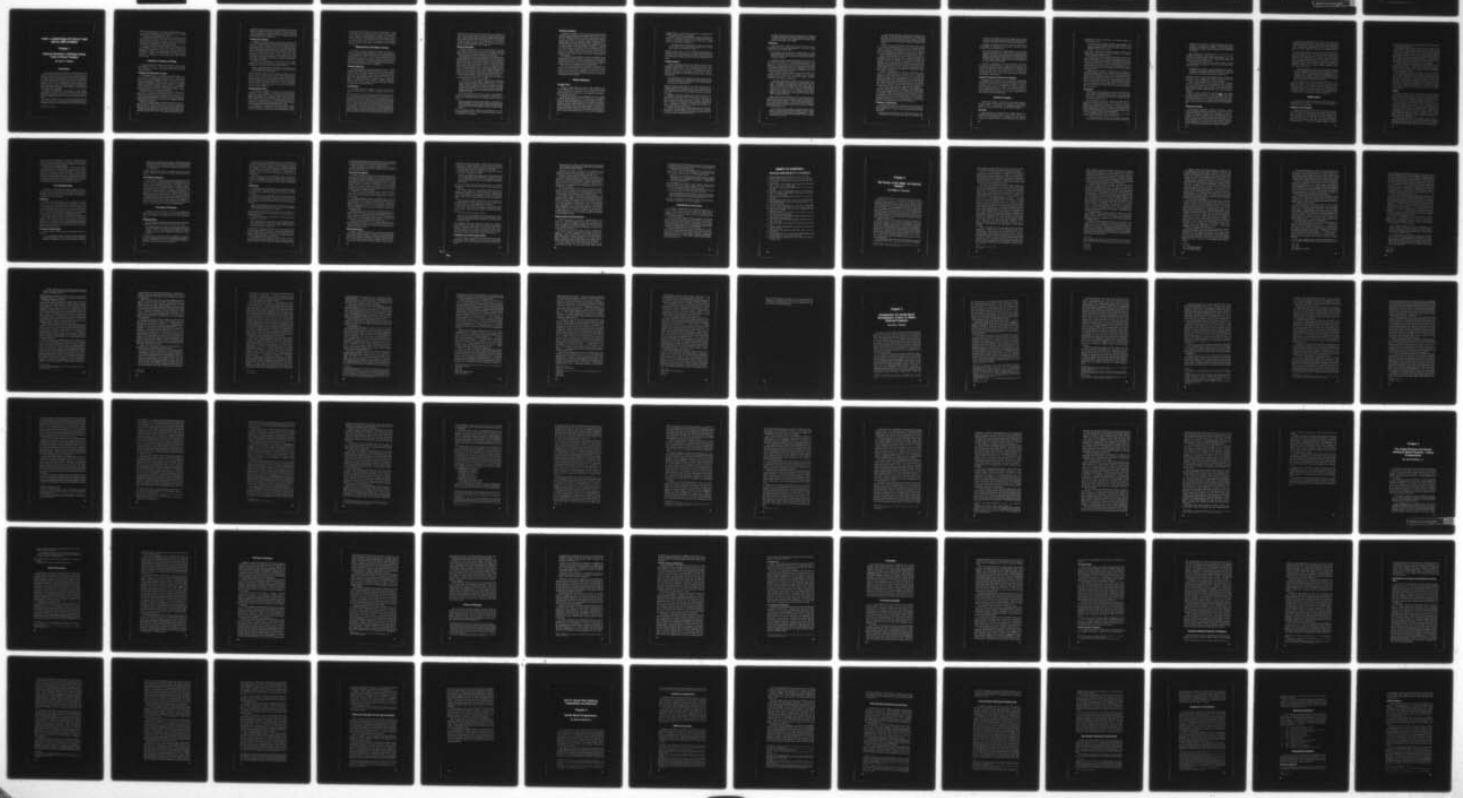
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STUDIES IN COMMUNIST AFFAIRS VOLUME 2

Edited by PAUL J. MURPHY

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NAVAL POWER in SOVIET POLICY

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Volume II

Edited by
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STUDIES IN COMMUNIST AFFAIRS VOLUME 2

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"Our country has built a modern navy and sent it out into the ocean in order to support our own state interests and to reliably defend us from attack from the vast ocean sectors."

Admiral of the Fleet of the
Soviet Union S. G. Gorshkov,
Sea Power of the State, Moscow,
1976, (p. 292)

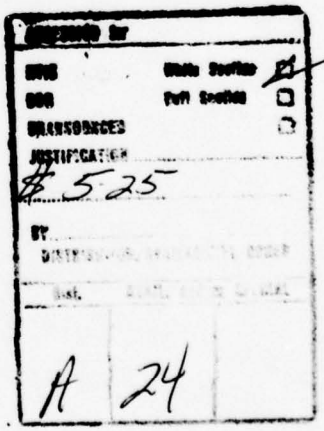


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INTRODUCTORY COMMENTS

A nation's military force reflects its national aspirations, strategic needs, visions of the future, and realities of the present. More specifically, the power of a global navy has for centuries been regarded as a sine qua non for recognition as a first rate international power. This, despite public assertions denigrating "bourgeois" naval strategy, seems to have deeply affected the Soviet leadership. Since the early 1960s, the Soviet Navy has displayed a highly visible and continuous military presence on the high seas in support of Soviet policies. The Navy has rendered logistical assistance to client states, conducted demonstration cruises in support of some national liberation movements, collected a wealth of intelligence information, influenced Western naval strategy and deployment, and in general, impressively demonstrated the emergence of the USSR as a superpower.

Soviet leaders greatly value the political dimension of their military power, but they have not neglected the war-fighting capabilities of the Soviet Navy. On the contrary, they have made major strides toward building a sea based power capable of making a significant military contribution to the Soviet effort in any war. The Navy's strategic orientation and combat responsibilities broadened greatly with the incorporation of atomic propulsion and missiles with nuclear warheads, and a relatively balanced fleet, highly original in many respects, is emerging. Today's Soviet Navy incorporates a strategic strike and defense capability, has a capability to support sea denial operations, and can project power to distant areas for military or political purposes. Complementary improvements in each of these areas, as well as in command and control, continue to be made. Furthermore, pronouncements by the political leadership and by senior Soviet naval officers today stress the Navy's striking power and its global capabilities to operate both independently and jointly with other services and branches of the Soviet Armed Forces.

The writings of both Soviet military and political leaders testify to a solid "traditionalist" understanding of the principal elements, requirements, and advantages of a modern sea power. This factor and the Brezhnev leadership's heavy resource investment in Soviet military programs have transformed a defense-oriented coastal fleet of the late 1950s into a "World Ocean" navy serving the Soviet position as a superpower.

This study focuses on these developments. The essays treat selected major aspects of Soviet naval power and offer the reader a broad

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appraisal of its key elements, capabilities, and potential for use in peacetime and combat roles. They also highlight the problems and choices confronting the Soviet Navy. When inviting contributions to this book, emphasis was placed on the authors' demonstrated expertise.

The volume is organized into five parts. Part I contains new analyses of the views of Admiral of the Soviet Union S. G. Gorshkov (Commander-in-Chief of the Soviet Navy) and Soviet naval policy, examines evolution of present Soviet naval doctrine, and correlates these developments with overall naval development, incorporating some historical comparative analysis in the concluding chapter. Part II examines in depth Soviet naval war-fighting capabilities in terms of construction programs, force structure, and missions. A methodology for making technological projections of Soviet missile systems is included. The concluding chapters in Part II compare Soviet and US fleet design and search for trends in recent Soviet naval exercises. Part III looks at Soviet initiatives for naval arms control agreements with the United States and provides insight into Admiral Gorshkov's position on naval arms limitations. Part IV provides case studies of forward deployment. The Indian Ocean basin is treated, and Soviet perceptions of Mediterranean problems and Soviet naval activity in this area are examined. The book concludes with a series of statistical and tabular appendices.

I thank the contributors for responding favorably, critically, and promptly to the idea for this book. I am grateful to both Professor Edward J. Rozek of the University of Colorado who inspired my initial study of the USSR and to Captain Gerald C. Edwards (USN, Retired) who stimulated my interest in the Soviet Navy and who was an immense help and source of advice to me in the editing. Most of all I am indebted to the United States Air Force for consenting to publish the book as a volume in its "Studies in Communist Affairs" series.

Western perceptions of Soviet political and military objectives and capabilities vary widely and are refined only by continuing research, rigorous analysis, and vigorous debate. I hope this study will contribute to a greater appreciation of one aspect of that debate—The Soviet Navy—and stimulate further inquiry in this important field.

PAUL J. MURPHY
Washington, DC
January 1978

PART I—QUESTIONS OF POLICY AND NAVAL EMPLOYMENT

Chapter 1

Admiral Gorshkov's Writings: Twenty Years of Naval Thought

By John G. Hibbits

Introduction

Admiral of the Fleet of the Soviet Union, Sergey Gorshkov, now 68, has been at the helm of the Soviet Navy for over 20 years. He is the architect of today's Soviet Navy and his views partially determine the course and speed of its development. Some of his views are reflected in his writings. His long series of articles in the Soviet journal *Morskoy Sbornik* in 1972–1973 and his lengthy book *Sea Power of the State*, published in 1976, are his most well-known writings. Although these works by themselves contain a wealth of material, it is useful to examine them in the context of Gorshkov's other writings to try to identify the development of his naval thought.

Gorshkov has published one or more articles in a Soviet military journal almost every year since at least 1963.*He may have authored more than one article prior to 1963, but only a few issues of his main medium for publication, *Morskoy Sbornik*, are available from this early period.

Gorshkov's writings seem to be aimed at broadcasting advances made in the Soviet Navy, fostering its continued development, and establishing some unity of view in regard to its role and structure. Many

*See the annex to this chapter.

of his works describe the Navy's role in the revolution and the war years, some discuss the development of naval strategy and tactics, and others contain only praise and propaganda for navymen.

This chapter summarizes Gorshkov's views on selected naval themes as revealed in his book and in his writings in military journals between 1958 and 1977. The Admiral's newspaper articles and speeches are excluded from this analysis because they usually contain less substance and often do not lend themselves to comparative analysis.

Gorshkov's writings are frequently ambiguous. Sometimes his favorable descriptions of trends in Western navies appear to represent his objectives for the Soviet Navy, but one can never be certain of this. Such uncertainty also applies to his representations of Western and Russian naval history. Therefore, the following interpretation should be looked upon only as a starting point for analyzing the structure and mission of the Soviet Navy.

Gorshkov's Purpose in Writing

Three major objectives are apparent in Gorshkov's works: justifying the importance of a navy to a great power; enlisting and praising the party's support of the Navy; and clarifying naval theory to Soviet navymen and others.

Justifying the Importance of a Navy

The importance of a navy is a predominant theme of Gorshkov's two major works in the seventies, but its genesis dates to a 1965 article in *Voyennaya Mysl'* which highlighted the primacy of navies in the armed forces of contemporary Western countries. A year later, he again underscored the importance of Western navies and used it as a compelling reason for increasing the strength of the Soviet Navy. In subsequent articles, Gorshkov has used historic analogies and quotes from Lenin to overstate the importance of the Navy. According to Gorshkov, "Lenin considered the fleet to be one of the chief strike forces."

Gorshkov also notes the important role of navies in Western and Russian history. He points out that the Russian Navy was in 31 of 33 Tsarist wars, that all great powers need great navies to stay great, and that European countries declined when their navies faltered. His desire to impress the reader with the Navy's value seems to outweigh an objective interpretation of naval history.

Because he treats these points so extensively in his series *Navies in War and Peace*, and in his book *Sea Power of the State*, one gets the impression that the Admiral is still trying to convince some decision-makers of the Navy's importance. In a number of cases Gorshkov notes —perhaps with this purpose in mind—that "Russian leaders often did not understand the role of the Navy." He complains that under the Tsar

some influential high officals, particularly Finance Minister Witte and War Ministers Kuropatkin and Vannovsky, held the view that the country did not need a powerful navy and felt its expenditures should be cut. Because of their shortsightedness, he claims, Russia was not properly prepared for the Russo-Japanese War or World War I.

Enlisting Party Support

Gorshkov's writings have only praise for the party decisions on the Navy. His admiration extends to the decision in 1938 when the party set the goal of creating a powerful sea and ocean fleet—a program which was interrupted by the war. Gorshkov even views the hobbling decisions of the mid-1950s when Khrushchev limited the construction of large surface ships as the foundation for the future course of the Navy. Such praise leads one to question the sincerity of similar endorsements which Gorshkov has made of the decisions of party congresses since 1956. Nevertheless, his expressions of pleasure over the past three 5-year plans surely reflect at least partial, if not complete, satisfaction with the Navy's growth under his command.

Gorshkov, like the commanders in chief of other services, usually publishes an article about the time of a party congress. In an article published after the 23rd Congress in 1966, he noted that the:

> Congress demanded further improvement in the production of defense equipment in order that the Soviet Army and Navy have the most powerful and modern armaments.

After the 24th Party Congress in 1971, according to Gorshkov, the Navy began to receive a new generation of ships. He also stated that major exercises became a way by which the party could measure the Navy, implicitly linking exercises such as OKEAN 70 and 75 with the need to impress party officials with the value of the Navy. Gorshkov's satisfaction with the most recent 5-year plan can be seen in an article in 1976 where he stated: "Navy personnel received the decisions of the 25th Party Congress with great enthusiasm."

Clarifying Naval Theory

One of the goals of Gorshkov's work seems to be the clarification of contemporary Soviet naval theory. In a number of his writings, Gorshkov refers to past disputes within the Navy concerning such theory and he highlights the importance of establishing a unity of views toward the Navy's combat tasks. He notes that in the formative period of the Navy in the 1920s, various points of view on fundamental questions of construction and combat utilization abounded in the pages of military journals, among which *Morskoy Sbornik* held an honored place.

In his references to contemporary naval theory, Gorshkov emphasized the coalescence of a unity of views. He credits *Morskoy Sbornik* in 1967 with playing an "important role in the development of a unity

of operational-tactical thinking on the part of fleet leaders." In the introduction to his *Navies in War and Peace* series in 1972, he refers to the opinion of the editorial board of *Morskoy Soornik* that his articles "will foster the development in our officers of a unity of views on the role of navies." These references to a unity of views within the Navy tend to indicate that Gorshkov is setting down naval doctrine for navymen, and that he hopes others outside of the Navy will assimilate such views.*

Determinants of the Navy's Course

Like Mahan, Admiral Gorshkov believes that the nature of a country's navy is determined by geography, economics, and the character of its leadership—be it Theodore Roosevelt, or Leonid Brezhnev. But Gorshkov feels that a country's own past wartime experience, the nature of the enemy—whether it is a land or sea power—and trends in the capabilities of modern navies also influence the choice of a proper course. He credits modern operations research techniques in helping make critical choices in the development of the Navy's capabilities.

Wartime Experience

Since 1958, Gorshkov has written about the Soviet Navy's combat experiences up through World War II. He identifies the missions carried out by the Navy and tends to embellish its role. In his 1975 article in *Problemy Filosofii*, he points out that "progress is impossible in modern naval theory without turning to historical experience." He also notes, however, that profound changes in methods of combat, among other things, in the postwar years must also be considered. Apparently Gorshkov regards a correct analysis of history and a proper assessment of current trends as the key to the future.

The Economy

The economic might of the USSR as well as the sources of this might—its industrial capacity, scientific and technical base, levels of

*Most commentary on Gorshkov's writings has been focused on his book *Sea Power of the State*. Admiral Lobov, leading naval member of the General Staff, wrote an extensive endorsement in *Morskoy Sbornik* shortly after the book's publication. It was also reviewed favorably by TASS and *Izvestiya*. Few non-naval leaders, however, have commented on the book. Marshal Bagramyan, aged and holding only an honorific position, wrote the review in *Izvestiya*. General Lieutenant Yurpolsky, Deputy Head of the Military Political Academy, introduced a reader's conference on the book by citing it only as a "noteworthy phenomenon" in military literature. Other participants at the conference, however—all naval—had mostly favorable comments about it. According to some critical speakers, the author should have dealt more with the relationship between men and equipment, with trends in the Fleet, and with the relationship between historical war experiences and the future development of the Fleet. Despite this mild criticism, the conference nominated the book for the Frunze prize, which is awarded annually to the author that makes the most outstanding contribution to military theory.

trade, and use of ocean resources—directly affects the strength of the Soviet Navy. Gorshkov blames the lack of economic growth for the Navy's weakened state in the prewar period. He implies that the USSR is now a superpower with a super economy, and that it needs a super navy. Gorshkov wrote in 1973 that "the USSR possesses vast economic resources for military economic potential" and "modern warships are not merely a product of industry, but are a sample of it."

Nature of the Enemy

Gorshkov points out that a navy is more important to the USSR today because naval forces are one of the main strengths of potential enemy forces. He makes numerous references to the growth of Western strategic offensive naval systems and the need to counter them.

He also indicates that Soviet naval thought in the postwar period has developed differently from Western thinking because the USSR has been deeply influenced by the proximity of enemy navies with offensive capabilities. The Navy was faced with the problem of countering Western naval strength without having similar naval forces. Rather than imitate Western naval construction programs, Soviet naval strategists concentrated on developing defensive forces to counter the strengths of Western navies. The Navy developed cruise missile-equipped submarines and aircraft to neutralize Western aircraft carriers. Shortly thereafter, naval programs also focused on the construction of antisubmarine naval forces to offset the strike capabilities of Western ballistic missile submarines.

In an article in *Voyennaya Mysl'* in 1968, Gorshkov revealed the reactive philosophy that drove the Navy's program:

> After World War II, imperialists surrounded us with military bases to permit use of naval forces, strategic aviation, and ground troops [against the USSR]. US leaders felt their navy was a most flexible, mobile, and invulnerable strike force capable of quickly destroying strategic objectives in socialist countries. Under these conditions our country had to be seriously concerned with strengthening its armed forces, in particular increasing the power of the Navy at high rates of speed.

In 1972 and 1973, in his *Navies in War and Peace*, he expanded his concern for countering Western forces to include more distant areas as well as tactical submarines. The new Sixth Fleet naval base in Greece, he said, is:

> within carrier aircraft range of central regions of the USSR. We cannot be indifferent to aircraft carriers and nuclear-powered attack submarines based on Japanese islands, in Italy, in the Indian Ocean, and in other areas directed against the USSR and other socialist countries.

With this statement, Gorshkov seemed to be broadening his navy's task of countering Western forces to include worldwide operations wherever socialist interests are threatened.

Operations Research

According to Gorshkov, naval exercises and operations-research techniques are good methods for analyzing the effectiveness of his navy and for developing contemporary naval theory. He reported as early as 1967 that "all branches of naval service had begun using operations-research, based on the use of electronic computer techniques, and these methods helped develop the contemporary theory of operational art." A year later he credited "mathematical methods and computers for ensuring a scientific resolution of vital naval problems in modern war" and noted that "they produced a firm theoretical basis for developing the tactics of a new navy." Although other naval authors have written books on operations research for a number of years, Gorshkov seems to overstate the impact of such methods in light of the hoary tactics still employed by Soviet naval units.

Like Western naval policymakers, Gorshkov has grappled with the question of how to evaluate the relative might of navies. He has turned to "mathematical analysis for a more correct appraisal of the striking and defensive power of ships" and has "ceased comparing the number of warships of one type or another and their total displacement."

We can have some confidence in using Soviet naval exercises as a barometer of naval strategy if we believe Gorshkov's statement that "it is correct to view naval exercises as graphic." We must keep in mind, however, that exercises are not all-inclusive because he also says that "alongside these physical models, ideal models are being used extensively with mathematics and computers."

Wartime Missions

Strategic Strike

Gorshkov's writings indicate that strategic strike capability has long been an important mission of the Soviet Navy. In 1963 he said that Soviet "atomic submarines are prepared to execute missions not only of destroying ships in the ocean, but also the most important land objectives deep in the enemy's territory."

Throughout the rest of the sixties he highlighted the Navy's capability to conduct strategic offensive missions in a nuclear war. In one instance in 1967 he placed the SSBN force on the same footing as the SRF by noting that "along with the SRF the Navy has become the most important weapon the Supreme High Command has, one which would exert a decisive influence on the course of an armed struggle." This assessment is unique to Gorshkov; other service chiefs describe only the SRF as the main strike force of the Armed Forces. One reason cited by Gorshkov in *Navies in War and Peace* and *Sea Power of the State* for putting Soviet

strategic missiles to sea is that it "forces the West to cope with the same problems it hoped to create" for the USSR.

Gorshkov has always listed SSBNs first whenever delineating naval platforms. In emphasizing the growth of the US SSBN force, however, he seems, in the 1970s, to emphasize even more the Navy's strategic strike role. In 1975 he had recognized that:

> The primary object of military actions in nuclear war would be not just enemy forces, but [also] his economy, power system, military industry, and administrative centers.

Moreover, in his *Sea Power of the State* he identifies strategic attack as the primary mission of the Soviet Navy. Gorshkov's added description of US plans to increase the naval portion of its strike force may mean that he will push for the continued expansion of the Soviet SSBN force in the future.

Strategic Defense

Concern for the threat posed by Western SSBNs and aircraft carriers has had a prevailing influence on the Soviet general purpose navy. In the mid-1960s Gorshkov referred to the increased threat of attack on the USSR from the ocean as a reason for "strengthening the country's defensive capabilities, for modernizing the Armed Forces, and for increasing considerably the combat might of the Soviet Navy." He noted specifically that:

> over one-third of the total strategic nuclear missile potential of the American armed forces is concentrated in atomic powered submarines and aircraft carriers in the USN. It can be assumed that this will increase to 50 percent by 1970.

Despite his stated awareness that the role of the aircraft carrier has changed significantly in US doctrine, as late as 1976, he noted that it was a potential threat to the USSR when he stated that "attack carrier forces are a highly trained reserve for the strategic strike forces in an all-out nuclear war."

Gorshkov's concern for blunting nuclear attack from the sea is mentioned along with strategic attack as the main goals of the Navy in the seventies. In *Sea Power of the State* he states: "Supporting all missions related to operations against enemy land targets and protecting one's own soil from naval attack are becoming the main goals of the Navy." Underlining the importance of strategic ASW, Gorshkov now calls it a *national* not just a naval mission.

Gorshkov in his view places the greatest priority on those operations which can have a decisive impact on the outcome of the war. According to Gorshkov, only strategic offensive and defensive operations meet this criterion. In summary, Gorshkov believes that:

> The effect of naval warfare on the course of the war as a whole will be manifested primarily by the degree to which the Navy's capability to destroy land targets and to undermine the strategic nuclear potential of the enemy at sea is realized.

Interdiction

In all of Gorshkov's writings, only one direct reference is made to interdiction of the sea lines of communication as a *contemporary* mission of the Soviet Navy. In 1967 he said:

> the disruption of the ocean lines of communications, the special arteries feeding the military and economic potentials of these [imperialist] countries, has continued to be one of the most important of the Fleet's missions.

In subsequent writings, when speaking specifically of current Soviet naval missions, Gorshkov has not listed interdiction. Moreover, at one point in his recent book he says that Western navies have made interdiction a secondary mission since 1957. His preference for discussing strategic offensive and defensive missions for contemporary navies tends to lead to the conclusion that the disruption of shipping at sea is not a major mission of the Soviet Navy today.

Other statements in his recent book indicate that he believes the traditional mission of interdiction "has changed" and is no longer meaningful in the nuclear era. In discussing the impact of nuclear weaponry on naval missions, Gorshkov says:

> Operations entailing the disruption and interdiction of the enemy's sea shipping, which formerly were directly related to the sphere of employing a fleet against the enemy's fleet, today are taking a new direction. By being included in the overall system of naval operations against the shore, they are strengthening the attributes of the Navy which it has acquired due to its modern hardware—the capability to carry out strategic missions of an offensive nature through direct action against the source of the military strength of the enemy.

In this section of his book Gorshkov seems to be saying that the use of SLBMs against ports and other sources of supply would be more effective than launching torpedoes at merchant ships. Such an interpretation is corroborated by Gorshkov's view that in contrast with the past, under present circumstances there probably will not be time to accomplish the interdiction mission at sea:

> If the mission was, for instance, to destroy an enemy convoy during a sea transit, then this could be accomplished at any moment in the course of the transit lasting days or even weeks . . . It was only important that the mission be accomplished while the grouping of enemy ships was at sea.

> Today, however, this kind of approach will frequently not be applicable. An important feature in the change in the significance of this category is that the time needed by the Navy to accomplish strategic missions after the outbreak of military hostilities is becoming of the same order as the time which is needed to accomplish tactical missions.

Gorshkov devotes a considerable part of his works in the seventies to a discussion of interdiction in past wars. His description of Soviet success in sinking over 1300 transports in WWII is not new, however, and can be traced back to his 1965 article in *Voyennaya Mysl'*. Thus, his more recent treatments of the Soviet Navy's interdiction role in WWII do not evince an upgrading in the priority of that mission for today's Navy.

His more current writings, however, do contain new coverage of the development of non-Russian navies and *their* historical wartime roles, including interdiction. It is difficult to draw definitive conclusions from Gorshkov's view of naval history. In a number of ways he shows an appreciation for the interdiction mission. He notes that navies prevented England from supplying North America during the Revolutionary War, that the Japanese erred by not using submarines against enemy communications lanes, and that the German interdiction campaign had a serious effect on the course of the war.

Gorshkov's enthusiasm for the value of an interdiction strategy, however, is usually tempered by commentary that no interdiction campaign has had a decisive impact on the course of war in the 20th century. In campaigns between continental forces such as Germany and the USSR, he accepts this as understandable. In wars involving countries with vulnerable ocean lines of communication, such as the UK, he finds fault with the strategy adopted by the interdicting force. For example, he says Germany should have constructed more and better submarines and used their other naval and air forces to support the U-boat campaign.

Such a strategy would place more emphasis on navies fighting navies rather than sinking merchant ships. At a minimum, this strategy implies that destroying shipping would be delayed until the main naval battles were completed. On the other hand, his criticism of the Japanese Navy as an unbalanced one because it attacked only major naval forces, reflects his concept that today's navies should be capable to some degree of fulfilling all missions. In his view, submarines and to a lesser extent aircraft are the best platforms for the mission of interdiction.

Protection of Submarines

In order to execute its missions, the Navy must be able to protect its nuclear submarines. Gorshkov has professed this concern since the early sixties, paying increased attention to it in his current works. In 1963 he said that the:

> Navy must have other forces besides long-range strike forces for combating the enemy within the strike zone of a naval theater and

> for the security of peripheral strike forces [defined earlier as nuclear submarines and missile-carrying aviation]. Such [protective] forces are surface missile ships, ASW ships, aviation, and minesweepers.

Gorshkov later attributes this concern to the onset of SLBMs, but he also highlights the vulnerability of all submarines. His 1975 article in *Problemy Filosofii* noted that the Navy:

> must work out methods for enabling submarines to overcome the counteraction of ASW forces. Careful study of single and group actions by submarines; their experience in overcoming ASW barriers, minefields, and enemy zones; their experience in cooperating with surface ships and aircraft, and methods of concealed penetration can be helpful today in finding original solutions by which submarines can carry out their combat missions.

Gorshkov's overriding concern over the vulnerability of his submarine force to Western ASW forces is reflected in his criticism of the German High Command for failing to support submarine operations with aircraft and surface ships; in his specific reference to the 70 percent of German submarines that were destroyed, mostly by aircraft, while proceeding to combat areas; and in statements that nuclear submarines, not just SSBNs, need protection.

Support of Flanks and Protection of Shipping

Supporting ground operations on the coastal flanks and protecting Soviet shipping in nearby waters were two of the primary missions of the Soviet Navy in World War II, according to Gorshkov. Except for describing the Navy's success in fulfilling these missions in a historical context, Gorshkov seldom writes of these as contemporary missions. In the concluding portion of his *Navies in War and Peace* articles, however, he lists support of ground operations as a Soviet naval wartime mission after strategic attack and strategic defense.

Wartime Concepts

In this section Gorshkov's views on sea control and the duration of war in the nuclear age are described. Because some reviewers interpret Gorshkov's works as representative of a withholding strategy for the Soviet Navy, his views on this wartime concept are also examined.

Short War

In his interpretations of World War II, Gorshkov implies that a continental power must fight a short war to be victorious. In *Navies in War and Peace* he stressed that "for Germany, the most important condition for achieving victory was the shortness of the war; the

transformation of it into a protracted war was equivalent to defeat." In this connection, he says;

> the economies of Great Britain and France, being supplied by sea with the resources of almost the entire world, were in a more satisfactory condition and this made it possible for them to wage prolonged war and count on success.

If an analogy is being made here between Germany in WWII and the USSR today, then one could argue that the Soviets, according to Gorshkov, must plan to fight a short war.

In describing his wartime concepts of time and sea control in his book, Gorshkov seems to be concerned with preparing his navy for a short war. He equates the time required to accomplish strategic missions with that for tactical missions, and notes the short duration of a period of sea control in a modern war. In the days of Napoleon, he writes, "the English sailing fleet established control in the Mediterranean Sea for several years," but in 1941 the control gained by the Japanese "lasted no more than 4 months."

Gorshkov uses these distorted interpretations of naval history to support his contention "that there is a tendency toward a reduction in the time period of maintaining sea control." These comments by Gorshkov pertain to the time period of control of the sea and not specifically to the duration of a war. His belief, however, that in a future war strategic missions—perhaps decisive ones—will be accomplished quickly and that battles for control of the sea will be short, implies that he expects future wars to be shorter than past ones. Moreover, he notes that during a future war, time will not be available to construct the ships that will be necessary for victory.

Sea Control

> Russian policy is really to push down southward and command what every writer and every thinking man from the most ancient times knows perfectly well is the great thing to possess, namely "command of the seas," and Russia, in my opinion, is determined upon possessing command of the seas.

Captain Bedford Pim, Royal Navy, expressed this opinion almost a century ago, but like many estimates, it proved incorrect. Even now, Gorshkov has not designed his powerful navy to control the seas in the Mahanian sense of the concept. For Gorshkov "sea control is interpreted somewhat differently than in the West." He believes that Mahan's theory of sea control "did not take into account the near-future prospects or the notable trends in the development of naval technology."

For his definition of sea control, Gorshkov draws on an article written in 1938 by Captain Belli, a Soviet naval theorist:

> To achieve superiority of forces over the enemy in the main sector and pin him down in the secondary sectors at the time of

> operation means to achieve sea control in a theater or sector of a theater—i.e., to create such a situation that the enemy will be paralyzed or constrained in his operations, or weakened and thereby hampered from interfering with our operation or our countering of his operation.

This reference to sea control in *Navies in War and Peace* is expanded and clarified to some degree in *Sea Power of the State*. Gorshkov describes the evolution of the concept, noting how navies could gain victory over a fleet, cut off a country's shipping, seize colonies, and control the world if it controlled the sea.

He claims, however, that *Soviet* naval science has always "rejected attempts to identify the concept of control of the sea with control of the world." He views:

> the gaining of sea control not as a goal in itself, but only as a path to establishing certain conditions which would permit naval forces and resources to successfully accomplish one mission or another in certain regions of a theater within a specific period of time.

He prefers to use the term "favorable operational regime" instead of sea control and wants to establish those conditions which will permit his naval forces to carry out their primary missions successfully.

Such a concept, simplified, seems to reflect Gorshkov's desire for naval and air superiority in all tactical engagements. In the Norwegian Sea, for example, he might want to ensure the lowest possible risk in conducting antisubmarine warfare operations within range of Western attack aircraft by carefully selecting the time, forces, and location for the operations.

Similarly, in order to improve the survivability of his surface ships operating outside peripheral waters, Gorshkov might want to establish forward-based airfields so that Soviet strike aircraft could create a more "favorable operating regime" for his naval units. In the context of current Soviet primary missions, this is a wartime concept which probably applies mainly to likely critical areas of engagements such as the Mediterranean Sea.

Withholding Strategy

Some reviewers of Gorshkov's writings see evidence of a Soviet strategy which withholds SSBNs until the end of a war in order to extort a more favorable peace settlement. This interpretation is based on Gorshkov's description of a number of wars, both Russian and Western, in which victory was not achieved until the navy entered the war, or in which naval superiority at the end of the war led to advantageous peace treaties. Supporters of this view also believe that Gorshkov's statements in 1972 and 1976 reverse an earlier Soviet criticism of Admiral Jellicoe's decision to withhold the main British forces in the Battle of Jutland.

It would not be surprising if Soviet naval strategy called for the withholding of some SSBNs in the initial exchange in an intercontinental conflict. But Gorshkov's comments seem subject to other interpretations as well, and this cannot be considered the basis for saying that the major portion of the Soviet SSBN force would not be committed until late in a war.

These historical references by Gorshkov may merely be intended to underline the value of a navy to any country involved in conflicts. In no way can his comments in this vein be directly associated with only the SSBN force. If they apply to the Navy in general, then a good portion of Soviet naval forces could be bottled up in the latter stages of a war. With regard to the Battle of Jutland, Gorshkov's concurrence with Jellicoe's "withholding strategy" may be more of a reflection of his belief that the main forces of modern navies no longer need fight each other for victory to be achieved. As he says:

> The Battle of Jutland showed that it was impossible to transfer to modern conditions the experience of the Russo-Japanese War with respect to employing major battleship-type commands as the main and solitary forces for achieving victory in an engagement at sea. Therefore, it was a landmark which has been noted in the history of the naval art as the moment of recognition of the need for concerted action by different types and means of naval forces.

Such a statement seems to reflect his philosophy that the Navy must choose the mixture of naval forces best suited to win certain tactical battles. For example, carriers should be opposed by submarines or strike aircraft rather than carriers. In other words, smaller groupings of mixed naval forces could be used effectively against the enemy's large groupings. According to Gorshkov, these forces would not be withheld, but would "seize the initiative," under the right conditions, during the war.

Battle Trends

In certain articles Gorshkov describes how modern technology has changed the nature of combat at sea and has increased the importance of acting quickly in tactical situations.

Weaponry and Technology

Gorshkov believes that new tactical weapons and electronic systems for detecting and deceiving the enemy have dramatically changed the nature of combat at sea. He emphasizes the growth of antiship strike capabilities brought about by improvements in weaponry and points out that a small force, or even a single ship, can now accomplish major objectives against other naval forces with a single strike. He is probably thinking about his navy's cruise-missile equipped submarines, for exam-

ple, when he notes that "one submarine can destroy major surface ships with a salvo of cruise missiles."

Gorshkov recognizes the three regimes for naval warfare—on the surface, below the surface, and in the air—and he stresses the constant increase in the size of the battle area because of the increased range of naval weaponry. He points out that in today's environment, engagements can take place at distances "up to several hundred kilometers" and that this distance "will increase even farther in the future." In predicting, in 1974, longer range antiship missiles for the future, Gorshkov may have had in mind a weapon that would fit into the missile launchers on the KIEV class aircraft carrier which recently became operational.

Gorshkov points out that reconnaissance of large battle areas will be possible only with the aid of "specialized, primarily airborne, means." This term probably refers to satellite systems as well as reconnaissance aircraft. He stresses the importance of technical means in obtaining target information for effective strikes.

Another significant change in today's battles, according to Gorshkov, is the "ever-growing importance of destroying (or leading off course) enemy weapons" after they have been launched, rather than concentrating solely on engaging the weapon platforms before launch. This observation reflects Gorshkov's appreciation for advances made in the Soviet Navy's antiship missile capabilities and the consequent need for opposing navies to develop countermeasures to such missiles. It probably also shows his anticipation of US plans for the deployment of antiship cruise missiles—and thus the need for his own navy to develop countermeasures.

Tactics

Insight into Gorshkov's views on naval tactics is revealed primarily in his article on the "Naval Art" in 1974 and a similar discussion on the subject in his book. Limited references to tactics are also made in articles he wrote in 1967 and 1973. Gorshkov instructs his navymen to seize the initiative, use surprise and speed, and coordinate tactical operations.

Using initiative has been a Gorshkov theme for the past decade. He tells his naval readers to be decisive in tactical operations, and he encourages "initiative in the use of new tactical moves not known to the enemy." He emphasizes that "spirited offensive tactics" should be used in carrying out naval missions. Gorshkov seems to believe that all commanding officers should be creative and initiate contact with the enemy. Submarines in particular, he notes, should play an active rather than passive role—suggesting a dislike for barrier operations and a preference for active search tactics.

Gorshkov also asserts that "the struggle to achieve surprise is becoming particularly critical" because of developments in military equipment and the decisive potential of nuclear weapons. He makes a distinction between the strategic concept of surprise—a consequence of

the enemy's lack of preparedness—and today's tactical concept of "active, strictly goal-oriented actions" to prevent the enemy from reacting to one's own actions. In this connection, he emphasizes the importance of electronic means of gathering intelligence.

Gorshkov devotes substantial attention to what he calls swiftness (the rapid unfolding of combat operations at sea) and the tempo of operations (the short time available to accomplish a mission). These concepts are significant, he notes, because speed is one of the most important factors in achieving surprise. Accordingly, while fewer combat units are now needed to destroy the enemy, these units must be fast and operate in the right combination to achieve optimum results. For example, he emphasizes the need for mixed antisubmarine warfare forces to counter ballistic missile submarines in the shortest possible time.

The Peacetime Navy

The Soviet Navy in peacetime, according to Gorshkov, serves as a strategic deterrent, a local deterrent to Western intervention, a protector of socialist state interests, a symbol of the might of the USSR, and a force ready for war. His emphasis on the political value of naval forces is particularly extensive in the seventies.

Readiness

Gorshkov claims that his forces are in a high state of combat readiness at sea and in port. Maintenance and replenishment, he writes, "must be carried out as soon as possible after a ship returns to base so as not to delay the ship from putting out to sea." He stresses that a "high state of combat readiness will ensure the execution of a crushing blow on the enemy in the first hours and even first minutes of the war when it starts," and that the "military might of the aggressor can be crushed only if forces are well-trained, coordinated, and deployed before-hand."

He attaches "special importance to maintaining all naval forces in constant combat readiness to quickly bring down all the power of the aggressor." He notes that some of these ships that are deployed beforehand are "in continuous contact with foreign ships carrying nuclear missiles." Thus one purpose of Soviet naval deployments outside of home waters in peacetime is to be prepared to carry out strategic defensive missions in case of war.

Protection of State Interest

As early as 1965, Gorshkov fostered the increasing peacetime role of the Navy:

> In contemporary conditions, the role of the Navy is considerably increased in peacetime. In the economies of socialist camps, the importance of peaceful use of seas and oceans acquires even greater

> significance. Fishing fleets are increasing. Peaceful trade being developed calls for the rapid development of a Soviet merchant fleet. Thus, it is necessary to reinforce the naval power of our country for the reliable protection of the Soviet government's interests on the seas and oceans.

Gorshkov claims that the "Navy is the solitary branch of the Armed Forces" capable of protecting Soviet interests beyond the country's borders.

As a Political Instrument

In the seventies, Gorshkov places particular emphasis on the value of the Soviet Navy as a political instrument. More than 200,000 navymen, he says, have "strengthened friendship" with peoples of over 60 countries. In citing numerous historic examples of "gunboat diplomacy" in favorable terms and in noting that this is an "important weapon of diplomacy and policy in peace time," Gorshkov is ascribing such a role to his navy. According to Gorshkov, countering Western "aggression" by interposing Soviet naval forces between a threatened client state and Western naval forces is another of his navy's missions. After alleging the US Sixth and Seventh Fleets' roles in pressuring "progressive" states in the Mediterranean and Pacific, Gorshkov proudly states that because of the Soviet Navy "the US Navy can no longer act with impunity." He seems set on having the ability to counter Western naval involvement in local wars "because local wars remain part of imperialist policy."

The Navy's Structure

Gorshkov comments extensively on the need for balanced naval forces in today's navy. He presents his views on the importance of various naval platforms such as submarines, aircraft carriers, and support ships.

A Balanced Fleet

This is perhaps the best-defined term used by Gorshkov. He attaches an explanatory footnote to his use of it in *Morskoy Sbornik* in 1967:

> By a well-balanced navy we mean a navy which in composition and armament is capable of carrying out missions assigned it not only in a nuclear war, but in a war which does not make use of nuclear weapons, and is also able to support state interests at sea in peacetime.

He claims that the Soviets have created "a balanced navy capable of successfully conducting combat operations under differing circumstances." The key to this balance, he writes, is "the harmonious development of submarines, aircraft, surface ships, and other forces."

In his view, a navy must build different types of naval platforms for carrying out various missions under any circumstances. In *Navies in War and Peace* and his book, he labels every navy in WWII as unbalanced: the Germans were the most unbalanced because disruption of shipping was virtually their only mission; the Japanese lacked ASW forces; the Americans failed to allocate the proper forces for the protection of shipping; and the Soviets did not build special landing ships and minesweepers.

The best way to decide on the proper balance, according to Gorshkov, is through the use of mathematical objective analysis which "permits the determination of the necessary and sufficient composition of forces and more rational combination of them which we call balanced forces."

Submarines

Despite this concept of a balanced navy, Gorshkov exhibits a distinct bias for submarines—particularly ballistic missile submarines. Throughout his writings he gives submarines the highest praise of any units in the Soviet Navy.

Although he seems to favor ballistic missile submarines, his praise seems to pertain to general purpose submarines as well. In 1963, prior to the expansion of the Soviet ballistic missile submarine force, he wrote that "submarines are the main force of the Navy." Later in the sixties he stated that:

> nuclear submarines rightfully occupy the leading place in the struggle against enemy surface and submarine forces as well as being able to strike important ground targets at vast distances.

In the seventies he has continued to note that the "basis of our navy is nuclear-powered submarines of various types with great endurance and high combat qualities."

The Soviets gave priority to the development of submarines because, as Gorshkov says in his book:

> they enabled our navy to increase its attack capabilities in the shortest possible time in order to pose a serious threat to the main forces of the enemy navy in the ocean theaters, and to do this at a cost of fewer resources and less time.

One interpretation of this statement is that over a longer period of time and with greater availability of resources, submarines might not have received the highest priority. Elsewhere in his book, however, Gorshkov continues to give clear priority to submarines, even though other forces seem to be getting more and more press coverage.

In describing the Soviet submarine force, Gorshkov expresses satisfaction with the achievements of his ballistic and cruise missile-equipped submarines, while revealing that some of the submarines have

an incipient anti-SSBN capability. Specifically he notes that "submarines are also becoming valuable antisubmarine combatants, capable of detecting and destroying the enemy's missile-carrying submarines."

Speed and range are the qualities Gorshkov values the most in submarines. Although he stresses the continuing value of diesel submarines, he prefers nuclear units.

Aircraft and Air Defense

Gorshkov consistently lists aircraft as the second most important arm of the Soviet Navy. He has particular praise for missile-equipped aircraft, and predicted their further development in 1968 when he wrote that "the combination of modern jet aircraft with long-range missiles has opened new opportunities for increasing the striking power of the Navy and the mobility of its forces." The targets of such aircraft, he says, are primarily warships, and secondarily shore bases. He admits, however, that today the main mission of naval aircraft is antisubmarine warfare because of the increasing number and lethality of SSBNs.

Gorshkov has a broad appreciation of naval aviation. He believes that "no naval operation is conceivable without air forces," and he is acutely aware of the vulnerability of surface ships and bases that do not have air cover.

In relating the experience of his navy in WWII, he has stressed that the "small radius and short flying time of fighter planes limited the use of naval surface forces." In a similar vein he has noted that, "lacking cover against air attack, surface ships were able to repulse enemy attacks only when at sea adjacent to our own coasts." Such statements seem to reflect a desire to put fighter air cover to sea and to establish a system of shore-based fighter support.

Gorshkov believes that shore-based aircraft that perform naval missions should be part of the Navy rather than temporarily attached to it. He also wants "to ensure the passage of aircraft through zones of heavy enemy air defense, and defend them against enemy aircraft in regions of combat action." As a consequence, Gorshkov predicts, "combatants will to an even greater degree be equipped with VTOL aircraft."

Gorshkov does not intend to rely on aircraft alone, however, to protect his ships from aircraft at sea. For example, in 1973 he noted that "shipboard surface-to-air missiles and automatic antiaircraft guns are the main means of ship air defense."

Major Surface Ships

Gorshkov reveals in his book that Soviet surface ship construction since 1955 has been limited because air defense systems lagged behind aircraft strike capabilities. Because "antiaircraft armament on modern ships has been considerably strengthened," he believes surface ships can now "counter enemy aircraft and repel combined attacks from other naval forces of the enemy while carrying out their own main mission."

His writings in the late sixties refer to modern Soviet ships with new missiles and "air defense capabilites." In the seventies, he emphasizes "a modern navy cannot be only an undersea navy. We have a need not only for submarines, but also for various types of surface ships."

Through 1967 Gorshkov had opposed the construction of Soviet aircraft carriers. Some people, he claimed:

> yielding to the hypnosis of the modern use of aircraft carriers in land wars, continue to fight for the construction of aircraft carriers, but they lose sight that aircraft carriers, even nuclear-powered ones, cannot stand comparison with the strike capabilities of submarines and air forces.

He went on to say that "the era of nuclear missiles has led us to conclude that the process of the sun setting on aircraft carriers has begun and is irreversible."

Since 1968, however, in a remarkable turnabout that deserves additional study, Gorshkov has avoided making such comments about aircraft carriers. Moreover, in his more recent works he compliments the carriers' role in WWII and, most significantly, describes extensively their value in local wars—thus apparently joining those he had criticized in 1967.

If the Soviets plan to build an attack aircraft carrier, it is unlikely to be nuclear-powered, at least in the near future. In 1973 Gorshkov wrote that nuclear power was "being imparted only to submarines."

With regard to the other characteristics of major surface ships, Gorshkov prefers them to have great endurance—implying large ships. This, he claims, would permit fewer ships to carry out the Navy's missions.

At the same time he also stated in 1973 that:

> the diversity of tasks confronting us has evoked the need to build numerous types of surface ships with a specific armament for each. Attempts to build general purpose warships for many missions have been unsuccessful.

This single-purpose ship theory represents a change from Gorshkov's earlier thinking. In 1965 he had stated that the "fleets have been supplied with new multipurpose surface ships." It seems that by 1973 he was calling for a variety of types of ships rather than large numbers of each type. Other references in his writings to the importance of the quality rather than the quantity of ships tend to support this interpretation.

Amphibious and Gunfire Support Ships

For over a decade, Gorshkov has been bemoaning the lack of special landing ships or gunfire support ships in the Soviet Navy during World War II. He first wrote of the shortcoming in a 1965 article which reported that the:

fleets entered the war without a single ship of special construction and only one brigade of naval infantry. The fleets had no special gunfire support ships for amphibious landings.

Although he also points out that the Navy conducted over 100 landings successfully, despite shortcomings, he concludes that the Navy was limited to the support of ground operations in theaters of war.

Gorshkov's writings indicate that amphibious ships were not constructed until 1955 because of their lower priority, but by 1968, he says, the Navy was equipped with landing ships "capable of supporting ground troops in coastal zones and carrying out responsible combat missions." He gives the more than 600 landing operations of World War II a favorable review, noting that all were successful except the two in which air superiority was lacking.

In a section of his book that he calls "Fleet Against the Shore," Gorshkov describes favorably many landing operations in the past. Today, he says, the importance of naval operations against the shore has increased because of the development of naval nuclear weapons.

By including an extensive discussion of landing operations in this important section, Gorshkov is either justifying historically the present priority of the Soviet SSBN program or he is elevating the importance of the Navy's amphibious arm. The latter may be the case because elsewhere in his book he justifies the SSBN program, refers to the unbalanced nature of the British Navy in World War I because it lacked landing ships, and highlights the importance of landing operations as an instrument of state policy for navies in general. Gorshkov also believes that a "modern balanced navy" will have air-cushioned vehicles and perhaps wing-in-ground effect vehicles as landing ships, and ship-based helicopters for tactical landing operations.

Support Ships and Overseas Bases

In 1966, in the journal *Tyl i Snabzheniye*, Gorshkov said that it was necessary "to transform fundamentally the supply of the basic naval forces." He called for the building of "tankers, automatic food transfer systems, floating ship repair shops and floating docks." He felt that the Navy "must find new methods for sharply reducing the time spent to take on fuel and other materiel at sea."

Ten years later, in the same journal, Gorshkov recognized the auxiliary fleet's continued shortcomings and noted that the fleet's significance "cannot be overestimated." The auxiliary fleet, he says, needs higher quality and newer ships like the US SACRAMENTO, greater coordination in transferring supplies, and a better system of defense and protection. Thus, if Gorshkov has his way, further improvements can be expected in Soviet support ships over the next decade.

He stresses that his navy is at a disadvantage because it lacks overseas bases, and notes, for example, the US Navy which "controls

more than 500 bases worldwide for ships and aircraft." He claims that the "USSR has no military bases abroad and has no desire to have them" so the mobile fleet must make up this void.

Despite this claim, his other references in *Navies in War and Peace* and *Sea Power of the State* to the advantages of Western forward bases seem to reflect an underlying envy. In 1973 he pointed out that:

> imperialists strive to surround socialist countries with a range of naval and air bases and groupings of naval forces. The US alone has 3,429 military bases and supply points manned by 1.7 million men in countries outside its borders.

He also highlighted the extensive system of British colonial bases in World War II and the advantages it afforded over the Germans, who lacked bases that would ensure direct outlets to the ocean.

In view of Gorshkov's stated objective of making the Soviet Union a sea power, he probably really agrees with Mahan's view that:

> to provide resting places for them [ships], where they can coal and repair, would be one of the first duties of a government proposing to itself the development of the power of the nation at sea.

In order to avoid ideological contradictions, the Soviets presumably need not announce formal control over such "resting places."

Implications for the Future

If Gorshkov's lobbying efforts are successful, the Soviet Navy is likely to continue to evolve into a more balanced one. Submarines will continue to be the primary element of the fleet, but surface forces—including aircraft carriers—are likely to receive a greater share of the Navy's budget than in the past.

In order to be able to conduct operations in distant areas in wartime and to reap the political benefits of a forward-based naval presence, efforts will be made to improve support ships and gain access to overseas facilities. Soviet naval forces are likely to be employed to a greater degree as a political instrument. The focus on strategic capabilities, however, will continue to be the predominate factor in naval planning.

Gorshkov probably will stay at the helm of the Soviet Navy for the near term and occasionally publish articles which reflect his views of naval trends. At 68 he is only just reaching "middle age" in terms of the age group of Soviet leaders. Admiral Gorshkov's experience and flexibility should enable him to stay on and continue to guide the future development of the Soviet Navy.

ANNEX TO CHAPTER 1

ARTICLES AND BOOKS BY S. G. GORSHKOV

1. "Faithful Defender of Our Sea Frontier," *Agitator*, July 1958.
2. "Concern of the Party for the Navy," *Morskoy Sbornik*, July 1963.
3. "The Navy of Our Homeland," *Kommunist Vooruzhennykh Sil*, July (Vol. 13), 1963.
4. "Soviet Sailors in the Battle for the Liberation of the Danube States," *Morskoy Sbornik*, August 1964.
5. "The Soviet Navy in the Great Patriotic War," *Voyennaya Mysl'*, May 1965.
6. "Honorable Awards of the Homeland," *Morskoy Sbornik*, June 1965.
7. "The 23rd Congress of the CPSU and the Tasks of Navymen," *Morskoy Sbornik*, May 1966.
8. "The Urgent Tasks of the Naval Rear Service," *Tyl i Snabzheniye*, July 1966.
9. "The Development of Naval Art," *Morskoy Sbornik*, February 1967.
10. "Guarding the Conquests of the Great October Revolution," *Morskoy Sbornik*, October 1967.
11. "The Navy of the Socialist State," *Voyennaya Mysl'*, January 1968.
12. "The Navy in the Great Patriotic War," *Morskoy Sbornik*, May 1970.
13. "Navies in War and Peace," *Morskoy Sbornik*, February-June 1972; August 1972-January 1973.
14. "The Black Sea Fleet in the Battle of the Caucasus," *Voyenno-Istoricheskiy Zhurnal*, March 1974.
15. "Certain Questions Concerning the Development of the Naval Art," *Morskoy-Sbornik*, December 1974.
16. "Navy Did Its Duty for the Homeland Right to the End," *Morskoy Sbornik*, May 1975.
17. "Historical Experience and Present Day," *Problemy Filosofii*, May 1975.
18. "Oceanic Shield of the Homeland," *Kommunist Vooruzhennykh Sil*, April (Vol. 7), 1975.
19. "Greeting the 25th Congress of the CPSU," *Morskoy Sbornik*, February 1976.
20. "A Most Important Factor of the Navy's Combat Readiness and Combat Efficiency," *Tyl i Snabzheniye*, July 1976.
21. *Morskaya moshch' gosudarstva (Sea Power of the State)*, Moscow: Voyenizdat, 1976.

Chapter 2

Sea Power of the State—An Internal Debate?

By William H. Thomson

Admiral Sergei Gorshkov, Commander in Chief of the Soviet Navy, in his book *Sea Power of the State* (Moscow: Voyenizdat, 1976) has produced a highly significant work which, with his previous writings, undoubtedly places him as the most penetrating and sophisticated naval theorist in Russian history. But in the penchant of many Western analysts to give the Admiral's writings the finality of a papal bull, and thus deduce precisely the future course of the Soviet Navy, is it not possible that we give an imprimature to the totality of its content that his colleagues within the military heirarchy and the party bureaucracy would not endorse? Is it not possible that because we cannot fully fathom the context in which the book has been written, we often overlook some real problems and issues that Gorshkov himself raises?

Admiral Gorshkov in his more than 20 year tenure as Chief of the Soviet Navy has been very successful in modernizing the fleet and expanding its capabilities. There is a small, but thoughtful set of opinion, however, that would question whether he occupies an unassailable policy position from which all statements issued are automatically authoritative. In fact, it may be that the 1972–1973 Gorshkov articles did not represent the final victory, and that he must continue to struggle within the political and military decision making system against those who do not share his views.[1] I believe there is sufficient evidence within *Sea Power of the State* and the scarce amount of published Soviet discussion to warrant such an interpretation.

This chapter will examine some of the evidence that seems to point to the internal dispute. First, I will look at several themes of argument

[1] George E. Hudson, "Soviet Naval Doctrine and Soviet Politics, 1953–1975" *World Politics*, Vol. 29, No. 1, October 1976, pp. 112–113.

which Gorshkov forcefully puts forward in the book and then discuss some of the brief but rather interesting commentary it has generated.

At least two major themes can be identified which appear to encompass key aspects of Gorshkov's viewpoint. One major theme is that of the Navy's position within the structure of the Armed Forces, which includes increasing strategic primacy, particularly in comparison to land based missile forces, and utility as a political tool in peacetime. The second is that of the "balanced navy" which subsumes issues of ship construction and economic resources allocation.

The Russian Navy has historically had to struggle—usually to no avail—to avoid being relegated to a secondary status in the military scheme of things whether it be by Czars or commissars. In the post-Stalin era, the Navy has continued to have its ups and downs.[2] That there remain those in decision-making positions that neither appreciate nor understand the modern Soviet Navy and Gorshkov's concept of it is strongly implied. At one point he states "it is essential to stress once more (*yeshcho raz*) the fundamental difference in goals . . ."[3] between the Soviet Navy and the "imperialist navies." The question is why would he have to repeat something that seems to be so basic in a Soviet framework unless there were those who did not understand the unique goals he perceives for the Navy in serving Soviet state interests? Later in a section sketching the history of "naval operations against the shore" he makes a rather striking divergence to note the reasons for English naval success against Napoleon. This was due primarily to "Napoleon's one-sided strategy which stemmed from his preoccupation with operations in the land theater and his lack of understanding of the role of the Navy, his disregard for its capabilities in war, and, consequently, also his inability to utilize it in combat with a naval power such as England was at that time."[4] Might he not be criticizing like-minded "Napoleons" in the military and political leaderships who still regard the Soviet Navy as secondary to other branches of the Armed Forces in Soviet military planning?

A third, and perhaps the most clear general reference to military disagreement, is found in the section discussing the concept of the "balanced navy." Again, Gorshkov uses an historical context to make a broader statement. "The absence of a unity of views (*edinstvo vzglyadov*) among the higher military and naval commands of many states concerning the nature of a future war and the role of each of the branches of the Armed Forces in it, considerably affected the choices made in the direction of the development of navies, the definition of their missions, and, consequently, also the numerical and qualitative composition of the

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[2] Ibid.
[3] *Sea Power of the State* (*SPS*) p. 346.
[4] *SPS*, p. 358.

forces."[5] The key is the use of the phrase "unity of views," a particular Soviet expression which refers to military doctrine.[6] While ostensibly referring to the pre-World War I period, Gorshkov cites an "absence" of doctrinal agreement between the Navy and the other military commands in the precise areas about which he appears to be arguing in other parts of the book. These include the nature of a future war and concomitantly the role of each armed service and mission definition in connection with which are numerical and qualitative naval force composition.

Admiral Gorshkov's concept of a future war is intertwined with his view of the growing importance of the Navy. Each one is supportive of the other. On one hand, he states that "the relative importance of each branch of the Armed Forces has varied, depending on the composition of the enemy coalition, the political goals of the war, and the weaponry and its characteristics."[7] He ties the role of the service to the type of war that may be encountered. On the other hand, he goes to great lengths to make the case that the oceans will be the main battlefield of the future. He refers several times to the "oceanic strategy" of the imperialists. "The growing importance of navies in armed combat has been reflected in the military doctrines of the imperialist states, with the main ones being oriented toward an oceanic strategy."[8] Gorshkov goes on to point out that ". . . when the main political poles of the world are separated by oceans, the success of political measures and the accomplishment of strategic missions will in the future also depend to a considerable degree on the power of the Navy . . ."[9]

The Admiral argues for growing prominence of the Navy because the enemy coalition is dominated by oceanic powers. To give this further emphasis he notes that "in many wars, particulaly those in which the principal adversaries were separated by seas, navies have had the decisive role in gaining victory."[10]

The third criteria for judging the importance of each branch of the Armed Forces, i.e., the weaponry and its combat characteristics, also militates toward the Navy in Gorshkov's view. He states that "the special characteristics of naval forces, their high maneuverability, their ability to assemble covertly and form powerful groupings of surprise to the enemy, and also their greater ability to withstand the effects of nuclear weapons than that of forces operating on land, have advanced navies to the fore of modern means of armed combat."[11]

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[5] *SPS*, p. 418.
[6] For an excellent word study and discussion of the differences between military doctrine and military science see *Military-Political Tasks of the Soviet Navy in War and Peace* by James M. McConnell, CNA Professional Paper No. 148, February 1976, pp. 8–16.
[7] *SPS*, p. 453.
[8] *SPS*, p. 455.
[9] *SPS*, p. 455.
[10] *SPS*, p. 453.
[11] *SPS*, p. 344.

It appears, however, that Admiral Gorshkov is claiming not only increasing importance for the Navy in the Armed Forces structure, but is asserting specifically the strategic primacy of the Navy over the Strategic Rocket Forces. He pursues his argument on this question along at least two lines: one could be called capability and the other rationality. On the capability side, he at one point cites what he says is American opinion. "American military specialists believe that the missiles of the missile-armed submarines have indisputable advantages over land-based Minuteman missiles."[12] Gorshkov does not limit himself to mentioning foreign sources, but forcefully puts forward the Soviet Navy making direct comparisons with the strategic rocket troops. "The Navy has amassed numerous mobile strategic weapons platforms, each of which can carry a very large number of long-range missiles and is capable of deploying its launch positions over an area many times greater than the area which land-based missile troops could utilize."[13] He further indicates in implied comparison that this capability along with others inherent in SLBMs gives them a better strategic survivability.

His discussion from the standpoint of rationality follows a technique he uses several times in the book. Gorshkov first gives what he says are scientific or objective criteria for determining some aspect in regard to rating the importance of the Armed Services relative to each other and then states that the Navy best fits the criteria. In this case the Admiral puts forward the proposition that "scientific-technical progress in the military domain has introduced new criteria for defining the real combat strength of each branch of the Armed Forces, the main criterion being the capability to more *rationally* utilize such decisive military materiel as nuclear-missile weapons."[14] After briefly stating the advantages of SLBMs he comes to the conclusion that "the objective conditions of armed combat in a nuclear war are thrusting forward the nuclear-missile fleet which *rationally* combines the latest achievements in science and technology, enormous striking power and mobility, viability of the strategic systems, and a high degree of readiness to employ them immediately, as the nuclear-missile strike forces."[15]

That this conception of naval strategic preeminence is probably meeting strong resistance, especially from the Strategic Rocket Forces, is most apparent in this instance. In November 1976, General Colonel Gorchakov, chief of the Political Administration of the Strategic Rocket Forces, stated that the strategic rocket troops "are the chief component part of the Soviet Armed Forces, and basically determines the defense might of our state."[16] This view is not compatible with Gorshkov's concept.

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[12] *SPS*, p. 314.
[13] *SPS*, p. 454.
[14] *SPS*, p. 454. (Emphasis supplied)
[15] *SPS*, p. 454. (Emphasis supplied)
[16] *FBIS*, 19 November 1976, p. V2.

A final aspect of the theme of the Navy's increasing importance in the structure of the Soviet Armed Forces concerns its unique use in peacetime to advance Soviet state interests in ways that the other services cannot match. Admiral Gorshkov points out that "navies, while remaining a highly effective and indispensable means of armed combat, are also constantly being utilized as an instrument of state policy in peacetime . . . . Navies do not encounter in their activities many of the limitations which prevent utilization of other branches of the Armed Forces in peacetime for political purposes."[17] Gorshkov appears to be arguing that not only should the Navy be accorded greater importance and prominence in the military due to the strategic significance of its missile launching submarines, and the fact that an enemy that is primarily a sea power can best be countered in war by sea power, but that the Navy can perform an invaluable function in peacetime that cannot be duplicated.

The second theme which Admiral Gorshkov expounds at several points in his book is that of the necessity for the Soviet Union to have a "balanced navy." As part of the general argument for his concept of the balanced Navy he details his views regarding ship building and concomitantly economic resourses allocation.

For Admiral Gorshkov a balanced navy is the *sine qua non* for any great power to achieve true naval strength. In his view a navy is balanced when there is an "optimal numerical relationship" between the various types of ships, air and ground units that permits "forces and tactical groups which are established to defeat enemy opposition and successfully carry out the missions with which the Navy is charged independently or in concert with forces of other branches of the Armed Forces."[18] He further implies that a balanced navy should be able "to accomplish any mission which arises even . . . in these instances when the missions have to be accomplished not in sequence but simultaneously."[19]

While setting forth his ideas as to the content of a balanced navy, he seems to clearly indicate that the Soviet Navy has not yet developed to this point. In regard to the balanced navy he states ". . . we already have the *foundation* (*osnova*) for one."[20] The Russian word used here carries the specific meaning of the basis on which something is to be created or built. Further on Gorshkov comments that ". . . the general *trend* (*liniya*) in naval construction is toward the building of . . . a balanced fleet."[21] Again, he does not see the Soviet Navy as balanced but only as progressing in that direction and then possibly with some sporadic setbacks.

To those who might oppose the construction of a balanced navy, he seems to address a warning. "History provides many instructive exam-

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[17] *SPS*, p. 456.
[18] *SPS*, p. 448.
[19] *SPS*, p. 448.
[20] *SPS*, p. 448. (Emphasis supplied)
[21] *SPS*, p. 459.

ples, of [leaders] underestimating the problem of balancing a navy or ignoring it (particularly when economic capabilities were limited), owing to a faulty military doctrine or a short-sighted national foreign policy. This underestimation has led either to the defeat of navies in war or to the extreme overtaxing of the economies of these countries which were forced to overcome previously committed mistakes in the course of the war."[22] The second alternative he emphasizes is no longer viable because "nuclear-missile war . . . will create new conditions for the economies of all countries ruling out the possibility of eliminating mistakes in prewar naval construction."[23] It appears that in thrust Admiral Gorshkov is conveying the message: unless the Navy is balanced, there is a large possibility it will be defeated should war occur.

It seems, however, that the Admiral has a keen awareness of the economic constraints which would tend to militate against his drive for a balanced navy. (It should be noted that all Soviet military services operate under tight budgetary guidelines which can lead to inter-service conflicts over resource allocation.) He realizes that ship construction has had to be channeled ". . . within the limits of those resources which the country could allocate for the Navy's needs."[24] The Navy has not grown on an unlimited bank account. On the other hand, he makes clear that "the solution to the problem of balancing a navy requires great material expenditures. . . ."[25] It is within this context that Admiral Gorshkov seems to be fighting for a greater allocation of the resources earmarked for military requirements to go to the Navy.

Two lines of reasoning appear to be used in asserting a claim for a bigger piece of the budgetary pie. One is based on the technical sophistication of naval equipment and the other on the previously discussed "growing importance" of the Navy within the Armed Forces. The following passage seems to indicate this:

> The modern armament of the Navy is characterized by its extreme complexity and diversity, and it has specific characteristic features. In light of this, the Navy represents a complex dynamic system whose development and functioning requires a great expenditure of various material resources.
>
> No single country can put unlimited resources into armament. In every country the permissible level of expenditures for military needs is defined. Economic limitations lead to the fact that, of the large number of problems posed by new scientific-technical achievements, one must select the more important problems which must be resolved in order to maintain the combat capability of the Armed Forces at the required level.

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[22] *SPS*, p. 414.
[23] *SPS*, pp. 440–441.
[24] *SPS*, p. 297.
[25] *SPS*, p. 451.

> In today's context our Navy is charged with important strategic missions. Its relative weight within the composition of the Armed Forces is continually increasing.[26]

While the final two sentences lead into a discussion of the scientific management of the Navy, I think from the context their significance for the preceding paragraph can be inferred.

The Navy is the most technically complex of the services and requires the most advanced equipment. Gorshkov emphasizes this point also in other sections, especially in regard to electronic and communications equipment.[27] As this and other associated equipment are highly expensive, the Navy requires a greater share of expenditures to take advantage of scientific achievements. This goes hand-in-hand with the Navy's "relative weight" constantly growing within the Armed Forces. It seems Gorshkov is contending that due to the Navy's increased importance it should receive a larger proportion of available resources. This would probably apply to the selection of problems to be resolved which ne mentioned. One could infer from his view that more of the "more important problems" concern naval development and thus the Navy's allocation of resources should be sufficient to solve them.

While Admiral Gorshkov is concerned with securing greater appropriations, it is the kinds of ships that will be built with these funds that concerns him most. It is in his discussions of ship construction that one can get the clearest glimpses of what appears to be a rather heated internal debate as to the specific shape of the Navy. The implications of Admiral Gorshkov's writings are that in some cases he is countering arguments which have been raised against his ship building program, and in others is forcefully criticizing interference by non-naval experts in ship design and procurement.

Objections to Gorshkov's building plans, as he throws light on them, appear to be both quantitatively and technically based. One opposing view seems to be that numbers alone are the basis of naval strength and when a certain number is reached, that is plenty. The Admiral's response is sharp. "It is wrong to try to build a navy in the image and likeness of even the strongest sea power and to define the requirements for building warships for one's own navy, guided only by quantitative criteria and the relative strength of ship inventories. Every country has a specific requirement for naval forces, and only this requirement, determined by the missions of the Navy, can serve as the basis for the development of types of forces, ship types, and weapons."[28] To those who might be saying that the Soviet Navy is large enough, he answers that the only yardstick is Soviet naval requirements. From Gorshkov's point of view,

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[26] *SPS*, pp. 304–305.

[27] *SPS*, see pp. 339–340 for Gorshkov's discussion of electronics equipment and p. 342 in regard to communications requirements.

[28] *SPS*, pp. 413–414.

as previously cited, what the Soviet Union needs is a "balanced navy" and that is the basis for measurement. In this instance he may also be countering criticism that all he really wants to do is build a navy just like the United States.

Another objection, which may be tied into quantitative criticism, appears to be more technical. This could be that the current fleet is sufficient and all that is really necessary is modernization. In rebuttal Admiral Gorshkov asserts that "the development of a navy is a most complex process that is far from limited to replacing outmoded weapons systems with new ones which more closely correspond to the current level of technological development and to the requirements of naval warfare."[29] This may also represent resistance by Gorshkov to the Russian habit of saving military equipment until it totally falls apart as opposed to developing from the keel-up more new types of highly sophisticated ships.

A third objection in terms of naval construction may be that Soviet ships are getting too big (and thus cost too much). Gorshkov seems to be referring to this view when he comments that ". . . the displacement of a ship given the general desire to reduce it within reasonable limits is considered only as a function of such a principal argument (*argyment*), as the ability of a ship to accomplish all those missions for which she is being built."[30] (The Russian word for argument has exactly the same meaning it does in English.) The use of the word *"argyment"* has the direct implication here that there is a strong divergence of opinion as to whether the ships being built for the Soviet Navy can do what they are supposed to do. The Admiral seems to be saying that differences over how big to build ships fade in significance if the ships being built cannot perform their intended missions. He very well may be saying that Soviet ships that are being built are not fully able to accomplish the naval tasks which he envisions for the Soviet Navy.

I think some credence may be given to this interpretation by a passage that occurs one paragraph after the above quote:

> The development of the Navy requires serious and profound scientific research. Here a display of voluntarism or of subjective principles is totally impermissible. The greater the attention that the leaders who are making the responsible decisions on the development of the Navy pay to the recommendations of the research institutions and to the opinions of the practitioners, the naval officers, and the more they take into account the capabilities of industry, the more correct their decisions will be, the less painful the process of building a Navy will be, the fewer funds will be needed in the final analysis to build it, and the more powerful it will be. Such an approach to the problems of

[29] *SPS*, p. 302.
[30] *SPS*, p. 303.

> building the Navy assumes the comprehensive development of scientific methods of management. . . . It assumes a strict system of optimization, ensuring the selection of the most rational option based on quantitative analysis and military-economic justifications, and built according to standard criteria and close tolerances.[31]

The implications of this passage are wide-ranging. He starts by leveling strong criticism at those who are not approaching the development of naval forces from a scientific and objective point of view. In the next sentence he takes a very direct swipe at high level decision-makers either in the Ministry of Defense or in the party. His implications are that their decisions regarding naval development have not always been correct; that they have not always given sufficient attention to the opinion of the Navy (meaning Gorshkov) in determining what kinds of ships to build; that economic realities have not always been correctly assessed, causing some economic dislocation; that it has been more expensive than anticipated; and that due to these factors the Navy is not as strong as it could be. Further criticisms which are implied in this paragraph are that the ship building program has at times been poorly managed; that "the most rational option" has not always been chosen in ship design; and that there have been problems in the actual building of the ships with some not meeting "standard criteria and close tolerances." All these implications, if correct, indicate that there are some profound differences of opinion among Soviet decision-makers regarding naval development and that the process of new ship procurement and construction has been anything but a smooth and easy process for the Soviet Navy.

A final aspect of the ship building theme worth mentioning is Admiral Gorshkov's analysis of the ups and downs of Russian naval construction in history. He concludes that "the history of the wars waged by Russia convincingly demonstrates that each time the Czarist rulers failed to devote sufficient attention to the development of the Navy and to maintaining it in accordance with current requirements, Russia either suffered military defeats or her peacetime policy failed to attain the desired aims and objectives."[32] Preceding this conclusion, Gorshkov presents a summary of the mistakes of Czarist ship construction, particularly towards the close of the 19th century. Among the deficiencies he notes are that " . . . construction was conducted . . . for national prestige, without taking into account the need for Russia to become a naval power. Hence, the construction of the Navy proceeded in random fashion without adherence to specifically projected missions, merely adjusting its forces to those of foreign fleets and imitating . . . the various foreigners as to types of ships, some of which were inadequate for its needs and even obsolete. They absolutely failed to take into account the conditions under which ships were supposed to operate, as well as the

[31] *SPS*, p. 303.
[32] *SPS*, pp. 154–155.

special requirements for construction of a navy peculiar to Russia's geographic position."[33] Considering Gorshkov's penchant for drawing historical parallels and his other comments on ship building that have been noted earlier, his analysis of Czarist errors may also reflect some of his views as to errors made in Soviet naval construction.

In the chapter to this point, I have presented what appears to be two of the major themes of *Sea Power of the State*: the growing importance of the Navy within the structure of the Armed Forces, especially as this relates to the Strategic Rocket Forces, and the necessity for a "balanced navy" which entails a greater allocation of resources to the Navy and a more rational shipbuilding program. The manner in which both of these themes are developed in Admiral Gorshkov's discussions would seem to indicate an internal debate which he is far from winning with ease.

Having examined what the Admiral himself seems to reveal in his statements, I will conclude by looking at some of the reactions in the Soviet press to the book which might shed light on the nature and intensity of the debate.

Soviet published comment on *Sea Power and the State* has been somewhat limited both in regard to the major newspapers as well as the more restricted military and professional journals. In terms of the general public domain a short TASS news release announced the publication of the book in mid-May 1976 (even though it was actually published in February). In late May, 3 days apart, reviews were printed in *Krasnaya Zvezda* on page two and *Izvestiya* on the back page. Both were about the same length. There has yet (February 1977) to be a review in *Pravda*. This last point is significant because what is chosen not to review can be almost as important as what is reviewed, particularly in the case of *Pravda*. As *Pravda* is the primary vehicle for conveying the party line, lack of comment probably indicates that the issues raised by Admiral Gorshkov have not been settled politically.[34]

The reviews of Admiral Gorshkov's book in military and professional journals have been relatively scattered. *Morskoy Sbornik*, the Navy's journal, published the earliest and most extensive review in April 1976. In August *Soviet Military Review* printed a favorable review by a naval officer, while *Voyenno-Istoricheskiy Zhurnal* reported on a Readers. Conference held at the Lenin Military-Political Academy. The only review in a civilian professional journal was published in the December 1976 issue of *Mirovaya Ekonomika i Mezhdunarodnyye Otnosheniya*. Because

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[33] *SPS*, p. 154.

[34] Some interesting comparisions can be made to the publication of the late Marshal Grechko's book *The Armed Forces of the Soviet State*. In early May 1974 *Krasnaya Zvezda* announced that Grechko's new book had been published. At the end of May the book was reviewed in *Pravda* on page 3. That review was more than double the length of the two newspaper reviews of Gorshkov's book. A second publication to review Grechko's book that has not reviewed Gorshkov's was the party theoretical journal, *Kommunist*. This was a very lengthy review in September 1974.

the *Krasnaya Zvezda* review seems generally to be a condensation of the one in *Morskoy Sbornik*. I will discuss these two together and then briefly consider the salient points from some of the other reviews.

Admiral of the Fleet Lobov was the author of the review in *Morskoy Sbornik* and Vice-Admiral Savelyev wrote the review for *Krasnaya Zvezda*. As might be expected, both echo the key themes of Gorshkov's book which have been discussed. At times Savelyev quotes directly from the longer Lobov article on these points. The question of the relationship of the Navy within the Armed Forces is referred to when both state that "the problems of the harmonious combination of rationally balanced branches of the Armed Forces and their coordinated actions have always had great significance, but they *have become particularly acute today*."[35] Gorshkov's emphasis on "the sharp growth . . . of the significance of armed struggle at sea and the increasing role of navies among other branches of the Armed Forces"[36] is noted. Lobov mentions the importance of the US "oceanic strategy" and the fact that "when enemies have been separated by sea expanses, the decisive role in achieving victory has belonged to the Navy."[37] In supporting Gorshkov's argument he adds that "the vast historical material cited in the book convincingly supports this fact."[38]

Probably the most interesting comments in the two reviews are those concerning the Navy's strategic role. Admiral Lobov states that "fundamental changes in the material-technical base have turned modern navies into *the most important part* of strategic nuclear forces . . . ."[39] Savelyev follows this same emphasis and states in the final sentence of his review that "Soviet military doctrine . . . regards the Navy as an important branch of the Armed Forces which is capable of solving major strategic tasks in a war."[40] In concluding his review, Lobov cites Admiral Gorshkov's concern with balanced naval forces and calls it " . . . one of the main problems in the construction of modern fleets . . . ."[41]

The *Izvestiya* review was written by Marshal Bagramyan, an old line army officer. He makes only oblique reference to the relationship of services within the Armed Forces and absolutely no mention of strategic missions of the Navy. In the first paragraph he states, however, what may be one of the key points of the internal debate. "It is important today not only to scientifically generalize and draw the correct conclusions from the very rich experience of the Great Partiotic War, but also—and this is the main thing—to correctly determine the prospects of

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[35] "Sea Power of the State and Its Defense Potential" *Morskoy Sbornik*, #6, April 1976, P. 102. (Emphasis supplied)
[36] Ibid, p. 103.
[37] Ibid, P. 102.
[38] Ibid, p. 102.
[39] Ibid, p. 103. (Emphasis supplied)
[40] FBIS, 27 May 1976, p. V2.
[41] *Morskoy Sbornik*, p. 105.

military development in the future."[42] In regard to specific aspects of the book, Bagramyan calls Gorshkov's analysis of the historical development of navies "interesting information." He says that Groshkov ". . . expounds an orderly system of views of the present-day development of the Navy" and adds that "one should note the original and scientifically sound nature of the author's views on questions which *even up to the present time are fiercely debated abroad.*"[43] I think that within the Soviet context such a reference may point not so much to a fierce debate abroad but to one internal. Marshal Bagramyan ends his review by commenting that ". . . on the whole, Admiral of the Soviet Fleet S. Gorshkov's investigation is a valuable contribution to our military science, especially to naval art."[44] This is hardly the rousing kind of endorsement one might expect for an authoritative work.

The Readers' Conference held at the Lenin Military-Political Academy was relatively high level. The participants included the teaching staffs of the higher military-educational institutions and representatives from the editorial staffs of the military journals and newspapers. It is interesting to note that except for the opening remarks by a general lieutenant who is deputy director of the academy and some uninformative comments by a lieutenant colonel, all of the participants whose opinions are recorded are from the Navy. These opinions are strongly supportive. Captain of the First Rank Kostev who delivered the main report states that the ". . . struggle of the Soviet Navy with the enemy navy has become a secondary task. Its main mission is combat operations against the shore."[45] Rear Admiral Stalbo quotes Elmo Zumwalt (of all people) to show how important and powerful the Soviet Navy has become.[46] Vice Admiral Solovyev calls Gorshkov's book ". . . a significant event in the development of the theory and practice of the construction of the Navy."[47] Most effusive is Captain of the First Rank Osokin who says the book ". . . is distinguished by the breadth of the problems considered, by its encyclopedic nature."[48]

The next to last paragraph is devoted to what is diplomatically called a number of desires and advice (*riad sovietov i pozhelanii*) expressed by participants in the conference. The most interesting bit of advice is the comment that "it is necessary to generalize more broadly the historical experience of naval warfare from the standpoint of its significance for the construction and utilization of the Navy in the future."[49] While possibly seeming innocuous, this is a rather pointed criticism at what Gorshkov

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[42] *FBIS*, 26 May 1976, p. V1.
[43] Ibid, p. V2. (Emphasis supplied)
[44] Ibid, p. V2.
[45] "Sea Power of the State," *Voyenno-Istoricheskiy Zhurnal*, #8, August 1976, p. 106.
[46] Ibid, p. 106.
[47] Ibid, p. 107.
[48] Ibid, p. 108.
[49] Ibid, p. 108.

would probably consider one of his book's stronger areas. In the concluding section of his book Admiral Gorshkov states that ". . . the acute need has arisen to draw general inferences from historical experience in naval warfare in that area relating to present-day problems of building and employing the Navy. The author set this goal for himself. . . ."[50] Not only did he make it one of his goals, but just by looking through the book one can see that he uses the technique over and over and that many of his key conclusions are based on historical analysis. Such criticism as above is almost like saying, you drew the wrong conclusions, go back and try again. It thus may represent a veiled negative critique by those who cannot accept either Gorshkov's view of the role of the Navy nor his desires for naval construction.

The review, published in *Mirovaya Ekonomika i Mezhdunorodnyye Otnosheniya* and written by A. Mazerkin, is significant because it is the first non-navy source to indicate strong support for Admiral Gorshkov's point of view. The author brings up the theme of the Navy's relationship to other services when he states ". . . that victory over a powerful opponent can be won only by the joint efforts of all branches of the Armed Forces in which an important role belongs to the Navy."[51] In regard to naval construction Mazerkin agrees with Gorshkov about the input of science (and by implication the importance of research institutions). "As is well known, no one country can invest boundless sums in arms. Therefore, the role of science is particularly great in determining the most rational paths for building the fleet."[52] The reviewer cites Gorshkov's distinction of the differences between the Soviet Navy and the navies of "imperialist powers" (something which Admiral Gorshkov felt it necessary to do with great emphasis).[53] Finally, in discussing the US nuclear threat from missiles and aviation and the problems of Soviet defense, Mazerkin states that "the most important role in resolving this task belongs to the Navy."[54] This seems to support Gorshkov's conception of the enhanced strategic role of the Navy.

How strong is Admiral Sergei Gorshkov politically? Are the views he expresses in his writings always automatically reflected in Soviet naval policy? Is the Soviet Union by conscious political decision attempting to construct a navy able to surpass US power at sea? What really is the future of the Soviet Navy and how do Soviet military planners intend to employ it? These are profound questions for which I believe at the present time there are no pat answers. The evidence that can be gleaned from *Sea Power of the State* seems to indicate at a minimum that Admiral Gorshkov faces internal opposition to his vision for the Navy and that it may be questionable to equate all his writings with authoritative naval

[50] *SPS*, p. 453.
[51] *FBIS*, 13 January 1977, USSR Annex, p. 12.
[52] Ibid, p. 12.
[53] Ibid, p. 12.
[54] Ibid, p. 12.

policy. On a broader scale, if this analysis is correct, it may require some rethinking of our perceptions of the Soviet Navy, particularly as this may be reflected in our shipbuilding programs and our approaches to any future naval arms limitation negotiations.

Chapter 3

Perspectives On Soviet Naval Development: A Navy To Match National Purposes

By John J. Herzog

In recent years a good deal of attention has been devoted to the advent of the Soviet Navy. Much of this has dealt with the numbers game—how many surface ships and submarines or the numbers of missiles which would confront the Western fleets. The areas which have received less attention are the "why" of this new Soviet Navy and the uses to which the Soviet leadership might intend to put it. The purpose of this chapter is to look at both the timing of the advent of major ship classes and the character of the Soviet Navy as they have evolved in the 30-plus years since World War II, and attempt to answer some of the questions of why the Soviet leadership built the Navy they have in the way they did. A close look at the Soviet Navy's development shows a pattern not easily explained.

In any discussion of a navy and its role in the affairs of a state, it must be recognized, as both Mahan and Gorshkov stress in their writings, that the sea power of a state is not measured just by its navy but must also be understood to include all the seagoing assets of the state (i.e., the merchant and fishing fleets and hydrographic research vessels) and also a national perception of being a maritime power. All of Gorshkov's writings reflect a full and complete understanding of this fact. In his book, *Sea Power of the State*, published in 1976, he defines "sea power" as including all the national maritime assets, and devotes a significant portion of the book to the roles to be played by assets other than the Navy in the achievement by a state of the stature of a maritime power.[1] Gorshkov has

[1] Admiral of the Fleet of the Soviet Union, S. G. Gorshkov, *Morskaya moshch' gosudarstva*, Moscow: Voyenizdat, 1976, pp. 11–81. Hereafter cited as Gorshkov, *MMG*.

also taken on the task of "creating the perception" that the Soviet people have a long maritime history and that the roles played by the Soviet Navy in World War II have given it a rich naval tradition.[2] A full discussion of the roles to be played by maritime assets other than the Navy is beyond the scope of this chapter, but it must be kept in mind that without sufficient non-navy units, the pure naval power of a state takes on a hollow ring. No nation has achieved the status of a maritime power solely on the strength of its navy. The percentage of their national resources which the Soviet leadership has invested in things maritime indicates only too well that they fully understand and accept Mahan's assertion that there is more to sea power than naval might.[3]

The political writings of all the Soviet leaders from V. I. Lenin to Brezhnev indicate that the Soviet Union has had, since its beginning, the purpose of continuing the October 1917 revolution. When examining the expenditures of resources and decisions made regarding classes of ships built, this should be kept in mind. The Soviet Union has always been resource limited.[4] Decisions are made to expend those scarce resources only if such expenditure will further the progress toward achievement of national aspriations.

At the end of World War II, the party leadership was faced with three basic problems—restoration of the economic base of the country, consolidation of its position vis-a-vis the non-Communist world, and the creation of a viable military force with which to meet its new adversary, the Western bloc of maritime nations. The first two tasks were undertaken concurrently. By the early 1950s the economy of the Soviet Union had regained its pre-war level[5] and many states bordering the Soviet Union had been brought into the Communist orbit. The only remaining task was to establish a military force which would be viable against the only power in the world capable, in the foreseeable future, of challenging the USSR. The big question was, what would be needed to act as the vanguard of this force? Admiral Gorshkov and other Soviet leaders have commented on the fact that a navy is the ideal instrument for the projection of power abroad. They note that naval forces can take station off the coast of a state, be in full battle readiness for prolonged periods, and, by their presence, influence events ashore.[6]

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[2] Ibid, pp. 37–38, 114–140, 145–155, 167–169. See also: Marshal of the Soviet Union, A. A. Grechko, "*Flot nashei rodiny*", *Morskoy Sbornik*, No. 7, 1971, pp. 3–8, hereafter cited as Grechko, *FNR*; Admiral N. D. Sergeyev, "V. I. Lenin o prednaznachenii Voyenno-Morskogo Flota", *Morskoy Sbornik*, No. 4, 1970, pp. 14–17; Captain of the First Rank D. P. Sokha, Soviet Navy, "Vchera i segodniya podvodnykh sil", *Morskoy Sbornik*, No. 7, 1971, pp. 20–29; Vice Admiral G. Shchedrin, "Atomnyy, raketnyy, okeanskyy", *Voyennyye Znaniya*, No. 7, 1971, p. 5, hereafter cited as Shchedrin, *ARO*.

[3] David Fairhall, *Russia Looks to the Sea*, London: Andre Deutsch Ltd., 1971, Chapters 5 Through 9. Hereafter cited as Fairhall, *Russia Looks*.

[4] Gorshkov, *MMG*, p. 305.

[5] Alec Nove, *An Economic History of the USSR*, Baltimore: Penguin Books Inc., 1969, p. 293.

[6] Gorshkov, *MMG*, p. 383.

At about the same time as the economy of the Soviet Union became capable of supporting the export of the October Revolution and the borders of the country had been secured, events began to take place outside the Soviet Union which greatly influenced the decisions being made regarding the Navy. The effects of World War II were beginning to be felt. The emergence of national consciousness was being manifested in the countries of the Middle East and the Indian Ocean littoral as the influence of France and Great Britain waned. Manifestations of this new national consciousness were evident in the Suez crisis in 1956 and in the Lebanon crisis of 1958. The Soviet Union undoubtedly saw in this unrest the opportunity to extend its influence southward and perhaps eventually realize a dream that has been held by Russians since Peter I and Catherine II, the extension of Russian control over the Near East and the acquisition of warm-water ports.[7] They also saw how the Western powers had been able to influence the outcome of these crises through the use of naval power.[8] Thus, despite Khrushchev's loud comments[9] that surface ships were good for nothing except transporting heads of state and the fact that he professed to be against the construction of surface ships,[10] the Soviet leadership came to realize that a surface ship could be used to exert influence in areas of unrest. Western writers have marvelled at the way Gorshkov was able to salvage a sizable portion of the surface shipbuilding program begun under Stalin and still remain Commander-in-Chief in the face of Khrushchev's public position. The development pattern which evolved suggests that Khrushchev's navy pronouncements, like so many he made, were designed to give one impression while necessary, but contradictory, Politburo decisions were being quietly carried out.

Gorshkov had one major problem: the surface ships extant in the mid-50s were not ships which could present a viable counter to the US Navy and Western fleets with their carriers.[11] Although the decision to modernize the Soviet Navy was made several years before, the Soviet experience in the Cuban missile crisis must have removed any doubt that it would take sophisticated surface ships, with their high visibility, to exert political influence . Many words and loud noises about the number of submarines that are going to be brought into an area to influence a situation ashore have little effect since there is no visible evidence of resolve.

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[7] Donald W. Mitchell, *A History of Russian and Soviet Sea Power*, NY: Macmillan Publishing Company, Inc., 1974, pp. 16–20, 39–40, 54–81.

[8] Gorshkov, *MMG*, p. 382.

[9] Nikita Khrushchev, *Khrushchev Remembers*, Boston: Little, Brown and Company, 1974. Translated and edited by Strobe Talbott, pp. 30–33. Hereafter cited as *Khrushchev Remembers*.

[10] Ibid, pp. 25–26.

[11] S. G. Gorshkov, "Razvite Sovetkogo Voyenno-Morskogo Iskusstva", *Morskoy Sbornik* No. 2, 1967, p. 17. Hereafter cited as Gorshkov, *Razvite*.

The first step taken to create a viable surface fleet was to convert four KOTLIN-type destroyers to carry a surface-to-surface missile system, the 130 nm SS-N-1, while awaiting the appearance of the class designed as missile carriers, the KYNDA, in 1962. The lead-time necessary for the design and building of the KYNDA with its 300 nm SS-N-3 missile system indicates that the decision to build a new type of surface fleet was taken no later than the time of the Suez crisis.[12] It was only in 1964, after the appearance of the KYNDA class CLGM, that the Soviet Navy began to establish its presence in the Mediterranean.[13] It now possessed ships that could play in the same league as the US Navy.

Having the capability and having established a "presence" in the Mediterranean, the Soviet Navy was now in a better position to exercise its peacetime mission of furthering the interests of the state. In 1967 during the Six Day War they not only steamed alongside the US Sixth Fleet, but were able to inhibit the Israeli Air Force.[14] After the sinking of the EILAT by Egyptian missile boats armed with Soviet-provided STYX surface-to-surface missiles, the presence of Soviet Navy ships in Egyptian ports prevented the Israeli Air Force from striking those ports in retaliation. The situation was repeated in 1969 at the time of the coup d'etat in Libya and again during the crisis in Jordan in 1970. The Soviet Mediterranean *eskadra* (Squadron) was truly an extension of the Soviet foreign policy.[15]

In the 9 years between 1964, when the Soviet Navy established its *eskadra* in the Mediterranean, and October 1973, when the Yom Kippur war between Israel and Egypt erupted, the Soviet *eskadra* grew steadily in size. During the Yom Kippur crisis the number of Soviet Navy ships in the Mediterranean increased to an all-time high of 96, outnumbering the US Sixth Fleet.[16]

During these same 9 years, Soviet naval presence in the Indian Ocean and in African waters also grew dramatically.[17] Following the Indo-Pakistani conflict in 1965, the Soviet Union moved to bring India into its sphere of influence. By 1968, Soviet Navy ships were calling regularly at ports in the Indian Ocean while proclaiming along with India that the Indian Ocean should remain a zone of peace. Following Admiral

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[12] Ibid, p. 20.

[13] Michael MccGwire, "The Mediterranean and Soviet Naval Interests" in MccGwire, M., et. al., Ed., *Soviet Naval Developments: Context and Capability*, NY: Praeger, 1973, p. 312.

[14] George S. Dragnich, "The Soviet Union's Quest for Access to Naval Facilities in Egypt Prior to the June War of 1967", in MccGwire, Booth, McDonnell, Eds., *Soviet Naval Policy: Objectives and Constraints*, NY: Praeger, 1974, p. 267, fn. 111, p. 276.

[15] Admiral Isaac C. Kidd, Jr., US Navy, "View From the Bridge of the Sixth Fleet Flagship", US Naval Institute, *Proceedings*, February 1972, pp. 18–29.

[16] *Understanding Soviet Naval Developments*, Washington, DC: Office of the Chief of Naval Operations, 1975, pp. 6–7.

[17] Ibid, p. 12.

Gorshkov's visit in February 1968, India began to receive warships as part of the military aid agreement between the two countries. The Soviet naval presence and influence in India increased through ship transfers, the use of Soviet technicians, and the training of Indian naval personnel at training facilities in the Soviet Union.

The Soviet Navy began its port visit program to Africa during the early 1960s. Soviet surface ships were annual attendees at the Ethiopian Navy Day celebration in Massawa along with representatives from most Western navies. The importance accorded to this event by the Soviet leadership is indicated by the fact that the Soviet Navy attendee was normally a ship of recent design, providing an opportunity to show off its latest technological developments.[18]

Through its program of port visits the Soviet Union is able to carry abroad its story of technological advancement. Soviet writings are full of glowing praise for the great technological strides that have been made in the Soviet Union while building socialism. Soviet achievements in space are spread around the world by the news services. The appearance in a port of a Third-World country of a new Soviet surface ship, bristling with missile launchers and guns and with a wide array of electronic antennas, cannot help but impress the leaders of the visited country. A great case is made that here is a representative of Soviet technology. The country producing such a marvel of engineering must indeed be great. So goes the public relations pitch of the Soviet sailors as they visit the places of culture on escorted tours and lay the wreaths at the tombs of local revolutionary heros.[19]

In addition to being useful for winning friends through friendly port visits, the presence of surface ships can be used to strengthen the resolve of the Communist-backed faction in what the leaders of the CPSU call national liberation movements or to practice "gunboat diplomacy." Every maritime power has used gunboat diplomacy at one time or another and if such practice indicates that a nation has reached the status of a major maritime power, the Soviet Union has now joined the club.

The Soviet Union finished its apprenticeship in the use of naval power to advance what Admiral Gorshkov calls "state interests" when the presence of its fleet off Angola helped to ensure the success of the Soviet backed faction following the pull-out of Portuguese Forces in 1976. With the success of the Soviet-backed forces, and the lack of naval action on the part of the United States, a complete reversal of roles was witnessed. In the span of 20 years—1956 to 1976—the advent of a Soviet oceangoing surface fleet enabled the Soviet Union to move from the role of a spectator in the Suez crisis to a viable deterrent force in the 1967 and

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[18] Fairhall, *Russia Looks*, p. 239.

[19] S. G. Gorshkov, "The Navy of the Socialist State", *Voyennaya Mysl'*, No. 1, 1968, Foreign Press Digest Translation No. 0093-68 dated 22 May 1968.

1973 Israeli-Arab conflicts to the only major nation active as a participant in the Angolan affair. Conversely, by 1976 the United States had given up its place of naval dominance and had assumed the role of spectator. The role of the Soviet Navy in the field of international diplomacy is such that through it, the Soviet Union is able to wage a more successful offensive in the political arena. The Soviet Navy has moved from being impotent outside its own coastal waters to being able to bring naval power to bear in most any part of the globe.[20] Thus the Soviet Navy in the realm of the political struggle has become a valuable asset.

The Soviet leadership in the 1950s was faced with the two fold problem of supporting its clients and countering the military threat to the USSR. We have seen the USSR built surface fleet which could be used in an interposition role to ensure that the Western fleet could not assist the side opposing the national liberation faction of the conflict. Vietnam was the one place during the years under consideration where the Soviets gave the Western fleets free reign. The stakes in Vietnam were not vital to the Soviet Union and, as long as the Western fleets allowed the Soviet and other Eastern bloc ships to resupply the North Vietnamese, it served their purpose. With the US sentiment such as it became following Vietnam, the Soviet leadership found it easier to take the role of the active player, with the US acting as the spectator.

Because of the uniqueness of the situations in the Mediterranean and the Sea of Japan wherein US and Soviet naval forces are more frequently than not in contact with each other and US Naval forces are easily within striking distance of Russia, and the fact that the naval tactics to be employed are special, a complete discussion of these areas would far exceed the space available here. Suffice it to say that the initial period of conflict would be intense and the outcome would not be governed by the same rules that would pertain to open-ocean naval engagements.

As noted earlier, following World War II, the leaders of the Soviet Union were faced with a new adversary. The United States is separated from the Soviet Union by a broad expanse of ocean. The US possessed a viable navy tested in war and capable of delivering a nuclear weapon on Mother Russia.[21] If this navy with its attack carriers was to be prevented from striking the Soviet homeland, it had to be stopped far at sea. Thus, besides the requirement for a navy capable of projecting political power abroad, there was also the requirement that it be capable of preventing the US Navy from getting within striking range of the Soviet Union. There were several routes along which such a navy could be developed.

Khrushchev was enamored with the striking force of the aircraft carrier. However, the advent of the guided missile and the nuclear weapon convinced him that such ships would be of little utility in any war

[20] Grechko, *FNR*, p. 5.
[21] Gorshkov, *Razvite*, p. 16.

with the United States. Another factor militating against the creation of an adequate carrier force was the matter of resources. At the time when decisions were required, the Soviet Union had just regained its pre-World War II economic level. In the mid-1950s the Soviet Union could not afford to divert its industrial resources to a carrier program.[22] Furthermore, it was not only the material resources that were not available to provide a carrier force but personnel resources as well. The US carrier force was based on 30 years of experience. There was no possible way that Soviet pilots could overcome their deficiency in experience vis-a-vis their US counterparts, even if the carriers could have been produced. Another way had to be found to meet the US Navy at sea.

By the late 1950s, Soviet leaders saw that way embodied in their submarine and air forces and in the country's nascent missile capability. A marriage of the submarine and the missile could provide the means of threatening the continental US *and* of dealing with the US fleet. It was even more attractive because, besides being readily available, the creation of a submarine-launched missile force would require a minimum of additional resources.[23] Likewise, the aircraft available could be fitted with air-to-surface missiles. Together, submarines and aircraft, both equipped with antiship missiles, could form a team which could challenge the US Navy at sea. Initially, there were several drawbacks.

Each of the weapon platforms mounting antiship missiles, the submarine and the aircraft, had limitations which had to be overcome.[24] Only if it is accepted that the primary strike team to go against the Western carrier task forces would be a coordinated submarine-aircraft team, as Soviet naval writers have said many times, does the building program of the Soviet Navy over the past 20 years make sense. These same writers have acknowledged many times that surface ships without air cover cannot operate in an intense hostile tactical air environment. The way in which the Soviet Navy has developed reflects these two philosophies.

First, lets consider the submarine member of the strike team. Soviet naval writers usually refer to submarines as the most important part of the Navy.[25] The number of submarines built and the degree of sophistication they have developed bears out this statement. The first submarines to marry up with the cruise missile were the WHISKEY-class diesel

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[22] *Khrushchev Remembers*, pp. 20, 31.
[23] Ibid, p. 30; Gorshkov, *MMG*, p. 309.
[24] Colonel A. P. Anokhin, "Aviatsiya v bor'be s udarnymi silami flota", *Morskoy Sbornik*, No. 6, 1970, p. 36; Lieutenant Colonel Yi. A. Bryukhanov, "Vzaimodeistvie aviatsii s podvodnymi lodkami", *Morskoy Sbornik*, No. 4, 1965, p. 41. Hereafter cited as Bryukhanov, *VAPL*.
[25] S. G. Gorshkov, "The Soviet Navy in the Great Patriotic War", *Voyennaya Mysl'*, No. 5, 1965, Foreign Document Division Translation 949 dated 5 November 1965, pp. 83–99; Schedrin, *ARO*, p. 6.

boats in 1960.[26] Noisy, with limited speed and submerged endurance, plus the requirement to be surfaced for missile launch, they represented the "quick-and-dirty" fix to the problem of dealing with the carrier strike force. Additionally, if they were to make use of their long-range surface-to-surface missiles (the 300 nm SS-N-3) they required mid-course guidance provided by an outside agent, probably an aircraft. The degree of coordination required to bring the missile-launching submarine and the missile-guiding aircraft into the launch position at the same time was practically unattainable. What was needed was a submarine of unlimited submerged endurance which could carry out a submerged launch. The development pattern of the Soviet submarine force shows such a goal. In 1962, the diesel WHISKEY gave way to the JULIET. The JULIET, with the SS-N-3, while still diesel powered, had a higher submerged speed as well as the advantage of being designed to launch missiles rather than being redesigned for that role. While the diesel-powered JULIET class was being developed, the marriage of the missile and nuclear power was taking place, giving birth to the prototype ECHO-I in 1960–1962 with the ECHO II emerging in 1963. Although the ECHO-II still carried the SS-N-3, its nuclear power plant gave it the submerged characteristics needed for anticarrier warfare.

Having solved the submarine side of the equation, the problems of submerged launch and mid-course guidance remained. The magnitude of the submerged-launch problem is evident when the initial operational capability (IOC) dates of the submarine classes are examined. Between 1960 and 1963, the Soviet shipbuilders were able to field three classes of submarines capable of launching antiship missiles. It was to take them 5 more years to reach the IOC date of the submarine which would solve the submerged launch part of the problem. In 1968, the CHARLIE class, with its submerged launched surface-to-surface SS-N-7, was introduced into service.[27] The SS-N-7 brought a two-fold dividend to the Soviet Navy. The fact that the CHARLIE can launch while submerged allows it to close the target to within visual range, decreasing the missile flight time dramatically and concomitantly increasing the target ship's problem of defending itself. The 30 nm range of the SS-N-7 gives the CHARLIE the option of an over-the-horizon stand-off launch position, however, external assistance is required for targetting. This problem is solved presently by either surface ships being in contact with the target, such as the "tattle tales" in the Mediterranean, or by aircraft furnishing target information.

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[26] Information concerning the date of the Initial Operational Capability (IOC) of the various classes of ships, models of aircraft and missile systems was derived from:
Jane's Fighting Ships, 1954 to 1974 Editions, NY: MGraw-Hill Book Company Inc.; 1975–1976 Edition, NY: Franklin Watts Inc.
Jane's All The World's Aircraft, 1955 to 1974 Editions, NY: McGraw-Hill Book Company, Inc.; 1975 to 1977 Editions, NY: Franklin Watts, Inc.
Captain John E. Moore, RN, *The Soviet Navy Today*, NY: Stein and Day Publishers, 1976. Hereafter cited as Moore, *Soviet Navy*.

[27] Moore, *Soviet Navy*, Appendix I, p. 243.

If the conjecture offered by certain Western analysts is correct, and logic would make it seem so, then the target-reporting function will shortly be taken over by the Soviet satellite program, eliminating the need for aircraft assistance.[28]

Thus the 20-year pattern of Soviet cruise-missile submarine development can be made to form a coherent whole, from diesel to nuclear propulsion, from long-range surface launch to short-range submerged launch with the concomitant reduction in warning time, and from a requirement for external aircraft-supplied targetting and mid-course guidance to satellite-provided targetting and no requirement for mid-course guidance. The CHARLIE class submarine provides the Soviet Navy with a credible weapon for use against the US carrier task force.

The VICTOR class SSN represents the end of a similar progression in non-missile attack submarines. From diesel-powered WHISKEY the designers passed through the medium speed diesel attack boat—the FOXTROT class—to the nuclear powered NOVEMBER class with a 1958 IOC. Since that time, the only non-missile attack class to evolve has been the VICTOR. Its role appears to be primarily ASW, but it could easily be given the task of trailing a carrier and disabling it with its torpedoes. If the Soviet Navy has nuclear armed torpedoes as they claim,[29] the VICTOR, as well as the CHARLIE, is capable of dealing with a carrier task force.

What of the other member of the strike team, Soviet Naval Aviation (SNA)? The aircraft development plan for the SNA represents another example of the problem of resources and priorities which constantly plague the Soviet leadership. Except for the flying boat, MADGE (BE-6), which was introduced in the early 1950s, every aircraft in the SNA order-of-battle has been a modified version of aircraft designed for some other segment of Soviet aviation. The BEAR TU-95, the BADGER TU-16, the BLINDER TU-22 were all aircraft designed for and, for a long period of their life, flown exclusively by Long Range Aviation (LRA). The new supersonic long-range jet bomber, the BACKFIRE, with its long range ASMs, apparently introduced into LRA and SNA nearly simultaneously and the YAK-36 V/STOL FREEHAND and its successors appear to be exceptions. The IL-38 MAY, the primary fixed-wing ASW asset of SNA was, like the P-3 ORION in the US Navy, developed from an airliner—the IL-18. Likewise, the helicopters found in SNA are adaptations.

One might argue that except for the BACKFIRE, LRA and SNA have been shortchanged by not being provided with any really new types of strike aircraft for over twenty years. From the Soviet point of view, the decision to let these two arms of Soviet military aviation make-do with what they had, is quite rational. The LRA mission had been taken over largely by the Strategic Rocket Forces and the missions of SNA

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[28] Ibid, Appendix 5, p. 251.
[29] N. D. Sergeyev, *Krasnaya Zvezda*, 30 July 1967.

could be met with what they had. The same was not true of the other branches of Soviet military aviation—Frontal Aviation and the forces of the National Air Defense Forces (PVO STRANY).

Sparked by the war in Vietnam, the aircraft designers of the West introduced a number of high performance aircraft which were added to the NATO order-of-battle. As a result, in order to keep abreast of the threat in the land theater, the resources of the Soviet Union were allocated to build the MIGs, the SUs, and the YAKs which would provide the air defense for the Soviet Army. Since the early 1960s, at least seven new models of Soviet interceptor or attack aircraft have been introduced.

In recent years, the Soviet perception of the war at sea appears to have changed. This change in perception could be associated with the recent introduction of two new types of aircraft into SNA—the BACK-FIRE and the V/STOL-type aircraft.*

Until the advent of the DELTA class SSBN in 1972, it was necessary to deploy SSBNs—the YANKEE—to distant patrol stations. The 1300–1600 nm range of the SS-N-6, carried by the YANKEE, required mid-Atlantic and Eastern Pacific patrol stations. These stations were clearly beyond the range at which protection by SNA could be provided. The SS-N-8 with its range of at least 4200 nm loaded aboard the DELTAs changed that. No longer would the Soviet SSBN force be required to deploy to distant stations. They could now cover their targets from inside the Norwegian Sea and the Western Pacific. In these new patrol stations, the main striking force of the Soviet Navy, its main nuclear deterrent force, could be made secure.

The ever-increasing range of the SLBMs and the improvements being realized in nuclear attack submarine construction caused a change in perception on the part of Western naval leaders also. The US Navy, partly as an economy measure, but also to gain flexibility in task force defense, altered the mission of its carrier force. No longer were there to be some carriers devoted to attack and others to ASW. In the mid-1970s, measures were taken to give all US carriers dual missions, with the designation of CV.[10] Henceforth, the CV would be capable of executing either the attack mission or conducting ASW.

Hence, we have two trends, though seemingly unrelated, which have a definite interaction. The Soviet Union is in the process of drawing its SSBN force to areas closer to the USSR where the superior US Navy ASW capability could not be as easily brought to bear. At the same time, the Soviets have extended the range of their striking forces, SNA and the submarine force. Now, if the US Navy seeks to destroy the Soviet SSBN force with its dual capable CV, the CV must be brought to within range

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* For a detailed discussion of Soviet Naval Aviation see chapter 10 of this volume.

[10] OPNAV Notice 5030, Subject: Reclassification of Naval Ships, Washington, DC: Office of the Chief of Naval Operations, 27 May 1975.

of the BACKFIRE's missiles. Likewise, any strike by the CV against land targets requires a launch point well within the protective envelope of the BACKFIRE.

The other new SNA aircraft, the YAK–36 FREEHAND, appears to have been the R and D version of the FORGER, a V/STOL aircraft designed for operations from the KIEV class air-capable ships.[31] It, however, would appear ill-suited to go against the aircraft embarked in the CV. It would, however, significantly improve the ASW capability of air-capable surface ships in an area in which it can enjoy air superiority, such as the Norwegian Sea. To provide this air superiority, the CV must be kept at bay. Such is the role of the BACKFIRE/CHARLIE submarine team.

As demonstrated above, the master plan for the development of the Soviet submarine force is clearly discernible. Likewise, the matter of priority and resource allocation explains the slow development of the Soviet naval air force. The development of the surface fleet presents a less clear picture, however. Usually, in the West, the Soviet surface fleet is looked upon as an ever-growing, ever-more powerful fleet with which the Soviet leadership can deal with Western fleets.[32] Yet, seldom does one find addressed the question of why several seemingly good designs were terminated after just a few ships had been built. The usual Soviet practice in every field of construction is to arrive at a satisfactory design and immediately go into series production with many units eventually being completed. Evidence of this philosophy is found in past Soviet Navy building programs, to name a few:

100 WHISKEY class submarines
89 SKORYY class destroyers
56 FOXTROT class submarines
14 SVERDLOV cruisers
19 KASHIN class destroyers
120 OSA class missile cutters
12 NANUCHKA class missile corvettes
(still building at rate of 3 per year)[33]

An anomaly in this practice is found in the termination of the building programs of two major surface ship classes: KYNDA and KRESTA I. From the Western perspective the termination of these building programs

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[31] Edward Proctor, Hearings Before the Sub-Committee on Priorities and Economy in Government of the Joint Economic Committee, US 94th Congress, 2nd Session, Part 2, 24 May and 15 June 1976, on *Allocations of Resources in the Soviet Union and China, 1976*, Washington, DC: GPO, 1976, pp. 58–59. Hereafter cited as Congressional Hearings, 1976.

[32] Admiral H.G. Rickover, US Navy, Testimony in Hearings Before a Sub-Committee of the Committee on Appropriations, House of Representatives, 94th Congress, 2nd Session, *Department of Defense Appropriations for FY 1977*, Part 7, pp. 10–13. See also the Posture Statement of the Chairman of the Joint Chiefs of Staff for Years 1972 to 1977.

[33] Moore, *Soviet Navy*, p. 130.

after only four units of each class were built appear out of character. Not so when the missions of the Soviet Navy, as enunciated by Admiral Gorshkov and the other naval writers, are considered. The missions of the Soviet Navy, as laid out in these writings, are fourfold: antisubmarine warfare; destruction of the enemy naval strike capability; interdiction of the Sea Lines of Communication of the enemy; and to serve the interests of the state. These two classes of ships were stopgaps in the first two mission areas with a continuing role in the last two.

As was noted earlier, the KYNDA was the first major Soviet surface ship designed to carry surface-to-surface missiles (SSMs) and thus be able to act as a deterrent to Western fleets in time of crisis. The KYNDA, with its eight (plus eight reloads) SS–N–3 SSMs, was indeed capable of carrying out that mission. Beyond the mission of being a tool for crisis management, however, the KYNDA was found sorely deficient. The lack of a helicopter limited the range at which she could engage with the SS–N–3, without outside assistance, to essentially line-of-sight. The absence of a helicopter made her dependent upon her hull-mounted sonar for ASW. This, plus the short-range hedgehog-type ASW weapon, the MBU, made her vulnerable to attack by the nuclear attack submarines the West could send against her. KYNDA would also be hardpressed to defend herself in any concerted air attack, possessing, as she did, only one pair of surface-to-air missile (SAM) rails for the SA-N-1. Thus, although the value of the KYNDA as a threat to Western CVAs was significant, her viability did not extend beyond a crisis situation when opposing fleet units are in contact or near contact, such as could be the case in the Mediterranean. Beyond the opening moments of conflict, likelihood of survival is minimal. As a true combat-capable ship able to engage the enemy anywhere on the high seas the KYNDA was completely inadequate.

Significant improvements were made in the KRESTA I class. The on-board helicopter freed the ship from dependence upon its hull-mounted sonar for submarine detection and could, if properly configured, extend the range of the SS-N-3 SSM to about 100 nautical miles.[34] Also, its anti-air capability was improved over the KYNDA with the number of launchers and rails for the SA-N-1 SAM doubled. This increased capability was not free, however. In order to accommodate the helicopter and additional SAM capability, the number of SSM's was cut to four.

The significance of the termination of these two classes of ships was beclouded by the belief that the follow-on class, dubbed KRESTA II, was an improved KRESTA I. The one anomaly appeared to be what came to be designated the SS-N-10 SSM. With an estimated range of 30 nm, this system signaled to the Western analysts a change in Soviet naval doctrine calling for close-in engagements between major surface units. Despite their penchant for secrecy, the Soviet writers expound, either

[34] Ibid., p. 102.

directly or indirectly by using "Western authorities", on how they see naval units being employed. Nowhere in Soviet naval writings can even a hint at the possibility of a close-in engagement of the World War I and II type, between major surface units, be found. Enemy surface units are to be engaged by the submarine-aircraft strike team, not by surface units.[35] The NANUCHKA and earlier types of fast missile boats will engage enemy surface units, but only those which penetrate the coastal waters being defended by the Soviet Navy and in closed seas.

One Western analyst has advanced the idea that the SS-N-10, rather than being an antiship missile, is a long-range ASW weapon.[36] This view is now accepted in the West and the SS-N-10 has been redesignated the SS-N-14, an ASW weapon system. Such an assessment would fit with the tasks assigned the major Soviet surface units by the Soviet writers and it would also explain the early termination of the KYNDA and KRESTA I classes.

The KYNDA-KRESTA I building program spanned the years 1961–1968, with the last KRESTA I being laid down about 1966 and delivered in 1968. During the same time frame, the CHARLIE class nuclear submarine, with its submerged-launched SS-N-7 system, was being developed. The first CHARLIE was delivered to the fleet in 1968. Thus, the IOC date of the first CHARLIE essentially coincides with the delivery date of the last KRESTA I. The Soviet Navy had effected the transfer of the antiship mission of the KYNDA-KRESTA I to the submarine force. No longer would it be necessary to devote space and weight aboard major surface combatants to antiship SSM systems. Now, having turned the antiship mission over to the submarine and naval air forces, the Soviet surface ship designers could concentrate on upgrading the ASW capabilities in new major surface types. Each of the follow-on major surface classes, KRESTA II, KARA, KRIVAK, and KIEV, has the SS-N-14 installation and the KARA, KRIVAK, and KIEV have variable-depth sonar (VDS).[37]

In addition to the KYNDA and KRESTA I classes, the Soviets appeared to terminate early the building program of one other class of major surface ship—the MOSKVA class helicopter cruiser which was initially seen by Western analysts to have missions in ASW and in support of landing operations. Embarking only KA–25 HORMONE helicopters, except for test flights of the V/STOL YAK 36, MOSKVA, and her sister ship LENINGRAD, have engaged only in ASW type operations. The Soviets ascribed only the ASW mission to the MOSKVA class, but Western analysts were slow to accept it. Despite the fact that every Soviet writer from Admiral Gorshkov down said that the Soviet

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[35] Bryukhanov, *VAPL*, p. 45.
[36] Norman Polmar, "Thinking About Soviet ASW", US Naval Institute, *Proceedings*, May 1976, p. 121. See also Congressional Hearings, 1976, p. 87.
[37] Moore, *Soviet Navy*, p. 100.

Union would build a fleet designed to meet the needs of the Soviet Union, the tendency was still to see the Soviet Navy as a mirror image of the Western fleets. The question really is, why did the Soviets build just two of the MOSKVA class? Several reasons are credible.

One of the most likely reasons is that MOSKVA represented a beginning point on the learning curve of how to build and operate air-capable ships. At close to 18,000 tons, MOSKVA was essentially the same displacement as the SVERDLOV class cruisers and thus did not represent a significant departure from previous shipbuilding experience.

The operational pattern of MOSKVA and LENINGRAD points up a second reason for not building more such ships. The deployment area for these ships, except on rare occasions, has been the Mediterranean. When the weather-pattern of the North Atlantic and Norwegian Sea is considered, it is understandable why they have not operated extensively in those waters. Anyone who has served in an 18,000 ton low-freeboard ship and tried to operate helicopters (let alone V/STOL-type aircraft) in high sea states knows that such a ship, even with stabilization, is not a satisfactory platform for flight operations.

As noted earlier, the Soviet Navy could not hope to make up for the 30 years head start the Western navies had in operating aircraft carriers. By going to the V/STOL-type aircraft, the Soviet pilots were able to bypass the experience factor and place themselves on the learning curve at about the same place as their Western counterparts.

The KIEV class air-capable ship represents an innovative departure from fixed-wing aircraft carriers and a continuation of the Soviet practice, begun in MOSKVA, of devoting much of the main deck to weapon systems other than aircraft. At nearly 38,000 tons displacement, KIEV will be a viable platform for air operations in the Norwegian Sea and no doubt eventually in the Northern Pacific. With the installed weapon systems, KIEV presents a new and expanded problem to the Western navies.

Thus far we have traced the development of the three main elements of the Soviet Navy with which the Western fleets must contend — the submarine, SNA, and the surface ships. Each of the building programs, when viewed from the Soviet perspective, is rational. However, it is often said in the West that the Soviet Navy is not a balanced fleet, i.e., it does not include the element considered by the West to be essential — the heavy attack aircraft carrier. Admiral Gorshkov has stated in nearly every one of his articles, and in his 1976 book, that different countries need fleets composed to meet their individual needs and that the Soviet Union would build a fleet to meet *its* needs.[38] Having built a modern "blue water navy", how do Soviet naval writers see the employment of that fleet?

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[38] Gorshkov, *Razvitie*, p. 20.

Volume II of the new Soviet Military Encyclopedia contains an entry on the Soviet Navy.[39] It is attributed to one S. G. Gorshkov, presumably Admiral Gorshkov. In this entry, the Soviet Navy is given four missions: antisubmarine warfare, anticarrier warfare, interdiction of the sea lines of communications, and a peacetime mission of serving the state's interests.

In the preceding pages, it has been argued that the leaders of the Soviet Union developed and constructed a navy with a definite goal in mind. Admiral Gorshkov, in his 1976 book, states that goal succinctly: "because the introduction of nuclear weapons into the Navy has imparted to it the capability of effecting the outcome of a war, i.e., a strategic capability, the main goal of the Navy has become the execution of strikes against the enemy's shore and the protection of one's own territory against such strikes by the enemy." He goes on to say that the most important mission of the fleet is to disrupt or blunt enemy attacks by carrying out operations against the enemy's "naval strategic nuclear systems".[40] Engaging the enemy's fleet except in terms of defeating his ASW capabilities has become a secondary mission by comparison.

Every navy in the world has as its high value ships those designed to carry out missions which are considered most essential. Because the mission of these ships is essential, the rest of the combatant navy is usually built with their defense in mind. Until recently, the only high value unit of the US Navy was the heavy attack aircraft carrier. With the advent of POLARIS and POSEIDON, the SSBN was added. The Soviet Union, on the other hand, has had but one high value unit — one unit capable of inflicting nuclear attacks on the homeland of an enemy — the SSBN. Adding the KIEV class air-capable ship did not change this. In the US Navy, the destroyer force and, to a large degree, the SSN force were built to ensure the survivability of the carrier. The question is, how do the Soviets intend to handle their problem of defending high value units to be handled by the Soviets?

Geography has always played a major role in Russian/Soviet military planning and has inhibited the Russian/Soviet state in its attempt to achieve the status of a major maritime power. It is true that the Soviet Union has many thousands of miles of coastline, but the necessity to pass through choke-points which are controlled by other nations has, in the past, presented major problems.[41] The Black Sea Fleet must use the Dardanelles and Bosporus to reach the Mediterranean. The Baltic Fleet must transit the Denmark Straits to reach the North Sea. The Northern Fleet has to contend with the obstacle of the Greenland-Iceland-United Kingdom (G-I-UK) gap before it can reach the Atlantic, and the bulk of the Pacific fleet has to exit the Sea of Japan. The advent of the SSBN and its long-range ballistic missile enables the Soviet Navy to use the

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[39] *Sovetskaya Voyennaya Entsiklopediya*. Moscow: Voyenizdat, 1976, Vol. 2, p. 239.
[40] Gorshkov, *MMG*, p. 360.
[41] Ibid., p. 298.

chokepoints—except for the Dardanelles-Bosporus—to its advantage. The Soviet Navy can easily create submarine sanctuaries behind these historical chokepoints. No longer is it necessary for the high value units of the Soviet Navy to transit the chokepoints in order for their missiles to reach their targets. With the appearance of the DELTA class SSBN, with its 4200 nm SS-N-8, and follow-on ballistic missiles, the Norwegian-Barents and Okhotsk seas sanctuaries can become launching areas.

How can the idea of submarine sanctuaries fit into the first mission given the Soviet Navy—that of ASW? In the West, ASW denotes seeking out enemy submarines and destroying them. To a point, ASW denotes the same to the Soviets. There is, however, a significant difference. In the West, ASW is usually carried out to protect surface task forces or to prevent the interdiction of Sea Lines of Communication (SLOCs), i.e., convoy protection. The Soviet Navy is faced with neither of these problems since a Eurasian war would not require that they operate surface task forces in the Atlantic or Pacific. Nor do they, as a nearly self-sufficient continental power, need to rely on transoceanic convoys.[42] Thus, to the Soviet Navy, ASW becomes an exercise in sea denial, i.e., keeping enemy forces from attacking the Soviet Navy's high value unit—the SSBN.

Soviet writers, including Admiral Gorshkov, assign to their surface fleet the mission of protecting and supporting the submarine, a concept completely foreign to Western naval leaders. This difference in the concept of ASW, and the role of the surface fleet in it, is one manifestation of the differences in historical background between the Western navies and the Soviet Navy. The submarine and surface forces of the West developed along their individual lines with the emphasis being placed on the adversary aspect of ASW rather than on the development of tactics by which the surface ship and the submarine can act in support of each other. The Western submarine forces have always operated independently without direct external support.

The Soviet concept of ASW developed along different lines. Their study and analysis of German wartime submarine operations has led them to the conclusion that the Germans lost the submarine campaign in World War I and II because they failed to support submarine operations with surface and air forces.[43] Thus, we find frequently in Soviet naval writings reference to the supporting role that both surface ships and aircraft must play to ensure the success of the submarine.[44] The belief that the surface

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[42] Richard T. Ackley, "USSR is Self Sufficient; U.S. is Not", *Sea Power*, August 1974, pp. 24–27.

[43] Bryukhanov, *VAPL*, pp. 41–42. Gorshkov, *MMG*, pp. 165–166, 193.

[44] Captain of the First Rank N. Vlasov, "Vchera, segodniya i zavtra nadvodnykh korablei", *Morskoy Sbornik*, No. 3, 1974, pp. 22–27; Marshal of the Soviet Union, V. D. Sokolovskiy, Ed., *Voyennaya Strategiya*, 3rd Edition, Moscow: Voyenizdat, 1968, translated by Harriet Fast Scott, *Soviet Military Strategy*, NY: Crane, Russak and Company, 1975, pp. 254–255.

ship must act to protect the submarine force is reflected in the ships they have built in the past decade. Every class of major combatant laid down since the mid-1960s has been designated an ASW ship with great emphasis on AAW as well. The construction of ships with only ASW and AAW systems and the statements over the years that surface ships cannot operate in areas of intensive enemy air activity without air cover leads one to the conclusion that the new KRESTA IIs, the KARAs, and KRIVAKs were all designed to operate under the umbrella of SNA, i.e., in the SSBN sanctuaries. Without embarked aircraft which could match those carried by the CV, it would follow that the KIEV class too will operate behind the G-I-UK gap. Such an operating concept would present the Western navies with a serious problem, particularly now that the BACKFIRE has joined the ranks of SNA.

Placing the SSBNs inside the sanctuaries and by using new and sophisticated surface ASW ships, attack submarines, and BADGER and BACKFIRE aircraft to support them, the Soviet leaders could ensure the survivability of their strategic threat to the US.

How could the Western navies counter such an operation? The mainstay of the Western navies for long range ASW patrol is the maritime patrol aircraft—the P-3. These aircraft are capable of conducting ASW search over the entire Norwegian Sea. However, being essentially unarmed, the P-3 would be hard-pressed to conduct ASW searches in the vicinity of Soviet surface ASW units armed with the SAMs or FORGERs. Until the P-3 is equipped with a long-range air-to-surface missile similar to HARPOON, the sanctuaries would be off-limits. Likewise, in the Atlantic, the CV, to be effective, must penetrate the G-I-UK gap which now becomes a chokepoint for the Western navies. Even before passing through the gap, the CV is within range of the BACKFIRE's missiles. Thus, the only viable ASW platform with which to penetrate the sanctuaries would be the SSN. The array of surface ships, SSNs, and aircraft that would be interposed between the G-I-UK gap and the Western SSN's target could make the price of attempting to eliminate the DELTA fleet too high.

Thus, the case can be made that the Soviet leaders, in building the Navy they have, were looking to the likelihood of counterbalancing the Western SSBN force by making their own invulnerable. Actually, the present extreme range of the missiles carried by the two SSBN forces adds to the likelihood of such an eventuality. The Soviet Navy can ensure their own SSBNs invulnerability by the practice of sea control within the SSBN sanctuaries, and the US Navy can ensure the survivability of its SSBN force by presenting the Soviet Navy with the insurmountable task of having to search the entire world ocean to locate the TRIDENT. Neither side could eliminate the other's ace card, thereby nullifying both.

If the the Soviet leadership could counterbalance the Western SSBN force, the clock would be partially turned back nearly 20 years. Partially turned back because the sea system threatening the Soviet ground forces

and Mother Russia again becomes the aircraft carrier except now, with their nuclear-powered submarines capable of launching cruise missiles while remaining submerged and long-range aircraft armed with sophisticated missiles, the balance shifts in favor of the Soviets. It will be infinitely easier to keep the CV at a range beyond the combat radius of its embarked aircraft with the CHARLIE-BACKFIRE coordinated team than it would have been with the ECHO II and the BADGER.

The idea of counterbalancing one strategic SSBN force against the other still leaves Admiral Gorshkov the ability to carry out his goal—strikes against the land. From the submarine sanctuaries, his ballistic missile submarines would be available to act in a theater role, particularly in the Atlantic. Such an eventuality must be considered a possibility because in recent years the Soviet leaders have acknowledged the possibility of a conventional war in Europe. In such a case, YANKEE SSBNs, having been pulled back into the sanctuary because the DELTA has assumed the strategic watch, would be available to carry out Admiral Gorshkov's strikes with conventionally-armed missiles against navy-supporting land targets located outside the continental United States. The loss of the facilities represented in such targets would indeed accomplish his stated goal of interrupting or blunting the strategic capability of the Western navies.

There is one aspect of the development of the Soviet Navy which is beyond the shipbuilding programs and yet of great significance. This is the development of the command, control, and communications (C^3) system by which the overall operation of the Soviet Navy is controlled.

The C^3 system of the Soviet Navy has been under development for years. Admiral Gorshkov, et al, have acknowledged the vitally important role to be played by electronics in modern warfare. To take advantage of the scope of electronic warfare, they have developed systems whereby the surface fleets of the West can be reconnoitered continuously. Given that capability, the C^3 system demonstrated in the USSR's first really large worldwide exercise, (OKEAN-70 in which, by their own admission,[45] they controlled their four fleets from Moscow on a real-time bases) that the Soviet Union is but a short step from being able to target Western surface units anywhere in the world. With reconnaissance satellites in the usual 90 minute orbit, the coordinates of surface targets can be determined and the information passed to CHARLIE or VICTOR submarines for targetting purposes. The same information would be passed to Moscow Naval Headquarters where the decision would be made on positioning the submarines and from where the firing order would come.

How then is the Soviet Navy offensive or defensive? Some attempt has been made to show the rationality of the way in which the Soviet

[45] Vice Admiral G. G. Tolstolutskiy and Captain of the First Rank A. V. Lisichkin, "Svyaz na manyevrakh' okean' ", *Morskoy Sbornik*, No. 11, 1970, p. 23.

Navy was built, how each phase was faced, and the solution to its problems.

Needing a surface fleet with which to gain visibility in the emerging Third World, surface ships, the KYNDA and KRESTA I, were built. These ships also served to fill the anti-CVA gap until the CHARLIE submarine with its submerged-launched SS-N-7 could be perfected. The follow-on ships—the KRESTA II, the KARA, and the KRIVAK serve a dual purpose. They are outstanding examples of Soviet technology with which to impress Third World leaders, thereby advancing the political offensive and also serving to defend the strategic assets of the Soviet Navy, the DELTA SSBN. There is little doubt that the Soviet Navy has become a potent political "weapon".

The character to be assumed by the Soviet fleet in wartime can best be assessed as ambivalent. Every attempt will be made to ensure the survivability of the SSBN force both as a means of controlling escalation and as a bargaining chip when negotiations begin at war's end. To bring about this survival, the surface fleet will play a strictly strategic defensive role. As long as the Western fleets are built around the CV, there is no way the Soviet surface units, KIEV included, could assume an offensive role.

Such is not the case, however, of the submarine force and the BACKFIRE. These units are well-equipped to venture out into the Atlantic and Pacific to search out, with the help of reconnaissance satellites, Western task forces and convoys. When the VICTOR class SSN is added, the task facing the Western navies becomes difficult indeed.

The composition of the Soviet fleet makes it well suited to accomplish its mission and to avoid the faults leveled on Germany by Soviet historians. For once, geography will aid the Soviet Navy to accomplish its task—the chokepoints in the Atlantic will help to keep the enemy at bay.

Chapter 4

The Anglo-German and Soviet-American Naval Rivalries — Some Comparisons

By Alva M. Bowen, Jr.

The number of ships in the US Navy has declined about 50 percent over the past several years while the Soviet Union has not reduced the size of its fleet commensurately. While both countries have made qualitative improvements in the capabilities of their individual units and aircraft, the relative balance of naval power is currently shifting toward the Soviet Union.

In a number of ways, these circumstances are similar to those that prevailed at the beginning of the century when Germany challenged the supremacy of Britain's navy. An analogy can be drawn between the Soviet Union s challenge since the late 1960s to America's command of the seas and the imperial German challenge to Britain's naval position after the enactment of the Navy Law of 1898. The utility of looking at the present naval competition in this historical context was briefly expressed by Professor Hedley Bull of the Australian National University in this perspective. In both cases:

> . . . the dominant land power, based on Mackinder's 'heartland', creates a threat to the dominant seapower by discarding traditional strategies of coastal defense and guerre de course and instead, constructing an ocean-going 'great Navy.'
>
> . . . the challenging power is prodded into this course by an outstanding and dedicated naval leader—in the one case, Admiral Gorshkov, in the other, Admiral von Tirpitz—deeply fascinated by the history of the use of sea power by the Anglo-Saxon countries, displaying the same mixture of resentment and envy of their position, seeking to arouse his country to a sense of its naval

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destiny, and fired by Mahan's doctrine that sea power is a necessary condition of great powerhood."

> . . . the challenger produces in the dominant Anglo-Saxon sea power a sense of righteous indignation that the existing distribution of power in the oceans should be disturbed.[1]

This chapter examines some similarities and differences found in the two rivalries.

What characterized the earlier Anglo-German rivalry?

British Supremacy

Great Britain was the economic superpower of the last half of the nineteenth century, unquestionably the most affluent nation of the world. Her wealth was produced by the combination of a productivity advantage gained by a head start on the industrial revolution over other countries, indigenous supplies of the basic resources needed for industrial development, and an island geography that enabled her to avoid high defense expenditures by simply maintaining the naval supremacy required in any case for the security of her merchant fleets. For almost a hundred years after Trafalgar, the prestige of the Royal Navy operated to *minimize* even that requirement. Towards the end of the century other countries, notably Germany, overcame Britain's lead in industrial productivity. By then, however, Britain had her wealth. She was the world's banker, her merchant fleet dominated the world's carrying trade and British trading houses flourished throughout an empire on which the sun never set. Revenues from these sources offset the annual balance of payments deficits ascribable to her loss of supremacy in industry and growing dependence on foreign foodstuffs.[2]

Throughout the eighteenth century, colonies supported by sea power were the basis of British economic and political power. By the nineteenth century this was no longer the case. As early as the 1790s, colonial trade ceased to be the main element in Britain's total overseas trade. With the coming of the industrial revolution, wider markets and sources of raw materials became necessary. Revenues from the monopoly control of colonial commerce and their carrying trade hardly balanced the cost of colonial administration and maintenance. By the middle of the nineteenth century then, the British Empire mainly served as a global communication network, commercial organization, and

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[1] Hedley Bull, "Sea Power and Political Influence," *Adelphi Papers No. 122, Power at Sea, I. The New Environment*, London: The International Institute for Strategic Studies, Spring 1976, p. 4.

[2] Paul M. Kennedy, *The Rise and Fall of British Naval Mastery*, London: Penguin Books Ltd, 1976, p. 185–193.

distribution system for the international services that had become the real basis of Britain's wealth.

Under these circumstances, access to markets of the world and resources became the fundamental imperative of Britain's economy, and therefore the focus of her political and strategic power. Free trade was a natural policy, and the open door—access by all on equal terms—the preferred avenue for the exercise of influence. As Britain found herself being closed out of European markets during the latter half of the nineteenth century because of the industrial revolution in those countries and the raising of trade barriers to protect infant industries, trade with what is now called the Third World assumed a correspondingly greater importance. Britain's access to those regions of the world rested on her supremacy at sea.

The ability to maintain or, if necessary, compel access to remote markets and sources of raw materials required strategic mobility—the ability to apply force, or the threat of force, at distance. Strategic mobility overseas required secure sea transport, achievable only in conjunction with command of at least the sea route involved. Against the unmodernized armies of Asian and African powers or the island kingdoms of the day, the amount of modern force required was relatively small. Britain's army was able to supply without much turbulence the occasional demands of the "frontier" wars that occurred in defense of the Empire or in the increasingly more frequent acquisition of new colonies found necessary to compel access. The strain of providing the ground forces—which were, after all, the ultimate sanction—became a factor only when another European power was involved, as in the case of the Russian menace to India, or when the other army was equipped with modern weapons, as in the case of the Boer war of 1899–1902. For all the rest, the Royal Navy, secure in its prestige as the supreme sea weapon, could and did provide an adequate response to the challenges that arose, delivering whatever force was required at the scene, but more often carrying the day by its presence alone. A British warship represented the awesome power of the entire British Empire, and no one, not even the European powers, seemed inclined to challenge the British overseas.

British fleet disposition to achieve its missions of home defense and protection of the empire and its sea lines of communication consisted of nine stations. Major concentrations guarded the home islands, the channel and its approaches, and the Mediterranean Sea route to India. Dispersed groups watched the Caribbean and the North American coast, the South Atlantic, the Cape of Good Hope, Australia and the East Indies, China, and the Pacific. After home Island defense, the sea route to India was the first concern, and the most feared danger was a breakout of Russia either through the Turkish Straits or the Persian Gulf that would jeopardize this "lifeline of empire".

The Rise of Germany

During the last half of the nineteenth century Germany emerged as the strongest continental European power both economically and militarily. Germany's political union was late and imperfect, her industrial growth followed after Britain's by generations, and she was almost surrounded by potentially hostile neighbors who could attack her by marching across her frontiers. Nevertheless, by 1900 there were two superpowers compared to the other nations of Europe. Though Britain still had the greatest wealth and was supreme at sea, Germany had the greatest industrial machine and the most powerful army.

Between 1860 and 1900 Germany was transformed from an agrarian to an industrial society and experienced a population explosion, particularly in her urban centers. Emigration, which was substantial during that period, only partially provided relief from the pressure of increasing population. Industrialization and urbanization stimulated the growth of sentiment which, by the end of the century, saw overseas expansion as the way out of the problem of overcrowding and growing demands on the food supply.

German entry into the world market as a supplier of industrial products and a consumer of raw materials received considerable attention in the British press during the 1880s and 1890s, and was a factor in a campaign for an imperial preference and tariff in 1904 and 1906. Although the British government repudiated the campaign, the propaganda that produced it fostered in Germany the idea that Britain would attempt to destroy German commercial power as their competition increased.

Bismarck and Wilhelm I had made Germany the greatest continental power. A new German emperor, Wilhelm II proclaimed the need for Germany to become a great world power. The writings of the American naval historian, Alfred Thayer Mahan, who wrote convincingly that Britain owed her greatness to sea power, made a strong impression on the new Kaiser who dreamed of a big navy that would support worldwide commercial, political, and cultural interests.

German access to the sea is tenuous and can be blocked by a strong fleet in the North Sea. in 1898 her navy was small and had suffered from a disagreement over strategic concepts for most of the years since the empire was formed. However, the German Navy was a national institution unlike her armies which owed their allegiance to their individual sovereigns and took no oath to the national state. The Navy was involved in the turmoil of national identity that gripped Germany for most of the last half of the nineteenth century. It was a product of liberalism and the revolution of 1848. German liberals saw in liberal England all that they did not have and saw the British fleet as a symbol of a free, constitutional nation-state in contrast to the Prussian Army

which had put down their revolution. The Navy also had ties to the German academic community, particularly the economists who saw trade as a form of war and believed that Germany's growing commercial success, the product of her superior industry, would inevitably lead Britain to attempt to destroy both. They correctly understood that Britain's economic supremacy rested on trade, and believed her success was due to the power of her navy rather than mercantile skill. To the liberals, the German Navy also became a manifestation of the quality of German excellence, or "Kultur", which embraced not only technological superiority but also spiritual and philosophical supremacy.[3]

The leader who catalyzed these factors into a naval race was Alfred Tirpitz who became State Secretary of the Imperial Naval Office in 1897. In his first interview with the Kaiser after assuming his new post, Tirpitz submitted a memorandum that clearly identified Britain as the target of a new naval building program and remedied a deficiency in prior naval policy by providing a strategic concept for use of the projected fleet that accorded well with the geography of the German strategic situation.

The Tirpitz memorandum[4] proposed a fleet of battleships that could "unfold its greatest potential between Heliogoland and the Thames" since "commerce raiding and transatlantic war against England is so hopeless because of the shortage of bases on our side and the superfluity on England's side, that we must ignore this type of war against England." He noted that "a fleet constructed on this basis corresponds so well to our requirements, both against France as far as Brest or Cherbourg and against Russia as far as Kronstadt, that for the moment we need not pay particular attention to those enemies in the determination of our ship classes and in the selection of designs."

Limited shipbuilding capacity, manpower constraints, harbor facility considerations, and fiscal realities were cited as reasons why "no more than a 'good' capability for action in the line was absolutely necessary. Cruisers had to be severely limited in number and characteristics because "such vessels represent in a sense reduction from the forces needed for the ultimate outcome." Cruisers were to be dual purpose, that is they were to serve as scouting vessels for the fleet and as vessels detached for overseas service to show the flag. This latter function did not require much offensive power because "the fact that occasionally an individual cruiser overseas may be weaker than its opponent must never be considered important. Only the main theater of war will be decisive." However, in those cases abroad where real sea power might become necessary, large cruisers would meet the need better than a battleship. The need for these ships to pass through the

[3] Jonathan Steinberg, *Yesterday's Deterrent*. NY: The Macmillan Co, 1965.
[4] Cited in Steinberg, Appendix A.

Suez Canal would thus set the displacement limit on large cruisers, although their normal purpose would be for action with the fleet.

Behind this strategic concept and its application in fleet composition and characteristics lay a theory, the now famous "risk theory," that such a fleet and strategy could achieve a diplomatic realignment in Europe. The High Seas Fleet would simultaneously deter a preemptive attack against Germany by Britain, and would draw either Britain or France and Russia into closer relations with Germany. For this purpose, the "risk fleet" need not be superior or even equal to Britain's navy. It need only be large enough to ensure that defeating it would render the Royal Navy ineffective for further action against other enemies. While the "risk fleet" was under construction there would be a "danger zone" during which a preemptive attack on the fleet by Britain could be effective. The task of guarding against this would be assigned to Germany's diplomats.

Kaiser Wilhelm II, who had already become convinced that Britain was the enemy against whom Germany must prepare if she were to become a global power, accepted Admiral Tirpitz' theory, strategy, and building program. Subsequently the Reichstag and German people embraced the naval building program as a national effort and were willing to enlarge and extend it in accordance with Tirpitz' recommendations over the remaining years before World War I, despite the fact that it did not bring about the desired diplomatic realignment but instead drove Britain into the arms of France and Russia and presented Germany with enemies on two fronts and a concentration of the Royal Navy in home waters.

Britain's Response

The German Navy Law of 1898, amended and enlarged in 1900, gave substance to the Tirpitz plan and building program. By 1901–2 the British Admiralty had already become seriously concerned about the German shipbuilding program.[5] Reaction among other elements of the British government was less certain. The preface to a book on the German naval menace published in 1908 noted this reaction to the, by then, ongoing German naval shipbuilding effort:

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[5] A memorandum circulated by the First Lord to the Cabinet in October 1902 noted:
The more the composition of the new German fleet is examined the clearer it becomes that it is designed for a possible conflict with the British fleet. It cannot be designed for the purpose of playing a leading part in a future war between Germany and France and Russia; the issue of such a war can only be decided by armies on land, and the great naval expenditure in which Germany has embarked involves a deliberate diminution of the military strength which Germany might otherwise have attained in relation to France and Russia.
As cited in Arthur J. Marder, *From the Dreadnought to Scapa Flow, Vol I: 1904–1914: The Road to War*, London: The Oxford University Press, 1961, p.107.

> In England there is the point of view of the party—at present in the ascendant—of naval reductionists who systematically belittle the strength of Germany at sea with the object of securing some diminution in the British Navy. . . .
>
> The policy of the other party in England is to exaggerate the strength of the German fleet and to belittle the strength of their own. These men are often wrong in their facts; they are often the reverse of complimentary to the officers and men of the British Navy; and they often ignore well-known facts which, if mentioned, would mitigate against their case. . . .
>
> Unfortunately the Treasury who are the final official arbiters of our naval policy are neither statesmen nor strategists, but simply book-keepers; and the Navy suffers in consequence.[6]

The Royal Navy itself, whose capabilities were being thus debated, had entered the twentieth century woefully unready for a challenge by a modern, efficient rival. Changes in naval warfare made inevitable by the iron-clad warship, the transition from sail to steam, and the development of long range gunnery, the torpedo, the submarine and the sea mine, all of which had taken place during the long years of Pax Britanna, had not penetrated the tactical and strategic thinking of the Royal Navy although they had been incorporated in their fleet.

The disposition of the Royal Navy was not based on a carefully considered strategic plan, but had evolved over time. By the same token, the shipbuilding policy for the Royal Navy did not have an underlying strategic concept other than a general intention to maintain a big enough fleet to defeat the next two largest navies in the world. The kind of rationale for its size and composition which underlay the new German Navy had not been established.

Fortunately for England, a leader was at hand who had the capacity to revolutionize the Royal Navy, and he was placed by circumstances in a position to do so. Admiral Sir John Fisher, commanding in the Mediterranean 1899–1902, began to draw together a band of reformers. Assignments as Second Sea Lord at the Admiralty 1902–1903, and as Commander-in-Chief at Portsmouth 1903–1904, were growing periods for the ideas he was to introduce after he became First Sea Lord in October 1904.

His critical contribution to the Anglo-German naval race was the development of a strategic concept and a fleet of ships to reflect it. These focused on the redistribution of the fleet to concentrate an overwhelming battle line in home waters to oppose the rising power of the German High Seas Fleet, and the development of the "DREADNOUGHT" battleship and a new class of large cruiser called a battle cruiser. These contributions were accompanied by two more reforms,

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[6] Percival A. Hislam, *The Admiralty of the Atlantic*, London: Longmans, Green and Company, 1908 Preface.

the nucleus crew system and the scrapping of obsolete men of war, which were efficiencies felt necessary to keep the naval estimates within bounds during the annual budget battles within the cabinet and the Parliament.

Strategic Concepts and Battleships

Fisher believed that "five strategic keys lock up the world." They were Singapore, the Cape, Alexandria, Gibraltar and Dover, and Great Britain had them all. The redistribution would concentrate the Royal Navy on these five stations, with the size and composition of each fleet or squadron carefully tailored to its responsibilities. The Home Fleet would be powerful enough to defeat the German fleet and would become its keeper. This would reduce demands on other fleets and squadrons. This strategic disposition became possible by an alliance of powers which eliminated threats in other regions of the world. The five keys that locked up the world did so only by the consent of other powers, given Britain's unwillingness, or inability, to provide sufficient naval force to keep the narrow waters closed by unilateral action. The strategic concept Fisher chose was thus directed entirely against Germany's battle fleet. But it was the most economical strategy and satisfied even the naval reductionists for a while.

The ships that would give substance to this strategic concept were a new class of battleship so revolutionary in design as to render all existing battleships obsolescent, and the new battle cruiser. The lead ship of the new battleship class, HMS DREADNOUGHT, gave her name not only to the class but to the whole new type. Innovations in the DREADNOUGHT's design which gave her more offensive firepower than any previous ship were also incorporated into the INVINCIBLE. The rationale for the battle cruiser was to have large armored ships to act as scouting cruisers able to press home a reconnaissance against the inferior armored cruisers of the enemy, to act as a fast wing reinforcing the rear in a fleet action, and to run down and destroy armed merchantmen known to be a part of the German war planning.

The building of a new battle line would be expensive, and the mood of the government was for economy of defense expenditures in order to satisfy social needs felt to be more pressing. The nucleus crew system and scrapping policy were efficiencies that interlocked with the redistribution of the fleet to ease the burden of shipbuilding costs. These three reforms sought to achieve the Royal Navy's missions with fewer ships. Having decided to redistribute the fleet, the next step was to weed out all of the obsolescent ships and ships of small fighting potential. These ships were deemed by Fisher to have no value to a fleet that must be ready at all times to fight the enemy. A collection of similarly less capable ships in the dockyard reserve were also scrapped. The manpower saved by his scrapping policy was then used to man the nucleus

crew system for increasing the readiness of the reserve fleet as nearly as possible to that of the active fleet.

From Coal to Oil

Fisher was also the father of the shift from coal to oil to fuel the Royal Navy, although this reform did not come during his tenure as First Sea Lord, but later while Winston Churchill, who relied on Fisher's advice, was First Lord of the Admiralty.[7]

The shift to oil, which had to be imported, from coal, that was available in quantity in the home islands, was a major decision. It was taken against strong opposition from those who objected to a step that added to Britain's dependence on overseas supplies, and from the economy-minded, who objected to the considerable cost of the shift as it involved the acquisition of all the necessary facilities to store and distribute the oil as well as the cost of converting some ships and the purchase of several months reserve supply. The impact of the decision was far reaching. Scattered over the globe along every sea route were the coaling stations of the Royal Navy. Many of the territorial acquisitions of the empire had been to secure these coaling stations. These lost their strategic utility as the Navy gradually shifted to oil which conferred greater endurance on its ships. Although some merchant ships still used coal as late as World War II, the coaling station became an anachronism long before that. Another consequence of the decision was the changed strategic significance of the Persian Gulf which Britain had controlled so as to deny Russia access to the Indian Ocean. It now became the source of much of Britain's oil supply.

Technological Considerations

Both the German and the British strategic concepts resulted in their devoting most of their efforts to building capital ships. The DREADNOUGHT was clearly a major technological event, signalling as it did a new beginning in capital shipbuilding in which Britain's greater shipbuilding capacity gave them the advantage. As the only major fleet action of the war was to prove, German ships were individually better than Britain's, primarily because of better armor piercing projectiles, but British numerical superiority enabled them to prevail. Aside from the technological achievements associated with big guns and their platforms, which were admirably exploited by both powers, there were several other technological developments of lasting importance which could have affected the outcome of the war, but which failed to receive adequate recognition during pre-war years. These were the submarine, the aircraft, and the sea-mine.

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[7] Winston S. Churchill, *The World Crisis*, 4 Vols. NY: Scribners (1923–29, Vol I, p. 129), quoted in Marder, p. 269.

Evaluation

The Anglo-German naval rivalry of 1898–1914 was a German challenge to the existing distribution of world power that directly addressed the foundation of her rival's strength. Britain gained the initiative in the naval rivalry by developing the DREADNOUGHT which she could build in greater numbers than her rival because her shipbuilding capacity was greater than Germany's. Britain's DREADNOUGHT emphasized the naval gun, a weapon in which she had been preeminent for a century. Germany failed to choose a weapon in which Britain did not have preeminence. Thus Germany accepted the unfavorable terms for the contest set by her rival until well into the war. Execution of the shipbuilding policies chosen by the contenders was effective on both sides, and both had a suitable alternative strategy available when the decisive sea battle for which they had both planned failed to take place. However, Germany's preparation for her guerre de course was inadequate because she had not foreseen the submarine's potential for that form of warfare. Britain's scrapping policy had reduced the number of available vessels for convoy escort duty and other sea control assignments, but her shipbuilding capacity and the entry of the United States Navy into the war at a critical time enabled her to prevail.

The Soviet Contender

As a result of World Wars I and II the United States inherited Britain's economic and naval supremacy, and the Soviet Union displaced Germany as the strongest continental power in Europe and Asia. Disagreements over territorial settlements after World War II and the establishment of Soviet hegemony in many parts of the world, prompted the United States to assemble a global political and economic coalition directed against further extension of Soviet influence. The Soviet Union formed her own coalition against the West and ultimately undertook naval construction to facilitate a shift in the global balance of power in much the same manner as Germany did. Admiral Gorshkov, Commander in Chief of the Soviet Navy, in the present competition replaced Admiral Tirpitz.

Like Germany, the Soviet Union has had to contend with a difficult geographic situation in operating its navy. Russian harbors are behind easily closed natural barriers or are icebound much of the year. As the world's leading sea power, Britain successfully kept the Russian Navy bottled up in the Baltic and Black Seas throughout most of their historic rivalry over India, and in later stages of the rivalry Japan performed the same function in Asian waters. Today, Soviet naval power is beginning to achieve the breakout so long denied the fleets of the Tsars. The historic mission of the Russian fleet, constrained behind its natural barriers, has

been homeland defense. This is still the basic mission of the Soviet Navy as indeed it is for most navies. Other missions are now emerging as Russia's drive for dependable access to the world's oceans becomes a reality.

The Soviet post-World War II strategic problem for homeland defense was to defeat an attack by Western European armies. Soviet hegemony over Eastern Europe provided a buffer zone against such an attack by land, and the Red Army was capable of defeating such an advance. However, her possible adversaries had a proven amphibious capability and carrier based tactical air power that could strike directly at the homeland from the sea. The recent war had also demonstrated the tremendous logistics support available from America by sealift for a land war in Europe. Homeland defense in the early postwar years thus included the ability to deny approach to Russia by sea and to prevent North Atlantic sealift. The Soviet Navy chose to build a large submarine force for the North Atlantic and a capable land based tactical air force that could contest the approaches to Russia by a hostile sea force. These aircraft were backed up by a large number of small ships comprising a coastal defense force.

The Soviet submarine force is still their most formidable sea-denial instrument in the North Atlantic. After the United States Navy deployed nuclear weapons aboard aircraft carriers, the anticarrier mission became more urgent and the Soviet Navy developed ballistic missile submarines to carry out a new mission of strategic deterrence. When the United States developed its own ballistic missile submarines, the Soviets added a blue water antisubmarine mission to the anticarrier mission.

The anticarrier mission presented a technological problem. The United States and her Western allies had a commanding lead in aircraft carriers and in aircraft technology. Defeating them in their own area of technological supremacy would be very difficult if not impossible. A way of overcoming this technological lead had to be found. The Soviet solution was the antiship missile.

The Soviet Navy developed a family of antiship missiles as their answer to the Western aircraft carrier. A modern force of submarines, land-based aircraft, and surface ships of various sizes all equipped to employ missiles was also built. The effectiveness of their missiles against small ships up to destroyer size has been demonstrated several times in actual combat, but no major warship has yet been attacked.

Soviet antisubmarine efforts have thus far produced no known hardware scheme matching the importance of the antiship missile developed against the aircraft carrier. Their observed equipments and tactics have been similar to those of Western antisubmarine forces. Thus, though the ballistic missile submarine is highlighted by Admiral Gorshkov as one of the principal reasons why the Soviet Union needs a navy, their navy's response to it has been relatively prosaic. However

Soviet research in antisubmarine warfare hardware is reported to be intense.[8]

The Soviet Fleet

The Soviet Navy operates more surface ships and submarines than the US Navy, but has an inferior sea based air capability which is only partly made up by their superior land based aviation. The United States operates a more capable amphibious force and has a better underway replenishment force. This latter capability was found necessary over the years of operating the US Navy at a distance from home waters. There are indications the Soviet Navy is responding to a requirement to operate in more distant areas by acquiring better underway replenishment capability and combatant ships of greater endurance.

Admiral Holloway, the US Navy CNO, considers Soviet submarines to be the most dangerous threat to US maritime supremacy. Soviet submarines are being modernized by replacing diesel powered boats with nuclear powered versions. Over two thirds of their ballistic missile submarines and about one-third of their attack submarines are nuclear powered. Over half the nuclear powered attack submarines are armed with antiship missiles. (All Soviet submarines including their ballistic missile boats are armed with antiship torpedos.) Soviet submarines are tasked to perform the strategic attack mission (with ballistic missiles), the antishipping mission (with missiles and torpedos), and the antisubmarine mission (with specialized antisubmarine torpedos).

Admiral Gorshkov believes the German Navy committed a basic error in both world wars by sending their submarines out unsupported by other forces. They were thus at the mercy of antisubmarine forces who could attack them repeatedly while they were at a disadvantage in retaliating. He has promised that Soviet submarines will not be similarly unsupported. The Soviet surface ship would coordinate this support operation, assisted as necessary by aircraft. The surface ship thus has antisurface ship, antisubmarine, and submarine support tasks to perform.[9]

Soviet defense of their homeland against the approach of hostile naval forces by land based aircraft has been a fundamental plan for many years. A defense in depth has existed in the form of aircraft of varying range capabilities which would subject the approaching force to increasingly intense reaction as it came nearer Russia.

Soviet Projection Capability

The Soviet Union's ability to employ their navy aggressively has been a subject of controversy as operations beyond the perimeter of

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[8] See e.g. Norman Polmar, "Thinking About Soviet ASW," *US Naval Institute Proceedings*, Vol 102, No. 879 (May 1976), p. 108–125.

[9] S. G. Gorshkov, *Sea Power of the State*, Moscow: Voyenizdat, 1976, last page.

their land-based aircraft were felt by many Western analysts to be too risky, and the absence of any effort to compensate for this deficiency was taken as an indication that such operations were not contemplated. The recent construction of a class of ships capable of operating V/STOL aircraft is clear indication that the Soviet Navy has a mission that requires air capability at sea beyond the range of land based air, but the character of the mission is still in dispute. Meanwhile, the construction of air bases in client states has extended the potential coverage of Soviet land based aircraft. Thus, the Soviet Navy's potential "safe" operating area has been greatly expanded, either to be able to challenge the United States Navy or to be able to project Soviet power, or both.

Strategically, mobile ground forces are the ultimate sanction in dealing with overseas political problems. Until recently there was a consensus among analysts that the Soviet Union and its allies did not have this kind of mobility. However, a number of incidents have recently demonstrated that they are developing it. Arab troop movements by air and sea-lift during the 1973 Mid-East War and Cuban troop movements in connection with their Angolan intervention are examples. The pattern that has been followed is for the equipment to move by ship while the troops go by air, and the equipment does not necessarily come from the same place as the troops. The Soviet Navy has limited, but growing, amphibious assault capability in several classes of landing ships capable of beaching to offload the tracked vehicles they are designed to transport. Of greater capacity and importance is their fleet of roll-on/roll-off ships having military features permitting the delivery of substantial volumes of supplies as well as military vehicles to an unimproved harbor. The Soviet Union has about twenty of these ships which can move almost any kind of military cargo almost anywhere in the world without modifying the ship in any way from its commercial configuration. Forty more are scheduled for delivery in the near future.[10]

The possibility that the Soviet Navy is developing a projection capability is a primary source of concern to those who feel the Soviet Navy is intended to seek a change in the global balance of power. Coupled with an already formidable sea denial capability, an overseas projection capability in the hands of the Soviet leadership would enable them to intervene in regions heretofore considered by Anglo-Saxons to be "none of their business." As has been previously noted, the Anglo-German naval rivalry of 1898–1914 stimulated similar emotions.

American Maritime Interests Challenged

The United States' economy is dependent on overseas commerce, though not to the same extent as Britain in 1900. The United States

[10] From an unclassified briefing by the Naval Intelligence Support Center in July 1976.

depends on ocean shipping for raw materials—of the more than 100 imported minerals 46 are essential, that is they have an import volume equal to more than 10 per cent of annual requirements, and an ever-growing percentage of the national energy supply is obtained from abroad.[11] In 1973 the United States imported by sea 405.5 billion long tons of commodities worth over $44 billion. To pay for these imports, 226 billion long tons of exports worth slightly less than $40 billion were shipped overseas.[12] The projections show that United States dependence on overseas resources will grow in future years.

The United States does not administer a large colonial empire to facilitate her international business as Britain did and therefore is even more dependent than Britain on the open door for the access she needs to the raw materials and world markets and on free use of the world's oceans for transport. The United States needs and uses the seas as "the medium through which we extend our influence, both commercial and military abroad. We also use the oceans as barriers in defense of our country."[13]

In addition to the traditional use of the oceans as highways, the other traditional benefit derived from the seas—resources—has been enhanced during recent years. To the fishing industry which has always existed has now been added the offshore oil industry, and, waiting in the wings, is the promise of a sea bed mineral extraction industry if the conditions under which it will operate can be agreed upon. Because of its technological lead, the United States has an advantage in these extraction industries which its naval supremacy could confirm. There is an international controversy over how access to the ocean's resources is to be controlled—whether by traditional establishment of "national boundaries" (the so-called "resource zones") or by some international body. Settlement of that dispute will have immense implications for the future of all countries but particularly for the industrial countries and especially for a country such as the United States whose industries are dependent on imported raw materials. Protection of resource extraction operations in regions formerly considered international waters is as yet an undefined new mission for maritime forces.

A new use of the oceans that has emerged in the second half of the twentieth century is as a base for weapons systems with nuclear warheads. These may be either mobile (installed in surface ships or submarines) or fixed installations, and the delivery systems can be either conventional aircraft or missiles (ballistic or guided). While limited attack against land targets from ships has been possible for many years,

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[11] Dewitt J. Griffin, "Our Sea Lanes of Communications," *Sea Power*, XIX (September 1976), p.1.

[12] US Department of Commerce/Maritime Administration, *Essential United States Foreign Trade Routes*, June 1975.

[13] US Congress, House Subcommittee of the Committee on Appropriations, *Department of Defense Appropriation for 1977*, Part VIII, 1976, p. 131–132.

the destructive potential of a nuclear weapon is sufficiently greater than shore bombardment or air strike with conventional ammunition as to constitute a new capability. In particular, marriage of the nuclear tipped ballistic missile with the nuclear powered submarine has produced a weapon system for which countermeasures are extremely difficult. Sea basing of nuclear weapons has thus added a new dimension to the sea denial mission of a navy tasked with achieving and maintaining command of the sea.

The Debate over the Size and Composition of the US Navy

Until the end of the 1960s the US Navy was large enough to simultaneously carry out its missions in both the Atlantic and Pacific theaters—a two ocean navy. In recent years the US Navy has declined to one half its former size and can no longer clearly meet the two ocean standard. This occurred because when the time came to replace the many ships of World War II construction still in the inventory in the 1960s the country was engaged in the Vietnam war. It was felt that there were insufficient resources to prosecute the war and also design and procure replacements for these old ships which were felt to have little utility in a war against the Soviet Navy, although they were performing satisfactorily in the relatively permissive environment in Vietnam waters.

Faced with a choice between maintaining a large but obsolescent fleet or a smaller modern force, navy leaders chose to modernize. However, a number of factors have combined to delay new shipbuilding and to reduce the number of new ships below those planned. Increased manpower costs stemming from a decision to make military pay comparable to the wages of civilians and to increase incentives to enlist after the draft law expired, eroded expected savings in operating costs from reducing the numbers of ships and aircraft squadrons. Increased fuel costs after the 1973 Mideast war magnified the problem. Habitability improvements thought to be necessary to attract volunteers and enable sustained forward deployment forced up the price of the planned new ships. Inflation and cost growth in the shipbuilding industry exceeded that experienced in other sectors of the economy and reduced the numbers of ships that could be funded within budget ceilings. For these reasons, the US Navy is smaller than planned, and planned expansion programs have not been approved and funded. The reduced size of the Navy has prompted a debate over the required size and composition of the Navy between those who feel an unambiguous two ocean capability should be restored and those who feel the remaining navy is adequate although only half its former size. The issues concern the mission of the Navy, the viability and future utility of aircraft carriers, and the kinds of ships to receive nuclear propulsion.

There are two kinds of issues affecting the mission of the Navy. The first has to do with the extent of the region over which sea control must be exercised to ensure the success of wartime missions. The second concerns the kinds of combat operations likely to be necessary in a future war. The reduced navy is reported to be adequate to carry out its missions in the North Atlantic Ocean and the Western Mediterranean, while simultaneously keeping the sea lanes open to Alaska and Hawaii.[14] The sea lanes from the Persian Gulf to Europe and North America would be defended by attempting to keep Soviet submarines and other naval forces bottled up behind the Greenland-Iceland-United Kingdom perimeter.[15] This part of the plan is reminiscent of Fisher's using the fleet based on the home islands to keep the German High Seas Fleet from venturing out into the Atlantic. The Sea of Japan and Eastern Mediterranean Sea would be untenable for a time, but eventually, it is projected, the US Navy should be able to fight its way back into the Eastern Mediterranean.[16] The issue in this case is whether this would adequately cover likely US wartime requirements for control of the seas.

The problem is somewhat reminiscent of the British predicament during World War I after Fisher's scrapping policy had eliminated many of the less capable ships of the Royal Navy for reasons of economy and Britain found itself short-handed for the many prosaic but necessary tasks of sea control that might have been performed by those ships that were scrapped. Naval expansionists would return the Navy at least to its former ability to cover at least the Western Pacific and the Persian Gulf oil routes. Those in favor of accepting a smaller navy would rely on Japan in the Pacific and the NATO allies to assist in maintaining the security of the Persian Gulf routes. These alternatives are similar to those chosen by Britain when reliance was placed on Japan to oversee British interests in the Far East and France to guard the Mediterranean lifeline to India. Fisher's redistribution of the fleet concentrated it in home waters at the expense of more distant regions. In his day, the threat was also concentrated near home. The Soviet sea challenge is less concentrated.

In addition to the issue over the US Navy's ability to meet its sea control mission, and directly related to it, is the issue over the kinds of shore attack tasks likely to be required of the fleet in a war. Traditionally, the US Navy has been required to land Marines in amphibious assault and conduct naval strike operations against targets ashore that contribute to an enemy's sea fighting capability. In Korea and Vietnam the Navy exceeded these traditional tasks and assisted the

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[14] Ibid p. 109.

[15] US Congress, Senate, Committee on the Budget, *Seminar, Service Chiefs on Defense Mission and Priorities*, 18 September 1975—Navy, Vol 1, 94th Congress, 1st Session, Committee Print., Jan. 1976. p.15.

[16] Ibid, p.13.

Air Force in its deep interdiction mission and also in its close air support mission. Critics of the Navy believe the capability to conduct this collateral mission has been unduly pursued and has resulted in unnecessarily high requirements for ship and aircraft capabilities. They contend that if the Navy were not required to perform this "projection" mission, a less capable navy would be required and the money saved would permit the larger fleet needed to ensure sea control. Navy advocates respond by arguing that sea control and these "projection" tasks are not separable and that requirements for high unit capability stem from both the spread of the severest threat into regions where control of the sea is required and the unpredictability of wartime missions. These issues emerge in discussions of almost every kind of Navy ship, but they are most intensely argued in connection with the aircraft carrier and the issue over nuclear power for surface ships.

The US Navy depends on manned aircraft based on aircraft carriers for its conventional offensive power and is preeminent in the use of that weapon system. The key decision facing the Navy at this time is how to continue the offensive capability resident in 11 large, conventionally powered aircraft carriers as they come due for retirement. Two nuclear powered large carriers are being built to replace carriers retiring between now and 1982. The issue is over replacements for those due for retirement starting in 1984.

Carrier advocates would replace these ships with large nuclear powered carriers configured for conventional take-off and landing (CTOL) aircraft such as those in the inventory today or now in development. Critics of large carriers challenge the desirability of this course on grounds that large nuclear powered carriers are too expensive to permit operation of sufficient numbers to do the Navy's job, that they are too vulnerable for such a large investment, and that CTOL aircraft may be superseded as the most effective offensive weapons delivery systems early in the lifetime of the next generation of carriers. Other delivery systems, such as missiles, remotely piloted vehicles, and vertical or short take-off and landing (V/STOL) aircraft can be operated from smaller platforms, thereby dispersing the Navy's offensive capability among many ships instead of a few large carriers.

The carrier issue is in some respects an analog of the DREADNOUGHT issue of earlier times in which the principal offensive ship-type of the day was superseded by a better design. In that case, the weapon system involved, the naval gun, was not superseded. In the case of the carrier, the weapon itself is being challenged. The DREADNOUGHT decision went in favor of increasingly large and expensive ships. The carrier issue is tending the other way, but may yet reaffirm the cost effectiveness of the larger platform. Today's carriers, like the DREADNOUGHT before them, are the hardest of surface targets to attack and also have the greatest damage control capability of any navy ship. Their airwings are tailored to enable them to survive and conduct

strike operations in a more hostile environment than less capable smaller ships could withstand. The DREADNOUGHT decision deliberately sacrificed Britain's preponderent lead in earlier capital ships to start a new shipbuilding race. Large carrier advocates claim a decision to build smaller carriers, counting on V/STOL technology to give them equivalent capabilities to their larger predecessors, would similarly sacrifice the commanding lead the US Navy holds by virtue of its present carrier force.[17]

There is little argument over the value of nuclear power in submarines because submarines reach their full potential only with the nuclear power plant. The nuclear propulsion issue is over which surface ships need nuclear power.

Nuclear power advocates argue that the significantly greater endurance enabled by nuclear power should be a required characteristic of the US Navy's striking forces. Public Law 93-365 so provides. However, a provision of the law permits the President to certify that a conventionally powered ship would best meet the national interest. This escape clause has permitted the debate over nuclear powered surface ships to continue.

Nuclear power permits a force to operate many days without replenishment, either to close a target at high speed without being slowed by supply ships or to remain in the target area many days longer before withdrawing to replenish. In a particularly hostile area nuclear powered ships might be the only surface ships capable of operating at all. Nuclear power saves lives in combat by reducing exposure of replenishment ships to hostile action and because the nuclear ships would not have to endanger themselves by engaging in replenishment operations. Nuclear propulsion also reduces the problem of obtaining oil in an age of decreasing oil supplies and rising oil prices.

Critics acknowledge these advantages of nuclear power, but question whether, given the challenge of Soviet sea power and the decline in numbers of US Navy ships, the nation can afford enough ships to meet the Navy's mission requirements if every strike force ship is nuclear powered. Nuclear powered ships are more costly to acquire and operate on a ship for ship basis than conventionally powered ships of equivalent firepower. However, Navy studies show that on a task group basis, when the savings from fewer replenishment ships and a reduced number of escorts for the nuclear task group are considered, the life cycle cost of a nuclear powered task group is not appreciably higher and may be less than that of a conventionally powered task group. In effect,

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[17] In another respect, the ballistic missile submarine is also the modern equivalent of the DREADNOUGHT in that it revolutionized fleet capability and started a new shipbuilding cycle for the two superpowers. Ballistic missile submarines have influenced Naval policy in both navies dramatically. The issues associated with this type of ship in the US Navy are no longer fundamental, but are instead questions of characteristics of the next class and how to achieve the most efficient use of resources committed to the program.

according to nuclear power advocates, it is a case of higher initial outlay opposed to lower initial costs but higher annual operating costs.[18]

Whether a reduced number of escorts is acceptable for nuclear powered task groups is controversial. Nuclear powered escorts are more capable than their conventionally powered counterparts. The issue is whether their increased capability warrants a reduction in numbers. Fewer escorts mean that after battle casualties are absorbed the remaining force would be more severely weakened. (Consider, for example, the loss of two escorts each from the four escort screen of a nuclear powered task group as opposed to the six escort screen of a conventionally powered group.)

The nuclear power issue is reminiscent of the shift from coal to oil for the Royal Navy, except that cost factors play a greater part in nuclear power trade-offs.

Differences Between the two Naval Rivalries

Many similarities between the two naval rivalries examined in this study have been noted as they were discussed in the text. The Soviet and German naval challenges are similar in that they both are traditionally land powers who challenged a maritime superpower by going to sea. The emotional reactions of the challenged maritime powers have been similar, and a number of issues that had to be resolved by Britain's naval leaders have their analogs in the issues faced by US Navy decision-makers today. There are, however, a number of differences between the two rivalries that should be recognized.

The German effort focused on Europe where the world power equation was decided. The Soviet challenge is more diffused and may be directed as much at reducing US influence in the Third World as at defeating US strategy in Europe.

Sea based nuclear weapons of great range have fundamentally changed the role of sea power in the settlement of international conflict, permitting the superpowers to threaten each other's homelands from seaward by other than invasion or starvation. Fear of escalation to a nuclear war may similarly prevent the superpowers from engaging each other in a conventional war at sea. Since the nuclear stalemate became operable, the superpowers have avoided direct confrontations. A superpower has resorted to force only when the other was not directly involved. In this way wars have been kept from escalating to the nuclear threshold. The arena for these low-risk wars has been the Third World,

[18] The most recent study on the subject is published in US Congress, Senate Committee on Armed Services. Hearings, 94th Congress, 2d Session, on S. 2965, *Fiscal Year 1978 Authorization for Military Procurement, Research and Development, and Active Duty, Selected Reserve and Civilian Personnel Strengths*. Part 13. Washington, DC: US Govt. Print. Off., 1976, p.7280–7283.

except when it has become necessary for the Soviet Union to discipline one of its satellite nations. In Third World conflicts the superpowers have used sea power to influence the outcome. The utility of sea power in this manner, and a perception of reduced liklihood of the superpower navies being used against one another, conditions decisions concerning the size and composition of the US Navy and may also influence Soviet decisions. The German fleet was designed to fight the British fleet and vice-versa. The Soviet and US fleets *may* have to fight one another, but they will more likely engage lesser navies. However the transfer of sophisticated weapons systems to client states can make a proxy nation formidable.

The changing use of the sea has created new missions for navies that call for a rethinking of traditional concepts of sea warfare. The world ocean may soon exhibit the same kinds of boundaries (and boundary disputes) as have characterized the land. Defense of a sea frontier may involve exactly that—a frontier many miles at sea. "Freedom of the Seas" could take on a more restricted meaning.

The Soviet fleet, like the German fleet of Kaiser Wilhelm II, has developed a challenge to the principal naval power. Unlike the Germans, who gambled all on their battle fleet, the Soviets have built a fleet capable of several different offensive missions—anticarrier, guerre de course, antisubmarine warfare, ballistic missile attack against shore targets, and support of proxy wars.

Germany's challenge to Britain's supremacy was unequivocal. The Soviet sea challenge is not. There is still room to argue and some do, that Soviet naval power is entirely defensive in nature. Review of the history of the Anglo-German naval rivalry shows Germany was able to force Britain to surrender influence in large regions of the world. These regions were important to her economy, and ultimately to her status as the world superpower. The Soviet naval challenge may be directed toward the same end.

Part II—Naval War-Fighting: Capabilities and Missions

Chapter 5

Soviet Naval Programmes†

By Michael MccGwire

This chapter discusses current warship construction programmes and naval weapons development. It updates the evidence in a previous review* and clarifies several of the trends which were then beginning to emerge. There have been relatively few new developments during the intervening period, but there has been an important reassessment of the characteristics of major surface warships delivered since 1966. It is now becoming clear that the main missile armament of these ships is antisubmarine, and not antisurface, as was originally thought. This has major implications in terms of the combat capability of Soviet naval units on forward deployment.

The impression persists that the Soviet naval programmes are working within the constraints of a fixed allocation of resources in terms of shipyard facilities and calls upon the rest of the economy. But it is also clear that the traditional mission of defending Russia against attack from the sea is no longer the prerogative of the Navy alone, and to an increasing extent it is shared with the other branches of the Armed

*"Current Soviet Warship Construction and Naval Weapons Development," *Soviet Naval Policy: Objectives and Constraints*, MccGwire, Booth & McDonnell (Eds.), NY: Praeger, 1975, pp. 424–451. Source data in the present chapter is limited to new information.

†This chapter was first written in May 1976. It is a revised version of chapters which appeared in *Soviet Naval Influence: Domestic and Foreign Dimensions*, MccGwire, and McDonnell (Eds.), NY: Praeger, 1977—M.MccG.

Forces.[1] Consideration of weapons development must therefore extend beyond the Navy to include at least the Strategic Missile and Air Forces.

Submarine Programmes

Submarine design and construction appears to run on a ten year cycle. Each period sees the introduction of a new family of submarines which represent a substantial advance on the previous generation. Improvements and modifications are introduced at the five year or half-term mark, and the weapon configuration may also change at this stage; but in its essentials, the basic hull/propulsion design remains the same.

The delivery period for the first generation of nuclear submarines ran from 1958 to 1967 and there were three main configurations: the NOVEMBER SSN and HOTEL SSBN during the first 5 years,[2] followed by the ECHO II SSGN (with a lengthened hull) during the second five years. The current delivery period started in 1968, and improved versions of the original YANKEE, VICTOR, and CHARLIE classes were introduced in 1973.[3] If past patterns persist, we can therefore expect a third generation family of submarines to commence series delivery in 1978.

SSBN Construction

Ballistic missile submarines continue to be built at Severodvinsk and Komsomolsk at about six units a year, split about 4:2. The lead ship of the YANKEE class, which now carries 16 1600 nm SS-N-6 missiles, was delivered from Severodvinsk in late 1967. The programme completed with 34 units in 1974. SSBN production appears to have been boosted in the run-up to SALT, eight units being delivered in 1972. In consequence, the programme overran the normal 5-year production run of 30 units.[4]

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[1] For example, Gorshkov comments that "The increase in the scope of warfare in the oceanic threatres entails the participation on an increasing scale of components of the other branches of the armed forces." *Morskov Sbornik*, December 1974, translated in *US Naval Institute Proceedings* (*USNIPs*) June 1975, p. 56.

[2] Five of these hull/propulsion units were re-configured to ECHO I SSGN as an interim expedient. Between 1968–72, these units were stripped of their missile launchers and re-configured as SSN.

[3] The lead ship of a new class is sometimes delivered towards the end of the final year of the previous cycle. This happened with YANKEE, VICTOR, and DELTA, but not CHARLIE.

[4] Production at Severodvinsk appears to have increased to deliver an extra four SSBNs during the period 1971–73. It seems likely that they could not bring the DELTA programme forward and therefore built more YANKEEs. The time overrun is most likely explained by a lag in getting full production under way at Komsomolsk and this kind of overlap is not unusual. It is possible that the boost in YANKEE construction was achieved in part by usurping two nuclear propulsion systems intended for the CHARLIE. If correct, this may imply that the final YANKEE/DELTA production run will be 62 units.

The lead ship of the DELTA class, which carries twelve 4,200 nm SS-N–8, was delivered towards the end of 1972. About 14 units had been built by 1 January 1976. The DELTA was originally referred to as a "stretched YANKEE" and presumably had the same hull/propulsion unit with an extra 25 ft. section added. Meanwhile, the DELTA II, which is another 50 ft. longer and carries 16 missiles, began delivery during 1976.[5]

The SALT agreement allowed a maximum of 62 SSBNs carrying up to 950 missiles, with an intervening "threshold" of 740 missiles. The Soviet Union passed this threshold during 1975 and dismantled some of the pre-1964 land-based SS–7 and SS–8 ICBMs, which they were allowed to trade in for SLBMs.[6] They were also expected to start removing the missile tubes from the seven first-generation HOTEL class SSBNs,[7] which can then be traded in for more modern submarines. At the beginning of 1976, future developments were still unclear. The US assessment was that the Soviet Union would expand its SLBM force up to the SALT limits of 950 launchers.[8] However, there was also some suggestion that a new class of SSBN might be under construction,[9] and it was believed that the Soviet Union would build past the limit of 62 SSBNs. Under the Vladivostok understanding, the SALT I limits remained valid only through 1977.[10]

Assuming the present building rates, a total of 60–62 YANKEEs and DELTAs, carrying about 900–930 missiles, will have been delivered by the end of the programme's 10-year production run.[11] The similarity of these members to those in the 1972 SALT agreement are striking, but on reflection, perhaps this is not surprising. At the time that SALT was signed, the first DELTA was nearing completion and the Soviets knew exactly the number of hulls they had programmed for construction during the remainder of the production run.[12] By that date, too, the configuration-mix of the third generation of nuclear submarines would have been decided and initial procurement would have been in hand.

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[5] US Secretary of Defense (Sec. Def.), *Defense Department Report FY 1977*, dtd. 27 January 1976, p. 53 and Chart IIB–2.

[6] Chairman of the Joint Chiefs of Staff (CJCS), *US Military Posture—FY 1977*, dtd. 20 June 1976, pp. 32–3, 36–7. There are 210 SS–7 and SS–8.

[7] CJCS, p. 37. There are 7 HOTELs still in service, each carrying three 700 nm SS-N–5 missiles.

[8] Sec. Def., p. 56.

[9] CJCS, pp. 31, 37. It is significant that Sec. Def. makes no mention of this and there would appear to be conflicting intelligence estimates as to whether or not a new class of SSBN will commence delivery in 1978.

[10] CJCS, p. 36.

[11] YANKEE—34 × 16 = 544, DELTA I—15 × 12 = 180, DELTA II—11 (or 13) × 16 = 176 (or 208). Total 900 (or 932). The production run of 62 units (as opposed to 60) is suggested in note 4.

[12] Lead time would allow the decision to lengthen the DELTA to take 16 missiles to have been taken in mid-1972. The extra length could, however, have caused assembly-way problems and may mean that Komsomolsk will continue to build Delta I.

The Soviet Union has shown itself to be legalistic, and in the circumstances of SALT, it seems unlikely that the leadership would have committed itself to a specific number with the intention of violating it within 6 years.

Other Nuclear Submarine Construction

The VICTOR class SSN is building at Admiralty Yard, Leningrad, at the rate of two units a year.[13] The original-design VICTOR I began series delivery in 1968 and was armed with torpedoes. A modification to this design is now in service and, based on past experience, is assumed to have begun delivery in 1973. This VICTOR II (which was initially designated as the new-design UNIFORM class[14]), carries a SUBROC type submerged-launch, air-flight, rocket-propelled weapon which delivers an antisubmarine, nuclear-armed homing torpedo or depth bomb to a distance of some 25 miles.[15]

The CHARLIE class SSGN is building at Gorky on the Volga at the rate of two units a year, although two propulsion units may have been forfeited to the SSBN programme, causing annual deliveries to drop to one in 1971 and 1972. The original design CHARLIE I began series delivery in 1968, and its main armament was the SS-N-7 submerged-launch, 30 mile-range SSM system. A new variant, the CHARLIE II, has entered service and is assumed to have begun delivery in 1973; it too now carries a SUBROC type weapon.[16]

The VICTOR and CHARLIE classes are different configurations of the same hull/propulsion unit. Past experience suggests that the production-run of these two classes were completed about the end of 1977, with a total of 38 (fourty minus two) units delivered.

There is still no further information on the two prototype submarines, the ALPHA delivered from Sudomekh in 1970 and the PAPA SSGN, delivered from Severodvinsk in 1971. There has always been considerable mystery about the ALPHA's propulsion system, but on the basis of Soviet writings, K.J. Moore argues that it may well be the

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[13] VICTOR production was over-assessed in the previous review at 3 pa. The accumulation of OOB figures now make it clear that the delivery rate is 2 per annum which is also more appropriate to the facilities available for nuclear submarine construction in the Leningrad area. Sudomekh Yard is almost certainly involved in this programme, and probably Baltic as well.

[14] Senate Armed Forces Committee, *Appropriations Hearings FY 1976*, (Senate FY 76), p. 1718.

[15] N. Polmar, "Thinking about Soviet ASW," *USNIPs*, May 1976, p. 128, quoting *Flottes de Combat 1976*. The missile is identified as the SS-N-15. See also CJCS p. 62 and K.J. Moore, "Developments in Submarine Systems", in McGwire & McDonnell (Eds) *Soviet Naval Influence: Domestic and Foreign Dimensions*, pp. 185–200. (SNIDF)

[16] K.J. Moore, (SNIDF)

test-bed for a completely new method of submarine propulsion.[17] If he is correct, and if the development process has been successful, then the ALPHA may be the forerunner of a series-production class scheduled to begin delivery in 1978.

Future Nuclear Submarine Programmes

Past experience suggests that we may expect a third generation family of nuclear submarines to begin series delivery in 1978. There have been no reports of nuclear shipbuilding facilities being greatly expanded. Therefore it seems likely that total deliveries will continue at 10 units a year. This will be irrespective of size and configuration since the limiting factor is presumably the production rate of nuclear plants.

In speculating on what types of submarine the new family will comprise, we must bear in mind that the first generation units will at this date be entering their third decade, and that the earlier classes are known to have had problems with their reactor installations. It will therefore be necessary to provide for the progressive replacement of these older units, as well as for new requirements. Much depends on the conclusions which have been reached by the Soviets concerning the structure of their strategic delivery forces, the proportion which should be sea-based, and whether there have been any second thoughts since 1972.[18] Given the extensive development of Soviet ICBM systems (including mobile ones), and the inherent problems connected with the command-and-control and systems integrity of SSBN, my hunch is that the Soviet Union will stay close to the proportions established by the SALT accords; i.e., they will not build a follow-on class of SSBN to the DELTA II. What does seem more likely is the conversion of the YANKEEs to carry the long range SS-N–8 system or some equivalent. There would appear to be two main options. The missile section of the YANKEE hull could be replaced by a prefabricated section, longer by 75 ft. and fitted with 16 SS-N–8 launchers. This would not seem to be very cost-effective and it would tie up a large amount of shipbuilding capacity. Alternatively, the existing YANKEE hull could be retrofitted to carry ten SS-N–8 launchers.[19] This would reduce the SLBM inventory by 204, and these could be transferred back to the ICBM account.[20] We should not be mesmerised by the SALT limit of 950

[17] Ibid.

[18] I have not researched the details of the Vladivostok understanding and do not know whether there was any significant shift in the Soviet position concerning the numbers and exchangability of SLBM launchers.

[19] The 50 ft. increase in the DELTA II's length allowed four extra missiles. Hence, the 75 ft. difference in the Yankee would cost 6 missiles.

[20] This is close to the figure of 210 old "heavy" ICBMs, which were originally available for trading with SLBM, and could alternatively be replaced by new "light" ICBMs.

SLBM; the Soviet Union needed that number to cover the programmes which were already in hand.

There are four other requirements which have to be met, at least in part, by nuclear submarines. The first is to provide the submarine component of the all-arms global ASW team. This may call for more than one configuration. The second and equally important requirement is to provide for the integrity of the Soviet SSBN force, whether operating within the shelter of the fleet areas, or deployed out of area. The third requirement is to provide a tactical strike capability against Western surface forces, particularly the aircraft carrier. Fourth is to provide antisubmarine protection to Soviet major surface units in distant waters.

It seems certain that we will see at least the same measure of improvement between the second and third generation submarines as we saw between the first and second. We should also be prepared for more radical changes. It is now almost 20 years since the Soviet Union decided to emphasize the nuclear submarines within their navy, and since 1961 the problem of countering sea-based delivery systems has been a matter of national priority. When lying second, it is Soviet practice to take a different tack rather than try and overhaul from astern. The superior speed of the second generation of nuclear submarines surprised the West which gives priority to silencing.[21] There are likely to be other unpleasant surprises in store since 20 years of sustained research and development is bound to yield some dividend.[22]

Non-Nuclear Submarine Construction

Construction of the FOXTROT torpedo-attack diesel submarine at Sudomekh was planned for a 10-year delivery-period from 1958 through 1967 at six units per annum. From 1966 onwards Sudomekh was involved with the VICTOR SSN programme and the ALPHA prototype. Delivery of the last twelve FOXTROTs was therefore spread over the next 3 to 4 years, and a further four units were built for direct sale to India.[23] FOXTROT construction appears to have finally terminated by 1975.

The lead ship of the TANGO class of submarine was delivered from Gorky in 1972, after which there was a hiatus. Series delivery appears

[21] Senate, FY 76.

[22] In the previous review I argued that it was not originally intended to build a large SSBN force. The decision to do so was part of the response to the increased procurement of strategic delivery sytems initiated by President Kennedy on taking office in 1961, which induced fears that the US was seeking to develop a first strike capability. Doubling the building of nuclear submarines was originally intended as a response to Western sea-based delivery systems (initially strike carriers and then submarines as well).

[23] India bought eight FOXTROT in all.

to have got under way in 1975, but only four units were in service by the end of that year.[24] These delays suggest some kind of problem. In the previous review it was surmised that TANGO might have some form of closed-cycle propulsion system; K.J. Moore comes to the same conclusion on the basis of the hull proportions.[25] The TANGO is armed with torpedoes and with the SUBROC type antisubmarine weapon system carried by the VICTOR and CHARLIE.[26]

Submarine Yard Capacity

Nuclear submarine construction is currently taking place at Severodvinsk, Komsomolsk, Leningrad, and Gorky; the last three building two per annum and Severodvinsk building four. It was argued at some length in the previous reviews that construction in the Leningrad area was a temporary expedient to get around the physical congestion at Severodvinsk caused by the extra large hulls of the SSBN programme. If correct, it would follow that the third generation family of nuclear submarines, if generally of moderate size, need not be built at the Leningrad yards. Indeed, it may even be possible to concentrate all nuclear submarine construction at Severodvinsk and Komsomolsk,[27] particularly since a new facility for the construction of submarines has been reported at Severodvinsk.[28]

Gorky, in addition to the CHARLIE programme, is building the TANGO. The low rate of production remains a puzzle, bearing in mind that during the middle fifties the yard was prepared to build 36 WHISKIEs a year. Of course, Gorky is involved in a range of projects for the river fleet, including hydrofoil, but more interestingly the large Wing-in-Ground (WIG) vehicle was built there.[29]

The remaining submarine yard is Sudomekh in Leningrad, a specialist yard which most recently built the ALPHA prototype and was presumably responsible for its test and evaluation over the last 7 years. Although it has congested facilities, Sudomekh handled the FOXTROT

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[24] See R. Berman "Soviet Naval Strength and Development" in SNIDF, pp 323–326, and *Soviet Naval Policy: Objectives and Constraints*.

[25] K.J. Moore, SNIDF. He draws attention to the length-to-beam ratio which is similar to that of the JULIET (8:5), compared to other classes (11:5–12:5).

[26] CJCS predicts the deployment of ASW missiles on all future classes of Soviet general purpose submarines (p. 62). K.J. Moore draws attention to the enlarged bow section of this class, similar to that on the VICTOR which is known to have this system.

[27] In 1969, official estimates reckoned that Severodvinsk and Komsomolsk could build 12 SSBNs a year between them. US Congress, Committee on the Armed Forces, Sea Power Sub-Committee, *Status of Naval Ships*, 19 March 1969, p. 419. At the peak of recent SSBN production in 1971–73, annual deliveries ran at 7–8–7. It therefore seems possible that between them, these two yards could sustain an annual production rate of 10 smaller units, split 7:3.

[28] W.H.J. Manthorpe "The Soviet Navy in 1975," *USNIPs*, May 1976, p. 205.

[29] *Janes' Surface Skimmers 1975*, pp. 118–121, 391.

programme on its own and has a long history of involvement in submarine development.

Until we know the size and configuration of the next family of submarines, it is useless to speculate on where they will build. We can, however, say with confidence that there is sufficient capacity to sustain a submarine programme of 10 nuclear submarines and at least 10 diesel submarines (or comparable types) a year.

Missile Development

There has been a general upgrading of naval missiles during the last 8 years, and "continued development of shipborne systems is expected during the next decade, allowing better performance in a greater variety of environments."[30] To facilitate discussion, those surface-to-surface (SS) system-designators which have been publicised are shown below; all have the prefix SS-N– . The SSM is a cruise missile; the SLBM is a submarine-launched *ballistic* missile.

-1:	150 n.m.	SSM in KILDIN and KRUPNYY. Obsolete
-2:	25 n.m.	SSM in KOMAR and OSA. Superseded
-3:	300 n.m.	SSM in ECHO, JULIET, KYNDA, and KRESTA I. Superseded
-4:	350 n.m.	SLBM in GOLF I and HOTEL I. Superseded
-5:	700 n.m.	SLBM in GOLF II and HOTEL II.
-6:	1600 n.m.	SLBM (strategic) in YANKEE.
-7:	30 n.m.	SSM (submerged launch) in CHARLIE.
-8:	4200 n.m.	SLBM (strategic) in DELTA.
-9:	100 n.m.	SSM in NANUCHKA.
-10:	-	SSM reputed to be in KRIVAK and KRESTA II.
-11:	30 n.m.	SSM replacement for SS-N–2 in OSA.
-12:	200 n.m.	SSM replacement for SS-N–3.
-13:	300 n.m.	SLBM (tactical) under development.
-14:	20 n.m.	SSM missile carrying ASW torpedo.
-15:	25 n.m.	SUBROC type weapon in CHARLIE, VICTOR, TANGO.

Antisubmarine Systems

In the past few years, the Soviets have "developed a family of ASW missiles for launch from surface and sub-surface platforms."[31] For both types of platform, there are two variants of missiles; one carries a nuclear-armed antisubmarine (ASW) torpedo and the other a nuclear depth bomb. Weapon range is between 15–25 miles.

Submarine Platforms

The system fitted in submarines entered service in 1972/73 aboard the VICTOR II, CHARLIE II, and TANGO classes.[32] It involves a

[30] CJCS, p. 62.
[31] Ibid.
[32] See notes 15–17 above.

rocket-propelled, submerged-launch, air-flight weapon somewhat akin to the US SUBROC, with a range of about 25 nm. One or the other of the variants has the NATO designator SS-N-15[33] and presumably the other is called SS-N-16.

Surface Platforms

The first ASW missile system went to sea aboard MOSKVA in 1967. The Soviets designate her as an antisubmarine cruiser, and in addition to 15–20 ASW helicopters, she carries two twin SA-N-3 SAM launchers and one twin SUW-1 ASW missile launcher, with magazine stowage below.[34] The torpedo-armed variant of the ASW missile system has a range of about 22 nm and carries the NATO designator SS-N-14. The variant which delivers a nuclear depth-bomb is designated FRAS-1, and has a range of about 19 nm.[35]

An ASW missile launcher similar to the SUW-1 is also fitted in KIEV which was delivered in 1975. The role of this helicopter-V/STOL carrier is assessed to be primarily ASW[36] and, like the MOSKVA, she carries two twin SA-N-3 SAM launchers and the one twin ASW missile launcher.

Between 1967 and 1975, three other classes of major surface warships began delivery; the KRESTA II (1969), the KRIVAK (1971), and the KARA (1972). The Soviets designate all three as large antisubmarine ships. The two larger units, the 9,500 ton KARA and the 7,500 ton KRESTA II (referred to in the West as cruisers), both carry two SA-N-3 systems, but the destroyer-sized KRIVAK (4000 tons) only carries an SA-N-4 point-defence system. Their main offensive armament is a missile system where the launcher-tubes also serve as missile stowage. The two larger ships have a cluster of four launchers mounted either side of the bridge structure and angled upwards over the foredecks. The KRIVAK has one four-tube launcher mounted on the foredeck.

It can be seen that KARA and KRESTA II carry the same major weapons-fit as MOSKVA and KIEV, with the exception that the helicopter carriers have the twin SUW-1 ASW missile-launcher and below-decks weapon stowage, while the large antisubmarine ships have two batteries of launcher tubes. Since the helicopter-carriers bracket the KRESTA II and KARA in time, and since the latter (like MOSKVA and KIEV) are specifically designated by the Soviets as having an antisubmarine role, one would expect the missile tubes aboard KRESTA and KARA to house the same weapon(s) as those launched from the carriers' SUW-1. Indeed, if this were not the case, the absence in these

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[33] *Flottes de Combat 1976*. Quoted by Polmar, *op. cit.*
[34] *Janes Fighting Ships*, 1975/76.
[35] *Flottes de Combat 1976*; *Flight International*, Vol. 109, No. 3507, 29 May 1976, p. 1433.
[36] Sec. Def. p. 100; CJCS p. 57; Drew Middleton, *New York Times*, 26 May 1976, p. 3.

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ships of any rapid-response long-range antisubmarine weapon would be anomalous.

Because of KRESTA II's close relationship to KRESTA I (which carried the SS-N-3 SSM system), and other circumstantial evidence,[37] it was initially assumed in the West that the KRESTA II, KRIVAK, and KARA all carried a medium-range SSM system. The latter was given the NATO designator SS-N-10. It has now been officially acknowledged that the KARA carries an ASW missile system, and does *not* carry an SSM system.[38] It is reasonable to conclude that this same ASW system is also fitted as the main armament of the two other contemporary classes of antisubmarine ship, the KRESTA II and the KRIVAK. Presumably this system can launch both the SS-N-14 torpedo-carrying missile, as well as the FRAS-1 nuclear depth bomb. It is not known whether reloads are carried, or whether the number of missiles is limited to the number of launcher-tubes.

Another case where it seems probable that an ASW missile system is being incorrectly designated as an SSM system concerns the after-facing launchers fitted in the improved KASHIN and modified KILDIN.

The KASHIN class, the first of which was delivered in 1962, has been undergoing modernization since 1972. The main externally-visible changes involve the fitting of variable depth sonar (VDS), the removal of the two after-facing RBU-4500A ASW rocket launchers, the fitting of four after-facing missile tubes, and the mounting of four single 30 mm turrets. It is true that the external appearance of the missile-tubes is similar to the SS-N-11 now carried by the OSA. Nevertheless, it seems more likely that the missiles they launch fulfill somewhat the same kind of role as the RBU-4500A which they appear to have replaced. This rocket launcher belongs to the same family as the RBU-2500A, the twelve-barrelled automatic-loading trainable ASW rocket launcher which has been fitted throughout the Soviet Navy since 1962. The six-barrelled RBU-4500A fires a larger weapon to a shorter range[39] and, significantly, was only fitted in the KASHIN (but not the contemporary KYNDA class rocket cruiser), the KRESTA, and the KARA.

Further support for this assessment is provided by the conversion of the KILDIN. In its original form it had a marginal ASW capability and carried the Soviet designator "rocket ship," but the modified KILDIN is called a large antisubmarine ship. The main externally-visible changes involve the substitution of two twin 76 mm turrets for

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[37] The operational limitations of the long-range SSM system were obvious. It was assessed that the Soviets would have to move to horizon-range missiles with organic target location systems, relying entirely on shipboard sensors. This assessment appeared to be confirmed by the appearance of the CHARLIE carrying a 30 nm SSM system; hence, when KRESTA II emerged carrying short missile tubes it was assumed that these were for horizon-range SSM.

[38] CJCS, p. 59.

[39] Polmar, *op. cit.*, p. 116.

the SS-N–1 launcher, and the fitting of four after-facing missile tubes, as in KASHIN. We should note that the Soviets are fairly punctilious in their use of ship-type designators, as is shown by the SAM KOTLIN which continues to be designated as a destroyer (*esminets*) even though its conversion involved the upgrading of its ASW weapons' fit.[40]

Taken together, the removal of the KASHIN's ASW heavy rocket launchers, the redesignation of KILDIN as an antisubmarine ship, and a third factor concerning operational requirements which is discussed below under surface programmes, argue that the after-facing launcher tubes fitted in KASHIN and KILDIN house some kind of ASW weapon.

Antisurface Systems

Prior to 1968, there were three antiship missile systems in operational service. The two surface-to-surface systems were the horizon-range SS-N–2 carried by the OSA and KOMAR missile patrol boats; and variants of the 300 nm SS-N–3 systems carried by four classes of submarines, two classes of surface ships, and the coast defence artillery. The air-to-surface system was the AS–2 (KIPPER) carried by the BADGER C. Two additional systems entered service towards the end of the decade; the 30 nm submerged-launch SS-N–7 carried by the CHARLIE submarine; and the 100 nm SS-N–9 carried by the NANUCHKA class large missile patrol boat.

Since 1968, the three initial systems have been superseded by new ones; the SS-N–11 has superseded the SS-N–2, the AS–5 (KELT) has superseded the AS–2, and the SS-N–12 has superseded the SS-N–3.[41] It would appear that the SS-N–7 and/or the SS-N–9 are now also being superseded by newer systems.[42] Meanwhile, the BACKFIRE strike aircraft entered naval service in late 1974,[43] and may carry a new ASM. In addition to these dedicated antisurface systems, it is possible that the SA-N–3 SAM system, fitted to the larger units since 1967, has some measure of surface-to-surface capability.[44]

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[40] *Janes Fighting Ships*, 1975/76.

[41] CJCS, p. 62 "Refined systems of the early 1960s have been supplemented (MccG—i.e., by SS-N–7 and –9) or replaced (MccG—i.e., SS-N–2, SS-N–3, AS–2) by newer systems. Some of the former (MccG—i.e., SS-N–7 and –9) are now in the process of being replaced." The SS-N–11 replaced the SS-N–2. The SS-N–12 is a 200 nm Mach 2.5 missile which fits into the SS-N–3 missile launching tubes. *Flight International*, Vol. 109, No. 3507, 29 May 1976, p. 1432.

[42] Last sentence of the CJCS quotations in Note 41.

[43] CJCS, p. 62.

[44] Polmar states that the Soviets claim that the SA-N–3 launchers are dual purpose weapons (*op. cit.*, p. 121). The Chairman JCS makes no such caveat: "The KARA class ships are among the most heavily armed ships for their displacement in any navy—with 3 separate missile systems. This 9500-ton ship carries an ASW missile and 2 surface-to-air missile systems."

Ballistic Missile Systems

Shipboard Systems

The original submarine-launched ballistic missile (SLBM) system went to sea in 1958 aboard the ZULU V, GOLF, and HOTEL classes. From 1963, this SS-N–4, 350 nm surface-launched system was progressively superceded by the SS-N–5, a submerged-launch 700 nm system, which was retrofitted in all the HOTEL and some of the GOLF. Although these systems may have been operationally deployed in a crude counter-carrier role during the 1960s, there seems little doubt that they were initially designed for attacking targets on land.

The SS-N–6 went to sea aboard the YANKEEs in 1968. The initial variant (Mod. 1) had a single reentry vehicle (RV) and a range of 1300 nm. This missile is being progressively replaced by the Mod. 2, a 1600 nm missile with a single RV, which first entered service in 1973.[45] Mod. 3 has the same range with MRV and it may have become operational in 1975. Because the SS-N–6 has the same diameter as the terminally guided SS-N–13,[46] there has been some speculation as to whether the –6 might also have a tactical role. This seems unlikely since the appearance of this system coincided with the linking of the SSBN force for the first time with the Strategic Rocket Forces as comprising "the main force deterring the aggressor and decisively defeating him in war."[47]

The 4200 nm SS-N–8 went to sea aboard the DELTA in 1973. It has a single RV and can cover the USA from Soviet home waters. Although testing of a MIRVed missile with the characteristics of the SS-N–8 took place in 1975,[48] a new variant of the SS-N–8 is not expected in the near term.[49] However, several new types of SLBM are now entering the testing phase; all have ranges greater than 3000 nm and some have MIRV.[50]

The SS-N–13 SLBM introduces the new concept of a tactical ballistic missile for use against aircraft carriers and submarines. This missile has a range of more than 300 nm. It has "mid-course guidance, orients itself, and guides itself in to the target,"[51] and can vary its initial aiming point by up to 30 nm.[52] It is generally accepted that this system will have an initial capability against surface ships, but whether the Soviets will also have solved the problem of being able to home on a

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[45] CJCS, p. 37.
[46] Press release by Senator Taft, 3 June 1976.
[47] V.D. Sokolovskiy, *Voyennaya Strategiya*. Moscow: Voyenizdat, 1968, p. 235.
[48] Manthorpe (*op. cit.*), p. 205.
[49] Sec. Def., p. 53.
[50] Manthorpe (*op. cit.*), p. 205.
[51] Senate FY 1976, Dr. M. Currie, p. 2816.
[52] K.J. Moore "Developments in Submarine Systems," SNIDF.

submerged submarine seemed doubtful.[53] The SS-N-13 could be carried by the YANKEEs, but this type of system could equally well be fitted in surface ships.

Shore-based Systems

The appearance of a ballistic missile with terminal homing opens up a new range of options for the employment of land-based ballistic missiles against targets at sea. In December 1972, Grechko stated that the wartime mission of the Strategic Rocket Forces included the destruction of "enemy means of nuclear attack and troop and naval groupings in theatres of military operations on land and sea."[54] It also seems likely that the US carriers in the Mediterranean were targetted by land-based missiles during the middle sixties. The assessment of new ICBM and IRBM systems must therefore bear in mind the role of striking Western sea-based strategic delivery systems and other naval forces.

Target Locating Data

The use of ballistic missiles in the tactical counter-force role presupposes the availability of target location data. This can be provided from continuous marking by Soviet units, as appears to have been the case in the Mediterranean during the middle sixties and probably still applies. But it appears that the Soviets are trying to develop an ocean surveillance capability relying in part on satellites. During the demonstration/exercise VESNA (OKEAN-75) they launched two Cosmos satellites which had the orbital characteristics of ocean reconnaissance vehicles.[55] However, past practice suggests that if the Soviets are seeking to develop the capability for a real-time maritime plot of all Western sea-based strategic delivery units they will be approaching the requirement from several directions at once.

Surface Ship Programmes

The Soviet Navy has traditionally had a conventional inventory of general purpose ship-types, categorised primarily in terms of diminishing size as cruiser, destroyer, escort ship, the large, medium and small "chasers", plus the torpedo and rocket-armed surface-attack craft. However, in the latter half of the sixties, the Soviets introduced a new

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[53] See Polmar (*op. cit.*), p. 126, and Senator Taft (note 46). This is not to say that the Soviets are not trying to acquire this capability.

[54] A.A. Grechko, "A Socialist Multinational Army," *Krasnaya Zvezda*, 17 December 1972.

[55] Manthorpe (*op. cit.*), p. 207. The Cosmos satellites were launched on 2 and 7 April 1975 (Nos. 723 and 724) and had apogees of about 277 miles, perigees of about 256 miles, inclinations of 65°, and periods of a few seconds less than 90 minutes.

nomenclature which divided the bulk of their modern surface ships into three broad categories, namely:[56]

Antisubmarine Cruiser	MOSKVA (1967), KIEV (1975)
Large Antisubmarine Ship	New Construction: KASHIN (1962) KRESTA I (1966), KRESTA II (1969) KRIVAK (1970), KARA (1972) Conversion: KANIN (1966), Mod. KILDIN
Small Antisubmarine Ship	POTI (1962), * GRISHA (1970)

The figures in brackets show the year that each class began delivery or, in the case of conversions, the vintage of new weapons-fit. The following classes do not come within the new antisubmarine category:

Rocket Cruiser	KYNDA (1962)
Cruiser	SVERDLOV (1952)
Rocket Ship	KILDIN (1957), KRUPNYY (1959)
Destroyer	SKORYY (1950), KOTLIN (1955), SAM KOTLIN (1962)
Escort Ship	RIGA (1952), MIRKA/PETYA (1962)
Rocket Cutter	OSA (1960), NANUCHKA (1970)

The two tabulations draw attention to the very marked shift away from the surface-attack role towards that of ASW; since 1968, the 800-ton NANUCHKA is the largest unit to carry specifically antisurface weapons.** The tabulation also highlights the 1962 watershed in ASW capabilities, which can be seen in the different categorisations of the KYNDA and KASHIN. These are design-contemporaries but carry somewhat different ASW outfits. But it is shown even more clearly by the exclusion of SAM KOTLIN from the antisubmarine category, despite the fact that its programme (which only started in 1964) was overlapped in time by the KRUPNYY-to-KANIN conversion, and despite the external similarity of their weapons-fits. The significant difference between these two classes is that the KOTLIN conversion used weapons and sensors from the cancelled KYNDA programme, whereas the KANIN class uses those from KRESTA I, which provides it with a comparable ASW capability to the KASHIN. MIRKA/PETYA, another contemporary of KASHIN, is also excluded from the ASW category. But this would in part reflect its relatively small size which makes it unsuitable for sustained ASW operations in distant waters. However, the even smaller POTI (yet another KASHIN contemporary) qualifies as a small antisubmarine ship because its role is limited to the offshore zone.

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[56] These Soviet designators are mainly derived from *Jane's Fighting Ships*.

*POTI was formally a Large Chaser (OKHOTNIK—literally "hunter"). The contemporary designations of its predecessor KRONSHTADT, and of the Medium Chaser (SO-1), and the Small Chasers (MO VI and STENKA) are not known.

**This assumes that the missile-tubes on the large antisubmarine ships house ASW weapons and not SSM.

The dropping of the escort-sized ship from the type-inventory emphasises a growing distinction between the larger units which are capable of sustained distant-water operations in a potentially hostile maritime environment, and the smaller units which are designed to operate within the range of shore-based systems in defence of the offshore zone.

The Antisubmarine Cruisers

The Soviet Navy designates both KIEV and MOSKVA as antisubmarine cruisers,[57] and both of them are now referred to as ASW aircraft carriers in official US statements.[58]

The 17,500 ton MOSKVA class dates from 1957/58 decision-period, and it now seems likely that a production run of 12 units was planned. It is probable that they were originally intended to extend the range of shore-based ASW helicopters, most immediately in the arctic seas, but also in the Pacific and perhaps in the Black Sea as well. But when the area of threat moved out to the South Norwegian, Mediterranean, and Arabian Seas, it was appreciated that with hanger-space for only 15–20 helicopters, the MOSKVAs would be too small to be operationally effective. The programme was therefore terminated at two units, the remaining weapon outfits being redeployed to upgrade the capability of the KRESTA class which was a contemporary programme.[59]

It seems probable that the design-decision on the 39,000 ton KIEV class was taken by 1963/64, but the final decision to move to series construction was most likely deferred until the operational evaluation of MOSKVA in 1967/68. The class is building at Nosenko Yard, Nikolaev. The name ship was delivered to the Navy in 1975, a second ship (MINSK) was forecast for delivery in 1977, and a third unit is under construction. Prior to her deployment to the Mediterranean in July 1976, official assessments of the KIEV concluded that she is configured to serve as a command and control center for an ASW task force, although she could also serve in other roles. It is assessed that this ship can carry about 36 helicopters and V/STOL aircraft, the latter being used primarily for reconnaissance and task force air defense, although they have some

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[57] *Jane's Fighting Ships:* 1975–1976.

[58] CJCS, p. 57.

[59] There is not the space to develop the arguments which underlie the assertions concerning the pattern of warship building programs and the redeployment of weapon systems from canceled programs. They derive from an extended analysis of the Soviet shipbuilding industry carried out in 1969. This analysis allowed the construction of a "model" which has been refined with accumulating evidence. For a summary description of the initial analysis see "Soviet Naval Procurement," in *The Soviet Union in Europe and the Near East* (London: Royal United Service Institute, 1970) pp. 74–82. Further justifications can be found in "The Turning Points in Soviet Naval Policy," in *Soviet Naval Developments: Capability and Context*, (Ed) M. McGwire, NY: Praeger, 1973, pp. 176–209.

antisurface strike capability.[60] Currently, the KIEV carries the Ka-25 HORMONE antisubmarine helicopter and the YAK–36 V/STOL transonic fighter; the latter carried out ship-board trials during 1975.[61]

The KIEV has an extensive weapons outfit.[62] For air defense she mounts two SA-N–3 SAM systems, two SA-N–4 point defence systems, and eight 23 mm Gatling-type remote-power-controlled turrets; she is also fitted with two twin 76 mm dual purpose turrets. The ship carries several ASW systems, including variable depth and hull-mounted sonars, two sets of torpedo tubes, two 12-barreled rocked launchers, and the SUW–1 antisubmarine missile launcher; it seems likely that the weapons for the latter will be of a later generation to those which went to sea aboard MOSKVA in 1967.

The KIEV also carries eight large missile tubes (mounted in two batteries of sided pairs on the foredeck) which are of the size to house the SS-N–3 or SS-N–12 surface-to-surface missile (SSM). However, the KIEV does not appear to carry a specific missile-guidance radar, unlike earlier classes fitted with long range SSM. Meanwhile, the provision of reloading arrangements and below decks magazine stowage suggests the possibility that these launcher tubes can fire different types of missiles, which may include both antisubmarine and antisurface weapons.[63]

The Large Antisubmarine Ships

Cruiser-sized Units

The fourth KARA was probably delivered by the end of 1975 and construction continues.[64] The building rate remains at about one unit a year from North Yard, Nikolaev and there is still no suggestion that construction is taking place elsewhere.

Eight KRESTA IIs had been delivered from Zhdanov Yard, Leningrad by the end of 1975,[65] and further units were fitting out.[66] The KRESTA II carries the weapon systems originally procured for the MOSKVA programme, and it seems probable that a total of 10 units

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[60] Sec. Def., p. 100; CJCS, p. 57.

[61] *Aviation Week and Space Technology*, 2 August 1976, pp. 14–17; CJCS, p. 59; Manthorpe "The Soviet Navy in 1975," p. 205.

[62] This is a preliminary assessment based on CJCS, p. 62, and *Aviation Week and Space Technology*, pp. 14–17.

[63] It is now generally assumed that the missile tubes aboard KYNDA, KRESTA, KARA, and KRIVAK double as weapon stowage and launcher, and that there are no magazine or on-board reload facilities. The weapon load has therefore to be selected prior to sailing and cannot be changed once these ships are at sea. Magazine and reload facilities aboard KIEV introduce a new flexibility and increase the likelihood that these missile tubes are multipurpose.

[64] CJCS, p. 59.

[65] Manthorpe, "The Soviet Navy in 1975," p. 206; derived from his OOB.

[66] *Jane's Fighting Ships*.

will be built, the final unit being delivered in 1978.[67] It is striking that whereas Zhdanov built KYNDA and KRESTA I at the rate of two units per annum, only eight KRESTA IIs have been delivered over a 6–7 year period. It brings to mind the trickle delivery of the JULIET SSG from Gorky between 1962–67,[68] and suggests a similar cause for this aberrant performance. Namely, that the rate of fitting out KRESTA is determined by the planned production rate of the weapon systems originally procured for the MOSKVA programme.[69] Meanwhile, there remains the question of what kind of ship will follow after KRESTA at Zhdanov Yard.

It has now been tacitly acknowledged that the KARA class does not carry SSM, and specifically stated that it does carry an ASW missile system.[70] KRESTA II appears to carry the same system. It has already been argued that the missile tubes on both these classes are not for SSM but serve both as launchers and as stowage for the same kind of ASW weapons as are fired from the SUW–1 launchers aboard MOSKVA.

KRESTA I is fitted with four SS-N–3 missile tubes, similar to those aboard KYNDA. The important distinction between the two classes was that KRESTA I originally carried a HORMONE B helicopter whose surface-search radar provided an organic target location capability for her long-range SSM system. KRESTA I *now* carries the Hormone A which is configured for ASW, and KRESTA I is now designated as a large antisubmarine ship. These changes, particularly the loss of the target-location capability, must raise the question of whether the missile tubes on KRESTA I still carry SSM, or whether the main armament is now antisubmarine.

Of course, the missile tubes on all three classes lend themselves to carrying a mix of SSM and ASW missiles. However, if there is no below-deck stowage, the number of missiles carried by each ship is relatively small: only four in KRESTA I and eight each in KRESTA II and KARA. If ASW is the main mission, these are few enough weapons when measured against important targets such as SSBN. There must also be considerable doubt as to whether there is any priority requirement for additional SSM capability since the strike carriers are adequately targetted by several classes of missile-armed submarines, by

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[67] This assumes that 12 MOSKVAs were originally planned. However, only two were built, releasing ten weapon outfits.

[68] The JULIET SS was probably planned to build at 12 units a year for 6 years. Change in the threat and other factors caused the reallocation of nuclear hull/propulsion units to the anticarrier role, and the SS–N–3 missile system procured for JULIET was fitted to the E I and E II SSGN. The paired, elevating missile launchers were probably the critical factor. See *Soviet Naval Developments*, p. 186 and note 1.

[69] This allows that the MOSKVAs were originally programmed for delivery at the rate of one pa. 1966–1977. It would explain the higher delivery rate of KRESTA II in the early stages of the programme.

[70] CJCS, p. 59 and note 44 above.

ASM-armed strike aircraft, and by land-based ballistic missiles, and those weapons can also deal with other types of surface ships. Nor would SSM seem vital for the self-defence of these units since the main threat has been from carrier aircraft and submarines. Only recently has the West started to develop SSM for fitting to surface ships. Meanwhile, Soviet surface ships and submarines normally operate in company, providing each other with mutual support and protection. It therefore would seem that, for the present at least, these large antisubmarine ships are likely to carry the maximum load of antisubmarine weapons, although of course this could change in the future. KRESTA I, which is still fitted with the Scoop Pair missile-guidance radar, would be particularly easy to switch back to the antisurface role.

Destroyer-sized Units

New Construction. The KRIVAK is building at Kaliningrad in the Baltic and at Kamysh Burun in the Black Sea.[71] The first unit was undergoing sea trials in late 1970 and about 10 units had been delivered by the end of 1975. This building rate of barely two units a year is surprisingly low and brings into question the extent of Kamysh Burun's participation in the programme.

Earlier in this chapter it was argued that the missile tubes on KRIVAK are not for SSM, but house the same type of ASW weapons as those carried by KARA. Without such a weapon, KRIVAK would be unable to exploit the detection range of her VDS and bow-mounted sonar.[72]

Modernization and Conversion. Six of the eight KRUPNYY class missile ships have now been converted to KANIN class large antisubmarine ships, using the weapon systems originally procured for the KRESTA programme. The first KRUPNYY was taken in hand in 1966 and completed in 1968. It is assumed that all eight will be converted in due course.

The KILDIN class of missile ship is also undergoing conversion. The programme started in 1972; two units have completed modification and it is assumed that the other two are also due to be converted. The relevant features of the modification is the replacement of the SS-N-1 mounting by two twin 76 mm dual-purpose turrets,[73] and the fitting of four after-facing fixed missile tubes. The modified KILDIN is designated by the Soviet Navy as a large antisubmarine ship.

The KASHIN class which first entered service in 1962 has also been taken in hand for modernisation, about five units having been completed by the end of 1975. The main external changes involve the

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[71] See the two previous warship and construction reviews.

[72] Polmar, *op. cit.*, p. 121.

[73] I assess that these after-facing, paired turrets, with their single fire-control radar, derive from the KYNDA programme.

fitting of VDS, the mounting of four after-facing missile tubes (as in Mod. KILDIN), and the mounting of four 30 mm gatling turrets for close air defence. It has already been argued in the section on missile development that the external similarity of these after-facing missile tubes to the forward-facing SS-N–11 launchers in the OSA is misleading. It is most probable that these launchers house ASW missiles. They probably perform a similar function to the MRU 4500A which they appear to have replaced.

In other words, the after-facing launchers mounted in Mod. KILDIN and the Modernised KASHIN are not for use against surface ships, but are launchers for some kind of ASW weapon.

Surface Building Capacity

Surface warship construction is running below the full capacity of the navy-related yard facilities.[74] At Kamysh Burun where KRIVAK is building very slowly, this could be a case of giving precedence to merchant construction. Zhdanov Yard in Leningrad is more puzzling. Zhdanov has been continuously involved in surface warship construction since the middle thirties, and built SKORYY and KOTLIN at four per annum, and KYNDA, KASHIN, and KRESTA I at two per annum. And yet, between 1969–1975, the yard's output was only eight KRESTA II.

In 1972, it seemed quite likely that KARA might also build at Zhdanov since its dimensions are not much greater than KRESTA II's, and some kind of arrangement along these lines still seems possible. 1976 was the fifth year of the KARA programme (and, hence, perhaps the half-way mark), and this coincided with the delivery of the tenth KRESTA II. The year 1978 may, therefore, see the delivery of improved KARAs, building both at Nikolaev and at Zhdanov, with an annual production rate of two units a year. And by about that date we should also be able to detect the end-product of decisions endorsed by the 1971 Party Congress and of any which may have emerged from the debate on the navy's peacetime role.

Meanwhile, the availability of warship production facilities which are not being used to their maximum capacity may merely reflect the requirements of prudent planning. It may be that while the political leadership is not prepared to allocate any additional resources to surface construction, it wishes to be in the position to build up these forces rapidly should there be a change in the nature of the requirement.

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[74] CJCS, p. 60.

Other Programmes

This section is only intended to draw attention to the other components of the maritime warfare team; it does not attempt any analysis or detailed description.

Land-based Naval Air

The BACKFIRE B, supersonic, variable geometry, Tupolev design, strike aircraft entered naval service towards the end of 1974. At the beginning of 1976 there were some 25 in the naval OOB.[75] This aircraft doubles the range at which Western surface units can be attacked and it can carry the full range of weapons, including ASW. Meanwhile, the 300 BADGER G, armed with the AS–5 ASM, remains the backbone of the naval air strike capability.

The MAY (IL–38), whose patrol range is comparable to the US Navy's P–3 Orion, and the Bear-F (Tu–95), which can sweep down to Guinea and Cuba, provide the primary open ocean ASW capability. Production of both has stopped and US officials estimate that new types of ASW aircraft will be entering service in due course.[76] The BEAR-F and various configurations of BADGER provide a maritime reconnaissance capability, and some BACKFIRE will probably be deployed to this role.

Surface Skimmers

Some analysts[77] place considerable stress on the development of the Wing-in-Ground (WIG) effect vehicle in the ASW role. Called an EKRANOPLAN by the Soviets, this type of vehicle uses the interaction between the wing and the surface to reduce drag, thereby achieving longer range and greater lift for the same power. In writing about these vehicles, Soviet sources are quoted as saying that they can be used for ASW patrol, minesweeping, missile-armed attack, or fast supply.[78] In the past, the US has looked into the potential of this vehicle for strategic logistic supply. Early experiments suggested that this type of vehicle might carry a payload of 250 tons for 5000 miles at about 90 knots, and recent developments should enable the speed to be increased to 3–400 knots with the same (or larger) payload and the same kind of range.

From the aspect of ASW, one of the attractive features of this vehicle is that it operates most effectively when some 30–50 feet above the water. The large payload allows the fitting of a wide range of anomaly detectors and the long range and high speed make it suitable for area search.

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[75] Sec. Def., p. 56; CJCS, p. 62.
[76] CJCS, p. 62.
[77] Most notably, K.J. Moore, who opened my eyes to the potentialities of these vehicles.
[78] *Jane's Surface Skimmers* 1974–75, pp. 118–131, 391.

The Krasnoye Sormogo Yard at Gorky is expected to be responsible for building large WIG vehicles,[79] although the locks on the inland waterway system would seem to require that final assembly take place at a yard with direct access to the sea. One such vehicle (known as the CASPIAN SEA MONSTER) has already been tested in the Caspian. Its dimensions are reported to be about 125 ft. x 400 ft., with 10 engines and a speed of 300 kts.[80] Gorky has considerable experience in the production of hydrofoil and hovercraft, and is of course building the CHARLIE and TANGO submarines.

It therefore seems quite likely that the Soviet Union is developing WIG for naval purposes, with the primary emphasis on ASW area search. Long-range vehicles of this type could be in service by the end of the decade. EKRANOPLANs do not have to be large, small ones with 30 h.p. engines have already been developed for recreational purposes, and somewhat larger ones for river rescue work. It has been suggested by K.J. Moore that there is no reason why small EKRANOPLANs should not fly off the deck of KIEV.[81] Such craft could be employed in many different roles, and if used for surface attack, would be extremely hard to counter.

Satellites

Mention has already been made of the use of Cosmos satellites in the ocean surveillance role. This trend is likely to accelerate. K.J. Moore draws attention to the new types of anomaly detectors which can now be carried by satellites, and the very high rates of search which can be achieved.[82] With the Soviet emphasis on the land-based ballistic missile component of the maritime warfare team, it seems inevitable that the role of satellites in surveillance, location, and tracking will increase, while they are already a standard part of navigation and communications systems.

Overview

The emphasis within the Soviet Union continues to be on submarines. Past patterns of production suggest that a new family of third generation nuclear types will begin delivery in 1978 and, unless there have been major problems of research and development, they can be expected to show a substantial advance on their immediate predecessors. Assuming that current production rates are maintained, by the end

[79] Ibid.
[80] Ibid., and Polmar (*op. cit.*), p. 128.
[81] This would bypass the hydrodynamic thrust/drag hump involved in taking off from the surface of the water.
[82] K.J. Moore "Anti-submarine Warfare", SNIDF.

of 1985 we can expect the submarine force to include about 230* nuclear units, of which 40 would be first-generation with ages ranging from 18 to 25 years. Some 65 of these are likely to be SSBN, the remainder being configured for ASW and surface-attack. The number of diesel submarines is harder to predict because current building rates are uncertain. By 1985, the output of this production could lie anywhere between 50 and 100 boats. There are also some 85 units built prior to 1970. These will give a diesel submarine force of between 135–185 boats, of which 70 will be over 20 years old. Current diesel new construction may have some form of closed cycle propulsion.

The production of surface ships is proceeding at a steady but modest pace which is about one-half to one-third the rate of deliveries to Western navies (see Annex to this chapter). All distant ships coming from new construction and major conversion programmes are designated as antisubmarine units, and I assess that their primary offensive armament is ASW and antisurface. These ships have a high capability for defence against sudden concentrated attacks, but would be less effective in sustained combat with other maritime forces. Meanwhile we see a growing distinction between those naval units designed for distant water operations and those intended to operate within the home fleet areas.

Current surface building programmes probably have several years to run, but some kind of new programme seems likely from Zhdanov Yard in Leningrad. If current building rates persist (and taking account of Zhdanov's capacity), by the end of 1985 we can expect the Soviet distant water force to comprise seven antisubmarine cruisers (ASW carriers), about 36 of the cruiser-sized large antisubmarine ships, all less than 20 years old, and about 65 of the destroyer-sized units.** The latter figure includes the 12 conversions whose hull/propulsion systems will by then be over 25 years old. There will also be the four KYNDA rocket-cruisers (21–23 yrs.) and perhaps some SVERDLOVs all of which will be over 30.

The BACKFIRE strike aircraft is already flying for the Navy, and by 1985 it should supercede BADGER G. New types of maritime patrol aircraft are also expected to enter service within a few years. It seems likely that large WIG-effect EKRANOPLAN will be configured for ASW, and if successful, operational units could be in service by 1979, with substantial numbers by 1985. Smaller EKRANOPLAN may be developed to operate off the carriers.

It would appear that considerable research and development has been invested in satellite maritime surveillance. It seems likely that the

*Comparable figures at the end of 1975 were 135 nuclear (55 SSBN) and 200 diesel submarines.

**Comparable figures at the end of 1975 were 3 ASW carriers; 33 cruiser-sized ships (20 "modern", 13 "old"); 75 destroyer-sized ships (including 32 SKORYY and KOTLIN); plus about 100 escort ships.

Soviets are developing the capability for a real-time surface plot, and hope to be able to use satellite-mounted sensors to help in the detection of submerged submarines. Using existing sources of location information, the Soviets have claimed for some time that Western naval forces are targetted by land-based missiles.

Assessing the capabilities of the Soviet Navy at the beginning of 1976, the US Secretary of Defense commented that while the Soviets were improving their navy and extending its capabilities, it still had areas of significant weakness. Specifically:

> Their ASW capabilities remain inadequate, although improved over the last decades; their submarines are still relatively noisy; they lack adequate fleet air defense; they have a poor capability for sustained combat operations; and many of their missile systems lack a reload capability. They have a limited ability to provide logistics support to their forces at sea, and their logistic ships are highly vulnerable. Finally, they have little capability to project power ashore in distant areas because they have no sea-based tactical air power, and their amphibious forces are designed for short duration lift near the homeland.[83]

At about the same date, the Chairman of the Joint Chiefs of Staff reported that despite the emphasis on ASW training and research:

> The Soviets still have no effective capability for open-ocean ASW, particularly against patrolling nuclear submarines. The short ranges of the USSR's Navy ASW sensors, and the relative quietness of US submarines gives us the current advantage. In the near term, we foresee no developments in acoustic or nonacoustic detection systems or in submarine quieting that would adversely affect the US advantage.[84]

The longer term is less clear. The Soviets appear to be pursuing all possibilities in the field of detecting, locating, and tracking submarines; new types of vehicles for operating over the surface; new types of propulsion for hunter/tracker submarines; new types of sensors for use on both sides of the sea/air interface; new means of information relay and processing. At this stage it is hard to forecast the likelihood of success. But the Soviets are willing to adopt an incremental approach to such problems and to accept a series of progressive 10 per-cent solutions.

Meanwhile, the introduction of land-based missiles to the maritime battle, the advent of satellite ocean surveillance, and the development of terminal homing for ballistic missiles, combine to open up a whole new area of naval warfare. The ballistic missile fired from land, surface ship,

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[83] Sec. Def., p. 100.
[84] CJCS, p. 57.

or submarine may become the tactical weapon of the future, for all except the shortest range engagements.

Although the future holds exciting prospects for the Soviet Navy, it continues to be tailored to the task of countering the West's seabased delivery systems in the context of general war. Looking at the present structure of the fleet and its likely trends, one can understand why in 1972 Gorshkov inveighed against the dangers of a narrow, restricted naval mission.[85] From 1954, the Navy focused on the threat from the strike carrier, and between 1957–66 the end-product of the naval programmes was tailored to that task. From 1961, the POLARIS submarine became the Navy's first concern and, from 1966 to the present, the end-product of the surface programmes have been tailored to the antisubmarine role. Increasingly, the Navy's war-related mission is being shared with other branches of the Armed Forces; and, increasingly, naval units are becoming part of an integrated, global team. The result has been a predominantly task-specific fleet with a narrow, defensive mission. Gorshkov was arguing for a balanced fleet, for more surface ships and a greater diversity of types, and for adequate afloat support. He was also arguing for the Navy's unique role as an instrument of state policy in peacetime and for the advantages of a broad, general purpose mission in war.

It is still too soon to have shipbuilding evidence of which way the debate went, and whether Gorshkov's arguments were heeded. My guess is that they were not. But existing shipbuilding capacity would allow an increase in surface warship construction, should it be required.

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[85] In his analysis of the main types of naval operations in World War II, Gorshkov points out that the task-specific fleets were severly handicapped in comparison to those which had a broad and more balanced capability, capable of carrying out large scale and strategic-type missions. As unfavourable examples he cites the German Navy which was virtually limited to attacking sea communications, and the Japanese Navy which had almost no ASW capability. By contrast, the British and American Navies were able to carry out "broad strategic missions". (*Morskovy Sbornik* November 1972, p. 32). He returns to this theme and brings in the requirement for surface ships in his final chapter (*Msb.* February 1973, pp. 20–22). For his denigration of a defensive strategy see August 1972, p. 21. For an extended analysis of these points see "Naval Power and Soviet Oceans Policy" in *Soviet Oceans Development*. John Hardt (Ed.). Congressional Research Service for the Senate Commerce Committee, June 1976.

Annex to Chapter 5

Comparative Naval Building Programmes: East and West

Major naval combatants are costly items of equipment, and warship construction is an assembly industry which reaches throughout the economy, competing for skills and materiel. The output of naval building programmes is therefore an indicator of past decisions concerning the allocation of scarce resources and will also, to varying extents, reflect contemporary policy preferences.

There are three main reasons for comparing the output of Soviet naval programmes with those in the West. Over the longer term, the pattern of new deliveries is of greater significance than a navy's total strength. Second, it helps to clarify the Soviet Union's own naval requirements in terms of the threat posed to its interests by Western fleets. And third, it places in perspective the various assertions concerning the scale of Soviet warship construction.

In order to compare we have to categorise, a process which is unavoidably arbitrary. The method used here is to divide the surface ships by their primary function (general purpose, aircraft carrier, and amphibious), and by size within those functions. Although tonnage might seem a meaningless criterion, it does in fact give a fair indication of the investment of resources, and is more useful than trying to balance weapon-fits. In a previous comparison,* covering the period 1958–71, it was necessary to distinguish surface ships fitted with SAM systems from other types, but that distinction is now largely coincidental with the tonnage bands. For submarines, it has been found more useful to categorise in terms of propulsion systems and primary role.

It must be stressed that the following tabulation does not provide for a comparison of naval strength, since in combat like is not pitted

*See "Comparative Warship Building Programmes", *Soviet Naval Developments, pp. 144–150. The Western figures are derived mainly from Jane's Fighting Ships.* Soviet figures are derived from the shipbuilding analysis that underlies my assessment of Soviet naval policy.

against like. It does, however, provide for the comparison of the resources allocated to warship construction by the two sides, and of the delivery rates for broad categories of ships.

Since we are primarily concerned with distant-water capabilities, the comparison of surface types has been limited to ships over 1000 tons full load displacement. In the main the tabulation comprises annual deliveries from new construction, but also includes the output of those conversion programmes which significantly up-grade the capabilities of units built prior to the period being reviewed. For countries other than Russia and America the figures cover warships purchased abroad, including second-hand units built prior to this period. Conversions and transfers are shown separately. The Communist side of the account includes all Warsaw Pact navies, but the latter only acquired two submarines and one destroyer during the period. The Capitalist side of the account covers all the NATO navies (including France), plus Australia, New Zealand, and Japan in the Pacific. Figures for the US are extracted to allow direct comparison, but the Soviet Union has to take account of the substantial contribution by other "Western" nations to the overall naval balance, which is understated in these tables. They do not include Spain's growing navy, nor that of South Korea and Formosa, all of which Russia would have to take into consideration. There is also the Chinese Navy which now includes some 70 submarines. These pose a substantial threat to the sea lines of supply to Russia's Far Eastern front in the event of a Sino-Soviet conflict.

This comparison highlights the difference in warship procurement procedures between the Soviet Union and the West, although it is somewhat obscured by the process of aggregation. Weapons development and procurement in the Soviet Union is a continuous process, with the Navy being given a fixed allocation of productive *resources* in terms of shipyard facilities, shipbuilding materiel, and demands on other industries. These allocations remain fairly constant over time and reflect the need to provide for the routine replacement of obsolescent units and the continual upgrading of weapons and equipment, as well as to meet newly perceived operation requirements. The span of these tables covers the decision (taken in 1957–58) to double the capacity for nuclear submarine construction from about 5 units per annum to about 10, and can be seen in the increase in deliveries from 1968 onwards. However, with one exception, the allocation of resources to surface ship construction had remained largely unchanged since the major cut-back in the mid-fifties, which reduced the annual tonnage of all types of warship production by some sixty per cent. The exception was the return of one large building way at Nikolaev to naval use as the result of the 1957/58 decision to construct a class of helicopter-carrying antisubmarine cruisers.

Working within such long-term physical constraints, the Navy seeks to make the maximum use of these resources. This results in notably

consistent building rates and patterns of production. Aberrations in these patterns reflect policy shifts generated by changed perceptions and requirements. But resources, once allocated, appear to remain available to the navy, and will be applied in the way of major conversion programmes, modifications, and so forth.

Warship construction in the West proceeds on a different basis. In most cases the individual country's requirements are so small that batch procurement is the only feasible method. However, even in the case of the United States, where continuous "replacement" procurement is a practical option, the political, budgetary, and economic system militates against such a structured approach. In consequence, naval procurement proceeds on a quasi-cyclical basis responding to various external stimuli, including the cumulative impact of the Soviet Navy's continuous procurement process. The effects of this approach are to some extent dampened by the uncoordinated procurement of the other fourteen nations, except that they too are responding to similar types of stimuli.

Reviewing the two sides of the comparison, it can be seen that over the last 12 years the West has taken delivery of 2–3 times as many surface ships as the Soviet bloc, a ratio which applies across most size-bands although it increases sharply with the larger units. During the same period, the US has taken delivery of 20 percent more surface ships than the Soviets, the figures being about equal for general purpose units if allowance is made for tonnage disparities, but biased heavily in favour of the US in the other two functional categories.

For nuclear submarines the balance lies the other way. During the last twelve years the Soviets have taken delivery of 109 units compared with the West's 77, and current Soviet construction is running at about 10 a year compared to about 4 a year in the West. The West has an advantage in the delivery of diesel submarines, but this is unlikely to persist.

Table 1. Soviet/Western Warship Deliveries, 1965–1976.

Category A—Surface Ships of 1000–3000 tons, full load

Soviet Bloc	65	66	67	68	69	70	71	72	73	74	75	76	*Total*
MIRKA/PETYA	8	8	8	8	8	–	–	–	–	–	–	–	40
Average 1050 tons													

This type-size, which has been in the Soviet naval inventory since the middle thirties, is designated "escort ship". The MIRKA/PETYA were designed primarily for defence of the offshore zone. The pressure on shipbuilding resources resulting from the shift to forward deployment and the consequential requirement for distant-water units caused this type-size to be dropped. Its role has been covered by substantially increasing the size of the sub-chaser (GRISHA) and missile-boat (NANUCHKA) categories.

Western		65	66	67	68	69	70	71	72	73	74	75	76	*Total*
Average 2370 tons		8	16	18	13	7	12	8	7	4	3	7	4	107
	(US	4	2	5	4	–	–	–	–	–	–	–	–	15)

The MIRKA/PETYA are really only comparable to the 37 Western units which are under 2000 tons. The ASW capabilities of the other 70 units are at least comparable to the KASHIN which comes within the next category. The US units in this category average 3300 tons and six are armed with SAM.

Category B—Surface Ships of 3500–5500 tons, full load

Soviet Bloc	65	66	67	68	69	70	71	72	73	74	75	76	*Total*
KASHIN, KRIVAK	4	3	2	2	2	2	2	2	2	2	2	2	27
Average 4000 tons													
Major Modifications	2	2	3	2	1	1	1	1	1	1	2	1	18
(SAM, KOTLIN, KANIN, Mod. KILDIN) Total	6	5	5	4	3	3	3	3	3	3	4	3	45

Except for the SAM KOTLIN, all these classes are designated as Large Antisubmarine Ships. It is now fairly certain that the KRIVAK's forward battery carries antisubmarine missiles and not SSM. KASHIN, KANIN, and SAM KOTLIN carry the SA-N–1 SAM system. KRIVAK carries the SA-N–4 point-defence system. In 1970, Poland took over one of the SAM KOTLIN included in these figures. None of these units carry helicopters.

Western	65	66	67	68	69	70	71	72	73	74	75	76	*Total*
New Construction	4	–	2	1	7	15	12	12	9	6	2	3	73
Average 4100 tons													
Major Modification	–	–	4	2	–	–	–	–	–	–	–	–	6
Transfer of older ships to allies	–	–	2	–	3	–	2	2	5	1	–	–	15
Total	4	–	8	3	10	15	14	14	14	7	2	3	94
(US	–	–	4	2	5	13	11	8	5	4	–	–	52)

In terms of *role*, there is a strong measure of comparability between the Soviet and Western ships in this size range. Three quarters of the Western units carry SAM systems (72 out of 94), including all the US ships. About 65% (59) carry helicopters. And two units carry the EXOCET SSM system.

Category C—Surface Ships of 5500–8000 tons, full load

Soviet Bloc	65	66	67	68	69	70	71	72	73	74	75	76	*Total*
KRESTA I & II	–	1	2	1	1	1	2	1	1	1	1	1	13
Average 7000 tons													

Both classes are designated as Large Antisubmarine Ship. It is now fairly certain that the KRESTA II's main battery carries antisubmarine missiles and not SSM. It is also possible that KRESTA I carries a similar weapon, in lieu of the SS-N–3 SSM.

Western	65	66	67	68	69	70	71	72	73	74	75	76	*Total*
Average 7500 tons	1	6	3	–	–	2	–	–	1	–	4	9	26
(US	1	4	3	–	–	–	–	–	–	–	4	9	21)

This category includes the UK COUNTY and Type 82, and the US BELKNAP classes which were designated to provide AA and ASW protection for Western attack carriers. This role and the resultant weapons-fit is comparable to that of the Large Antisubmarine ships. The SPRUANCE class also falls within this category and has a similar ASW role, although its air defence capability is limited to point defence.

Category D—Surface Ships of 8000–11,000 tons, full load

Soviet Bloc	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
KARA—9500 tons	– – – – – – – – 1 1 1 1 1	5

The KARA carries antisubmarine missiles and not, as originally assumed, an SS-N–10 SSM system.

Western	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
Average, 9000 tons	– – 1 – 1 – – – – 1 1 1	5
(US	– – 1 – – – – – – 1 1 1	4)

All four US units have nuclear propulsion.

Category E—Small Aircraft Carriers, 15,000–30,000 tons

Soviet Bloc	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
MOSKVA—17,500 tons	– – 1 1 – – – – – – – –	2

These ships are designated as Antisubmarine Cruisers. They are each fitted with an A/S missile system, two SA-N–3 SAM systems, and can carry 15 helicopters.

Western	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
Average 17,000 tons (All US units)	3 2 2 2 1 4 2 – – – – –	16

These units comprise four IWO JIMA class LPH (18,300 tons) and twelve AUSTIN class LPD (16,900 tons). Although designed for a very different role to the MOSKVA, they are comparable in terms of resource investment and in certain other respects. The IWO JIMA class of Amphibious Assault Ship can carry about 25 helicopters together with a Marine battalion landing team, including its vehicles, weapons, and equipment. It can operate V/STOL aircraft from its through deck. One of this class was used for two years to evaluate the concept of Sea Control Ships. The AUSTIN class of Amphibious Transport Dock incorporates a landing craft dock in her hull. These ships can carry six large helicopters, but they lack hanger space and integral support facilities.

Category F—Medium Aircraft Carriers, 30,000–60,000 tons

Soviet Bloc	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
KIEV—39,000 tons	– – – – – – – – – – 1 –	1
Western	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
TARAWA LHA—39,000 tons (All US units)	– – – – – – – – – – 2 3	5

The Soviet and US types both have through decks and can operate V/STOL aircraft as well as helicopters. It is estimated that the KIEV will be able to carry about 25 V/STOL or 35 helicopters, or some mix thereof; TARAWA can carry about 30 helicopters or a correspondingly smaller mixed load. The KIEV is fitted with an A/S missile system and two SA-N-3 SAM systems. The TARAWA is lightly armed by comparison, but can carry a reinforced Marine battalion (including vehicles, weapons, and equipment) and incorporates a landing craft dock in the hull which can accommodate four LCYs.

Category G—Large Aircraft Carriers, 60,000–100,000 tons

Soviet Bloc	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
Nil	– – – – – – – – – – – –	0
Western	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
Average 88,000 tons (All US units)	1 – – 1 – – – – – – 1 –	3

The NIMITZ (1975) has nuclear propulsion.

Category H—Large Amphibious Units, 4000–15,000 tons

Soviet Bloc	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
ALLIGATOR LST—4000 tons	– 2 2 2 2 2 2 2 2 2 2 2	22
Western	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
LST—4000–8500 tons Average 7500 tons	– 1 3 1 2 7 7 4 – – – –	25
LPD—8500–15,000 tons Average 12,100 tons	2 – 1 1 1 1 1 2 – – – –	9
Total	2 1 4 2 3 8 8 6 – – – –	34
(USA	– – – – 3 8 8 6 – – – –	25)

The Soviet units are only comparable with Western LSTs. The LPDs represent a completely different calibre of ship.

Category J—Nuclear Submarines—Ballistic Missile

Soviet Bloc	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
New Construction	– – 1 4 5 5 7 8 7 6 5 5	53
Major Conversion: SS-N-5	2 2 2 – – – – – – – – –	6

The retrofit of the H-Class with the SSN-N-5 SLBM system, which was carried out during the routine recoring/refit period, doubles the systems range to 700 nm and allows submerged launch.

Western	65.66.67.68.69.70.71.72.73.74.75.76	*Total*
New Construction	4 7 2 2 1 1 – – 1 1 – 1	20
(US	4 7 1 – – – – – – – – –	12)
Major Conversion: POSEIDON (All US units)	– – – – – 4 6 6 5 2 5 3	31

The POSEIDON retrofit to carry MIRVed missiles is a much more substantial project than the SS-N-5. The process takes 16 months and costs the same as to build a new SSN.

Category K—Nuclear Submarines—Non Ballistic

		65.	66.	67.	68.	69.	70.	71.	72.	73.	74.	75.	76	*Total*
Soviet		5	6	6	6	4	5	4	3	4	4	4	4	55
Western		–	4	8	5	9	4	9	4	3	4	4	3	57
	(USA	–	3	7	5	9	3	7	4	2	3	4	2	49)

Category L—Non-Nuclear Submarines—All Types

Soviet		65.	66.	67.	68.	69.	70.	71.	72.	73.	74.	75.	76	*Total*
New Construction		6	4	4	2	2	–	–	–	1	–	3	4	26
Transferred from USSR		–	–	–	–	–	2	–	–	–	–	–	–	2
Average 2000 tons	Total	6	4	4	2	2	2	–	–	1	–	3	4	28

The eight new-construction F class which were sold to India during this period are not included in the above figures. About 13 of the G Class SSB were retrofitted to carry the SS-N-5 SLBM system during 1968–71.

Western		65.	66.	67.	68.	69.	70.	71.	72.	73.	74.	75.	76	*Total*
New Construction		3	2	4	3	3	–	1	4	1	2	1	3	27
Transferred from US		1	2	–	–	–	–	2	8	5	3	–	–	21
Over 1500 tons	Total	4	4	4	3	3	–	3	12	6	5	1	3	48
750–1500 tons		1	2	1	1	3	–	1	2	1	1	–	–	13
Under 750 tons		5	5	3	5	1	2	–	–	7	7	4	–	39

The US has not built any diesel submarines since 1960.

Chapter 6

Trends in Soviet Naval Force Structure

By Paul J. Murphy

The purpose of this chapter is to provide mainly a graphic overview of recent trends in Soviet naval force structure. This is done through a series of charts and graphs which primarily depict naval Order of Battle, i.e., total numbers and disposition.

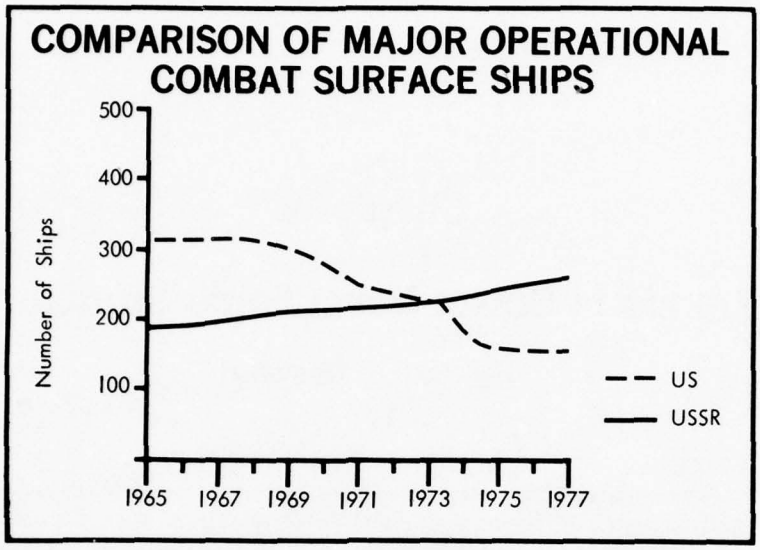
Principal Surface Combatant Fleet

The total number of ships is but one factor in the naval balance; their combat and mission capabilities can be more important. In the latter context, the Soviet Union is particularly competent in some areas and deficient in others, but in total numbers, in several major combatant classes, it enjoys clear superiority. As figure 1 shows, the Soviet Navy has enjoyed a greater number of major operational surface combatants than the United States since 1973.

The number of Soviet surface combatants grew steadily in the 1960s, reaching numerical parity with the US in 1972. Although we see some increase in the Soviet principal surface combatant force within individual classes since 1974 (see figure 2), the growth curve appears to have stabilized. A modest building program is underway with priority being given now to new and larger ships suitable for deep projection of power, sustained ASW, and execution of sea denial. Currently, surface warship construction is running below full yard capacities. Nonetheless, the fleet modernization program embracing heavier and more complex ships (particularly guided missile ships and air-capable ships) portends an increase in the capabilities of the major surface combatant force.

Among the major surface classes still built at about the earlier rates are the KARA class guided missile cruiser for ASW, the largest gas turbine powered combatant now at sea (production: one annually), and the KRESTA-II guided missile cruiser. A fourth KARA CG began her

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Data from General George S. Brown, Chairman of the Joint Chiefs of Staff, *United States Military Posture for FY 1978*, 20 January 1977, p. 71.[1]

Figure 1. Comparison of Major Operational Combat Surface Ships.

Type	1974 Jan	Apr	Jul	Oct	1975 Jan	May	Aug	Oct
Aircraft Carrier	0	0	0	0	0	0	0	1
Helicopter Ships	2	2	2	2	2	2	2	2
Guided Missile Cruisers	17	17	17	18	19	19	19	20
Light Cruisers	12	12	12	12	12	12	10	11
Guided Missile Destroyers & Destroyers	82	81	82	80	84	84	81	86
Frigates	108	108	109	109	106	106	105	107
Total	221	220	222	221	223	223	217	227

Type	1976 Jan	Apr	Jul	Oct	1977 Jan	Apr	Jul	Oct	1978 Jan
Aircraft Carrier	1	1	1	1	1	1	1	1	1
Helicopter Ships	2	2	2	2	2	2	2	2	2
Guided Missile Cruisers	21	21	21	21	22	23	23	23	25
Light Cruisers	11	11	11	10	10	10	10	10	10
Guided Missile Destroyers & Destroyers	87	86	88	87	88	90	89	90	90
Frigates	107	107	107	107	107	108	103	105	105
Total	229	228	230	228	231	234	228	231	233

Figure 2. Quarterly Order of Battle[2] 1974–78—Principal Surface Combatant Fleet.

[1] See also *Military Forces Handbook Military Forces of the USSR and Peoples Republic of China*, 1978, Washington, DC: Headquarters United States Air Force.

[2] Unless otherwise indicated all data for this and other Orders of Battle are derived from the Unclassified Defense Intelligence Agency *Quarterly Naval Order of Battle*, 1974–78 and General George S. Brown, USAF, Chairman of the Joint Chiefs of Staff, *United States Military Posture for FY 1978*, 20 January 1977, and *Understanding Soviet Naval Developments* (hereafter referred to as USND) Washington, DC: Office of the Chief of Naval Operations, Department of the Navy, 1975, 1978.

sea trials in 1975 and became fully operational in the Black Sea Fleet in 1976. A total of nine KRESTA IIs have now (Jan 78) been completed and one is on sea trials.[3] These primarily account for the increases for 1974–78 noted in figure 2. The KRIVAK class destroyer continues to be built at the rate of two a year (see figure 2). For its size, 405 ft in length,[4] it is the most heavily armed combatant extant. A recently constructed unit sighted in the Straits of Dover in April 1976, mounted a forward quadruple launcher system (for ASW and possibly SW), two 12-barrel ASW rocket launchers sited forward of the bridge, a portside quadruple bank of torpedo tubes, and two SA–N–4 missile launch systems aft of the stack.[5] Construction of the KASHIN class has ended. A new missile cruiser and/or destroyer fitted out for both air defense and ASW is expected to follow in the 1980s.[6] In addition, the Soviet frigate force is aging. The KONI, a new class frigate, was introduced in 1975. We should expect to see follow-on classes within the next decade, but with lesser priority given to frigate construction than to the larger ships.

Ship Type	Class Name	Total
Aircraft Carriers	KIEV	1
Helicopter Cruisers	MOSKVA	2
Guided Missile Destroyers and Destroyers	KANIN	
	KASHIN	
	KILDIN	
	KOTLIN (SAM)	
	KRIVAK	
	KRUPNYY	
	SKORYY	
	TALLIN	90
Guided Missile Cruisers	KARA	
	KRESTA I	
	KRESTA II	
	KYNDA	
	SVERDLOV	25
Light Cruisers/Command Light Cruisers	SVERDLOV	
	CHAPAYEV	10
Frigates	MIRKA I & II	
	PETYA I & II	
	RIGA	
	KOLA	
	KONI	105
		233

Figure 3. Order of Battle—Active Surface Combatants (As of 1 Jan 1978).

In terms of fighting capability, the main strength of the Soviet surface combatant force lies in its numbers and versatility. The force features an impressive number of large and relatively new, well armed, high speed ships with their design philosophy looking to short intense engagements against the enemy surface and submarine forces and against land-based targets. Overall, the Soviet units are more heavily armed than their Western counterparts.[7] They mount offensive/defensive systems for delivery of both nuclear and conventional ordnance, have modern naval

[3] General George S. Brown, *United States Military Posture for FY 1979*, 20 January 1978, p. 77

[4] *Military Posture*, 1978 p. 72

[5] *Rivista Maritima*, Italy, July-August 1976, p. 120, cited in *NAVSCAN*, US Navy, Vol. 4, no. 22, p. 3

[6] *Military Posture*, 1978 p. 72.

[7] *Military Forces*, 1978 p. 18–19.

guns, elaborate ASW ordnance, excellent communications and electronic warfare capability. They feature defensive systems against chemical, biological, and radiological (CBR) measures for crew protection.[8] Damage control and underway replenishment capabilities, however, remain inferior to their US Navy counterparts. Few ships have sonars comparable to the USN's AN/SQS–23/26 sonars, although the newer Soviet ships have upgraded designs.[9] Increasing evidence suggests assignment of greater ASW responsibility to the surface combatant fleet.

Submarine Force

In the summer of 1936 the Soviet Navy commissioned an entire squadron of new submarines, symbolizing a construction effort that soon gave the Soviet Union the largest submarine force of pre-WW II navies, one which, however, performed pitifully in the war. That numerical superiority holds true today, but the potency of the force has substantially improved. With 351 submarines, the force currently comprises about 11.9 percent of the Navy's strength in hulls and consists of attack submarines (SS/SSN), cruise missile submarines (SSG/SSGN), and ballistic missile submarines (SSB/SSBN). The number of each type varies greatly.

Attack Submarines

Type	Class Name	Total
Attack Submarine	ALPHA	
	BRAVO	
	ECHO I (nuclear powered)	
	FOXTROT	
	ROMEO	
	TANGO	
	VICTOR I & II (nuclear powered)	
	WHISKEY	
	ZULU	195

Figure 4. Order of Battle—Attack Submarines (As of 1 Jan 1978).

With 195 active submarines and additional units in reserve, attack submarines form the largest component of the submarine force. Thirty seven active units are nuclear powered (compared to 65 for the US Navy) while two nuclear powered attack submarines are in reserve.[10] In the future, qualitative improvements will flow from an increased proportion of nuclear powered attack submarines. For example, the nuclear-powered VICTOR class (introduced in 1968) is the fastest submarine in service in any navy. The VICTOR II (in service 1972–73) is an enlarged and improved variant. Most VICTOR class submarines are in the Northern Fleet, and two or three serve in the Pacific Fleet.[11] For the moment, the long range FOXTROT class diesel-electric submarine (built from 1958 at

[8] *Military Posture*, 1978 p. 71.
[9] *Ibid.*
[10] Ibid, 1978 p.73, Ibid, 1979, p. 79
[11] Captain John E. Moore, R.N., *The Soviet Navy Today*, NY: Stein and Day, 1976, p. 83–84.

Sudomekh in Leningrad as a follow-on to ZULU class) continues to be the most numerous of the attack submarines.[12] This class reportedly makes up the majority of the Soviet submarine force in the Mediterranean,[13] although it is deployed throughout the Soviet fleets.

Cruise Missile Submarines

The Soviet Union pioneered in the field of cruise missile submarines. They began development in the 1950s to counter the threat posed by US attack carriers, and by the late 1960s the Soviet Union had the first submarine (the CHARLIE class) that could launch antiship cruise missiles while submerged.[14] This particular submarine is the most potent antiship submarine yet developed. There are five other classes of diesel and nuclear powered submarines in the cruise missile submarine force. The six classes of SSG/SSGNs total 65 submarines carrying about 400 cruise missiles and disposing about 1,448 torpedo tubes for torpedoes or mines. Figure 5 shows the Order of Battle for the Soviet cruise missile submarine force.

Class	Year Operational	Propulsion	Total No. of Subs (as of 1 Jan 78)	Missile & Torpedo Tubes
CHARLIE	1968	Nuclear		8 SS-N-7 8 21 inch
ECHO II	1963	Nuclear		8 SS-N-3 6 21 inch 4 6 inch
JULIET	1961	Diesel		4 SS-N-3 6 2 inch 4 16 inch
PAPA	1970	Nuclear		Unknown
WHISKEY LONG BIN	1961	Diesel		4 SS-N-3 6 21 inch
WHISKEY TWIN CYLINDER	1960	Diesel		2 SS-N-3 6 21 inch
			65	

Figure 5. Order of Battle—Cruise Missile Submarines.

Trends in Attack and Cruise Missile Submarine Inventories

Statistical data are introduced in figure 6 to show changes in the number of cruise missile and attack submarines in service from 1974 through January 1978.

Type	1974 Jan	1974 Apr	1974 Jul	1974 Oct	1975 Jan	1975 May	1975 Aug	1975 Oct
Cruise Missile Submarines	65	65	65	65	65	65	65	65
Attack Submarines	188	188	187	191	198	197	185	185

[12] *Military Posture*, 1978 p. 74.
[13] Moore, p. 88.
[14] *USND*, 1975, p. 26.

Type	1976 Jan	Apr	Aug	Oct	1977 Jan	Apr	Jul	Oct	1978 Jan
Cruise Missile Submarines	65	65	65	65	66	67	67	65	65
Attack Submarines	190	189	189	188	188	189	185	185	195

Figure 6. Quarterly Order of Battle 1974–78—Cruise Missile and Attack Submarines.

Overall about 50+ cruise missile and attack submarines have been placed in reserve, modified to non-missile configurations, or broken up since 1967. Further reductions in the near future will take place with fewer new and qualitatively improved modern units replacing older units. The numerical fluctuations that occurred between October 1974 and January 1975, and again in January 1976 and 1978, were due to newer units entering service while older ones were not being immediately retired. This increased the total number of attack submarines, at one point (January 1975) to 198. The increase was almost certainly associated with introduction of the new diesel-powered TANGO class submarine and addition of the VICTOR class atomic submarine. The subsequent drop to 185 attack submarines indicates that retirements of the older diesels didn't take place until 6 to 8 months later. The increase in gross tonnage indicates that larger units substituted for smaller, older ones.

Ballistic Missile Submarines

This force continues to grow in size, complexity, and capability. See figures 7 and 8.

Class	Year Operational	Propulsion System	Total No. of SSBNs	Missiles
DELTA III	1977	Nuclear		SS–N–18
DELTA II	1976	Nuclear		16 SS–N–8* Range: 4200 NM
DELTA I	1973	Nuclear	27	12 SS–N–8 Range: 4200 NM
YANKEE	1968	Nuclear	34	16 SS–N–6 Range: 1,300/1,600 NM
HOTEL II	1964	Nuclear		3 SS–N–5* Range: 700 NM
GOLF	1960	Diesel	30	3 SS–N–4/5 Range: 350–700 NM
Total			91	

* *The Armed Forces Journal International* (May 1977, p 13) reported that the flight distances of the SS–N–8s tested in the Pacific (1977) were found to be 1,500 NM greater than the 4,200 NM previously estimated. The Journal points out that US intelligence sources do now estimate that both the SS–N–8 and the older "short range" SS–N–5 (700 NM range previous estimate) may have up to 20 percent more operational range than previously believed.

Figure 7. Order of Battle—Ballistic Missile Submarines—Submarine Launched Ballistic Missiles (As of 1 Jan 1978).

Class	1974 Jan	Apr	Jul	Oct	1975 Jan	May	Aug	Oct
DELTA	2	4	5	6	8	9	11	11
YANKEE	30	33	33	33	34	34	34	34
OTHER BALLISTIC MSL SUB	30	30	30	30	30	30	30	30
Totals	62	67	68	69	72	73	75	75

Figure 8. Quarterly Order of Battle 1974–78—Soviet Submarines.

Class	1976 Jan	Apr	Aug	Oct	1977 Jan	Apr	Jul	Oct	1978 Jan	Total Increase or Decline 1974–77
DELTA	11	17	17	17	19	22	22	23	27	+25
YANKEE	34	34	34	34	34	34	34	34	34	—
OTHER BALLISTIC MSL. SUB	30	30	30	30	30	30	30	30	30	—
Totals	75	81	81	81	83	86	86	87	91	+25

Figure 8. Quarterly Order of Battle 1974–78—Soviet Submarines.—Continued

The diesel-powered GOLF class submarines, built at Komsomolsk and Severodvinsk, were the first Soviet submarines to carry ballistic missiles. 23 units of this class became operational between 1958–60. Most remain operational. Because of the limited range of their missile systems—as short as 350 nautical miles for the early SS–N–5 version—the missiles are probably targeted against Eurasian land targets.[15] The first 8 units of the HOTEL class submarine appeared in 1959–60. Seven of these units carried three SS–N–4 missiles, and the submarine had to surface to launch these missiles. Between 1963–67, however, the SS–N–5 replaced the earlier missile aboard the HOTEL II to give it a submerged launch capability.[16] A single unit was converted to carry additional missiles, and the SS–N–8 was substituted in this unit for the shorter-range SS–N–5.[17] Six HOTELs are currently deployed in the Northern Fleet and two in the Pacific Fleet.[18]

The YANKEE class submarines first entered service in 1967 significantly enhancing the strategic capabilities of the SSBN force. Thirty four units were built between 1966–76 making them the most numerous class in the force today. They are armed with 16 SLBMs of the SS–N–6 type designed MOD 1, 2, and 3, and it is expected that they will be modified to carry the new SS–N–17 missile. One unit currently carries the latter missile.[19] Beginning in 1969, YANKEEs took patrol stations in the Atlantic within missile range (1,300/1,600 NM) of the US coast. Patrols began off the Pacific coast in 1971.[20]

The DELTA I and II class submarines which are relatively new additions to the SSBN inventory were introduced in 1972 and 1973 respectively. They enjoyed relatively rapid construction with 22 new DELTAs delivered between 1974–77. The construction rate over the past two years is indeed impressive. Between 1 January 1976 and 1 April 1977, 11 new DELTAs became operational. Another 5 units were added between April 1977 and January 1978. These submarines carry the SLBM SS–N–8/18 missiles which confer a major strategic advantage. Armed with 12 and 16 missiles respectively, the DELTAs can launch

[15] *Ibid*, p. 17.
[16] *USND*, 1975, p. 57
[17] Moore, p. 76.
[18] Ibid, p. 57.
[19] *Military Posture*, 1978 p.17; Ibid 1979, p. 30
[20] *USND*, 1975, p. 14

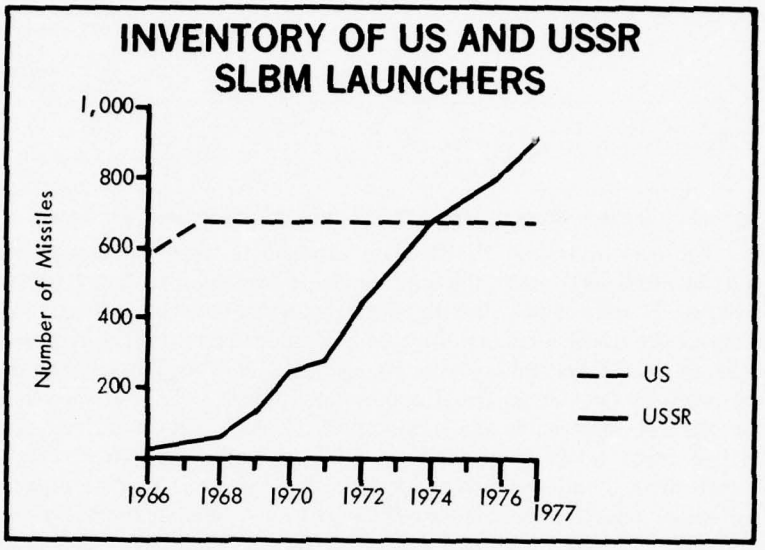


Figure 9. Inventory of US and USSR SLBM Launchers.

from home waters where they are relatively free from enemy ASW platforms. From the Barents Sea, which Admiral Worth Bagley, the former Vice Chief of US Naval Operations, cited as an ideal launch area,[21] their missiles can reach targets in the eastern half of the United States. Stationed in the Atlantic, they are within range of all NATO countries and the continental United States. This platform-missile capability will be enhanced by fleet adaption of the new MIRVed SS-N-18 missile. This weapon system is the greatest seabased strategic threat to the West as it can cover all important targets from Soviet home waters.

Until October 1977 the total number of submarines and launchers was limited by the SALT Interim Agreement of 1972. In August of 1975 the Soviet Union surpassed the "baseline" number of allowable SLBMs with testing of the 741st launcher.[22] The maximum number of modern Soviet SLBMs under the agreement was 950. As of 1 January 1978 about 900 SLBM launchers were operational[23] (see figure 9). The agreement, however, provided for the trade-off of an equal number of older SLBMs (on the HOTELs) or land-based ICBMs for SLBMs.[24] The Soviet Union reportedly dismantled some of their ICBMs. Data from 1 November 1976 indicated that approximately another 200 SLBM launchers on SSBNs were fitting out, on sea trials or under construction, and another 60 launchers are on older diesel submarines which were not covered by the

[21] *Chicago Tribune*, 18 May 1970.
[22] *Military Posture*, 1978 p. 13
[23] *Ibid*, 1978; 1979, p. 27
[24] *Military Posture*, 1978 p. 13

SALT agreement.[25] Past performance suggests that the Soviet Union will continue to add to their SLBM inventory.

Two new ballistic missiles, the SS–N–17 and SS–N–18, are now operational, the former aboard the YANKEEs and the latter aboard the DELTAs. The SS–N–17 is the Soviet Union's first effort at building a solid propellant SLBM. It is also the first ballistic missile in the Soviet Navy to have a "Post Boost Vehicle" (PBV) for deployment of RVs. This suggests that it has at least some MIRV capabilities.[26] The SS–N–18 is a larger, improved variant of the SS–N–8. It has a MIRVed capability and a more sophisticated guidance system. It is estimated that the missile can deliver 3 MIRVs, and it was first fired from a sea platform in November 1976. Follow-ons to the SS–N–6 and SS–N–8, with greater throw weight and improved accuracy, are *now* expected for 1981–85.[27]

Coastal Patrol Fleet

This huge complement of small surface combatants comprises, by far, the largest element among the warships in the Soviet Navy. The current Order of Battle is indicated in figure 10 below.

Type	Class Name	Total Numbers
Patrol Escorts	POTI GRISHA	95
Patrol Guided Missile Combatants Missile Attack Boats	NANUCHKA KOMAR OSA I & II	120
Submarine Chasers	STENKA TURYA S.O.I.	
Other Patrol and Torpedo Types	MO VI SHERSHEN P 6 P 4 MO. I	130 135
		390

Figure 10. Order of Battle—Coastal Patrol Fleet (As of 1 Jan 1978).

Displacements range from 22 tons for the smallest and oldest P4 patrol boat to 900 tons for the large GRISHA class patrol escort and NANUCHKA guided missile patrol ship. Speeds range from 25 knots for the OSA guided missile patrol boat to 50 knots for the fast hydrofoil ASW patrol boat—the PCHELA. Some have combat ranges up to 800 miles. Armament varies and ranges from a host of guns and antisubmarine torpedoes, to surface-to-surface and surface-to-air missiles. Collectively these units provide a potent defense force in home waters.

The POTI class patrol escort began an eight-year production cycle in 1961 (at least 70 have been produced since). It forms the bulk of the Soviet patrol escort fleet. Production of a follow-on, the GRISHA class, began in 1969–70. Built at a rate of about four a year, this class comprises

[25] *Ibid.*

[26] *Ibid.*

[27] *Ibid.*, p. 13, 16, also Ibid, 1979, p. 28

about a quarter of the Navy's patrol escort. The PRG and PGG categories of patrol boats are unique in many ways. The KOMAR class missile attack boat was the earliest version of the Soviet PTG. About 100 of these were produced in the early 1960s. They are armed with two "STYX" SS–N–2 antiship missiles with a range of about 23 miles. These early boats provided the basic design experience for follow-on classes such as the OSA and the NANUCHKA. All are designed for the fast-strike, antiship role, although they may have secondary missions such as amphibious support. The KOMAR class is phasing out in favor of the OSA which appeared in the mid-1960s and is now the most numerous missile boat in the Soviet Navy. Employing three diesel engines totaling 13,000 BHP (compared to 4,800 BHP from 4 diesels aboard the KOMAR) and armed with four missile launchers for SS–N–2 (and follow-on antiship missiles) and four 30 mm guns, the OSA was considered a real "revolution" in shipbuilding. However, its range and endurance limit operations to coastal waters. Seeking to overcome this restriction, the Soviet Union undertook development of heavier, more versatile platforms which emerged as the first Soviet Patrol Guided Missile ship (PGG), the NANUCHKA class. Its displacement is about three times (900 tons) that of the OSA and it is armed with several SA–N–4 antiaircraft missile launchers forward, a twin 56 mm gun mount aft, and six launchers for the antiship SS–N–9 missiles. The latter have a range of 50–150 miles. Data on the NANUCHKA's range are not available, but it has a speed of about 35 knots and its displacement, range, and endurance extend its capabilities well seaward. It is the heaviest armed warship of its size in the world and must be considered a potent antiship killer and air defense platform.

Figure 11 indicates overall decreases in the Coastal Patrol Fleet inventory since 1974. As seen in figure 12, a large number of guided missile boats as well as older "conventional" patrol boats, such as the P4 (launched in 1951–58), the P6, P8, and P10 (1957–60), and the SHERSHEN class, have been exported to at least 20 Warsaw Pact countries and client states.

The People's Republic of China received a large number of the older patrol boats before the Sino-Soviet split. After the split, China built some KOMAR and OSA class boats from Soviet designs. North Korea has been a principal recipient of the older types, but also has at least 18 guided missile boats of the KOMAR and OSA classes. The period of increased tension in the Middle East during the mid-1960s accounts for large shipments of missile boats to Egypt to augment the older P6, P8, and P10 boats obtained earlier. Egypt received the largest quantity of the modern guided missile patrol boats of all the recipients. Some saw combat in the October 1967 war. The boats' STYX missile earned respect when an Egyptian-manned KOMAR, firing from Port Said, sank the Israeli destroyer EILAT on 21 October 1967. Similarly, during the Indian-Pakistani War in December 1971, an OSA transferred to the Indian Navy

Type	1974 Jan	Apr	Jul	Oct	1975 Jan	May	Aug	Oct
Patrol Escorts	100	100	100	100	100	100	90	90
Patrol Guided Missile Combatants/Missile Attack Boats	130	130	135	135	135	135	135	135
Submarine Chasers	150	150	200	170	175	175	145	145
Other Patrol and Torpedo Types	300	300	250	275	275	275	305	305
Totals	680	680	685	680	685	685	675	675

Type	1976 Jan	Apr	Aug	Oct	1977 Jan	Apr	Jul	Oct	1978 Jan
Patrol Escorts	85	85	85	88	88	91	91	90	95
Patrol Guided Missile Combatants Missile Attack Boats	135	135	135	137	137	138	123	120	120
Submarine Chasers	145	155	155	154	154	162	128*	125	130
Other Patrol and Torpedo Types	310	310	320	237	237	229	131	130	135
Totals	675	685	695	616	616	620	473	465	480

Figure 11. Quarterly Order of Battle 1974–78—Coastal Patrol Fleet.

Country	KOMAR	OSA	P4	P6, P8, P10	SHERSHEN	Total
Albania			12			12
Algeria	6	3		12		21
Bulgaria		3	8		4	15
China (PRC)	10	17	20			97
Cuba	18	5	12	12		47
Cyprus			6			6
Egypt	6	12		24	6	48
East Germany		12		18	15	45
Guinea				4		4
India		8				8
Indonesia	12			14		26
Iraq		6		12		18
Nigeria				3		3
North Korea	10	8	40			58
North Vietnam				6		6
Poland		12		20		32
Rumania		5	13			18
Somalia		1+	13	2		16
Syria	3	6				9
Yugoslavia		10			13	23
20 countries	65	108	174	127	28	562

Figure 12. Some Indications of Exports to Warsaw Pact Countries and Client States.

sank one Pakistani destroyer, severely damaged a second, and successfully carried out night raids against merchant ships. Cuba has also been a favored recipient of the older boats. Although she has the largest complement of guided missile boats outside the USSR, 98 percent of them are of the KOMAR class. Apparently these are deemed adequate for defending Cuban waters. The Warsaw Pact countries have the highest priority for receipt of modern guided missile boats. The phasing out of the P4 through P10 versions is reflected in their large shipments to client states, a good way to unload outdated military hardware and gain good will.

*The number of submarine chasers and other patrol and torpedo types is significantly lower than for previous periods because of the reclassification of some units and the deletion of certain small patrol and security boats for which the Order of Battle is no longer maintained by DIA.

Other Small Combatant Forces

River Flotilla Forces

The river flotilla forces are comprised of at least 90 ships,[28] plus small craft numbering in the hundreds. Because of their shallow draft, they are suitable only for use in fairly calm sheltered waters. They patrol the inland waterways and estuaries of the Soviet Union. These ships and craft displace from 50 to 500 tons. Their armament varies, depending on the type of platform, from one to several 20mm, 76mm, or 128mm guns including semi-automatic and automatic guns, and in some cases, small tactical missiles. Their average speed is about 23 knots. The larger types such as the river "Kanonerskaya Lodka," meaning literally gunboat, but more properly a gunfire support ship, is heavily armored. Their mission is gunfire support in riverine warfare. Two smaller types, the "Storozhevoy Korabl" and the "Storozhevoy Kater," patrol escorts and patrol craft respectively, as well as the many very small "bronekatera," or armored boats, also have patrol and attack roles. Fast hydrofoils, some of which can carry up to a platoon of troops, are increasingly used in river patrols and could be employed in attack roles. Lightly armed or unarmed security boats also belong in this category. The flotilla forces patrol approximately 1,450 nautical miles of shoreline along the Danube River, 1,600 nm of shoreline on the Amur River, and the Usuri, Sungari, Zeya, and Bureya rivers from small bases located all along these rivers. It should be noted that minesweepers and minelayers are also assigned to the river brigades, but they do not generally carry out patrol duties.

Mine Warfare Forces

The Russians have long emphasized mine warfare. In 1840 they built their first factory for mine production, and Russian mines were used with success against the British and French navies in the Crimean War (1854–56). Shortly after that war the first known school of mine warfare was established. Tsarist Russia used mine warfare against the Turks in the war of 1877–88 and again in the Russo-Japanese War of 1904–05. Russian mine warfare remained in a high state of readiness in the decade preceding WW II. Several new minelayers were launched as well as the world's first minelaying submarine. Russian mine warfare was employed in WW I. During WW II Soviet expertise was enhanced through Allied technological contributions and as a result of captured German equipment, technologies, expertise, and scientists. In the immediate post-war period, the Soviet Union added to their large stockpiles of mines which they were ready to export, together with their expertise, for use in the Korean War. Soviet naval mines were used by North Vietnam and the Viet Cong. Just prior to the 6-day war in 1967, Soviet mines were laid off the coast of

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[28] From DIA Unclassified *Order of Battle*, 1 January 1978.

Tripoli, on behalf of the Libyan government, to defend territorial water claims.[29] Again in 1973, Egypt's Red Sea approaches were mined with Soviet mines.

In short, Russia has a long history of involvement in all aspects of mine warfare, and this continues. Captain 1st Rank I. Chernyshev explains: "Major attention that is being devoted to mines today is fully understandable since it has been proven that the mine is a means for prolonged and continuous action against an enemy, which, together with other combat means, can significantly influence the course of naval operations."[30] The attention devoted to minelaying is reflected in the fact that nearly all surface ships have some capability for mine-laying and by the 1965 introduction of the ALESHA class minelayer (which may double as a command ship for mine-laying operations and in general support). These actions indicate that mine warfare continues as an important capability.

Surface ships are suitable for defensive mine-laying in waters where time is not critical or where they do not face enemy attack. Offensive mining in hostile waters requires naval aircraft, or submarines[31] for mining in areas beyond the range of aircraft or where stealth is required. Many of the older diesel submarines can engage in minelaying. And, of course, fast hydrofoils or hovercraft can be enlisted for minelaying. It must be noted that except for fleet mine warfare ships, the other platforms have other primary responsibilities. Their involvement in minelaying operations would probably depend on the given situation.

Since the Second World War the Soviet Union has continued building programs for minesweepers for fleet, coastal, inshore, and river minesweeper service. Among the fleet minesweepers are the NATYA class (reported in 1971; production about three a year), its predecessor the YURKA class (1963 to late 1960s), the T–58 (1957–64), and the T–43 (1948–57). About 50 of the T–43 type have been transferred to client states including Algeria, Albania, Bulgaria, China, Egypt, Indonesia, Poland, and Syria. Coastal types include the ZENYA class (1972), VANYA (1961), the SASHA (1956–60), the T–301 (1946–56), and the SONYA (1973). It should be noted that a very large fleet of fishing trawlers has been designed and built in such a way that they can double as minesweepers at short notice. More and more, helicopters are used in combination with surface minesweepers for minesweeping operations. The use of this team was demonstrated in the clearing of the approach channels to the Suez Canal in the summer of 1974. They swept some 1,250 square miles of coastal waters. As to the future development of minesweepers, according to the Soviet literature, minesweepers will

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[29] "Mines Threaten Fleet," *ARMY TIMES*, 1 August 1973.

[30] Captain First Rank Chernyshev, "Mines: A Formidable Naval Weapon," *Voyennye Znaniya*, No. 12, December 1972, p. 41–42.

[31] See e.g., K.V. Morozov, *Minno-torpednoye oruzhite molodezhi a vooruzhennykh silakh*, Moscow: DOSAAF, 1974, pp. 28–29.

Special Minelayers	Principal Surface Combatants	Small Combatants	Naval Aviation Aircraft	Submarines
ALESHA	CHAPAYEV	GRISHA	BADGER	All classes of submarines.
	KASHIN	KRONSTADT	BEAR	
	KOLA	PETYA I & II	BLINDER	
	KOTLIN	P4, P6, P8, P10	MAIL	
	KRIVAK	SHERSHEN	MAY	
	RIGA	SO-*I*	*Others*	
	SKORYY	*T43*		

Figure 13. Platforms for Minelaying.

Type	Class	Total By Type
Special Minelayers	ALESHA	
Minesweepers	NATYA	
	K8	
	SASH	
	SONYA	
	T43	
	T58	
	T301	
	TR40	
	ZHENYA	
	VANYA	395

Figure 14. Order of Battle—Specially Designated Mine Warfare Types (As of 1 Jan 1978).

proceed in a dialectical (i.e., a thesis opposed by the antithesis to produce the synthesis) fashion to the development of mines (by imperialist *countries*).[32]

Amphibious Warfare Forces

A fairly consistent development pattern for Soviet amphibious forces can be discerned since the late 1950s. At least 7 new classes of landing ships for use in amphibious warfare have entered service. These include the MP-6 (1958–1961), carrying capacity of 500 tons; the MP 8 (1958–61), carrying capacity of 400 tons; and the MP 10 (1969–66), capacity of 1590 tons. All of these classes are capable of landing troops and a number of tanks, depending on tonnage. A smaller Polish built landing ship, the POLNOCHY class, was introduced in the early 1960s and a larger tank landing ship, the ALLIGATOR class, was commissioned in 1966. With a 1,700 tons load capacity, the latter is the largest of the landing ships and is built at the Kaliningrad shipyard. It can carry a large number of personnel, tanks, equipment, and supplies.

A new ship, the RAPUCHA class, entered service in 1975. It is built in Poland for the Soviet Union and in size is roughly comparable to the ALLIGATOR. Armament consists of two automatic 57 mm twin mounts. Units have reportedly reinforced the amphibious forces stationed in the Baltic.[33] It is reasonable to assume that it has a good troop/tank load capacity, a roll-on/roll-off capability, and improved mechanical and

[32] Captain First Rank Yu Tumashkov, "Ships for Antimine Defense," *Voyennye Znaniya*, No. 10, October 1975, pp. 36–37.
[33] *Schiffahrt International*, No. 12, 1976, p. 524 cited in NAVSCAN, Vol 5, No. 3, p. 3.

armament features, which make it a major addition to the amphibious warfare fleet. All of the amphibious ships are armed with a variety of armaments including smaller caliber guns, tactical rocket launchers and associated fire control radar, and some with mines.

The shore assault role is advanced by fast hydrofoils and air cushion vehicles. Their utility in landing marine teams is increasingly demonstrated in Soviet combined arms exercises. They receive warm support in articles in *Morskoy Sbornik* and other leading Soviet military journals, and are now featured, frequently at the exclusion of other types of amphibious warfare ships, in Soviet films on combined arms exercises. In 1976 an East German publication[34] reported that Soviet engineers are extremely enthusiastic about the construction of air cushion vehicles. ACVs are becoming economically worthwhile because of new construction materials and increased seaworthiness via new design features, the publications say. A new ROSSVET class lead ship has been laid down. It incorporates these innovations and is currently being built for commercial use. The seaworthiness of this ship is reportedly increased by rigid sidewalls that reach slightly beneath the water's surface. In addition, it has a new water jet propulsion system instead of the customary air propellers. This ACV can reportedly carry up to 80 passengers and can reach speeds of up to 30 knots.[35] Advantages of ACVs in amphibious warfare are speed, shallow water performance, and versatility. They can move amphibious teams, equipment, and weapons over water or flat terrain at high speeds and directly discharge on the shore.

The advantages inherent in the rapid movement of amphibious forces to their objective were surely in part responsible for development and the experimental use of the Wing-in-Ground (WIG) effect "EKRANOPLAN," or the "Caspian Sea Monster" as it has become dubbed (because of its size and testing in the Caspian Flotilla). This huge airplane-type ship skims the surface of the water and, according to Soviet sources, can cope with heavy weather and cross marshes, ice, and low obstacles while carrying up to 900 troops. Soviet writings on the EKRANOPLAN generally describe it as a multi-purpose vehicle which could be used for a variety of missions, including ASW, minesweeping, patrol, and fast supply.

"Morskaya Pekhota," or marines, currently constitute the first assault echelon of the Navy's amphibious warfare force. According to the *Spravochnik morskogo desantnika* (Naval Infantry Handbook) the Soviet marines are "specifically trained troops which are part of the Navy and intended for combat use in amphibious assault operations, and in defense of points where warships are based and other important naval installations."[36] Their contemporary form of employment, the *Spravochnik* tells

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[34] *VOLKSARMEE*, No. 41, 1976, p. 8.
[35] *Ibid.*
[36] P. Ye Melnikov, et. al., *Spravochnik morskogo desantnika*, Moscow: Voyenizdat, 1975, p. 34.

us, originated in the Civil War when amphibious assault teams carried out landings on beaches which had been seized by the White Guards.[37] The Naval Infantry saw extensive action throughout WW II, but was apparently formally dismantled in the immediate post-war period.

Reactivation of the Naval Infantry in the early 1960s (revealed in the military press by photographs of Naval Infantry units carrying out special landing operations),[38] together with amphibious ship building programs then underway, produced much speculation as to the future development and missions of Soviet amphibious forces. Some analysts see the Soviet Navy moving toward a determined effort to build its amphibious capability. Indeed, Soviet interest in amphibious landing operations became particularly noticeable around 1963 when Soviet Naval officers began to urge closer study of the wealth of amphibious operations conducted by Western countries in WW II and after. McGwire has argued that the reemergence of amphibious operations and the Naval Infantry was related to policy changes of Warsaw Pact forces and the capability to mount an amphibious assault on the exits to the Baltic and Black Sea directly from Russian soil.[39] Other indicators, particularly the deployment patterns of naval infantrymen, suggest broader reasons. It is interesting that increased Soviet interest in amphibious warfare followed the Cuban crisis and the Cyprus situation, and fell in the time of increased hostilities along the Sino-Soviet border. Since 1965, the numbers of naval

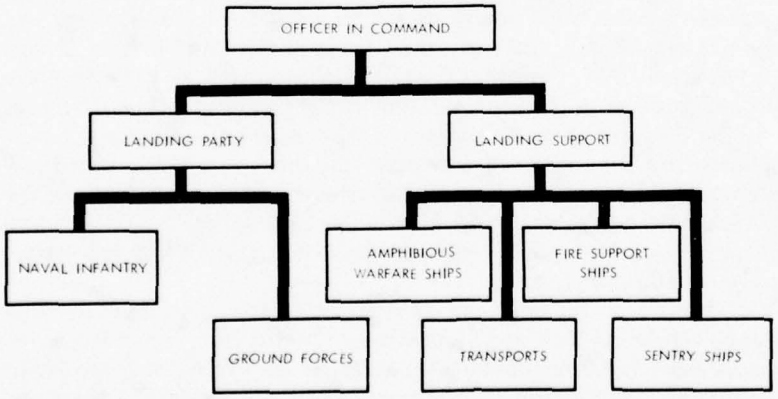


Figure 15. Approximate Composition and Organization of Soviet Amphibious Assault Force.[42]

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[37] Ibid, p. 36.
[38] See e.g. *Krasnaya Zvezda*, 22 July, August 1964.
[39] Michael McGwire, ed., *Soviet Naval Developments: Capability and Context*, NY: Praeger, 1973, p. 164.

infantrymen in the Soviet Pacific Fleet seems to have grown as the small clashes and discord with the People's Republic of China intensified and the requirement for the projection of military force in the Far East became greater. Naval Infantry units may be composed of battalions of less than 400 men. Three battalions usually constitute a brigade which, together with artillery, transport, and other support elements, will total about 1,920 men. (This was the standard composition of a brigade during WW II.[40] It is unlikely it has changed.) At least one brigade is assigned to each of the four fleets and is positioned so as to respond to the most likely trouble spots. Totalling only about 12,000 men, the Soviet marines have neither the clout nor the depth to maintain themselves in any major conflict.[41] Nevertheless, they are relatively well armed for their purpose. In any future war, they would have only a limited role.

Since 1966 amphibious assault operations have been incorporated into all major naval exercises (BAIKAL I & II 1966–67, SEVER 1968, ODER NEISSE 1969, OKEAN 1970–75). From time to time, ALLIGATOR class LSTs transporting Naval Infantry units have operated in the Mediterranean and practiced ship-to-shore operations. These operations, and Soviet military writings,[43] indicate that the force would be used for tactical rather than strategic purposes. At present the force has limited capabilities for distant seaborne assault operations, and there does not appear to be a long term policy to develop capabilities comparable to Western navies. The structure and disposition of the amphibious force leads to the conclusion that it is for operations in areas peripheral to the USSR.

Type	Class Name	Total Type	By
Large tank/troop landing ship	ALLIGATOR		
	RAPOCHA		
Medium landing ship	POLNOCNY		
	ROBBE		
Small vehicle landing ship	MP-4	83	
Smaller utility (tanks & troops) landing craft	MP-10		
	SMB-1		
	VYDRA	60	
		143	

Figure 16. Order of Battle—Amphibious Warfare Types.

Auxiliary Fleet

Numbering over 1,000 ships including a host of oilers, submarine depot and tender ships, submarine support ships, missile support ships, repair ships, intelligence collectors, salvage craft and other platforms, this category makes up the largest component of the Soviet Navy.

[40] *Spravochnik*, p. 19.
[41] *Military Posture*, 1979, p. 77
[42] *Spravochnik*, p. 37.
[43] Ibid.

Type	Ship Name	Total
Transport Oiler	SOFIA	1
Small Oilers	ALTAY	
	BASKUNCHAK	
	DORA	
	KHOBI	
	KONDA	
	NERCHA	
	OLEKMA	
	PEVEK	
	+4 ships	41
Replenishment Oilers	BORIS CHILIKIN	
	KAZBEK	7
Small Replenishment Oilers	DUBNA	
	UDA	9
Missile Support Ship	AMGA	
	ANDISHAN	
	LAMA	9
Repair Ship	AMUR	
	OSKOL	
	TOVDA	28
Submarine Tender	DNEPR	
	DON	
	URGA	20
Small Submarine Tender	ATREK	
	TOMBA	7
Submarine Rescue Ship	NEPA	
	PRUT	
	T-58	23
Cargo Ship	ANDIZHAN	
	KOLOMNA	
	+3 ships	7+
Light Cargo Ship	KEYLA	
	LENTRA	
	TELNOVSK	
	SEKSTAN	
	+7	60
Water Carrier	VODA	
	+1	15
Ocean Tugs	INGUL	
	KATUN	
	OKHTENSKY	
	OREL	
	PAMIR	
	PRIBOL	
	ROSLAVL	
	+4	100++
Degaussing Ship	SEKSTAN	
	+3	45+
Intelligence Collector	DNEPR	
	LENTRA	
	MAYAK	
	MIRNY	
	MOMA	
	OKEAN	
	PAMIR	
	PRIMORYE	
	N. ZUBOV	
	T-58	56
Surveying Ship	BIYA	
	KAMENKA	
	LENTRA	
	LENTRA MOD	
	MELITOPOL	
	MOMA	
	SAMARA	
	TELNOVSK MOD	100
Salvage Ship	T-43	9
Cable Repair Ship	KLASMA	
	+4	10+
Other Auxiliaries		260+
		400
		1,207

Figure 17. Order of Battle—Auxiliary Fleet and Service Craft.

While each fleet has good support facilities, Admiral Gorshkov's "go to sea" order of 1963 generated a large increase in out-of-area operations. The lack of naval supply and repair facilities in distant operating areas makes substantial demands on the "fleet train"—the bridge of support ships. These units are responsible for the resupply and repair of the various combatants. The existing support ships are under increasingly

heavy demand in some areas such as in the Indian Ocean to support a nearly continuous naval presence. Over the last 2 years there has been a decrease in the number of support ships at sea. Accordingly, with fewer auxiliaries operating, the number of combatant ships and submarines must be limited or drawn closer to their home fleet support areas.

The acquisition of supply and repair facilities abroad can ease this pressure. But this carries some danger, as witnessed by the loss of submarine and air facilities at the Port of Alexandria, Port Said and most recently in Somalia. Gorshkov is well aware of these dangers. *Morskoy Sbornik* and other naval writings repeatedly discuss the difficulties of fleet support for distant operations.[44] This need has spurred efforts to seek the requisite facilities in client states.

Soviet Out of Area Ship Deployments[45]

Examination of out-of-area ship operating days is useful as an indicator of trends in naval forces' operations. The following graphs indicate Soviet out-of-area ship days, with US Navy data included for comparison purposes for the major operating areas over the nine year period from 1965 to 1974. Note the dramatic increase in Soviet naval deployments for the period 1965–74, when the total number of out-of-area ship days increased from 6,500 (1965) to 52,800 (1974) representing more than an 8-fold increase (a total of about 157 ships a day at sea on the average for the period). This reflects Admiral Gorshkov's emphasis on distant operations ". . . the best school for training seamen." By comparison, US Navy ship days dropped from 109,500 to 61,300 for the same period, representing a 44 percent decrease (note, however, that ship days in the Caribbean are not counted because the Caribbean is not considered out-of-area for the US Navy). Judging by the slight decline in Soviet out-of-area ship days for the last 2 years, the Soviet Navy, at least for the moment, appears to have stabilized some of its operational deployments. This in part indicates that qualitatively-improved units have replaced older ones with overall capabilities yet on the increase. Some explanation of trends is offered below.

Unstable relations between the USSR and China have in part accounted for the increase in ship days in the Pacific. Considerations of a presence opposing the US Seventh Fleet were reasonable factors too, as were strategic considerations vis-a-vis the United States. The increased presence as a counter to the US Pacific fleet may be reflected in an increase in Soviet submarine activity in the Pacific. In 1971 YANKEE class submarines began strategic patrols off the US Pacific coast.

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[44] *Tyl i Snabzheniye*, No. 7, 1976, pp. 3–9. Translated and cited in *NAVSCAN*, Vol. 4, No. 20, 1976, p. 3.

[45] Data for this section derived from *USND 1975*. Data for 1975–76 provided by US Navy.

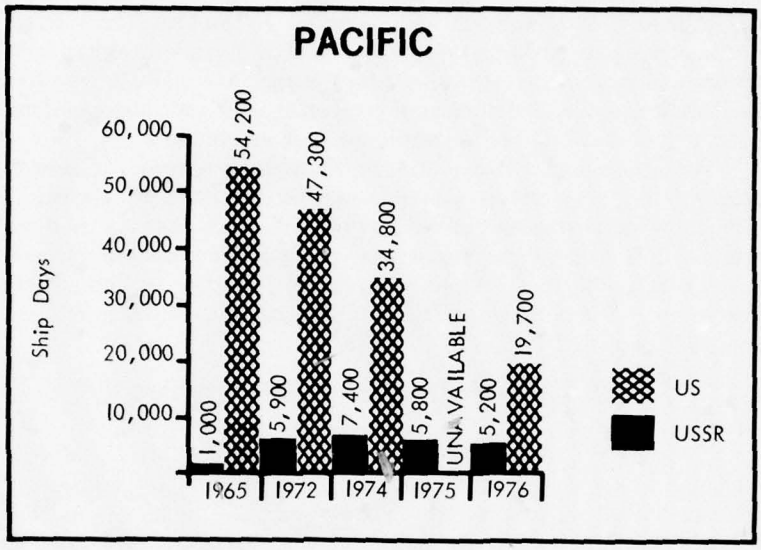


Figure 18. Ship Days—Pacific.

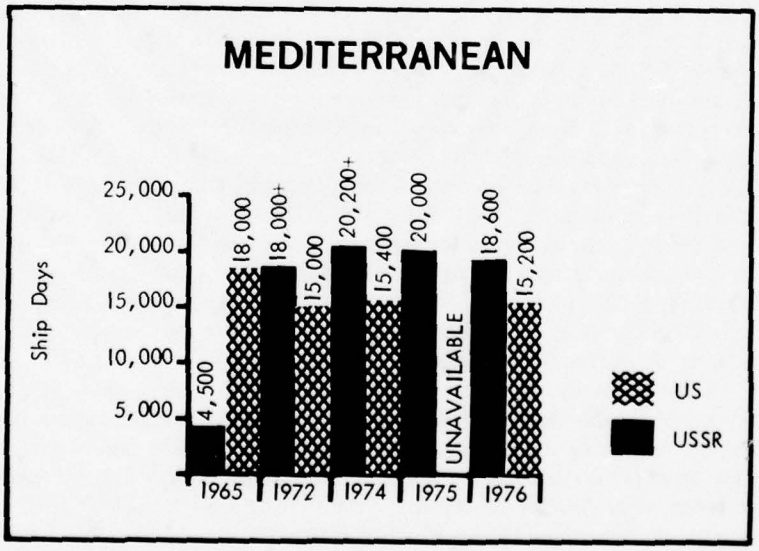


Figure 19. Ship Days—Mediterranean.

While 6,400 ship days were added between 1965 and 1974, in 1975 and 1976 an overall decline of 2,200 ship days was registered for Pacific operations, with the major portion of that decline occurring in 1975. It is difficult to pinpoint any one reason for this. Rather, a variety of factors

may account for the decline. Firstly, it should be remembered that declines in certain categories of combatants in the Pacific and in other operating areas is partly related to the on-going process of replacing older naval units with fewer but qualitatively-improved units. Thus, while fewer ship days are counted, this does not imply a corresponding decrease in capabilities. Undoubtedly other reasons contributed to this decline. There were fewer Soviet space launches in 1975–76, hence fewer space support ships were required in the Pacific and elsewhere.

For the first time since extensive deployments began to the Mediterranean in 1963, we observed a decline in ship deployments to this area in 1975–76. Approximately 1,600 fewer ship days in 1976 than in 1974 were counted. This is a modest reduction, nevertheless, it does reverse a trend of increased deployments which had characterized Soviet naval deployments to this area.

The gain of 15,700 ship days between 1965–74 included very substantially increased deployments to the Mediterranean during these same years. Geopolitical considerations and the Soviet decision to intensify its involvement in the Third World, principally in the Middle East, accounted for much of this increase. By examining data on the movement of foreign vessels through the Turkish Straits for this period, one notes that the Soviet naval presence in the Mediterranean before 1974 coincided with periods of acute crises in the East Mediterranean.[46]

What accounts for the decreases in 1975 and 1976 and what implications do they have? Are the reductions indicative of Soviet intentions to accept a lowered naval presence in the area? Firstly, the Soviet Union continues it major interests in the Middle East and in the Mediterranean generally, and the Soviet leadership furnishes no indication that they will accept any lesser options to influence the Mediterranean basin. In some instances, Soviet ships from the Mediterranean *eskadra* have influenced events in other areas—as in West Africa—or inhibited the options available to the Sixth Fleet in crises situations such as in the 1973 Arab-Israeli War. Of course, they seek, too, to counter the strategic threat posed by NATO strategic forces in the Mediterranean, particularly POLARIS/POSEIDON forces. Hence, it would appear that the Soviet leadership has not consciously chosen a reduced naval presence.

On the other hand, the Soviet Union is obliged to accept somewhat lesser capabilities at least in some operational areas. As geopolitical factors influenced the earlier increased deployments, so too lessened tension in the Near East accounts for a part of the decline. More importantly, the loss of Egyptian airfields and port facilities has had a tangible effect on deployment. Egypt's request for the withdrawal of Soviet military personnel in 1972 resulted in considerable loss in naval air capability which was immediately noticeable by a halt in reconnaissance

[46] See Robert G. Weinland, "Soviet Transits of the Turkish Straits 1945–70" in McGwire, p. 325.

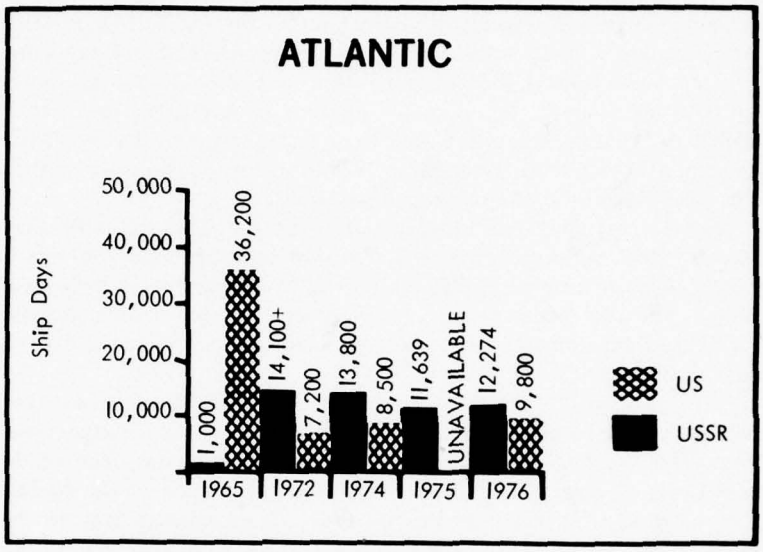


Figure 20. Ship Days—Atlantic.

overflights of the Sixth Fleet. The further loss of port facilities at Port Said and Alexandria where a submarine tender and a repair ship were usually berthed,[47] restrained submarine operations in the Mediterranean. The USSR, however, retained its access to Syrian ports.[48] Once the figures are compiled for 1977, we may see a slight rise in out-of-area ship days for the Mediterranean because of tensions there. As in earlier crises situations, the crisis in Lebanon probably prompted a reinforcement of the Soviet Mediterranean *eskadra* by the addition of several KYNDA, KARA, and KASHKIN class ships.[49] For the foreseeable future, the Mediterranean should continue to be an area of major political and military importance to the Soviet Union reflected in continued high deployment patterns of a size consistent with Soviet objectives, but as moderated by economic and other restraints.

Next to the Mediterranean, the Atlantic has, since 1965, registered the largest increases in out-of-area ship days—12,800 ship days between 1965–74—and like the other areas, the Atlantic registered a decline in 1975. A slight increase, however, occurred in 1976. Overall increases in out-of-area ship days for the Atlantic can be associated with growth of the Soviet fleet during these years, especially in Atlantic submarine deployments. Contributing are isolated instances of ad hoc increases where the Soviet Navy sought to influence events ashore, particularly in

[47] Admiral I. C. Kidd, USN, *US Naval Institute Proceedings*, Feb 1972, pp. 25–27.
[48] *NATO Brief*, Belgium, No. 4, 1976, p. 29.
[49] *Marine Rundschau*, No. 7, 1976, p. 473.

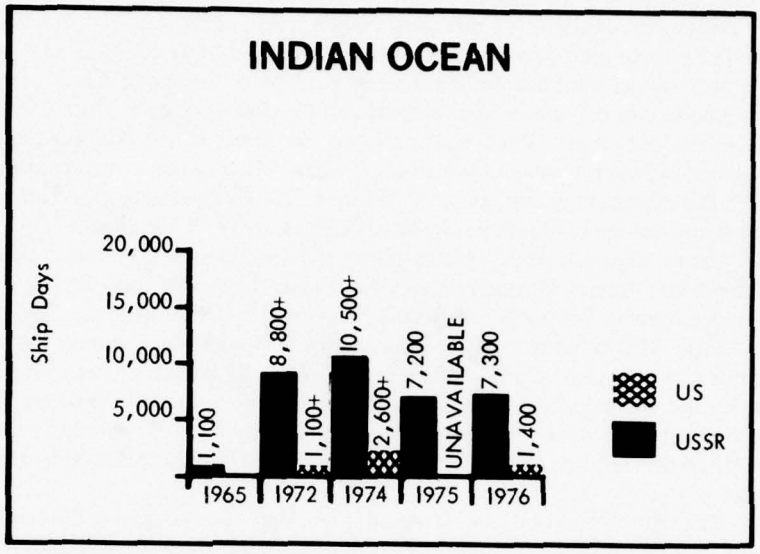


Figure 22. Ship Days—Indian Ocean.

Africa. For example, beginning in 1970, Soviet naval presence has been used to support the Sekou Toure regime in Guinea. Soviet naval units were deployed to the area following the ill-fated attempt by Portuguese rebels and other forces to overthrow Toure, and Soviet warships have maintained a continuous patrol off the West African coast since late 1970. More recently, during the Angolan Civil War, the patrol was bolstered with ships deployed from the Mediterranean. Over the last 2 years, the Atlantic appears to have been the only area in which there have been overall increases in combatant out-of-area ship days. Part of the reason has been a greater number of interfleet transits during the period. For example, the KIEV became operational in July 1976. In its transit to the North Atlantic it was accompanied by several escorts from the Black Sea into the Mediterranean and then on to the North Atlantic.[50]

For a decade, the Soviet Union has maintained a fluctuating, but nonetheless permanent naval presence in the Indian Ocean. In the mid-1960s the United States and Australia concluded an agreement to install a VLF radio station on Northwestern Cape for submarine communications.[51] The Soviet Union may have concluded that the Indian Ocean would become an area of operations for the POLARIS submarines with missiles targeted against the Soviet Union. This strategic emphasis appears to have somewhat slipped since then. Several factors indicate that the prime strategic importance of Soviet naval presence in the area

[50] *Krasnaya Zvezda*, 25 July 1976.
[51] Reported in *Marine Rundschau*, Vol. 5, October 1969, pp. 312–316.

today, particularly around the Horn of Africa and Gulf of Aden, rests in its enhanced capability to interdict Western oil supply routes from the Middle East to Europe and Japan and to monitor ship traffic between the Mediterranean and the Indian Ocean now that the Suez Canal has reopened. Almost all of the activity in the Indian Ocean during the OKEAN 75 exercise was concentrated in the center of the Arabian Sea, half way between India and the Gulf of Aden.[52] Part of this coverage may have been directed against possible Western SSBNs operating in the area, but there was no concrete evidence of ASW activity.[53] The Soviet Union has also a vested interest in controlling the sea lines of communication through the Indian Ocean because the Indian Ocean is the only year-round sea route linking the European part of the USSR with the Soviet Far East. This is particularly important to the Soviet Navy during the 9 months of the year when traffic via the Arctic is halted by ice. Thus, these and other political, strategic, military, scientific, and commercial considerations which are examined in detail in Part IV all serve to motivate the Soviet Union to want a permanent naval presence in the area.

The increase of about 9,500 out-of-area ship days occurring between 1965–74 reflects these interests. This represents the third highest deployment in any area for that period. Over the last 2 years, however, there was a drop of 3,200 out-of-area ship days. This is the largest decrease occurring in any area since 1974. On the face of it, the decreases which all represent deployments, seem puzzling in light of increased Soviet interests and activity in the area. Soviet interests and activities notwithstanding, a combination of factors have combined to result in lower deployment levels in the area since 1974.

The Indian Ocean poses special problems to Soviet planners. Not only are the transit times longer than to any other area of deployment, but there are corresponding support problems and difficulties in sustaining these distant operations. Soviet naval writings frequently refer to logistic difficulties. In a recent article, Admiral Gorshkov indicated that "it must be said that the Navy, entering the expanses of a world ocean, is at a disadvantage in the matter of rear support in comparison with the navies of other nations."[54] Thus, maintaining the force levels that existed immediately after the Indo-Pakistani war and up to 1974, was not only too costly, it was unnecessary. There is a parallel in the force build-up relative to the Indo-Pakistani war of 1971 and in 1973 during the Arab-Israeli crises. In all cases, these large forces are maintained for a period thereafter. In like manner, turning points in the generally upward deployment in the Indian Ocean resembled those of the Mediterranean

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[52] Testimony before the Senate Armed Services Committee, Appropriations Hearings, 1976, part 10, p. 5327.
[53] Ibid.
[54] *Tyl i Snabzheniye*, No. 7, 1976, pp. 3–9.

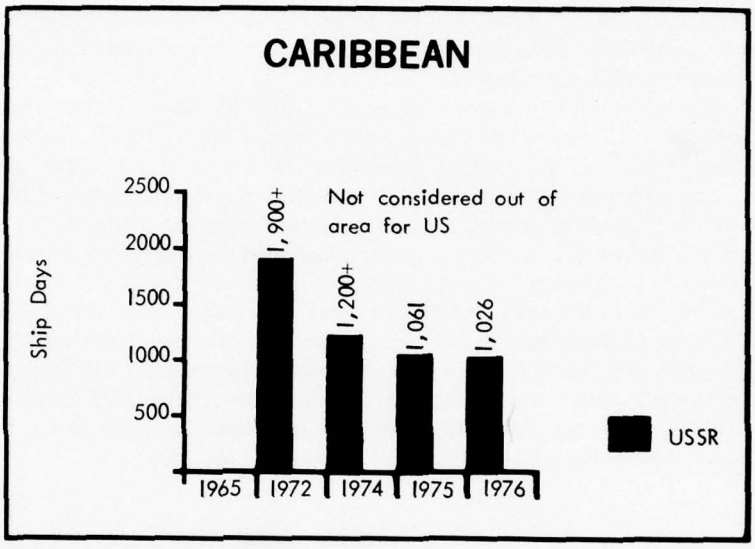


Figure 22. Ship Days—Caribbean.

situation. With the wind-down of hostilities and normalization, there was lesser need to sustain high levels of deployment. This, plus the high costs of operations in terms of both money and wear and tear on ships, would account for decreased deployment of surface combatants and auxiliaries as well as shorter on-station periods before their relief.

The quest for base facilities in the Indian Ocean is in part an attempt to relieve the burdens imposed by forward deployments to the Indian Ocean. Increased naval air activity has offset some losses in the area. On the whole, it appears that the Soviet Union pushed to maximum deployment in 1974, both for political purposes and to demonstrate its capability to deploy a high level of naval forces to a distant region, but have now accepted a lower level presence appropriate to existing political and strategic purposes, while retaining a larger number of rested and readied units to supplement standing deployments should the need arise.

In November 1977, as a result of Soviet backing of Ethiopia in the conflict with Somalia, President Barre expelled the Soviets from Somalia and prohibited the continued use of the extensive Soviet built naval facilities at Berbera, Mogadiscio, and elsewhere. It is, of course, far too early to determine what effect this loss will have on Soviet deployments to the Indian Ocean. Some loss of prestige is evident, but in the main this has been compensated by Soviet support of Ethiopia whose cause in the Ogaden is backed by a large number of African states. While naval air operations from Somalia have stopped, it is unlikely that overall losses will have much effect on Soviet naval operations in this region.

There is probably some increased dependence on the Pacific and Baltic Fleets for logistics support, but the Soviets have relied primarily on their own auxiliaries for maintenance, repair, and replenishment anyway, despite the difficulties therein.

Caribbean deployments began in mid-1969 when a task force consisting of a guided missile cruiser, a missile armed frigate, a cruise missile destroyer, three attack submarines (one nuclear propelled), and three auxiliary ships operating in the Caribbean made port visits to Cuba. With deployment of another task force to the Caribbean a year later and periodic cruises in these waters since, out-of-area ship days for the Soviet Caribbean squadron rose to 1,900 by 1972. As the graph shows, deployments in this area peaked two years earlier than in the other areas with an overall decrease in out-of-area ship days counted. The Caribbean has obviously received the least amount of emphasis for forward deployment, with overall combatant forces declining after 1972 to a level which is apparently now satisfactory for demonstrating support for the Castro regime and inhibiting American options in the area.

Chapter 7

A Methodology for Technological Threat Projections of Soviet Naval Antiship and Surface to Air Missile Systems

By Dimitry N. Ivanoff and Frank M. Murphy

Technological Projections

Technological forecasting is an activity that produces a statement of rational expectations concerning future characteristics of objects, procedures, and techniques intended to serve some useful function. A forecast, or the statement of rational expectations, should include four basic elements: (a) the time period addressed by the forecast, (b) the nature of the technology (or the product) being forecast, (c) the characteristics to be exhibited by the technology (or by the product), and (d) the probability (or an estimate of probability) associated with the projected characteristics of technology or the product.

Naval threat forecasting is a form of technological forecasting that supports naval decisionmaking and planning. Technological naval threat forecasts should yield an output that would include: (1) adversary platforms, (2) acquisition systems associated with these platforms, (3) countermeasure systems, and (4) hard-kill systems or weapons (e.g., missiles, torpedoes, mines). The projections should be presented in the operational context of an adversary's Order of Battle (OB), command-control-communication system, and ocean surveillance systems (e.g., satellites, aircraft, ships, undersea platforms). This obviously means that similar projections should be made for the Soviet OB, C^3, and SOSS systems.

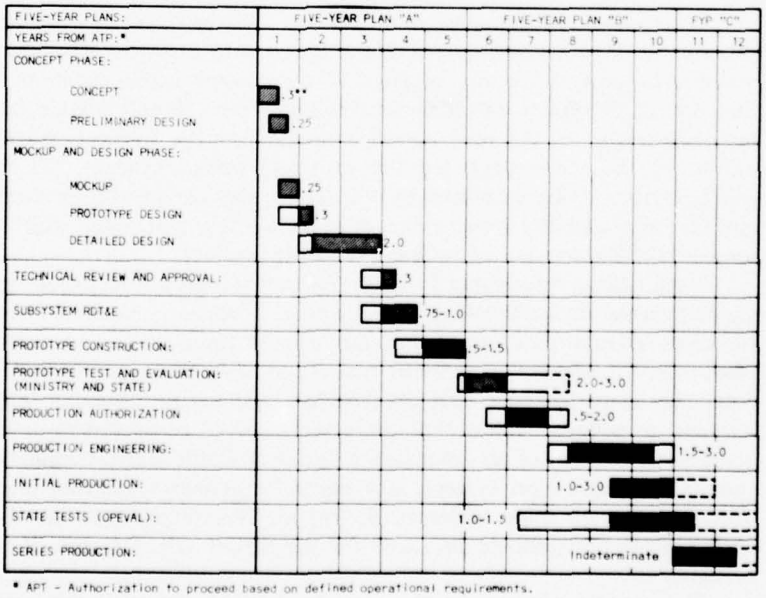
The specific analytical techniques used in the present study were adapted from the Threat Projection Method (TPM) developed by the authors. An overview of the total TPM approach is presented below

under the subtitle "Methodology Overview." The following paragraphs amplify and describe three specific techniques used and emphasized in the current study. These techniques are:

- Analysis of Soviet Cyclical RDT&E Patterns
- Normative Projection of Soviet Weapon Technologies
- Exploratory Trend Projections and Analyses.

Analysis of Soviet Cyclical RDT&E Patterns

This mode of analysis is based on consideration of observed historical cycles of RDT&E associated with the development and deployment of Soviet guided missiles. Figure 23 contains a bar chart depicting functional steps within a generic Soviet military RDT&E cycle. Bureaucratic review and approval steps are not shown in detail, however, the time required for these steps is incorporated within the indicated functional steps. Two selected major approval steps, however, are shown in the figure because they either consume a considerable span of time, or represent pivotal points in the cycle. Thus, for example, the following key bureaucratic steps were included: (a) a 3–4 month technical review and approval of the detailed design; and (b) production authorization that may take as long as 2 years.



* ATP - Authorization to proceed based on defined operational requirements.

** Duration in years or fractions of a year.

Figure 23. Estimated Generic Soviet RDT&E Cycle for the Development of Weapons of Approximate Complexity Corresponding to a Cruise Missile.

The key observations from the analysis of the Soviet military RDT&E cycle and antiship missile development that have been found useful to forecasters are summarized in the following paragraphs:

- The Soviet RDT&E cycle for a new generation system cruise missile is about 10 yrs from concept to series production. For system modifications (mods) the cycle is about 5 yrs.
- The cyclical patterns become visible when cruise missile families are subdivided into subfamilies based on purpose, technology, and performance. These subfamilies generally reflect different design bureaus or design teams within the same bureau.
- Logical division of naval missiles into families and subfamilies shows a remarkable consistency in their relation to their respective platforms.
- New RDT&E projects often reflect accelerated developmental effort, so that lead systems are deployed at the end of 3 years and marginal mods follow at 2–3 year intervals. Once fully operational, these systems are subsequently replaced by new generations after normal 7- to 10-year RDT&E cycles.
- Interim modifications of new systems usually are produced in limited numbers and follow deployment of the basic systems by 3–6 years.

In projecting future Soviet cruise missiles the above observations were used to reconstruct historical RDT&E cycles associated with systems included in the study sample population.

The reconstruction and display of Soviet RDT&E cycles associated with a given antiship missile subfamily is presented in figure 24 below. This example relates to a hypothetical subfamily of short-range antiship missiles.

Figure 24 is largely self-explanatory. The following conventions were used in plotting available and estimated data. Black dots represent intelligence provided by official US Navy sources. White dots represent estimates by Presearch analysts based on considerations of generic RDT&E cycles. The letters A and B in parentheses next to missile identifications indicate A and B design teams or bureaus. Projected systems are shown by white dots for "concept" and "IOC dates" and are connected by a straight line to indicate the total duration of the expected developmental cycle.

The major purpose of this analysis is to identify expected IOC dates of future systems; and to set time benchmarks for subsequent projection of technologies associated with new systems.

Normative Projections of Soviet Weapons Technology

Normative projections of Soviet antiship missile technology are qualitative in nature and seek to identify likely technological paths that

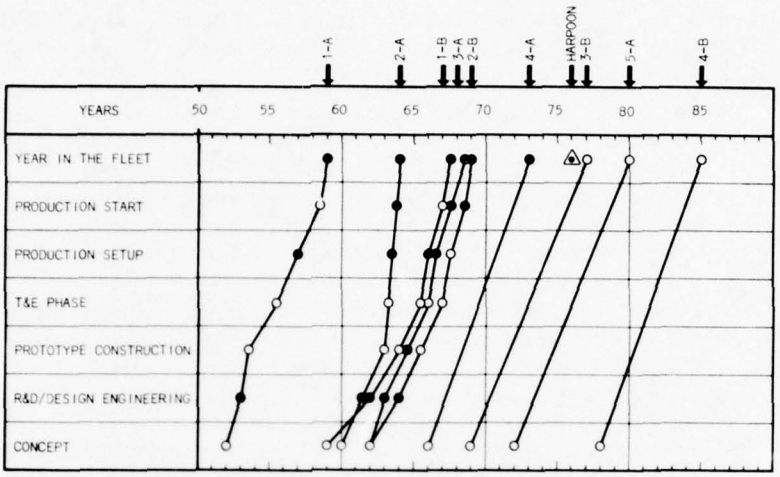


Figure 24. Example of a Technique to Display Soviet RDT&E Cycles Associated With a Specific Cruise Missile Subfamily.

the Soviets will follow in near-, mid-, and long-term development of future systems. The following paragraphs describe the analytical framework associated with making these normative projections.

Designers of advanced missiles strive to improve the functional capabilities of the weapon in response to the following operational mission requirements:

- To improve standoff capability for better missile launch effectiveness and trans-attack survivability of launch platform.
- To reduce missile system warmup and checkout time for rapid mission response and improved trans-attack platform survivability.
- To increase speed in order to reduce target reaction time and improve missile survivability and penetrability.
- To increase reliability in order to improve single shot effectiveness (SSP_k).
- To increase hardness against explosive forces and directed energy weapons in order to improve survivability and penetrability.
- To enhance target discrimination, decision logic, and hardening against electromagnetic neutralization, in order to reduce effectiveness of adversary electromagnetic countermeasures.
- To increase accuracy through reduction of circular error probable (CEP) for improved probability of target kill (P_k).

Table 2 structures the above rationale by showing in the left hand column those countermeasures and characteristics which as a result of

Table 2. Technological Paths for Antiship Missile Design.

Countermeasures Affecting Antiship Missile Effectiveness	Neutralizing Technological Paths for Missile Designer
1. Acquisition and fire-control sensors	Reduce missile observables (radar cross-section, IR radiation, visual contrast). Optimize flight profiles to complicate acquisition and tracking of missile by target.
2. Signature suppression	Improved multiple sensors and signal processing. Increase power output of search and homing radars. Use multiple frequencies against frequency-selective coatings. Improve signal processing.
3. Antimissile missiles	Reduce observables. Increase speed and maneuverability. Use electronic and electro-optic countermeasures. Harden antiship missile.
4. Antimissile guns	Reduce observables to complicate acquisition and tracking. Improve electronic countermeasures and decoys against fire control. Harden antiship missile.
5. Decoys and electronic countermeasures	Improve target discrimination, target resolution, and subsystem logic. Data links to launch and cooperating platforms.
6. Target damage resistance	Increased warhead effectiveness through improved explosives and energy focusing. Improve accuracy to hit most vulnerable portion of ship.

technological improvements will degrade missile performance. The right hand column of table 2 lists corresponding neutralizing techniques that serve as guidelines to a missile designer in his task of incremental improvement of antiship missiles.

The driving factors which influence antiship missile design, together with broad areas of likely technological responses, serve as criteria for selection of alternative technological approaches available to the Soviet antiship missile designer. In figure 25 a relevance tree is used to decompose a generic antiship missile system into major subsystems and related broad technology areas. For example, the airframe subsystem is initially related to design approaches for the fuselage, lift surfaces, control surfaces, structural materials, and signature suppression.

Figures 25 through 31 deal with individual subsystems in greater depth to identify technological approaches available for design alternatives. The structure and data of these figures is sufficiently self-explanatory not to require elaboration.

To the forecaster, the utility of the relevance trees in figures 25 through 31 is in their use as road maps for assessing past and current Soviet approaches to antiship missile design, and identification of technological approaches still unused. The insights gained from this assessment are used to make alternative normative projections of technological paths the Soviet designers are likely to follow. These qualitative normative projections are made within the constraints of

previously identified expected dates for introduction of systems into the fleet and anticipated mission requirements for them in that time frame.[1]

Having identified specific technologies which the Soviets are likely to use in the improvement of their antiship missiles, the analysts turn to trend analysis based on exploratory trend projections. These quantitative exploratory projections are described under the next subheading: "Trend Projections and Analyses."

In viewing figures 25 through 31 on the following pages, the reader is urged to consider them as structured road maps that the forecaster uses to make his normative projections. Knowing current Soviet technological approaches to the design of antiship missiles, the forecaster uses three general criteria to determine which of the unused technological approaches the Soviet designer may select in order to improve the sytems:

- The switch to a more advanced technology must yield a significant payoff in the overall performance of the missile.
- The new technology must be in hand to be used in near term modifications or new systems (e.g., the integral rocket-ramjet propulsion subsystem on SA–6 may be considered a "technology in hand").
- The new technology must have reached the application stage in the West in order to be developed for near- or mid-term application on Soviet missiles (e.g., the SLCM that can be launched from a torpedo tube).

The relevance trees in figures 25 through 31 were evaluated in accordance with these criteria and forecasters' decisions on likely technological paths that Soviet designers may use have been indicated by underlining appropriate technologies listed in the figures.

Trend Projections and Analyses

Optimal trend projections are those that express improvements in the state of the art of a given technology *quantitatively*. These projections are usually based on data points that reflect in some measurable quantitative way the historical state of the art of the technology or systems being evaluated. Parametric descriptors of past systems within a homogeneous family are used to develop these historical data points. These data on the historical performance of a number of successive technical approaches to the same functional capability generally provide the forecaster with notions of continuity of

[1] Mission analyses performed by Presearch in other studies were used in support of this analysis. Here the emphasis was on technological trends in missile technology and on the identification of inferences these trends show in relation to missile performance and functional capabilities.

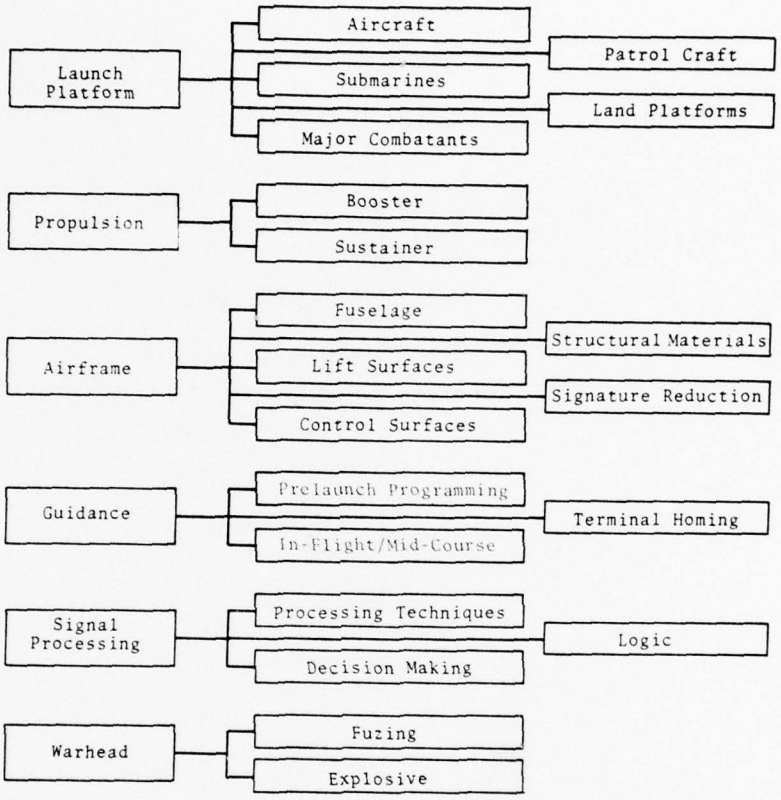


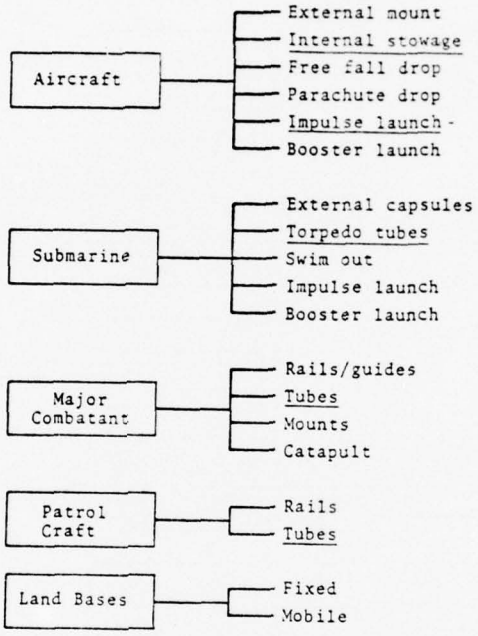
Figure 25. Alternative Approaches to Antiship Missile Subsystem Development.

technological progress. That is, if normative projections mainly provided insights into the possible sources of technological change, the exploratory quantitative trend analyses yield insights into direction of change, rate of change, and limits of change.

The success or failure of any trend projection exercise rests with the analyst. He has to exercise a high degree of discipline and rigor in making proper explicit assumptions under which he is developing and interpreting a technological trend, and in carefully selecting appropriate parameters on which to base his trend extrapolations.

Basic Assumptions for Naval Threat Technology Projections

There are three basic assumptions that the forecaster must make explicit before he selects parameters and collects necessary quantitative data for projection of trends. These assumptions are:

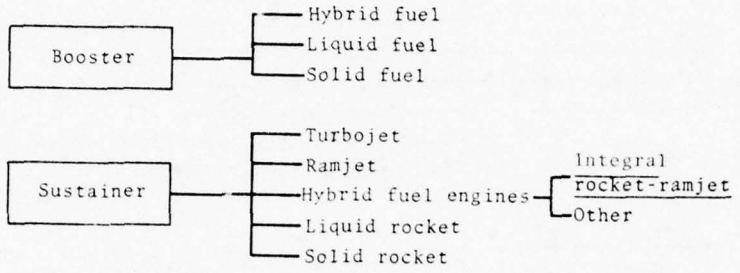


Mission-Responsive Design Objectives:

1. Minimize platform constraints
2. Provide storage
3. Facilitate checkout to standby and ready

Figure 26. Alternative Antiship Missile Launch Technologies by Platform Types

- *Assumption of Continuity of Progress.* It must be assumed that the historical rate of innovation and technical improvement in weapon systems will continue into the future. This rate may follow a straight line trend, exponential trend curve, trend curve with a limit, and so forth. Regardless of the form which the observable historical rate of change may take, the heart of the assumption is that the designer of a new system will always try to improve the new system against past standards.
- *Assumption of Continuity of a Mission.* Here the forecaster must make a clear-cut assumption that the *mission* for which the systems have been developed will be required during a foreseea-



Mission-Responsive Design Objectives:

1. Greater range
2. Greater speed
3. Increased reliability and simplicity
4. Improved payload-propulsion weight ratios

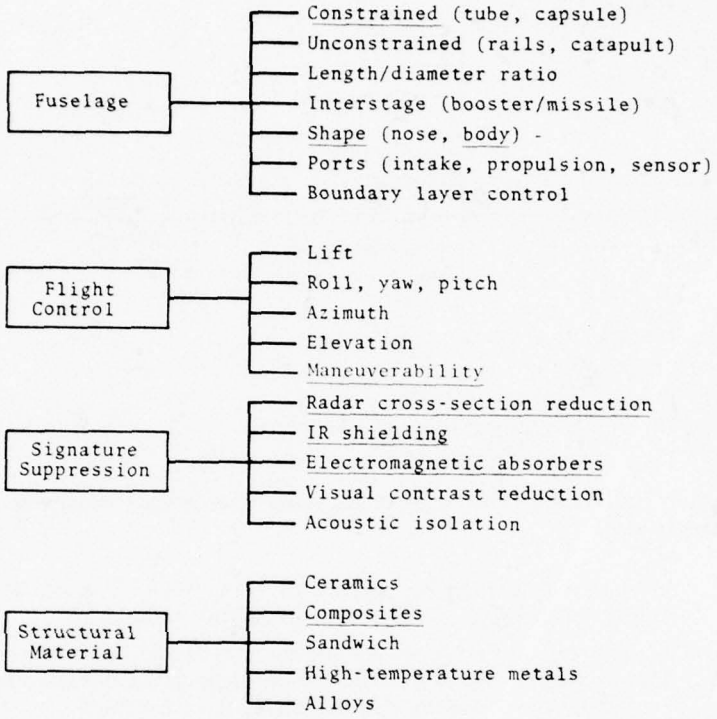
Figure 27. Alternative Technological Approaches to Propulsion Subsystems in Antiship Missiles.

ble future for which the forecast is being made. For example, "spear technology" is not a good subject for projection.

- *Assumption of Continuity in the Weapon Acquisition Process.* This assumption relates to the non-technological context associated with the weapons development. It is assumed that the decisionmaking process and RDT&E environment will remain unchanged or will continue to change in accordance with the observed historical trends. In projecting the Soviet naval threat, this assumption does not limit the forecaster too much: the Soviet bureaucratic inertia and set ways of doing things generally conform to the general boundaries of this assumption.

These explicit assumptions set appropriate rigor and discipline for performing the trend analysis. If initially they may limit the utility of forecasts, the limitations need not stay. The assumptions, after the basic trend extrapolations have been completed, can be relaxed and even dropped if the forecaster carefully assesses the degree to which they affect his extrapolations and projections. One way to deal with this problem is to make alternative projections by relaxing each of the above assumptions one at a time, but only after the basic projections have been completed. This has been done in the course of the study documented in the substantive portion of this chapter.

The above discussion of the assumptions for exploratory trend forecasting is not intended to be tutorial. It is intended to provide the reader with some notion of limitations and disciplinary restrictions under which the forecaster must work. Forecasting is a discipline and should be practiced only by trained analysts, it cannot be a part-time activity or done by an amateur.



Mission-Responsive Design Objectives:

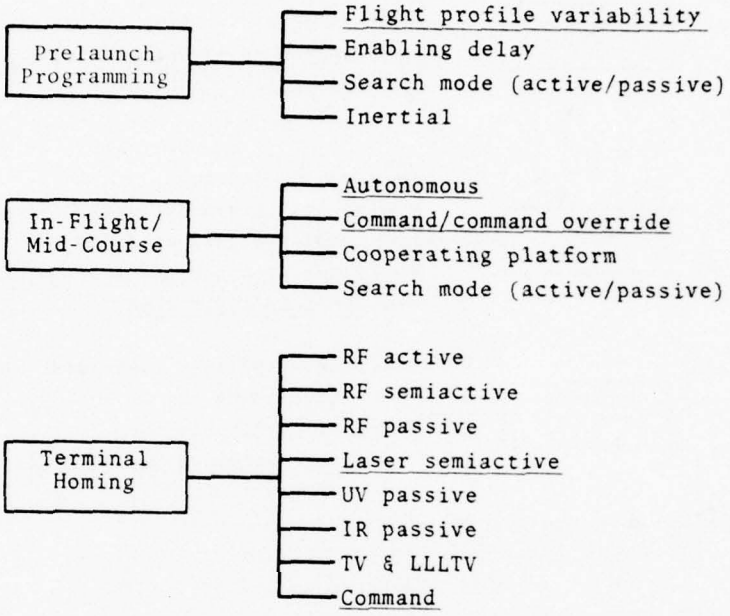
1. Reduce drag
2. Maneuverability
3. Reduce observables: radar, IR, visual, acoustic signatures
4. Maximize warhead loading
5. Optimize storage

Figure 28. Alternative Technological Approaches to Airframe Subsystems in Antiship Missiles.

Selection of Parameters for Trend Projection and Analysis[2]

In all forecasting by trend curves, there are some common rules which should be followed with regard to selection of historical data and interpretation of the resulting forecast. The critical issue for the forecaster is to select data representing historical values of the technical

[2] This discussion is based on J. P. Martino, *Technological Forecasting for Decision Making*. NY: American Elsevier Publishing Company, Inc., 1972. Chapter 5, "Trend Extrapolation," pages 128f. Of specific interest is paragraph No. 8, "Parameter Selection and Forecast Interpretation," pages 158–164.



Mission-Responsive Design Objectives:

1. Improve probability of acquisition, track, and hit
2. Reduce detectability
3. Reduce flyout time
4. Improve maneuverability
5. Improve accuracy (low CEP)

Figure 29. Alternative Technological Approaches to Guidance Subsystems in Antiship Missiles.

or performance parameters associated with the system's technological state of the art or functional capability.

In most forecasting approaches a great deal is based on manipulation of data about the past. The forecaster selects some measure of functional capability of a system and on the basis of a series of time-oriented measurements develops a trend. He is interested in forecasting the future ability of technology to perform some useful function. Therefore, it is the function and not a particular parameter, *per se*—that is of key interest. Thus, in selecting useful parameters, the forecaster should follow the following simple rules:

- Identify functions which the system was designed to perform.

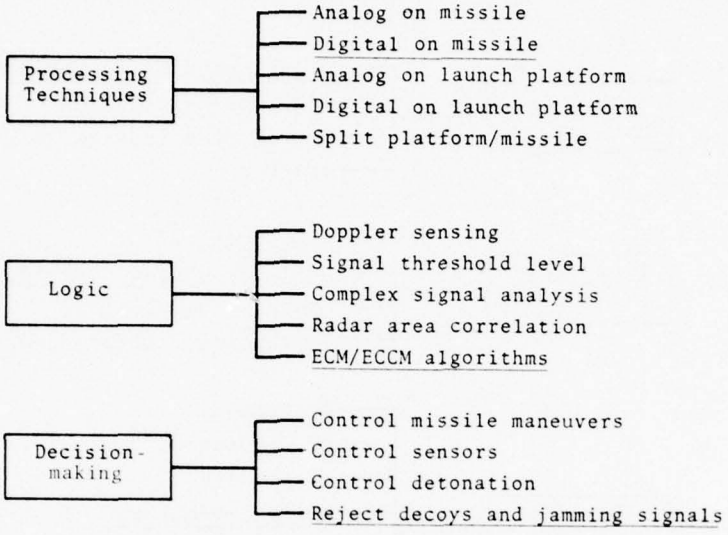
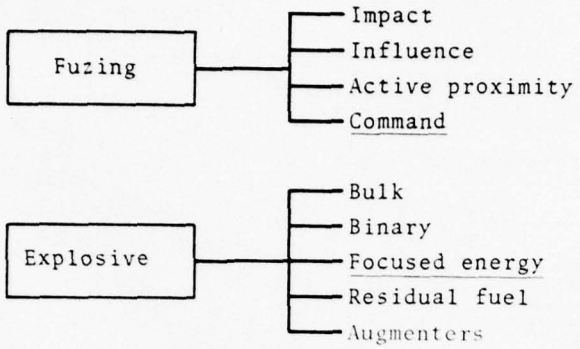


Figure 30. Alternative Technological Approaches to Signal Processing and Logic Subsystems in Antiship Missiles.

- Look for one or more parameters that provide a quantitative description of these functions.

In selecting parameters which will be relevant and functional the forecaster should use the following criteria: (a) the useful parameter must be an objectively measurable attribute of the device, technique, or procedure which is performing the function of concern to the forecaster; (b) the parameter must be a true representation of the state of the art associated with the technology being forecast; (c) the parameter should apply to diverse technical approaches to the performance of the same function; and (d) the data covering a significant time span must be available. In applying these criteria, the forecaster further has to exercise a disciplined selectivity on data consistency. This is a difficult analytical task, which need not be discussed here.

Once historical parametric data are selected and compiled, the analyst performs trend analysis. The following paragraphs identify parameters selected and developed for the study of the antiship missiles and explain some applications of these data and parameters in obtaining a forecast.



Mission-Responsive Design Objectives:

1. Increase lethality
2. Decrease weight and volume
3. Increase reliability
4. Increased resistance to shock and countermeasures

Figure 31. Alternative Technological Approaches to Warhead Subsystems in Antiship Missiles.

Parameters Used in the Study of Antiship Missiles

Single or Individual Parameters

Single or individual parameters are usually objective measures of some attributes of the system, techniques, or procedures in performing the function of concern to the forecaster. In some cases the individual parameters are static measures; e.g., tensile strength of a material, melting point, size (length, diameter, wingspan), and so forth. In other cases these parameters are measured dynamically: speed of the missile, engine thrust, power of the radar; i.e., the measures that are obtained when the missile (or any system) is performing its function. In the current study, the selection of parameters for projection and analysis was, of necessity, limited not only by considerations of "what is useful," but also by the availability of data on Soviet missiles. Not all useful parameters are collectable or are collected. For example, key parameters required in the study of Soviet torpedo technology, the weights of various Soviet torpedoes, are not available, instead—estimates of these weights had to be made for use in projections and assessments. The torpedo weights are collectable, but until now there has been no requirement or tasking to collect and tabulate this information.

Table 3. Single Parameters Used in Study.

Parameter, (symbol)	Unit	Description	Remarks
Length, (L)	m	Longest dimension of the missile in flight. To achieve commonality among subfamilies, booster subsystem is not included.	Useful in forecasting changes in constraints placed on missile platforms for transportation, stowage, and launch. One of the symbols in an expression for assessing trends in the technology of packing density.
Diameter, (D)	m	The maximum chord passing through the transverse cross section of the missile.	A key parameter in projecting useful functions such as aerodynamic efficiency, detectability, penetrability, and engineering packaging.
Volume, (vol)	m^3	For purposes of this analysis, the space occupied by a cylinder having the length and diameter of the missile.	Provides a means of forecasting future missile technology in terms of space required to carry out the several functions inherent in mission requirements.
Overall Weight, (W_o)	kg	Weight of the missile with all fuel and components except the booster, which is excluded to achieve commonality among missile subfamilies.	Useful in forecasting level of missile technology which will be used to achieve performance in terms of velocity and distance.
Warhead Weight, (W_{wh})	kg	Weight of the missile payload, including explosive, case, and explosive train.	This parameter is used to assess kill effectiveness and lethality. Also used in several composite parameters to assess other functional capabilities of a missile (see Table A.3).
Sustainer Thrust, (F)	kg	The forward-directed reaction force at sea level.	Indicative of the state of the art available to the missile designer in achieving requisite performance.
Maximum Speed, (V_m)	mach	Greatest sustainable velocity.	In itself indicative of warning and reaction times, this parameter is useful in measuring overall missile effectiveness and in determining where design trade-offs have been made.
Terminal Velocity, (V_t)	mach	Speed at which missile operates in critical approach phase, beginning at a slant range of 10 nm (19 km).	Another measure of reaction time, hence an indication of the technological sophistication the missile designer has used to improve kill probability.
Maximum Range (R_m)	km	The greatest distance at which the missile system can successfully attack a target.	A useful measure of the technology which has been used to achieve launch platform survivability. As one of the symbols in expressions for composite parameters it assists in assessing how the several performance functions have been balanced.

Table 3 summarizes and explains the use of single parameters used in projecting technological state of the art in Soviet antiship missiles. Since the table is self-explanatory, the information contained in the table is not expanded in the text.

Composite Parameters

The utility of single parameters is limited since the designer often exercises his freedom to trade-off two or more parameters against each other, gaining an increase in one at the expense of the decrease in one or more of the others. If this is the case then none of these individual parameters tell the full story. To offset this deficiency the forecaster uses composite parameters that combine several measurable attributes of the technology used to perform the function of concern. For example, in assessment of aircraft a common fused composite parameter is the "ton-miles per hour" productivity index of transport aircraft. In studying antiship missiles it is necessary to use similar composite parameters to obtain the true measure of the state of the art in relation to some specific functional capability.

Construction of composite parameters for projections and analyses of weapon systems is a difficult and exacting task. The rules for selection of parameters, presented in the preceding paragraph, also apply when the analyst develops composite parameters to be used in technological projections. As stated above, the functional aspect of the system is of importance and not the parameter itself. The parameter

should reflect in some measurable way the functional capability of the missile and at the same time have a direct relationship to the technological state of the art. The following example is provided to give the reader a closer feel for the utility of the composite parameter, its conceptual makeup, and the way the forecaster uses it in trend analysis and extrapolation.

The basic useful function of a missile may be described as: "delivery of a maximum payload weight (W_{wh}) to a maximum range (R_m) in minimum time (t)." This can be expressed as:

$$\frac{W_{wh} \times R_m}{t}$$

since

$$t = \frac{R}{V} = \frac{\text{maximum range}}{\text{maximum speed}}$$

the original expression becomes:

$$\frac{W_{wh} \times R_m}{R/V} \text{ or } W_{wh} \times V$$

i.e., mass times velocity or *momentum*.

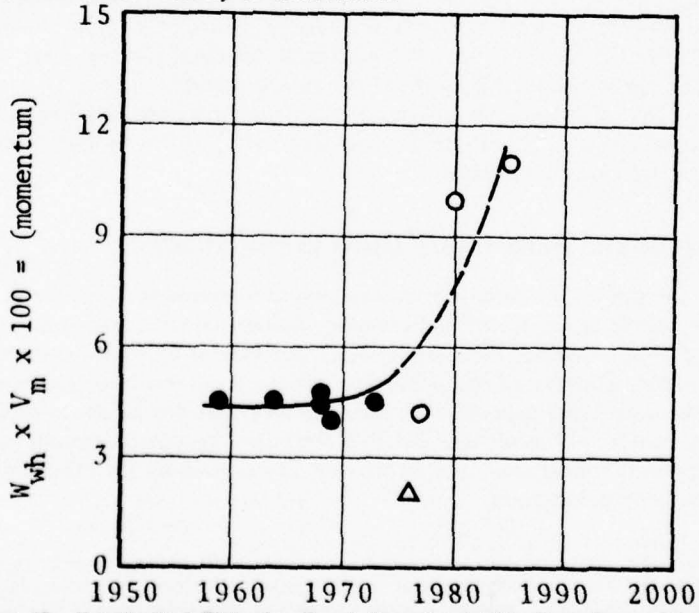


Figure 32. Hypothetical Plot of a Trend Associated With Short-Range Missile Composite Assessment Parameter MCP-2 Momentum.

By plotting the momentum derived from data on warhead weights and maximum speed, the analyst indirectly measures the state of the art of successive generations of Soviet missiles as it is related to the basic functional capability of a missile. Figure 32 shows a plot in which data points are momentum values of successive generations of Soviet missiles. Black dots represent historical values, while the white dots represent estimates made by the projected Soviet missiles. The triangular data point relates to the *HARPOON* missile, and is included for reference and used as a comparison standard. The horizontal trend line based on historical data points (black dots) shows "no change" in the state of the art (despite differences in the performance of the individual systems) in Soviet antiship missiles included in the sample. However, if estimates are treated as givens, the resultant trend line (dashed curve) indicates a significant impending advance in Soviet missile technology. Since warhead weights remained unchanged for decades, the inference of this analysis would be that this advance would come from an improvement in the propulsive efficiency of the system family.[3] For example, a change from a turbofan propulsion to an integrated rocket-ramjet propulsive subsystem.

The implications of this technical analysis in terms of the operational efficiency of future Soviet missiles are: (a) the warhead size would remain the same (500 kg); (b) the range would increase from 30 nm to 40–45 nm; and (c) the speed would increase from .9 mach to 2.0 plus mach. Combat effectiveness would be marked by greater penetrability of the future Soviet missiles. There would be a requirement on the Soviet designer to improve guidance, terminal homing, and, very likely, aerodynamic properties of the future missiles.

Since necessary technology (rocket-ramjet engine, guidance, and materials) is available to the Soviets the results of this analysis may be considered highly credible.

Composite Parameters Used in the Study

A total of 9 composite parameters were developed for use in the substantive study of Soviet technology associated with guided missiles. Table 4 summarizes these parameters in terms of variables employed, the dimensionality of the composite parameters, and brief statements of the functional aspects of guided missiles that are being measured. The reader will note that MCP–2 (Missile Composite Parameter 2) listed in the table was used to provide an example on the utilization of composite parameters.

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[3] Soviet HE warheads for these missiles are large, advanced, shaped-charge, kill mechanisms. They generally represent an off-the-shelf technology and are expected to be used on future Soviet missiles. Nuclear warheads on most missiles are believed to be interchangeable with conventional ones and have sufficient kill power for large surface and subsurface targets.

Methodology Overview

The three techniques described in the preceding paragraphs are a part of a method known as the Threat Projection Method (TPM). The following paragraphs present an overview of the TPM.

General

An overview of this method is presented in block diagram in figure 33. The diagram shows the interrelationship among eight tasks comprising the methodological approach of the TPM. The eight tasks of the TPM are described briefly below.

Task 1. Historical Analysis

In this task, analysis is made of Soviet political, economic, and military-technological practices which set the pace for RDT&E and deployment of military systems. Production facilities are analyzed and preliminary projections are made on the next two generations of systems selected for study. IOC benchmarks are established to set limits on projection of technology. The output of this task flows into Tasks 4 and 7.

Task 2. Mission Analysis

Current adversary systems and their missions are reviewed and an analysis of Soviet requirements for improved mission and system capabilities is made on the assumption that the relationship between technology and operations is a reciprocal one; i.e., mission requirements set goals for technological improvements, while the latter often present new ways of performing the mission. Observations are recorded and flow into Task 7.

Task 3. Technical Analysis

Systems being projected are analyzed and each major subsystem is examined in terms of alternative technologies that can be employed to make them work. Current and future state of the art is considered and notional projections are made on plausible technological paths that the Soviets may follow in improving the system. Normative projections are made and the output is channeled into Tasks 4, 5, and 7.

Tasks 4 and 5. Data Collection and Development of Logic for Quantitative Assessments

All quantitative data developed in Tasks 1, 2, and 3 are systematically formatted into data files to be used in quantitative trend projections. Projection logic is developed by selecting projection parameters and structuring composite parameters to be used in projections. Composite parameters are used in projections in order to

Table 4. Summary Table of Composite Parameters Used for the Development of Technological Trends.

ID	Math Expression	Variables	Dimensionality	Indirect Measure of:
MCP1	$\frac{W_{wh} \cdot V_m \cdot R_m}{W_o}$	W_{wh} - warhead weight V_m - maximum speed R_m - maximum range W_o - overall weight	(velocity) x (distance)	Achievement of speed and range for a given payload at the price of an overall weight (propulsive efficiency)
MCP2	$W_{wh} \cdot V_m$	W_{wh} - warhead weight V_m - maximum speed	(weight) x (velocity) or: momentum	Measurement of momentum; or an indirect measurement of achievement of range for a given payload per unit of flyout time
MCP3	$\frac{R_m}{V_m}$	R_m - maximum range V_m - maximum speed	$\frac{\text{(distance)}}{\text{(velocity)}}$ or: time	Flyout time for maximum range at maximum speed
MCP4	$\frac{W_{wh} \cdot R_m}{W_o}$	W_{wh} - warhead weight R_m - maximum range W_o - overall weight	(distance) or: weighted range	Achievement of range for a given payload at the price of an overall weight; or propulsive efficiency in terms of range
MCP5	$\frac{W_{wh} \cdot V_m}{W_o}$	W_{wh} - warhead weight V_m - maximum speed W_o - overall weight	(velocity) or: weighted speed	Propulsive efficiency in terms of achievement of speed for a given payload at the price of the total weight
MCP6	$\frac{V_m}{F/W_o}$ or: $\frac{W_o \cdot V_m}{F}$	V_m - maximum speed W_o - overall weight F - sustainer thrust	(velocity)	Velocity achieved in relation to a thrust/weight ratio; reflects roughly the efficiency of the aerodynamic design
MCP7	$\frac{W_o}{L \cdot D^2}$	L - length D - diameter W_o - overall weight	$\frac{\text{(weight)}}{\text{(volume)}}$ or density	Weight per volume; or density of a missile. Indirectly reflects "engineering packaging" and technological sophistication of the system
MCP8	$\frac{V_t \cdot MH}{D^2}$	V_t - terminal speed MH - merit of altitude D^2 - diameter	penetrability-dimensionless	Difficulty in acquiring and hitting a missile taking into account profile, speed, and frontal area
MCP9	$V_t \cdot W_{wh}$	V_t - terminal speed W_{wh} - warhead weight	momentum	Momentum during critical, narrowly-defined approach phase

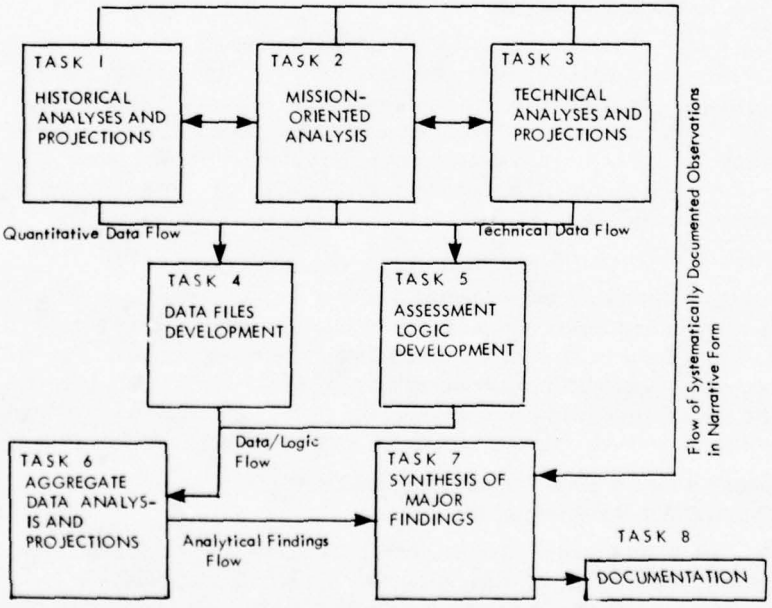


Figure 33. Threat Projection Method (TPM): An Overview.

sidestep deliberate trade-off choices that the designer may select for the next system. Composite parameters are insensitive to designer choices and generally reflect the trend in the state of the art, rather than specific trends indicative of the mission orientation in design.

Task 6. Quantitative Trend Analysis and Projections

Quantitative data (performance and technical parameters) assembled in Task 4 and trend projection logic developed in Task 5 are used to produce quantitative trends that reflect improvements in the evolutionary development of the systems being projected. The output of the trend analysis is then transferred as an input into Task 7.

Task 7. Synthesis of Major Findings

Nonquantitative findings from Tasks 1, 2, and 3 (observations, insights, normative projections based on mission analysis, and the like) and the quantitatively derived trends are reviewed and conclusions are drawn on future adversary systems that will be developed for the time frame in question. This task is the heart of the TPM and requires a *synthesizer* rather than an analyst. All the preceding tasks, generally, are analytical in nature and serve to develop necessary inputs into this synthesis task. Here all considerations of Soviet practices are merged with the factual evidence of the quantitative analysis. Future systems are synthesized and described in terms of their IOC dates and functional characteristics. For example, in supporting an ASW mission planning and weapon developmental effort, these projections must be couched in terms of planners' requirements for parametric data (e.g., speed, noise, endurance, and weapon characteristics of Soviet submarines).

Task 8. Documentation

The results of the work in Task 7 are documented in an appropriate format to assist the planner. The document, if done correctly, should be a comprehensive statement of the future Soviet naval threat.

Chapter 8

Mission Priorities of the Soviet Navy

By Claude R. Thorpe

Introduction

The goals of this chapter are to develop a widely accepted method for resolving the Soviet general purpose navy into its component missions and to illustrate the usefulness of such a breakdown.

The Soviet Navy would be opened to valuable new insights if its general purpose forces could be broken down by wartime mission. Such a breakdown would make it possible to assess the priority the Soviets have assigned each mission and the past patterns of emphasis, including the years in which major shifts occurred. In addition, it would support comparisons of the efforts made on different missions and analyses of the effect on procurement of changes in funding.

This study was undertaken when it appeared that, with the use of the Delphi Technique, the obstacle that blocked earlier attempts of this kind could be avoided. The main difficulty in the past was the lack of agreement among Western naval analysts on the apportionment of individual, multipurpose naval ships and aircraft among a variety of missions. Analysts agreed, for example, that the E–II-class submarine was bought basically for open-ocean antiship warfare, but they could not reach consensus on the percentage of this ship which should be assigned for that mission. Because of this disagreement, the results of earlier efforts were dismissed as a reflection of the view of a few.

The Delphi Technique provides a means of systematically combining individual opinions to obtain a reasoned consensus thus avoiding the chief objection to earlier analyses of this kind. The Technique was invented some 20 years ago at the Rand Corporation. It was developed as a refinement of problem solving by the committee approach, which is characterized by its susceptibility to undue influence of the dominant individual and to group pressure toward conformity. Its unique feature

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and potential merit lie in requiring a number of experts to consider the views of their peers in an environment—usually a series of questionnaires—free from bias caused by personalities.

The approach employed in this study was to obtain consensus, if possible, by means of the Delphi Technique on the assignment of mission weights to Soviet naval platforms, to use those weights with production figures and cost estimates for Soviet naval combatants to break down the Soviet Navy by wartime missions, and to illustrate some of the uses of this breakdown, including ranking missions by priority.

Acknowledgments

This project has been especially gratifying because of the loyal support given to me in carrying it to completion. Without the considered opinions of the experts from Canada, the UK, and the US who participated in the Delphi poll, the job simply could not have been done. I extend my sincere thanks to the participants. A special thanks is extended to Lt. Cdr. D. F. Nugent of the Royal Canadian Defense Forces, Ottawa, Cdr. K. H. Forbes-Robertson of the Royal Navy, London, and Cdr. T. M. White of the US Navy for encouraging me and the participants on their staffs to give this idea a try. I am also grateful to Mr. Robert Wood and Mr. R. C. Shreckengost and Mr. James Barry for generously sharing their experience with the Delphi Technique. Tips from these gentlemen saved me many days of work. Finally, I want to thank Mr. Sydney Jammes, Mr. Donald D. Swain, and Miss Katherine Kus who provided support on cost estimates and machine manipulation of the data, and Miss Janice Page and Mrs. Grace Ward who typed and mailed the questionnaires and helped tabulate the results after each round.

The Problem

Assessment of the relative priorities of Soviet naval missions has been a long-standing problem, but not because it is considered unimportant. It clearly would be desirable to be able to say, for example, that in 1976 antisubmarine warfare (ASW) was the second highest priority mission in the Soviet Navy, that in 1976 eight percent of the platforms acquired were for that mission, and that the part of the naval budget going to ASW forces had increased steadily over the past decade. Yet, measurement of such priorities has not been possible because the only accepted distinction among wartime Soviet naval missions is that for strategic attack; the remainder of the Soviet Navy is characterized simply as general purpose. Whether measured in terms of units purchased annually or of yearly expenditures for naval combatants, assessements based on this breakdown, as shown in figures 34 and 35, shed almost no

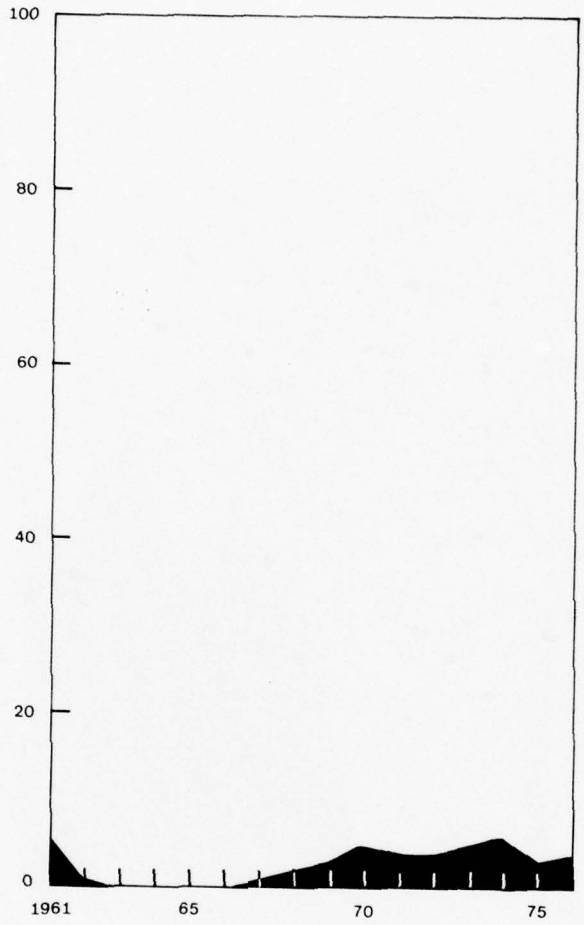


Figure 34. Percent of Soviet Naval Platforms Procured for Strategic Attack.

light on the weight the Soviets attach to most of the missions assigned to the fleets.

To resolve this problem it would be necessary to reach general agreement on apportioning individual, multipurpose naval platforms among their several missions. The task would take experts on the Soviet Navy far beyond the highest level of agreement reached previously. To illustrate, it is generally agreed that the primary, but not the only, wartime mission of the KRESTA II class cruiser is open-ocean ASW. Agreement must be reached, however, on the percent of the KRESTA II that should be counted for ASW, and on how the remainder of it should be apportioned among the other missions of the Soviet Navy.

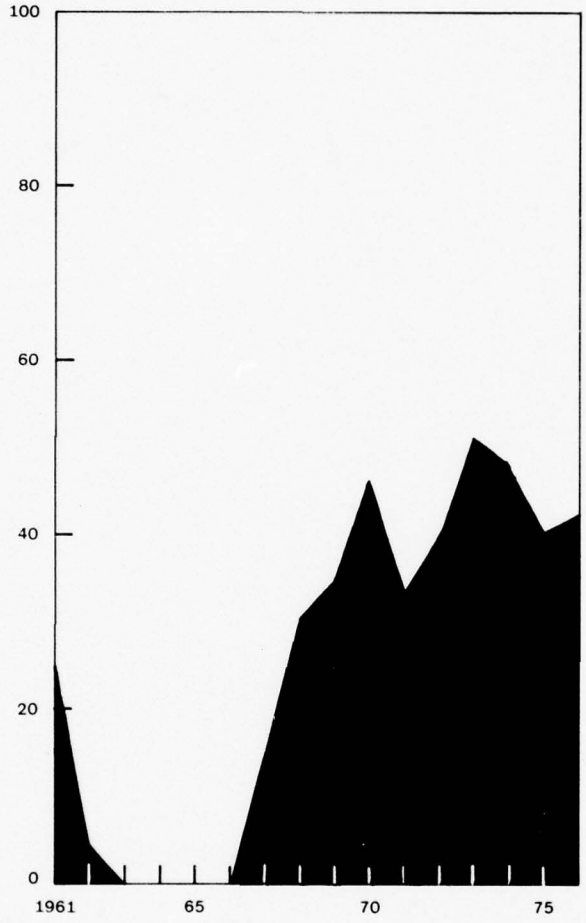


Figure 35. Soviet Outlays for Strategic Attack Platforms as a Percent of Total Expenditures for New Naval Combatants.

Consensus

Agreement on the apportionment of Soviet ships according to missions was achieved by applying the Delphi Technique. The unique feature and potential merit of the Delphi Technique lie in requiring experts to consider the views of their peers in an environment free from the biases caused by personalities. The technique consists of obtaining replies from a number of experts to a sequence of questionnaires, and it features the following steps:

—Creation of a questionnaire.

—Identification of a number of experts to participate in the poll.

—Tabulation of the expert opinions, which in this case were expressed in terms of a percent after each round.

—Provision of an opportunity on each new round for all participants to reconsider and change their earlier responses in light of the views of their peers.*

—Termination of the series of questionnaires once consensus is reached. This typically occurs after three rounds, when changes in statistical measures of the responses cease or become so slight as to be insignificant.

See the Annex for details on this use of the Delphi Technique.

The question asked in this application of the Delphi Technique was:

> In your opinion, for what wartime mission or missions was each of the following classes or types of Soviet naval platforms purchased?

This phrasing excluded peacetime missions from consideration to avoid mixing apples and kumquats. It acknowledged that the missions of ships and aircraft sometimes change between authorization of production and decommissioning and asked for opinions on the original missions of the platforms. Interest centered on the pristine missions of naval units because the study was intended to assess priorities as they are reflected by annual production for each mission.

The questionnaire included 24 classes and seven general types of platforms acquired by the Soviet Navy since 1960. The selection covered directly or by close analogy 90 percent (all but seven) of the 80 some classes added to the fleet in this period. The classes omitted and for which there was no closely analogous class were considered to be among the smallest, oldest, least expensive, and least ambiguous as to mission. These were the B, E–I and R class submarines, the BEAR D and FITTER C fixed-wing aircraft, and the HAZE and HOUND classes of helicopters.

The poll asked the experts to consider nine missions (including a category called other), for Soviet naval ships and aircraft. Missions were included if there was direct evidence for them or if they were commonly attributed to the Soviet Navy. In round two, Fleet Air Defense replaced "Other" in the list of missions.

The pattern of the responses to the series of questionnaires was typified by that shown in figure 36 for the KRESTA II class cruiser. The range of opinion on the ASW mission of the KRESTA II originally extended from 15 to 100 percent with a median of 70 percent and an IQR of 40 to 80 percent. By the final round, the full range of responses

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*Peer responses were provided in terms of the median response and the interquartile range (IQR) of the responses. The median is the middle answer in a series of responses; the IQR is the interval containing the middle 50 percent, i.e., 25 percent on each side of the median of the responses. (Figure 36).

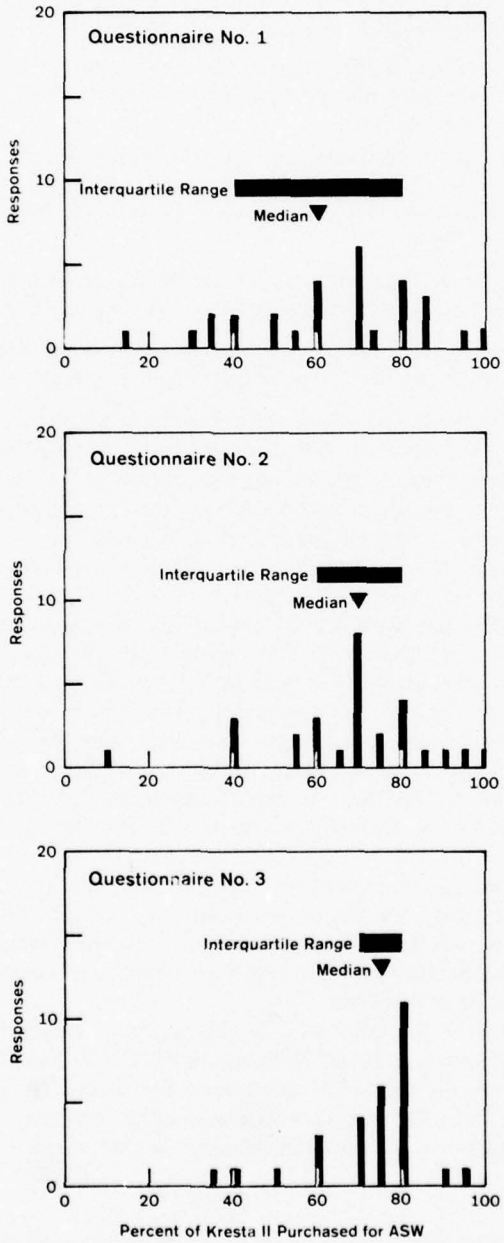


Figure 36. Responses to Delphi Questionnaires on the ASW Mission of the KRESTA II Cruiser.

Table 5. Delphi-Derived Weights for the Original Missions of Soviet Naval Combatants—Median Values

Platform or Type	Missions (Percent)								
	Anti-Ship	Anti-SLOC	ASW	Coastal Defense	Recce	Mine Warfare	Fleet Air Defense	Amphibious Warfare	Strategic Attack
J	75	15							
E-II	75	15							
C-I, -II	80	10	10						
N	30	15	50						
V-I, -II	15	5	75						
F	30	25	20						
T	30	25	25						
A	10		80						
KYNDA	75	10	10						
KRESTA I	60		30						
KRESTA II	20		75						
KARA	20		75						
KRUPNYY	70	10	10						
KASHIN	20		60						
KIEV	20		70						
MOSKVA			85						
KOTLIN	25		15	30					
FORGER	15				15		45		
BADGER	70				20				
BACKFIRE	75				10				
PETYA			15	77					
PCEs				90					
Sub Chasers				90					
Fast Patrol Craft				95					
MAIL			10	80	10				
MAY			75	10	10				
HORMONE			60	30					
BEAR F			85		15				
Mine Warfare Craft						90			
SSBN									95
Landing Craft								100	

extended from 35 to 95 percent, the IQR had narrowed to 70 to 80 percent, and the median response was 75 percent. Although not shown in figure 36 the remainder of the KRESTA II was assigned to the antiship mission.

The level of agreement represented by the IQR in almost all cases was well above 50 percent. The responses on the KRESTA II illustrate this. On ASW, 69 percent of the responses were in the IQR; 76 percent fell in the IQR for the antiship mission.

A full set of median mission values was derived with the Delphi application (see table 5). The median values for any one platform rarely add to 100 percent, mainly because it was decided after the first questionnaire to drop all missions for which the median response was five percent or less.

The values were not suprising. Platforms that clearly have a single purpose, such as subchasers and landing craft, received a weight of or approaching 100 percent. Multipurpose platforms like the C class submarine, which has special equipment for antiship warfare but also carries sonars and torpedoes for ASW, were divided between at least two missions. Because these weights seemed reasonable, they were extended to the platforms originally omitted from the questionnaires, as shown in table 6.

This step completed the foundation for this study except for calculating Soviet naval mission priorities using the Delphi-derived

Table 6. Weights for the Original Missions of Soviet Naval Combatants not included in the Delphi Questionnaires

Platforms or Types	Weights
Submarines	
B*	Coastal Defense 80
D-I, -II, -III	Strategic Attack 95
E-I*	Strategic Attack 95
G	Strategic Attack 95
H	Strategic Attack 95
Major Surface Ships	
KRIVAK	Antiship 20, ASW 60
PCEs	
MIRKA	Coastal Defense 90
Aircraft	
BEAR D*	Recce 100
BLINDER	Antiship 75, Recce 10
FITTER C*	Coastal Defense 50, Amphibious Warfare 50
HOUND*	Coastal Defense 50, Recce 50
HIP HAZE*	Coastal Defense 50, Recce 50
MINE Warfare Craft	Mine Warfare 90
ALESHA, MSB, VANYA, ZHENYA, NATYA, YURKA, SONYA, T-58, SASHA	
Landing Craft	Amphibious Warfare 100
AIST, GUS, LEBED, MP-10, SMB-1, VYDRA, MP-8, POL-NOCNY, ALLIGATOR, ROPUCHA, MP-6, MP-2	

Platforms or Types	Weights
Submarines	
P	Antiship 80, Anti-SLOC 10, ASW 10
R*	Coastal Defense 80
Y	Strategic Attack 95
Subchasers and Fast Patrol Craft	Coastal Defense 90
POLUCHAT, PO-2, ZHUK, POTI, TURYA, SO-1, PCHELA, SHLEPEN, SARANCHA, SHERSHEN, SCHMEL, BMRL NEW CLASS, STENKA, GRISHA, NANUCHKA, OSA, KOMAR	

*Category of platform which was not included on the Delphi questionnaires and for which there was no closely analogous class.

Table 7. Example of Calculations Using Delphi-Derived Weights.

If in 1971 two KRESTA II class cruisers were produced at an estimated cost of 50 million rubles each, that production would have affected the totals for units produced and rubles expended in 1971 as follows:

		Units	Rubles* (millions)
ASW			
(2 KRESTA IIs) × (.75 ASW mission weight)	=	1.5	
(2 KRESTA IIs) × (50 million rubles each) × (.75 ASW mission wt.)	=		75
Antiship			
(2 KRESTA IIs) × (.2 antiship mission wt.)	=	.4	
(2 KRESTA IIs) × (50 m. rubles each) × (.2 antiship mission wt.)	=		20
Total		1.9	95
Production not accounted for		.1	5
Grand total		2.0	100

*Costs are in terms of 1970 rubles, unphased, i.e., the whole cost of the ship was assumed to have been paid in the year the ship was completed. All the costs used in this paper were provided by the Military Economic Analysis Center of CIA.

weights. The weights were used with each naval platform acquired from 1961 through 1976, as in the example shown in table 7.

Soviet Naval Priorities

The priorities of the missions of the Soviet Navy calculated using the Delphi-derived weights are shown in tables 8 and 9.

These lists in large part simply document the intuitive feelings that to date have guided judgments concerning Soviet naval priorities. It is not a surprise, for example, that

Table 8. Priorities of Soviet Naval Missions (ranked by ruble outlays).

Priority (Average)		Mission
1961–67	1968–76	
8	1	Strategic Attack
3	2	Open-Ocean ASW
1	3	Open-Ocean Antiship
2	4	Coastal Defense
5	5	Mine Warfare
6	6	Reconnaissance
7	7*	Amphibious Warfare
4	8*	Interdiction of Sea Lines of Communication (SLOC)
9	9	Fleet Air Defense

Table 9. Priorities of Soviet Naval Missions (ranked by equivalent units produced annually).

Priority (Average)			Mission
1961–67	1967–74	1975–76	
1	1	1	Coastal Defense
2	5	2	Amphibious Warfare
3	3	3	Mine Warfare
6	7	4	Reconnaissance
4	4	5	Open-Ocean Antiship
9	9	6	Fleet Air Defense
5	2	7	Open-Ocean ASW
8	6	8	Strategic Attack
7	8	9	Interdiction of SLOC

*Priorities have not been constant since 1967, but the only major change since 1971 occurred five years ago when amphibious warfare replaced anti-SLOC as the seventh ranked mission.

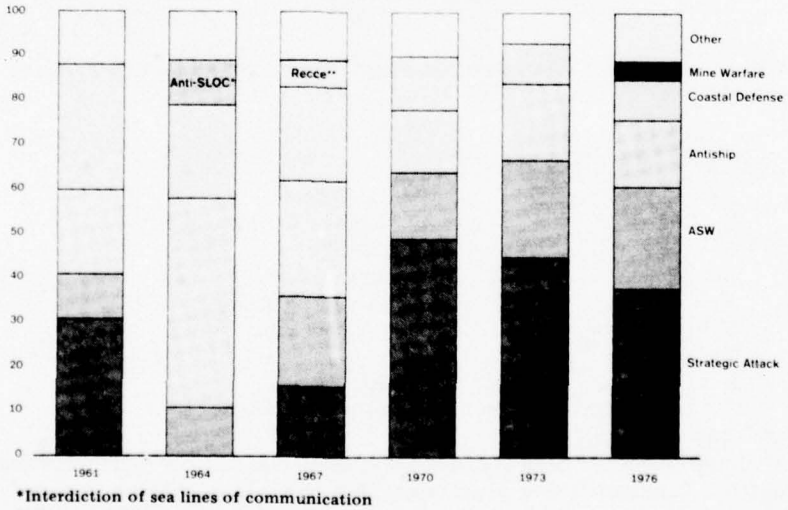
—more rubles have been spent annually since 1967 for strategic attack than for any other naval mission, or that spending in the early 1960s was concentrated on the antiship mission.

—missions that predominate in terms of ruble outlays are among the lowest ranking when measured in terms of units. This reflects the high unit cost of submarines, especially Y and D class ballistic missile submarines, and the relatively low cost of platforms for such missions as coastal defense and amphibious warfare.

—the major priorities that govern Soviet naval procurement of combatants were set in the late 1950s to mid-1960s. This conclusion—which reflects the rule of thumb that 10 years normally elapse between a go-ahead decision and the appearance of equipment in the fleet—does not rule out the possibility that priorities have been realigned since 1967. If such a realignment has occurred, however, reflection of it in the completion of new kinds of platforms could begin to appear this year.

Once completed, arrangement of Soviet naval missions in rank order seems ordinary. Yet this is the first time it has been possible to do it with broad support.

Another unique outgrowth of this study is the capability to compare missions of the Soviet Navy in terms of the resources devoted annually to each. This is shown graphically for annual ruble outlays for new naval platforms and for numbers of ships and aircraft procured yearly in figures 37 and 38, respectively. To illustrate, in 1976 ASW received 23 percent of



*Interdiction of sea lines of communication

**Reconnaissance

Figure 37. Percent of Soviet Outlays for New Naval Platforms by Mission (Selected Years).

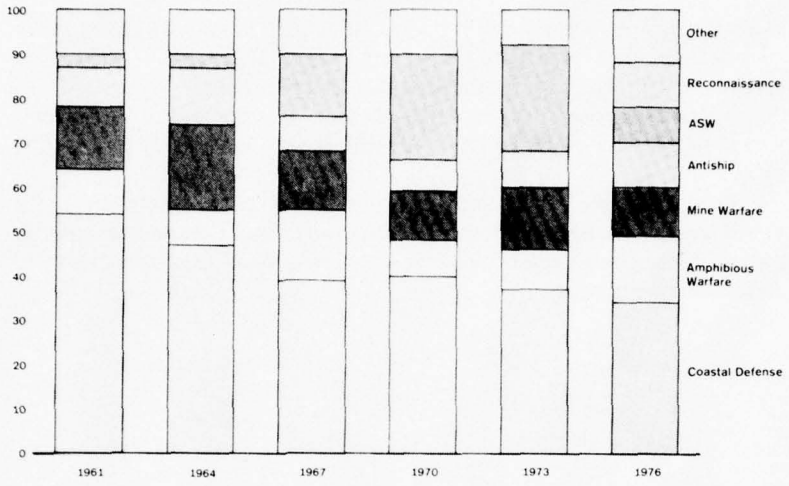


Figure 38. Percent of Units Procured for Various Soviet Naval Missions (Selected Years).

the Navy's ruble expenditures for new platforms, compared with 15 percent for the antiship mission. This order was expected, but its sensitivity to seemingly small changes was surprising. Had the Soviets bought two C class submarines as in earlier years, the expenditure for the antiship mission would have virtually equaled that for ASW. One conclusion to be drawn from this is that the antiship mission enjoys high priority in the Soviet Navy, as it did in the 1960s (26 percent of ruble outlays in 1967, for example).

The study also provides the means to test some long-standing assumptions. The percentages in figure 38, for example, raise the question whether the Soviets really are heading in the direction in open-ocean ASW that the conventional wisdom would indicate. It is widely believed that the Soviets are predicating their defense against Western ballistic missile submarines on the acquisition of a multitude of individual ASW platforms, even though each has a limited submarine detection capability. Yet in 1976, the equivalent of only eight percent of the platforms procured by the Soviet Navy were for blue water ASW. This may have been an atypical year; if not, more thinking may be in order on how the Soviets are trying to solve their key ASW problem.

Figures 37 and 38 can be viewed together to see how a change in ruble outlays affects procurement for a mission. The general conclusion seems to be that a change in a mission's portion of the budget usually does not have a proportionate effect on production. For example, between 1970 and 1976 the part of the budget allocated to the coastal defense mission decreased 25 percent (from 12 percent to 9 percent of the naval budget for platform procurement). This resulted in a 15 percent decrease

in the part of procurement that was for coastal defense platforms. In the same 2 years, the part of the budget allotted to the open-ocean ASW mission increased by nearly 55 percent (from 15 percent in 1970 to 23 percent in 1976) and the portion of overall procurement represented by that mission declined by almost 70 percent. The equivalent of 25 units was purchased for ASW in 1970, in contrast with eight units procured in 1976.

In conclusion, this project provides a tool for breaking down the Soviet general-purpose navy into its component missions and for ranking the missions. Used imaginatively, this tool may open the Soviet Navy to valuable new insights.

ANNEX TO CHAPTER 8

Use of the Delphi Technique in Assessing Mission Priorities in the Soviet Navy

This project's assessment of mission priorities in the Soviet Navy hinged upon obtaining wide agreement on an apportionment of individual naval platforms among several missions. The Delphi Technique was selected as a method for generating such agreement.

The Delphi Technique requires experts on a topic to consider the views of their peers in an environment free from the biases caused by personalities. Such an environment is obtained by exchanging views through the medium of a series of questionnaires. Peer views (expressed as numerical values) are fed back to each expert in terms of the median response and the interquartile range (IQR) of the responses. The median is the middle answer in a series of responses; the IQR is the interval containing the middle 50 percent (i.e., 25 percent on each side of the median) of the responses. On each round of the Delphi, each participant is given an opportunity to reconsider and change his earlier response in light of the views of his peers. Thirty-one experts participated in this application of theDelphi Technique.*

The Questionnaires

The Delphi focused on the following question:

In your opinion, for what wartime mission or missions was each of the following classes or types of Soviet naval platforms purchased?

The first questionnaire asked for opinions on the wartime missions of 24 classes and seven general types of platforms built for the Soviet Navy

*The first questionnaire was sent to 43 experts on the Soviet Navy. Participants were selected on the basis of their nationality and their reputations as experts on at least one category of Soviet ships and aircraft. Participation was limited and somewhat arbitrary to keep the author's workload manageable.

since 1960, and it gave the experts nine missions to consider in their deliberations. A selection of sample platforms was chosen to make the workload manageable for the experts and the author and to make the results broadly applicable to the Soviet Navy. Missions were selected if there was direct evidence for them or if they were commonly attributed to the Soviet Navy. The opinions were to be expressed as a percent. In addition, each participant was asked to rank his degree of expertise from one (most expert) to five.**

The second questionnaire provided participants with the results of the first round, including their answers, and invited them to reconsider their first opinons and to change any that they wished. It did not include a mission for a platform if the median, first-round response was 5 percent or less. It omitted two platforms, SSBNs and landing craft, because agreement on their wartime missions was exhibited in the first round.

Questionnaire number three presented the results of round two and asked the participants to reconsider their second-round responses and to change any that they wished. To help the experts take a fresh approach to the question, second-round responses were omitted.

The Results

This Delphi was terminated after the third round of questionnaires, and the median responses in that round were accepted as the consensus among experts. The results are shown in the text in table 5.

Because the questionnaire could not include every naval platform produced in the Soviet Union since 1960, the results of the Delphi had to be extended arbitrarily to the 10 percent of the platforms that had not been addressed specifically. The handling of this is shown in the text in table 6.

**If warranted, these ranks were to be used in weighting the answers of each of the participants. They were not used in this way because there was not a statistically significant difference between the answers of those who ranked themselves 1 and those who gave themselves a 5.

Chapter 9

The USSR's "Blue Belt of Defense" Concept: A Unified Military Plan for Defense Against Seaborne Nuclear Attack by Strike Carriers and Polaris/Poseidon SSBNs

By Robert Waring Herrick

Whether or not he had in mind that it was April Fool's Day when he arose to address the 23rd Communist Party Congress on 1 April 1966, the then Soviet Defense Minister, Marshal Malinovsky, climaxed the substantive part of his report to the many hundreds of Party delegates present with a deliberately enigmatic remark that generated a wave of journalistic speculation which did not subside for over a year and that to this day has not been clearly understood. Malinovsky made a single, unamplified reference to a new Soviet military concept which neither he nor any other Soviet leader or publicist has ever again referred to in the public media:

> We stand tranquilly and confidently in defense of the peaceful work of our people, the more so now when the creation of the Blue Belt of Defense has been completed for our State.[1]

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[1] *XXIII Syezd Kommunisticheskoy Partii Sovetskogo Soyuza; stenograficheskiy otchet* (23rd Congress of the Communist Party of the Soviet Union; stenographic report) Moscow: Politizdat, 1966, p. 414. The substantive parts of this speech are translated from pages 411–414 for ready reference:

> The Party cannot fail to take into account the growing aggressiveness of the imperialist powers led by the US. . . . It is taking all measures for strengthening the defense capabilities of the Soviet Union.
>
> In these years the Central Committee of the Communist Party and the Soviet government are giving great attention to the development of our Missile Forces of

In reporting this remark, the Moscow correspondent of the *New York Times* cited "speculation" from unspecified quarters that an anti-

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Strategic Designation and of nuclear missile submarines as the main means for the deterrence of aggressors and their decisive defeat in a war . . .

A series of essentially new types of missile armaments have been created by the heroic labor of our workers, engineers, builders, and scientists. For the Missile Forces of Strategic Designation have been built a great number of new, and what is especially important, mobile launching platforms . . .

In addition to the Missile Forces of Strategic Designation, there has been built in recent years a missile submarine fleet capable of carrying out the strategic tasks of striking enemy targets at sea as well as on land. In its composition have come new nuclear-powered submarines—missile launchers equipped with ballistic missiles with underwater launching and great flight ranges. The nuclear might of our Long Range Aviation has also increased.

Simultaneous with the strategic nuclear weapons have developed also operational-tactical nuclear means, especially of the Ground Forces and of the Navy. Also developed and brought into military use have been highly effective antimissile systems and aviation complexes of aircraft interceptors. Our PVO equipment permits the successful destruction of any airplane and of many missiles of the enemy. For equipping the Navy there have been delivered new missile ships, forces and equipment for antisubmarine warfare, especially for the struggle with the missile submarines of the aggressors (applause).

In the last few years there has been a five-fold increase in the number of long cruises of our nuclear-powered submarines, which clearly evidences the capability of our glorious sailors to successfully fulfill any combat task in the ocean reaches from the Arctic to the Antarctic. A few days ago a round-the-world cruise by a group of submarines in submerged condition was completed.

All this demonstrates that it can truly be said that the Soviet Armed Forces are capable of executing any combat task that may be set before them by the Party or government for defense of the homeland. The basic qualitative changes which have occurred in the Soviet Armed Forces should give the Pentagon leaders cause to more carefully examine our present military power and to re-evaluate the increasingly complex relations of military forces in the world.

There is no need to make excuses for our Armed Forces. They are created not for offense but for the defense of the borders of our country, for ensuring the security of our people and of countries friendly to us.

We are standing on guard of the peaceful labor of our people tranquilly and confidently, the more so now when the creation for our state has been completed of the Blue Belt of Defense. In any case, if the imperialists attempt to unleash a war against the Soviet Union and the other socialist states, there can be no doubt but that our strike will annihilate the organizers of the war.

With regard to the complicated character of the present international situation and the unabated military provocations of the imperialist powers, in the interests of securing peace and security for the peoples, we will continue to modernize our Armed Forces, to increase their might and combat readiness."

missile (ABM) system was implied.[2] He added that a Communist source who had attended the Congress understood Blue Belt to refer to the capabilities for global submarine operations reflected by Malinovsky's simultaneous revelation that a group of Soviet nuclear-powered submarines had just completed the USSRs first submerged circumnavigation of the earth. The *New York Herald Tribune* correspondent in Moscow also cited Congress participants as having gained the impression that Malinovsky was referring to the USSR's nuclear submarine force (which he cited from *Janes Fighting Ships* for 1965–1966 as saying numbered 35, of which 23 were ballistic missile-firing types).[3]

The viewpoint which held that Malinovsky had been referring primarily to Soviet submarines with nuclear missiles of strategic range gained wider currency less than 2 months later when East German Defense Minister Hoffmann mentioned the Blue Belt concept by name in a way that indicated involvement of some type or types of "nuclear" submarines, most likely those capable of launching missiles with nuclear warheads rather than those nuclear-powered:

> The firm shield and sharp sword of the socialist military coalition are the missile forces of the USSR, whose orbital, global, intercontinental and medium-range missiles can carry a nuclear warhead with an explosive power up to 100 megatons to any point on earth. To this are added the nuclear submarines of the Blue Defense Belt which can operate in every sea in the world.[4]

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[2] *New York Times*, 2 April 1966 (based on a 1 April Radio Moscow report). On the same date the *Baltimore Sun* cited "authoritative sources" in Washington as saying: "We think it is a new surface-to-air missile which is not yet operational. We think; we do not know." This was clearly intended to describe a new ABM since a new antiaircraft missile, no matter how effective, would not have provided an adequate basis for Malinovsky's claim. An analysis published on 5 April 1966 by a knowledgeable retired British Royal Air Force officer concluded that the context of Malinovsky's remarks suggested that he was referring to an antimissile system "although it is not possible to be dogmatic about this. Certainly this would fit the picture as we know it of the development of an operational antimissile defense system round Moscow and Leningrad" (John Long, "Marshal Malinovsky's Address to the 23rd CPSU Congress," *Radio Liberty Research Report* No. 2219, 5 April 1966, pp. 2–3). This report also ruled out the other seeming possibilities of an improved antiaircraft defense system or an ASW organization, or both, on the grounds that Malinovsky had already discussed both earlier in his speech and so presumably had disposed of both possibilities.

[3] Stuart Loory from Moscow, *New York Herald Tribune*, 2 April 1966.

[4] Address to a group of East Berlin border guards, 25 May 1966, carried by the ADN news service in German. Analytically, the phrasing of Hoffmann's remarks warrants only the conclusion that he was asserting that unspecified type(s) of nuclear submarines were included in Blue Belt. There is no logical implication that the composition of Blue Belt was limited to submarines to the exclusion of either naval forces or to other branches of the Armed Forces. For an analysis that demonstrates the high probability that at least those Soviet submarines carrying missiles of strategic range were implied by Hoffmann's remarks, see Fritz Ermarth, "Clarification of Malinovsky's 'Blue Belt,' " *Radio Free Europe Research* Report of 21 July 1966. This report also shows that the USSR at that time had about 150 ballistic missile launchers in 43 submarines—of which only 13 were nuclear-powered.

Later in the summer of 1966, an Associated Press report from Moscow revealed that some unidentified Soviet admirals had indicated that nuclear submarines composed only a part of the Blue Belt. The report went on to suggest that among the other elements that might be included was the Soviet Naval Air Force.[5]

Fourteen months after Malinovsky's speech, at a time when the first Soviet ballistic missile-firing submarine had been put on public display, a veteran reporter of the *Christian Science Monitor* commented: "These subs, which resemble US POLARIS-type submarines, are believed to be the Blue Belt of Defense of which the late Marshal Rodion Y. Malinovsky spoke at the 23rd Communist Party Congress in 1966."[6] A week later the *London Observer's* defense correspondent also expressed the widespread view: "It is now believed that the 'Blue Belt' defence system, announced by the former Defence Minister, Marshal Malinovsky, at last year's Party Congress, is a Soviet force of POLARIS-type submarines."[7]

It is noteworthy that Hoffmann's clear indication that "nuclear" submarines of the Blue Belt constituted a recent addition to the USSR's overall strategic deterrent and striking forces had, by this juncture in the running analysis being conducted in the Western press, been interpreted to mean that only nuclear missile-launching submarines were included. It is obvious that inadequate note had been taken of the August 1966 Associated Press report from Moscow (mentioned above) which had publicized the private comments of some Soviet admirals implying unmistakably that Blue Belt included other weapons systems in addition to submarines.

Late in April 1967 an article in the Hungarian Communist Party newspaper *Nepszabadsag* identified Blue Belt unequivocally as "the Soviet Union's missile defense system." Had the piece not gone unnoticed by the Western news media, it probably would have led to a much broader view of Blue Belt as a unified effort by all branches of the Soviet Armed Forces to contribute to protection of the USSR from nuclear attacks from any source, whether land or sea based. Although the

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[5] "The Soviet Union's vaunted 'Blue Belt' of defense is being traced to its naval power. . . . Information now available on the mysterious 'Blue Belt' indicates that it includes other elements besides submarines. One is possibly the expanding Soviet Naval Air Force for long-range defense against Western navies. Marshal Rodion Malinovsky started the 'Blue Belt' mystery in a speech on 1 April. 'The creation of the Blue Belt of defense of our state has been completed,' he said without explanation. Soviet admirals later said privately that nuclear submarines were part of the Belt." (Associated Press report from Moscow, 17 August 1966, "Sub is Backbone of Soviet 'Belt,'" *Baltimore Sun*, 18 August 1966).

[6] Paul Wohl, "Soviet Navy," *Christian Science Monitor*, 9 August 1967. This same article, incidentally, appears to have been the origin of widespread but erroneous belief that "defense of state interests"—used by Admiral Gorshkov in his Navy Day article on a 30 July 1967 *Pravda* article—was "new in the Kremlin's political vocabulary" and that it somehow implied "new ways of solving strategic tasks of an offensive nature."

[7] Andrew Wilson, "Russians Use Computers to Boost Navy," *Observer* (London), 13 August 1967.

article's short description of Blue Belt as quoted above could be interpreted narrowly as an ABM system or broadly as a system of unspecified components for overall protection of the USSR against missiles, the context of the article makes it quite clear that the latter interpretation is more nearly correct. The Hungarian military writer was asserting that Blue Belt was a system which included ABMs but was not limited to them alone. Rather, these anti-missile missiles, along with the rest of the National Air Defense forces of which they are a part, were said to play a key role in Blue Belt—that is, an important but not exclusive part.[8]

Nothing more was to be heard of Blue Belt from Communist sources for two and a half years, until the spring of 1970. One might have felt justified in concluding that Malinovsky's mysterious military machinery was a mere propaganda ploy to boost the USSRs then-shaky nuclear credibility and to send the Congress delegates home happy. Or, that if the concept had enjoyed some reality and validity in 1966 when announced, it had soon been outmoded by the rapid technological changes and discarded.

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[8] The article, which was entitled "The Antimissile—A Contribution by Our Military Expert," and the author's name (Lt. Col. Jozsef Bojcsuk) was carried in the Hungarian Party newspaper *Nepszabadsag* on 30 April 1967. Its most relevant perts read as follows: "When Rodion Malinovsky left the speaker's stand with his usual and unhurried gait at the Twenty Third Congress last spring, he undoubtedly reckoned with the fact that some of his statements would be in the center of attention of the world press, military experts, and particularly the top military leadership of the imperialist powers within a matter of hours. And he was not mistaken. When the news media announced to the world that the Soviet state had completed its Blue Defense Zone, a deluge of conjecture ensued. Some Western military experts believe that this Blue Zone is nothing but an automatic missile system against missiles. . . . Others claimed to know that the defense 'barriers' of the nuclear submarine fleet, posted far from the shores of the Soviet Union, were called a Blue Zone by the Marshal. Still others [perhaps individuals within the Hungarian bureaucracy, since no reports to this effect have been turned up by research in either the Communist or Western media—RWH] had the application of a defensive weapon of a basically new type in mind. The Western press again recently devoted much space to *the Blue Zone, the Soviet Union's missile defense system* [Emphasis supplied—RWH] and, of course, it again indulged in conjecture. The political and military representatives of the Soviet Union, with good reason, never divulge more or less of their secrets than they have to. It is a fact, however, that the Soviet Union is capable of defending its more important strategic aerial approaches and vitally important political, economic, and administrative centers against hostile missiles. Samples of antimissile weapons rolled past at the 1963 and 1964 Moscow parades. . . . It is no secret that the US possesses the means for a very substantial nuclear missile strike . . . 994 ICBMs . . . whose effective range varies 11,000 and 14,000 kilometers . . . and 39 nuclear submarines with a total of 624 POLARIS missiles. . . . Their effective range is between 2,800 and 4,500 kilometers. . . . In addition, the US has 670 strategic bombers. . . . Thus it is an indisputable fact that there exists a significant material base for the aggressive concept of American military doctrine holding that a surprise blow must be struck against the vital objectives of the socialist camp, primarily the Soviet Union. It is natural in this situation . . . that . . . to parry the nuclear attack of the enemy and to take the initiative . . . are the end all and be all of the activities of the Soviet Armed Forces. In this, understandably, the Air Defenses and their new and sophisticated branch, the antimissile defenses, play a key role."

However, on 7 May 1970 Blue Belt was again named by a Communist source and in a most meaningful—and revealing—manner, although unnoted by the public media. An East Berlin radio commentator had been present in Moscow to cover the Soviet Union's first global naval "maneuvers," codenamed OKEAN to portray their oceanic scope. Conducted in the second half of April and the first week in May, OKEAN was supervised primarily from a command center in Moscow. After having "observed" the exercises from this vantage point, the East German correspondent's report furthered Western knowledge of Blue Belt to the extent of identifying the exact types of naval forces involved:

> The hitherto largest naval maneuvers in military history, dear listeners, the combined operations of all four Soviet fleet groupings—as they are officially termed—have been successfully completed according to a statement of the High Command here. Maneuvers have thus come to a close which in terms of space magnitude extended over practically all seas of the world, including the Indian Ocean and the Barents Sea, the Sea of Okhotsk as well as the Atlantic in which strategic tasks were assigned to all units of the so-called Blue Belt of Defense, that is to say, to nuclear submarines, antisubmarine submarines, ASW surface ships, Naval Air Force units, missile-firing destroyers, and helicopter carriers—in short, to the most modern and effective classes and arms of the Navy, whose operational-strategic as well as operational-tactical capabilities meet the highest requirements for maritime defense.[9]

If one assumes, for the purpose of developing working hypotheses on the composition of Blue Belt, that the foregoing journalistic account is basically accurate, two new and significant points are found to emerge. First, the naval components of Blue Belt are definitively identified as including not only the POLARIS-type submarines for deterrence or strategic strikes but also those naval weapons systems which could contribute to the defensive ASW mission against POLARIS/POSEIDON submarines. The newest Soviet addition to the latter weapons systems, composed of torpedo attack submarines, ASW surface ships, and shore-based ASW aviation, are the helicopter carriers MOSKVA and LENINGRAD and the ASW carrier KIEV.

Secondly, if one takes the commentary of the East German correspondent literally, to the effect that "tasks were assigned to all units of the so-called Blue Belt," one could logically assume that Blue Belt is a

[9] Johnny Marhold dispatch from Moscow; carried on East Berlin Radio in German, 7 May 1970.

strictly naval system of defense against sea-based nuclear attack on the USSR. However, one should note the not illogical possibility that, in his coverage of these naval "maneuvers," the reporter was implying that "tasks were assigned to all [naval] units of the so-called Blue Defense Belt," but omitted to specify naval since that was apparent from the context of his statement.

In fact, the East Berlin Radio commentary continued directly on from the opening passage quoted above to indicate that OKEAN did in fact involve other branches of the Armed Forces in some manner calculated to provide a coordinated test of the other branches as well as of the naval forces involved:

> Furthermore, it is important that the naval forces are firmly integrated into the overall defense might of this country, that they represent an essential component of the socialist military coalition on the whole. The big "OKEAN" maneuvers also served the purpose of testing the latter function. It is in line with the responsibility of the most powerful socialist state on the globe, with its alliance obligations, to test the operability of its fleet units as well as of all branches of service in such maneuvers.

It is hard to see any alternative explanation other than that whatever other services were involved could only have particiapted in the form of staff exercises, since it is clear from the extensive coverage given OKEAN that only naval forces took an actual part in operations.

There are two reasons based on Soviet military doctrine as well as a few pieces of indirect evidence for believing that the East Berlin Radio commentary did not mean literally what it seemed to say on the face of it, that the Blue Belt is composed solely of *naval* forces. The first reason is to be found in the USSRs fixed adherence to a unified military doctrine which holds that mission assignments are not made along service organizational lines but jointly to bring together an optimum mix of forces from the various service arms for accomplishment of any given mission.[10] The second reason is the long-established task assigned to the National

[10] "A future war can be conducted successfully only when all strategic operations are strictly coordinated on the basis of a single strategic plan with unified centralized command and if they are purposefully aimed at solving the general problems of armed combat. . . . Strategic operations of a future war will consist of coordinated operations among the different services of the Armed Forces and will be conducted according to a common concept and plan and under a single strategic direction." Marshal V. D. Sokolovsky (ed.), *Voyennaya strategiya*, 3rd ed., 1968, pp. 295–296 in Mrs. Harriet Fast Scott's translation *Military Strategy*.

Air Defense Forces of playing the leading role in defense against air and missile attacks.[11]

The pieces of indirect evidence are to the effect that there may well have been staff exercises of other branches of the Armed Forces, particularly of the National Air Defense forces, coordinated with the 1970 OKEAN maneuvers. In addition to the East Berlin commentary's implication to that effect, the Commander-in-Chief of the Air Defense forces, Marshal Batitskiy, was present with Grechko and Gorshkov aboard a command flagship in the Northern Fleet at the height of the OKEAN operation in the North and Barents seas.[12]

Another indication was provided by Malinovsky in his 1966 speech to the 23rd Congress. He indirectly acknowledged the PVO's need for assistance from other branches of the services in order to minimize the number of either ICBM or SSBN missiles to reach their targets: "Our PVO equipment permits the successful destruction of any airplane and of many missiles."[13]

Two sets of working hypotheses have been derived from this Communist commentary on the Blue Belt concept and its interpretation in the light of the USSR's military technology and of Soviet doctrinal positions on unified military operations and the role of the PVO. The first is that it is the USSR's overall system which affords the assurance against nuclear attack referred to by Malinovsky, and includes not only the three subsystems suggested in the press speculation reported above (that is, ABMs, SSBNs, and SSNs) but also a considerable number of other major components of the Armed Forces. These appear to include: 1) The Strategic Missile Force in its wartime nuclear strike role against ICBM

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[11] "The protection of the territory of the country from enemy nuclear attacks can only be successful as a result of active military operations of National PVO forces. . . . An independent type of military operation is to protect our . . . coast from nuclear attack from the sea. . . . Protection of the country from enemy nuclear attack is the task of operations by the National PVO troops (air defense and antimissile operations). Armed combat in sea and ocean theaters of military operations will be conducted by the Navy." Sokolovsky, op. cit., pp. 293–294. It may be noted that the use of the word "independent" above suggests that, if indeed other service branches besides the Navy do contribute to fulfillment of the Blue Belt mission of protecting the USSR from seaborne nuclear attack, the naval forces operate under naval command rather than under a unified Blue Belt commander appointed from another service such as the PVO. A few pages further on (p. 296) *Military Strategy* repeats the above mention of PVO and the Navy in the same breath in the context of nuclear attack.

[12] *Okean* (Ocean), Moscow: Voyenizdat, 1970, p. 134. A seemingly inexplicable remark in this book can best be made sense of by assuming that the PVO was conducting staff exercises in coordination with the OKEAN maneuvers and the undisclosed reason for not "sinking" the enemy submarine once it had been successfully detected and tracked could only have been to permit it to remain alive in the war gaming scenario so that the PVO staff could have the drill of trying to deal with the submarines missiles once launched. The enigmatic passage read: "For several hours the crew kept the enemy submarine under surveillance. Contact was steady. . . . The command headquarters of the maneuvers did not give orders to destroy the 'Southern' missile submarine. It had its own reasons for this." (p. 75).

[13] Malinovsky, op. cit., p. 412.

sites, SAC airfields, and POLARIS/POSEIDON bases; 2) The Long Range Air forces supplementary capability in these roles; 3) The National Air Defense forces in their surface-to-air missile (SAM) capabilities against CVA-launched nuclear strike aircraft; 4) Long Range Aviation to supplement the Naval Air Force in search and attack roles against both POLARIS/POSEIDON submarines and strike carriers; and 5) Other types of naval forces with capabilities against SSBNs and CVAs, namely ASW surface ships against the former and both submarines and surface ships that are armed with cruise missiles for use against the strike carriers.

The second working hypothesis formulated is that while the Soviet military has operationalized its overall unified forces concept for nuclear "defense" by involving all of the forces from the various service branches capable of contributing to offensive strikes, deterrence or defense, the Blue Belt concept is used by the Soviets to describe just the means of defense against nuclear attack from the potential enemy's sea-based strategic systems—that is from the strike carriers and POLARIS/POSEIDON submarines. Everything considered, this hypothesis seems the more likely of the two. At the time of Malinovsky's 1966 announcement, the means of defense against a seaborne nuclear attack may have been the latest increment being added to the overall offensive-deterrent-defensive nuclear system and hence was spoken of separately as the Blue Belt of Defense.

Those means of defense against seaborne nuclear attack, which were required to supplement existing means devoted to blunting land-based attacks, primarily by ICBMs, are composed of those elements of the Soviet Armed Forces that are able to make any, even a marginal, contribution to the exceptionally difficult task of protecting the USSR against receiving unacceptable damage from such sea-based attack. The following service branches probably all contribute to Blue Belt: 1) The Strategic Missile Forces for wartime strikes against POLARIS/POSEIDON operating bases and communications stations and perhaps against CVAs at sea. The late Marshal Grechko, in a December 1972 new formulation of the mission of the Strategic Missile Forces, seemed to imply that land-based ballistic missiles be accurately targeted against carrier strike forces at sea;[14] 2) The Long Range Aviation, to supplement the Soviet Naval Air Force in searching for carrier task forces at sea and, whenever some indication could be gained as to the approximate location of a POLARIS/POSEIDON submarine on patrol, in conducting ASW searches of the very limited sea areas of which ASW aircraft are capable;

[14] "The Strategic Missile Forces form the basis of the Armed Forces' combat might. . . . Their purpose in a war . . . is to strike an accurate and devastating blow against the aggressor, destroy enemy means of nuclear attack and troop and *naval groupings in theaters of military operations on land and sea*. . . ." (Marshal A. A. Grechko, "Armiya sotsialisticheskaya, mnogonatsional'naya" [The Army—Socialist and Multi-national], *Krasnaya Zvezda*, 17 December 1972, pp. 1–2. See Wm. Beecher on stellar inertial guidance for SSBN missiles once launched: *Sea Power*, Dec. 1972, pp. 8–11.

3) The National Air Defense forces for providing aircraft interceptor and SAM defenses against carrier strike aircraft, and for detecting and attempting to destroy with ABMs incoming POLARIS/POSEIDON missiles;[15] and 4) The Navy and its submarines, surface ships, and aircraft which have capabilities against strike carriers or POLARIS/POSEIDON submarines. Specifically, the naval system components of the Blue Defense Belt are: 1) Those submarines, surface ships, and aircraft configured for ASW on the high seas; and 2) Surface-to-surface missile-launching submarines, nuclear-powered torpedo attack submarines, air-to-surface missile-launching aircraft, and missile-armed surface ships with capabilities for destroying the strike carriers.

Stress appropriately should be given to the point that the Blue Belt of Defense was not conceived as purely a Navy show. Although the Blue Belt concept was solely concerned with the seaborne nuclear threat from the strike carriers and missile submarines of the US and other NATO states, the defense against this threat was determined to be a mission that should be shared jointly with several other branches.

As of Feb 1978 nothing more has been said publicly about the Blue Belt of Defense. This is typical of Soviet military security and, particularly, of the long-apparent Soviet distaste for talking publicly about their defensive strategies—such as zones of defense of which *Blue Belt* is a form.

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[15] For the problems raised by the shorter flight time of sea-based ballistic missiles and the major equipment requirements for their timely detection, see Marvin Miles, "Sub-launched Rockets Hunted by Radar System," *Los Angeles Times*, 26 December 1972.

Chapter 10

"Morskaya Aviatsiya" (Soviet Naval Aviation): Its Development, Capabilities, and Limitations

By Paul J. Murphy

While analyses by Western military specialists in recent years have focused on the emergence of the Soviet Navy's global surface fleet and submarine force, comparatively little attention has been paid to the Navy's air arm. In his book, *Sea Power of the State*, Admiral S. G. Gorshkov describes Aviatsiya Voyenno-Morskogo Flota, or, as it is more commonly called, "Morskaya Aviatsiya" (Naval Aviation) as:

> . . . one of the main striking forces of our contemporary Navy. It is genuinely oceanic. It has been transformed into an important means of warfare at sea. It can launch strikes against the enemy's surface ships, submarines, and transports carrying troops or cargoes, either at sea or in port.[1]

The position of Naval Aviation and the importance to the wartime mission of the Soviet Navy that Admiral Gorshkov and other Soviet naval writers ascribe to it merit a continuing assessment of this naval component. This chapter offers a preliminary appraisal.

Naval Aviation Development

The Soviet Navy has always incorporated a naval air arm, although Naval Aviation traditionally played a subordinate role in the execution of naval missions. The early fleet consisted of both foreign-built and Russian aircraft designed by the Grigorovich and Tupolev design bureaus. These

[1] Admiral S. G. Gorshkov, *Sea Power of the State*, Moscow: Voyenizdat, 1976, pp. 326–329.

were supplemental in the second half of the 1930s with slightly modified variants of Soviet Air Force aircraft. At the outset of the war with Germany in June 1941, 2,581 aircraft, most of which were fighters, reconnaissance, and utility aircraft flew for the Navy.[2]

Naval Aviation assumed greater importance during WW II, and in the postwar period it received fresh impetus as a result of Stalin's desire to build a large and impressive navy. It grew steadily until by the mid-1950s it numbered nearly 90,000 personnel and 4,000 aircraft. Nevertheless, Naval Aviation continued to play an auxiliary role, with emphasis placed on fighters to provide close air cover to ships operating within radius of aircraft bases ashore. The small number of bombers in service were the IL–28 BEAGLE jet light bombers which were also used for reconnaissance, for rudimentary antisubmarine warfare (ASW) against surfaced or snorkeling submarines, and occasionally for transport and utility missions.

Aircraft capable of performing extended range missions remained absent for almost another decade. Moreover, in the late 1950s Naval Aviation lost nearly all of its fighters when some 1,500 to 2,000 of these aircraft were transferred to National Air Defense (PVO STRANY) as part of Khrushchev's reduction and reorganization of the Soviet Armed Forces. Shore-based PVO units, aided by a new shipboard fighter control command post called "KPUNIA", assumed responsibility for providing fighter cover for ship formations and convoys.[3] At the same time, other aircraft were either transferred or scrapped, leaving Naval Aviation with about 800 aircraft in the early 1960s, about 20 percent of its previous number. These included a modest number of specifically configured aircraft such as the MADGE seaplane and the HOUND shore-based helicopter, the latter introduced in 1953.

The past decade and a half clearly represents the most important period of development for the Soviet Navy's aviation component. Significant changes have been made in both platforms and armament available to Naval Aviation and in mission orientation. Under the supervision of Admiral Gorshkov and the direction of General-Colonel I. Borzov, then the Chief of Naval Aviation, the Navy's traditionally subordinate air arm underwent a rejuvenation in the mid-1960s and by 1969–70 it emerged as a prominent component of the Soviet Navy. The elevation of General Borzov to the rank of Marshal of the Aviation in December 1972[4] symbolized this enhanced importance.

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[2] General Colonel S. A. Gulyayev, "Conquering the Skies Skillfully and Bravely," *Morskov Sbornik*, No. 8, 1971, p19.

[3] Major D. Fomin, "Covering Single Ships at Sea Against Enemy Air Strikes," *Morskoy Sbornik*, No. 5, 1967, pp. 29–32.

[4] A. A. Mironenko replaced Borzov as Chief of Naval Aviation after Borzov's death in 1974.

Increased operating range and striking power characterize the new Naval Aviation.[5] Several factors are responsible for this. Strategic considerations are, of course, of prime importance. The requirement to execute air strikes against "modern naval platforms capable of launching a nuclear attack against the Soviet Union from great distances" in the event of war, had, by the end of the 1950s, been recognized as essential for national defense.[6] The decision to use land-based missile-carrying aircraft to execute this mission was motivated by the absence of Soviet attack aircraft carriers from which to launch strike aircraft, and by time and space factors. The advantages of extended range aircraft were clear to Soviet planners:

> Aircraft with extended range capabilities and speed can quickly strike enemy forces at sea. Aviation units and forces can be readily transferred from one area to another. For example, large groups of aircraft can be redeployed from one continent to another in less than a day, without any loss in combat effectiveness.[7]

At the same time, qualitative changes in aircraft design, capabilities, electronics, and armament made in the 1960s resulted in new methods of sea warfare—including the use of antiship stand-off missiles[8]—thereby reinforcing the new strategic requirements.

More immediate contributing factors were the transfer of a considerable number of intermediate-range aircraft from Dalnaya Aviatsiya (Long-Range Aviation) to Naval Aviation in the early 1960s and the use of in-flight refueling.[9] A large number of TU-16 BADGERs were transferred with many subsequently modified to serve as tankers. These aircraft became an integral part of Naval Aviation's strike units.[10] The effectiveness of in-flight refueling capability was reportedly demonstrated in the SEVER naval maneuvers in 1968 and again in the OKEAN exercise in 1970. In both exercises, it was credited with having brought about "substantial qualitative changes in converting long-range aviation into global-range aviation."[11]

No longer was Naval Aviation to play a subordinate role. In 1965, General Lieutenant Gulyayev, then chief of Naval Aviation in the Baltic Fleet, indicated an entirely new mission orientation for Naval Aviation

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[5] For the definition of intermediate, medium, and long-range aircraft used see *Department of Defense Dictionary of Military and Associated Terms*, Washington, DC: published by the Joint Chiefs of Staff, 3 January 1972.

[6] General-Colonel S. A. Gulyayev, "The Role of Aviation in Combat Operations at Sea Today, *Morskoy Sbornik*, No. 6, 1965, pp. 36–42.

[7] Ibid

[8] General Major N. Vishinsky, "Naval Aviation is Oceanic Aviation," *Morskoy Sbornik*, No. 8, 1974, pp. 3–7.

[9] Nicholas G. Shadrin, *Development of Soviet Maritime Power*, unpublished Ph.D. thesis, George Washington University, 1972, p. 167.

[10] *Okean—Maneuvers of the USSR Navy Conducted in April—May 1970*, Moscow: Voyenizdat, 1970, as cited in Shadrin, op. cit., p. 167.

[11] *Soldat and technik* (West Germany) No. 8, 1970, pp. 428–431.

based on these modern capabilities. Naval Aviation would assume a major role in any future military struggle at sea:

> In the event of war, naval aircraft armed with nuclear warhead missiles would strike outside the range of antiaircraft missiles and almost beyond potential fighter-interceptor range, thereby permitting Naval Aviation to effectively carry out the mission of destroying enemy warships and transports at sea.[12]

Greater emphasis, is now placed on versatility, particularly for ocean surveillance, reconnaissance, and guidance for both aircraft and ship-launched missiles in attacking ships.

Although the aircraft incorporated in Naval Aviation are not nearly as numerous as they were in the mid 1950s, they are qualitatively improved units with essentially different mission orientation. The current naval air Order of Battle is indicated in figure 39 below:

Naval Aircraft		Number	
Strike Medium Bombers	about	375	
Tankers	about	90	
Reconnaissance	about	150	
ASW		400	
Transport		200	
Training		50	
Fighter/Fighter Bombers		75	
		1,340	Total

Figure 39. Soviet Naval Aviation Order of Battle (as of 1 Jan 1978).[13]

Missions

The Strike Role

The major wartime mission of Naval Aviation is to seek out and destroy an enemy's ships, particularly his carrier task forces, and ballistic missile submarines. Land-based aircraft, armed with both conventional and nuclear weapons and equipped with stand-off antiship missiles, and subordinate to both Naval Aviation and Long-Range Aviation, are employed in one aspect of this, the antishipping strike role. The principal

[12] S. A. Gulyayev, op. cit.

[13] General George S. Brown, Chairman of the Joint Chiefs of Staff, *United States Military Posture for 1979*, 20 January 1978, p. 80. The unclassified *Quarterly Naval Order of Battle*, for January 1978, US Defense Intelligence Agency, shows a somewhat lower number for bombers and a higher number for tankers. Their figures are 350 (bombers) and 100 (tankers).

aircraft used are the TU–16 BADGER, the TU–22 BLINDER, and the BACKFIRE.

Of those aircraft organic to Naval Aviation, the BADGER[14] is the oldest and still the most widely used in the antishipping role. In December 1972, *Krasnaya Zvezda* reported that "about 300 long-range missile carrying aircraft designed for use against ships are in naval service."[15] The aircraft referred to was the TU–16. According to a more recent estimate about 290 of these aircraft remain in naval service.[16] Two variants of the BADGER, the C variant which was introduced in 1960, and the G, a much later variant (circa 1965), are armed with antiship missiles which have stand-off ranges of 48–259 nautical miles. The C variant is armed with one air-to-surface air breathing missile (KIPPER) carried under the fuselage, while the G variant has two rocket air-to-surface missiles (KELT or KINGFISH) under wing pylons. Most currently in service are the C type. A few A variants (introduced 1954), configured as bombers, are also in service, but these are employed primarily in a training role. All are heavily armed with seven 23mm cannons in three twin turrets located in the top forward fuselage, lower fuselage, and in the tail, plus a single cannon located at the right front side of the fuselage. In unrefueled operational configuration, the aircraft has a radius of a little over 1200nm.*

The BLINDER A is a second aircraft employed in the strike role. It was introduced into Naval Aviation in the first half of the 1960s as the first supersonic intermediate-range bomber. Western military analysts initially believed that the BLINDER would ultimately replace the TU–16 as the Navy's primary strike aircraft. Operational experience, however, proved disappointing, and until the aircraft was modified in the late 1960s for in-flight refueling it was relegated to medium-range tasks. The aircraft has a speed of Mach 1.4 at 40,000 ft and an unrefueled radius only slightly greater than the BADGER. 30-50 bombers equipped with free-fall nuclear and conventional bombs are assigned to the Baltic and Black Sea Fleets to protect the sea approaches to the Soviet Union.

As mentioned earlier, aircraft organic to both Naval Aviation and Long-Range Aviation are employed in the antishipping strike role. The close cooperation of Long-Range Aviation with the Navy for the last fifteen years has been a prudent arrangement and is no doubt sophisti-

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[14] All Data on this, other aircraft, and weapons systems discussed in this chapter have been derived from the *Military Forces Handbook (Military Forces of the USSR and Peoples Republic of China)*, Washington, DC: Office of the Secretary of the Air Force, 1976–1977, and General George S. Brown, USAF, Chairman of the Joint Chiefs of Staff, *United States Military Posture*, for FY 1977, FY 1978, FY 1979.

[15] *Krasnaya Zvezda*, 17 December 1972.

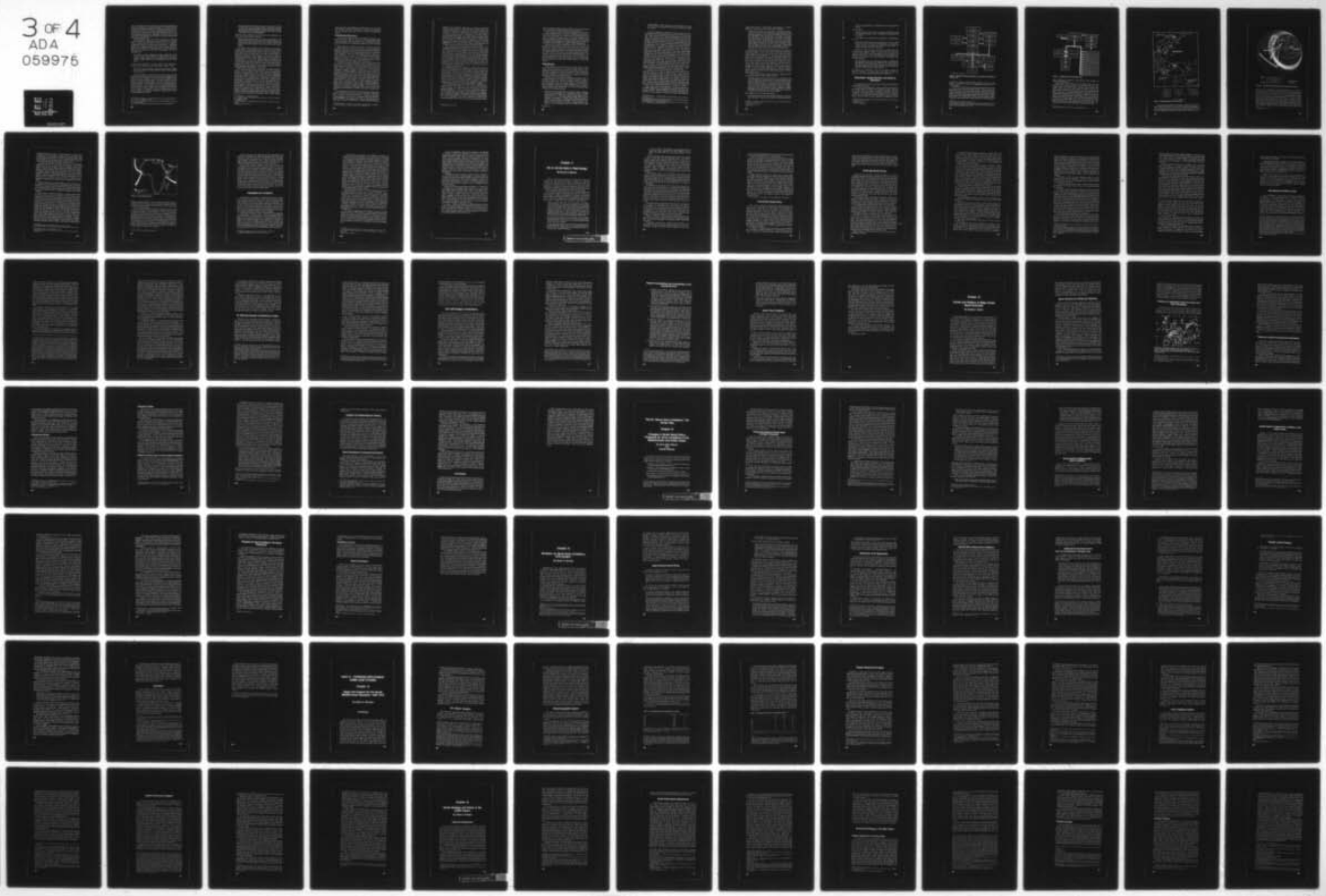
[16] *Military Posture*, 1978, p. 70.

*Radius used for strike aircraft denotes *estimated* operational capabilities of aircraft armed with air-to-surface missiles. Aircraft carrying bombs would have a somewhat greater radius.

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cated in a number of areas, particularly in the execution of antiship strike missions, reconnaissance, and mid-air refueling. The coordination of units from each in the OKEAN 70 and the 1975 exercises demonstrated this. In comparison, US Air Force and US Navy arrangements for joint actions at sea have been in effect since the early 1960s, but until recently they were only haphazardly implemented. Long-Range Aviation has had a much more pervasive arrangement with the Soviet Navy under a decision made by the General Staff in 1960.

The arrangement, which provides for the assignment of Long-Range Aviation aircraft to the operational control of the Navy on a mission basis, was motivated by the absence of aircraft in the Navy capable of traveling great distances to counter enemy naval forces. A "Long-Range Aviation role" in naval operations was first cited in *Military Strategy* in 1962, and was confirmed as an operational practice by the Commander in Chief of the Air Force two years later. The emphasis was on the antishipping role:

> Our aviation in close cooperation with other armed forces of the country is called upon to perform a sizeable number of tasks in modern warfare. Long-range aviation armed with air-to-surface missiles can fulfill missions at sea in annihilating the enemy's naval forces.[17]

A more precise definition of this role is found in S.A. Krasovsky's *Aviations and Cosmonautics of the USSR* (Moscow, 1968). It states:

> One of the tasks of long-range aviation is the destruction, together with Naval Aviation, of means of nuclear attack at sea, especially *aircraft carriers*.[18]

While earlier efforts concentrated on the use of "long-range" aircraft employing stand-off missiles to strike ship formations, particularly US attack carriers, and submarines at sea, the Navy has modified its strike mission to include naval land targets. Any Soviet discussion of Navy missions has always included reference to the use of "Naval Aviation to support movements to shore objectives and for assisting land forces in coastal operations,"[19] but no mention was ever made of employing naval aircraft as primary platforms against distant naval bases in the event of war. The latter is no longer true. Today, it is included in any major mission statement. For example, the Deputy Chief of Staff of Naval Aviation indicated in 1974 that:

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[17] K. Vershinin, "Contemporary Aviation and War", *Aviatsiya i Kosmonavtika*, No. 6, 1963, p. 14. See also Gulyayev, p. 36–43.

[18] S. A. Krasovsky, *Aviation and Cosmonautics of the USSR*, Moscow: Voyenizdat 1968. (Emphasis supplied)

[19] See e.g. *The Dictionary of Basic Military Terms*, Moscow: Voyenizdat, 1965, p. 9.

> Naval missile-carrying aircraft possess great range and can smash sea and *ground targets* with great accuracy without penetrating the radius of active air defense facilities. Pilots and navigators of missile-carrying aircraft have repeatedly demonstrated their skill in executing these difficult missions in training flights.[20]

The book, *Services and Branches of the Armed Forces*, published a year later was even more specific on this point:

> Missile-carrying naval aircraft are capable of launching powerful nuclear-missile strikes against highly maneuverable formations of *surface combat ships* and *enemy convoys* in distant regions of the sea and ocean and also against his *ports* and *naval bases* at stand-off ranges.[21]

Note should also be taken here of the reference to strikes against "enemy convoys," which clearly indicates an anti-Sea-Lines of Communication (SLOC) mission for Naval Aviation. These new capabilities are, in part based on the introduction of a new type of aircraft capable of effectively carrying out such missions. In 1974, General Major N. Vishinsky indicated that "recent scientific achievements incorporated in new platforms have given Naval Aviation greater striking power and operating range."[22] A year later, Admiral N. Sergeyev confirmed that "new and more modern types of supersonic missile-carrying aircraft have bolstered the inventory of the Navy."[23] The controversial Tupolev variable-geometry wing bomber, the BACKFIRE, is unquestionably the aircraft that Vishinsky and Sergeyev had in mind.

This aircraft was observed as a prototype at the Tupolev Works in Kazan in 1970. A subsequent variant entered service in both Long-Range Aviation and Naval Aviation in 1974.[24] This in itself was significant. In the past, new bombers usually went to meet the needs of Long-Range Aviation first and Naval Aviation second. The fact that the BACKFIRE entered both services simultaneously in 1974 points to the priority that had been given to enhancing the latters distant strike capabilities. The BACKFIRE is estimated to have a range of 5,000–6,000 nm with a maximum speed of Mach 2+ and low level penetration capability. Intercontinental missions involving supersonic dash or extended low altitude operations would require refueling. The bomber variant armed with gravity weapons and a second variant carrying air-to-surface missiles—including two stand-off missiles which have an estimated range of 200 nm—and incorporating extensive passive/active electronic countermeasures system to aid in defense penetration, pose a credible strategic

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[20] N. Vishinsky, pp. 3–7. (Emphasis supplied)
[21] V. F. Zemskov, *Services and Branches of the Armed Forces*, Moscow: Voyenizdat 1975. (Emphasis supplied)
[22] N. Vishinsky, op. cit.
[23] Admiral N. Sergeyev, "The Maritime Power of Our Country", *Morskoy Sbornik*, No. 7, 1975, p. 7.
[24] *Military Posture*, 1978, p. 76

threat. More than 30 BACKFIREs are flying for the Navy and by 1980, they will almost certainly be operational in all fleets. They supplement and will ultimately replace the TU–16 as the Navy's primary strike aircraft.

Antisubmarine Warfare Role

Naval Aviation shares the prime responsibility with attack submarines for the Navy's ASW role. The focus is on detecting and destroying enemy submarines armed with ballistic missiles. Both land-based naval aircraft and ship-board and land-based helicopters share this responsibility.

Before 1960, Soviet antisubmarine warfare was concerned with local sea-denial and fleet area defense carried out in the coastal zone within a limited operating radius of shore-based MADGE seaplanes and HOUND helicopters. Introduction of the POLARIS submarines into US and (later) NATO inventories in the early 1960s dramatically altered ASW operational requirements. Nevertheless, old ASW deployment patterns persisted for a few more years, probably because of a lack of suitable platforms with which to carry out sustained operations against ballistic missile submarines in remote regions of the World Ocean.

The need to acquire this capability was soon recognized, and by 1960 the Soviet Navy had begun a determined effort to combat the "great threat from the seas and oceans." The Navy relied heavily on aircraft for ASW. However, existing aircraft and helicopters could not fly the distances now required. If the great volumes of sea to be reconnoitered exceeded the operating capabilities of land-based aviation, at least one could chip away at the problem by basing some of the aircraft aboard specifically configured ships. A major step in that direction was taken with construction of the two MOSKVA class ASW ships (The MOSKVA and LENINGRAD) which became operational in 1968–1969. These "fundamentally new ships, designed to combat submarines in the most remote areas,"[25] enabled the Navy to conduct sustained operations in distant waters thereby giving it a significant gain in operational flexibility. However the Navy had to continue to employ a variety of forces for ASW. The very magnitude of the strategic ASW task was a factor in the development and construction of the KIEV class carrier commissioned in 1976.

Yet one hindrance that the Soviet Navy has had with sustained ship-based air ASW has been the short range of its helicopters. Helicopters have a variety of roles in the Soviet Navy, but they are the most numerous platform for ASW. They are deployed aboard the MOSKVA and LENINGRAD and aboard several classes of large destroyers and light cruisers. The KA–25a HORMONE is a sophisticated ASW helicopter

[25] Captain 1st Rank V.G. Yefremenko, "Development and Improvement in Submarine Forces and Their Tactics", *Morskoy Sbornik*, No. 10, 1970, pp. 16–23.

employed in an all-purpose ASW role (i.e., detection, localization, tracking, and kill). It has only a maximum effective radius from its ship of about 60nm. Nevertheless, armed with an active-passive dipping sonar, sonobuoys, an ASW radar, ASW torpedoes, and other stores carried in an internal weapons bay and on external racks, it is potent within its short operational radius under most weather conditions. Another variant, the KA–25b, lacks the dipping sonar, bomb-bay and other ASW features, but has special radar and is primarily configured to assist in target acquisition for missiles launched from ships. Altogether, about 180 HORMONEs serve in Naval Aviation, with most being employed in the ASW role. However, only about one-third of these fly from ships.

Almost one-quarter of the helicopters employed in ASW are the obsolescent MI–4 HOUND which have been in service since the 1950s. The HOUND does not have a dipping sonar, but rather a chin-mounted radar, sonobuoys, and a towed magnetic anomaly detector (MAD). Most of these helicopters are also land-based. They are currently being replaced by a relatively new amphibious helicopter, the HAZE. Much larger than the MI–4, with its boat like hull featuring retractable land gear, it appears to be an amphibious variant of the MI–8 HIP helicopter. The HAZE has much greater speed, radius and range capabilities than the MI–4, and incorporates some advanced ASW features, plus dipping sonar and an ASW weapons bay. This helicopter went into service in late 1975.[26] At least 12 became operational in 1977.

Land-based aircraft are also assigned to the ASW mission. The IL-38 MAY four turboprop maritime reconnaissance and ASW aircraft which entered service in 1968 is one of two principal shore-based aircraft used for this purpose. About 50 to 55 of these are now in squadron service and operate widely over the Barents, Norwegian seas, and in the Northern Pacific. The aircraft has a radome under the forward fuselage and a MAD protruding from the tail. Weapons are carried in an internal bomb-bay and/or on wing racks. It also has expendable sonobuoys, a computer assisted tactical evaluation capability, and a maximum range of about 2,500 miles when at an economy cruise speed of 280 knots at 27,000 ft.

The other principal aircraft is the BE–12 MAIL amphibian which outnumbers the IL–38 by about two to one. They serve in shore-based units in all fleets. The MAIL holds all 16 international records for turboprop amphibians as well as 110 records for turbo-prop seaplanes. The early MAILs were true seaplanes. The amphibian variant followed. At a cost in useful load (equal to the weight of the wheels), the amphibian gains a land-based capability to enhance its wintertime basing flexibility (i.e., it is not "grounded" by ice in the seadrones as was the case with the earlier seaplane variant). They have a cruise speed of about 270 knots

[26] *Military Posture*, 1978, p. 76.

with a maximum operational range of 2,000 nm, and are armed with a variety of weapons and stores for maritime search and attack.

Of the six major variants of the unique Turboprop TU-95 BEAR that have been identified by NATO, at least two (The BEAR D and F) are in naval service. The BEAR F is a relative newcomer first identified in 1973 and is a sophisticated maritime version of the early strategic bomber which had a maximum speed of 435 knots at 41,000 ft. The F variant with an unrefueled radius of slightly over 3,000 nm was probably developed to give the Navy an ASW plane to reach the POLARIS operating areas.

Despite the more recent developments made in Soviet ASW, the problem of sustained ASW operations has still not been solved by the Soviet Navy, or by any other navy. Given this fact, plus the projected future range capabilities of Western submarine-launched ballistic missiles, the ASW mission should absorb ever larger resources from Naval Aviation. It may well be that countering POLARIS/POSEIDON is the first priority strategic task of the Soviet Navy. If so, we can expect to see priority development in Naval Aviation along these lines. Development and construction of the KIEV class V/STOL carrier is a step in that direction.

Utility Missions

While antiship strike and ASW are the primary missions, Soviet Naval Aviation also carries out a number of utility missions. These supplement and support the other missions and generally include surveillance and reconnaissance, mid-course guidance for missiles, minelaying, and aerial refueling. These missions are also executed by land based aircraft and by ship and land-based helicopters.

Because the Soviets may launch a synchronous preemptive strike on warning of hostilities, and would use all varieties of missiles to effect it, they place particular stress on ocean surveillance, target classification, and command and control. These important functions are executed by a myriad of platforms: satellites, electronic intelligence trawlers, warships, selected merchant ships, fishing ships, etc., but naval reconnaissance aircraft remain the dominant platform:

> Aviation was the principal means of searching for ships, establishing their positions, determining the composition of groups, vectoring other naval forces to them, and assessing damage during the Great Patriotic War. It is even more important today because of the expansion in the regions of potential combat operations (Mediterranean Sea, Indian, Pacific, and Atlantic Oceans*) changes in the nature of war (conventional and nuclear), the appearance of new means of combat (long-range missiles and SLBMs), and the high

*Translator's note

maneuverability of forces. Moreover, aerial reconnaissance of naval bases and ports is significant under present day conditions of waging war at sea.[27]

A variety of equipment is employed in aerial reconnaissance and in controlling the missiles launched from strike aircraft and from cooperating ships. These include electronic intercept, photographic and optical equipment, radar television, and occasionally side-looking radar and laser equipment. Aircraft employing all, or portions, of this equipment include maritime reconnaissance versions of those aircraft employed in the strike and ASW roles. The US Navy estimates that about seventy BADGERs (6 variants) now serve in maritime reconnaissance and electronic roles.[28] The BLINDER C is a maritime reconnaissance variant of the supersonic bomber. It has six cameras in its weapons-bay doors. New dielectric panels and certain other modifications to the aircraft suggest added equipment for ECM and electronic intelligence roles. Fifty or more BEAR D variants also serve in the maritime surveillance role. The D was first identified in 1967 by US Coast Guard icebreakers in the Soviet Arctic. It was the first version fitted with X-band radar in a large blister fairing under the center fuselage for use in electronic reconnaissance and antishipping missile roles. Some speculation might also be made about future employment of the BACKFIRE in the above roles. Since the TU-95 is no longer in production and given the limited number of D's available and greater reconnaissance and ECM requirements, a BACKFIRE variant fitted for these purposes may soon come into being.

In addition to their ASW role, helicopters, both land-based and shipboard, also carry out a variety of utility missions. A recent article on "The Use of Helicopters at Sea" by Colonel M. Belov ostensibly reviews foreign press materials but infers Soviet uses of helicopters which could include "radar picketing, missile guidance, the landing of sabotage and obstacle-clearing parties, airlifting of forces and cargoes from ship to ship and from ship to shore in assault landing operations, supporting landing forces with fire, conducting ASW operations, providing close defense and protection to ships, and patrolling off the coast and in river estuaries."[29]

Little is known about Soviet capabilities in landing sabotage parties or obstacle-clearing teams, and airlifting of troops and cargoes from ship to shore. However, Admiral Gorshkov has repeatedly emphasized the importance of these operations in WWII and contends that experience

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[27] Colonel Yu. Khramov, "Aerial Reconnaissance of Naval Bases", *Morskoy Sbornik*, No. 10, 1974, p. 21.

[28] *Understanding Soviet Naval Developments* Washington, DC: Office of the Chief of Naval Operations, US Navy, 1978, p. 99. (USND)

[29] Colonel M. Belov, "Combat Employment of Helicopters at Sea", *Soviet Military Review*, (English Edition), 2 February 1975, p. 22.

remains relevant today.[30] Colonel Belov sees helicopters as a primary platform for carrying out these and other kinds of operations:

> Admitting the growing role of helicopters in sea landing operations, some states have started constructing special helicopter carriers and helicopter amphibious assault dock ships capable of basing several dozen helicopters. They envisage delivery of cargoes to the shore from ship's landing craft and helicopters. Experience has prompted the conclusion that assault helicopter carriers are in fact highly mobile forward bases which can help secure the necessary beachheads rapidly. Protected by fixed-wing aircraft and supported by ship artillery, helicopters will form a kind of 'air conveyor' through which they will airlift troops to the shore, quickly building up forces and weapons and securing timely delivery of ammunition and cargo.[31]

While the Soviet Navy has two helicopter cruisers, up to now it has lacked the capability to carry out the missions outlined by Colonel Belov on any large scale. However, the size of the new KIEV class carrier could contribute to this capability. Its size gives it useful potential. In displacement it ranks with the aircraft carrier USS Hancock and is over twice that of the MOSKVA. If the KA-25a helicopter carried on the KIEV were converted for transport, each helicopter could carry up to 12 troops. Future variants of the carrier might also be modified to accomodate the MI-8 HIP helicopter. This helicopter can carry up to 28 passengers or a bulky load of freight and/or vehicles, and would be a versatile workhorse in landing operations if air superiority could be achieved via some combination of the landing force's surface-to-air missile defense, fighters flying from nearby friendly airfields, and or V/STOL fighters from carriers.

According to Colonel Belov shipboard helicopters might also be used to provide fire support in landing assault operations:

> In landing operations an ever growing role is to be played by fire support helicopters in prelanding assault, during the landing of troops and their subsequent actions. Here the construction of specially designed combat helicopters is recommended. Their task will be to escort and protect reconnaissance helicopters, destroy fire emplacements and other objectives hampering the landing of transport helicopters, protect the airlifting of troops by helicopters, conduct prelanding fire preparation in the assault landing area, and provide fire support to the troops that have already landed.[32]

They might also be used in surface ship defense:

> One of the primary missions of the ship-based helicopter is to provide close protection of ships from the enemy's missile-carrying motor

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[30] Admiral S.G. Gorshkov, "Historical Experience and the Present Day", *Voprosy Filosofii*, No. 5, 1975, pp. 26–38.
[31] Colonel M. Belov, op. cit.
[32] Ibid, p. 23.

boats and combat helicopters. ASW helicopters can also perform this mission.

And, he added:

> Helicopters which would be used in conjuction with ships for striking or even capturing enemy convoys on the high seas should also not be excluded.

Finally Belov saw an important role for helicopters in supplying ships at sea:

> Employment of helicopters for supplying ships at sea saves much time and provides a possibility of maintaining a high degree of combat readiness and freedom of movement when cargoes are airlifted from supply (ships) to combat ships.

Further, the Soviet Navy views helicopters as an effective tool for minelaying and sweeping.[33] While it is most unlikely that helicopters would be used in offensive minelaying operations, they would carry out defensive minelaying as well as mine-hunting and minesweeping. The advantages that the Soviet Navy sees in helicopters over surface vessels for minesweeping are:

> The invincibility from most modern types of mines, a comparatively high speed of towing contact, great mobility in the execution of anti-mine operations in areas distant from the bases, and the possibility of sweeping in shallow water and areas inaccessible to vessels make the helicopter an important tool in minesweeping.[34]

The effective use of helicopters in this role, according to Captain 1st Rank Yu. Tumashkov, was demonstrated in the summer of 1974 when the Soviet Navy cleared approach channels to the Suez Canal.[35]

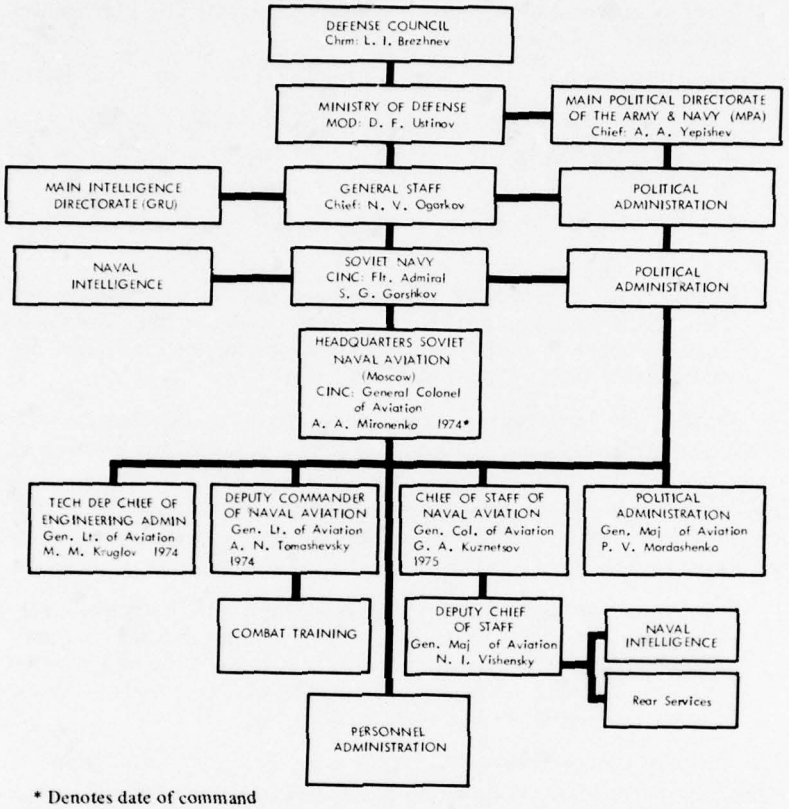
Organization, Basing Structure, and Scope of Operations

The organization of Soviet Naval Aviation can best be understood by looking at figures 40 and 41.

A Naval Aviation component is located at the fleet level in each of the four fleets and in most flotillas. This component is usually commanded by a General Colonel or General Lieutenant of Aviation, and it is subordinate to the respective fleet Commander-in-Chief for operational control. Thus, each fleet CINC has direct operational control over his air assets, with units within each fleet organized into regiments of 28–30

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[33] Captain 1st Rank Yu. Tumashkov, "Ships for Antimine Defense", *Voyennye Znaniya*, October 1970, no. 19, pp. 36–37.
[34] Colonel M. Belov.
[35] Captain Yu. Tumashkov.



* Denotes date of command

Figure 40. Soviet Naval Aviation Organization and Command (At the Ministry of Defense Level).[37]

aircraft. Each regiment consists of three squadrons, and two or more regiments constitute a division. About 50,000 personnel currently serve in Naval Aviation.[36]

Soviet Naval Aviation bases are located mainly along coastal areas, but in some cases, such as the airfield at Bykov, they are found a few hundred miles inland. The major basing structure is found in the Northern Fleet area along the Soviet Arctic coast and the Kola Penninsula. Major airfields are located at Arkhangelsk, Belusha Guba, Murmansk, Pechenga, and elsewhere. In the Baltic, primary bases are found at Baltysk, Bykov, Kaliningrad, Riga, and elsewhere. Black Sea bases are found at Donuslav

[36] *Quarterly Soviet Naval Order of Battle*, op. cit.

[37] Biographic data on officials were compiled by this author from standard Soviet and Western published biographical directories and Soviet newspapers and journals, particularly *Krasnaya Zvezda* and *Morskoy Sbornik*.

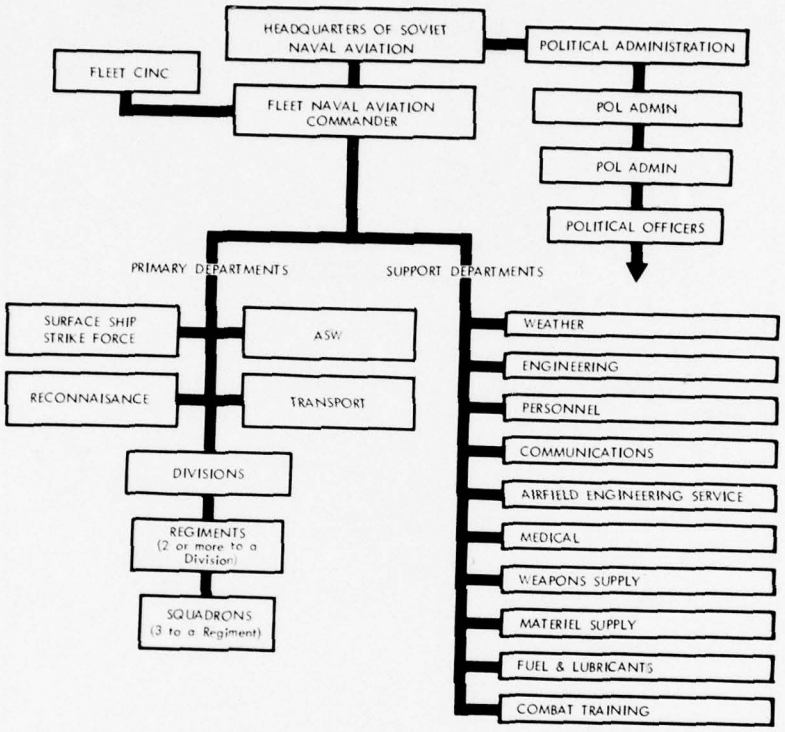


Figure 41. Organization and Command (Fleet Level).

Lake, Gvardeyskoye, Nikolayev, Oktyabryskoye, and elsewhere as indicated in figure 42 below.

Approximately 325 aircraft fly out of the Northern Fleet bases, 250 aircraft fly from the Baltic and 300 + from the Black Sea areas.[38] The smallest portion of the strike aircraft are located in the Northern Fleet. Strike aircraft deployed from these bases in wartime would be used against Western naval forces and merchant fleets at sea and against land targets. However, in unrefueled operational configuration, both the BADGERs and BLINDERs would be limited to operations in peripheral areas in the Greenland, Iceland, United Kingdom Gap, and the Eastern Mediterranean. Reconnaissance, ASW, EW, and tanker (RAET) aircraft account for the largest number of aircraft in the Northern Fleet. The Baltic Fleet ranks last in the number of strike aircraft and last in the number of RAET aircraft, while the Black Sea Fleet is first in strike.

[38] See also *NAVSCAN*, US Navy, Vol. 5, No. 6, March 1977, p. 14.



KEY	NORTHERN FLEET	BALTIC FLEET	BLACK SEA FLEET
	1 Pechenga	6 Riga	10 Nikolayev
	2 Belusha-Guba	7 Baltysk	11 Oktyabryskoye
	3 Severomorsk	*8 Kaliningrad	12 Gvardeyskoye
	*4 Murmansk	9 Bykov	13 Donuslav Lake
	5 Arkhangelsk		

* Fleet Headquarters

Figure 42. SNA Basing Structure (European USSR).

The basing of BACKFIREs in the Baltic and Black Sea Fleets over the last three years has given Soviet Naval Aviation a potent capability to carry out distant sea and land strike missions extending penetration over the entire Mediterranean and deep into the Atlantic. On one way Arctic

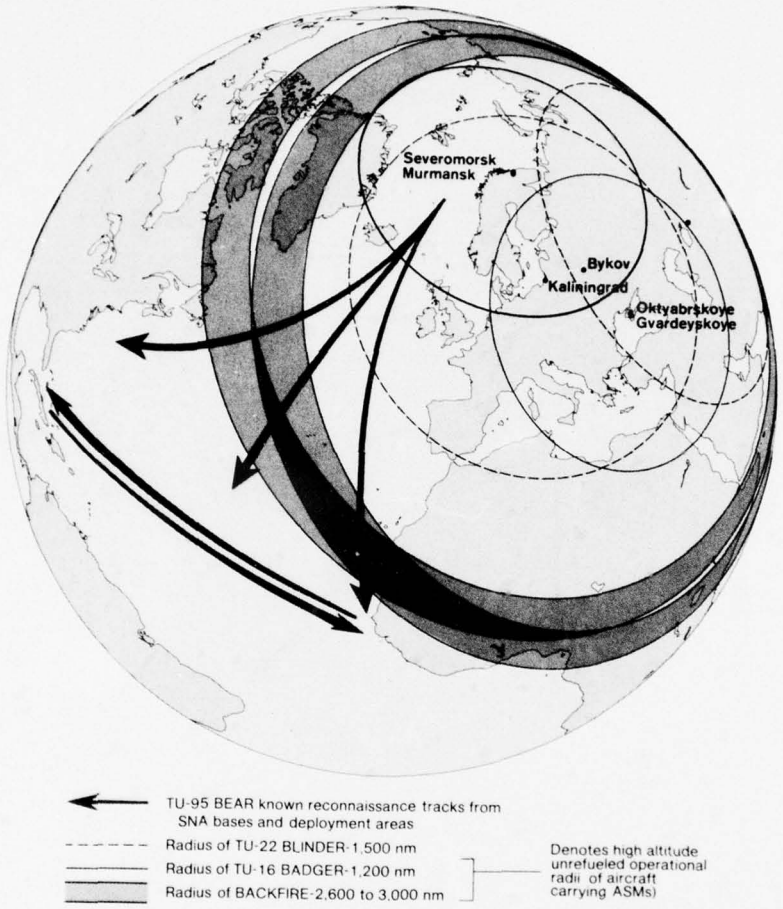


Figure 43. SNA Operational Deployment (Northern, Baltic, Black Sea Fleets).

staged missions, BACKFIREs, without refueling and by recovering in friendly or neutral territory, could execute missions almost anywhere over the Atlantic and the US. Staging from Arctic bases and refueling in-flight, they could cover all of the US on two way high altitude subsonic missions.[39] The staging of long-range BEAR Ds out of these areas enables deep reconnaissance penetration of the Atlantic. In April 1970 two BEARs flew non-stop from the Murmansk area, around the Northern Cape, down the Norwegian Sea, across the Atlantic, and landed in Cuba. Other BEARs subsequently flying reconnaissance missions along the US coast followed.[40] Three years later, again flying in pairs, they began

[39] *Military Posture*, 1978, p. 20.
[40] *USND*, p. 13.

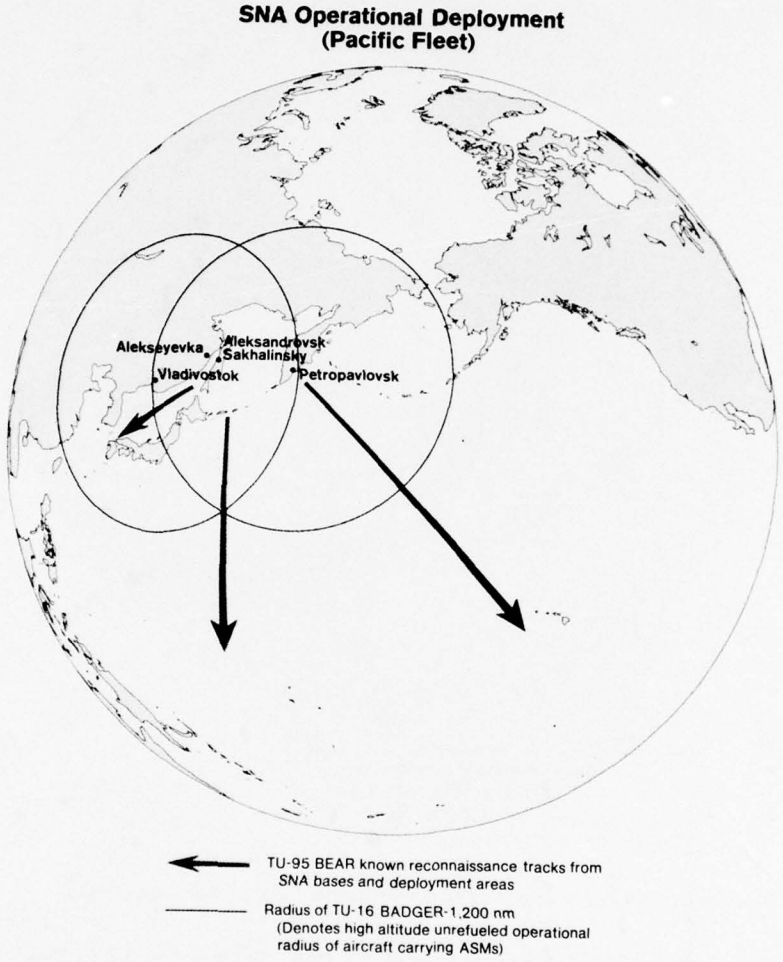


Figure 44. SNA Operational Deployment—Pacific Fleet.

making flights from Murmansk to Conakry, Guinea, in Africa.[41] (See figure 45 below)

In the Pacific, (Figure 44) TU–95s and other naval aircraft fly out of bases near Komsomolsk, Petropavlovsk, Vladivostok, Nakhodka, and from about six other bases in eastern Siberia. Kamchatka alone has four naval air stations, and another base is located at Aleksandrovsk-Sakhalinsky on the northern part of the peninsula. Still another new base is

[41] *Ibid.*

reportedly located at Korsakov on South Sakhalin.[42] Of approximately 132,000 Soviet naval personnel stationed in the Pacific region, about 12,000 belong to Naval Aviation.[43] In aircraft strength, about 300[44] aircraft and helicopters fly from the area, with the number of strike aircraft in the Pacific about equivalent (all BADGERs) to the Baltic Fleet.

The kinds of operations now being carried out by Naval Aviation, together with the level of overall Soviet naval strength and their broad dispositions in the area, all suggest enhanced capabilities in the Western Pacific. Continued unstable relations between the USSR and the People's Republic of China is a factor. The Soviet Union would wish to augment its capability to strike strategic targets inside China, and, in a lower-level conflict, to interdict the economically important coastal traffic from the industrial north to the populous south of China now protected by a weak PRC Navy and Air Defense Forces. Of course it enhances Soviet capabilities in opposing the US Seventh Fleet operating in the Western Pacific.

Since 1972 periodic reconnaissance flights have been conducted over the Indian Ocean as part of the Soviet naval buildup in that area. (Figure 45) At least one squadron of naval aircraft based near Murmansk, flies out over the Indian Ocean to conduct maritime reconnaissance. These aircraft may return to their home bases or to friendly air facilities on the African continent.

Some observers assert that interdiction is a primary mission of the Soviet Navy today. Soviet Naval Aviation would obviously play an important role in such a strategy. Land bases, as well as aircraft carriers, positioned close to the areas of probable conflict would be essential for any sustained interdiction. The new V/STOL aircraft carrier gives a new flexibility for on-scene air power. Construction of naval facilities in Africa in recent years also serves this end. Until the Soviets were expelled from Somalia in November 1977, they used landing facilities at Berbera in the Peoples Democratic Republic of Somalia. Berbera guards the entrance to the Red Sea and overlooks the tanker routes from the Persian Gulf to Europe, the Americas, and the Far East. Long range reconnaissance aircraft operated from Somalia for the first time in 1976 and ASW aircraft made several training deployments during the same period.[45] However, these operations have been impaired by the loss of facilities in Somalia. While IL-38 ASW reconnaissance flights from Somalia have stopped, TU-95s continue to fly from the USSR. A second air field was located at Mogadiscio, 600 miles south of Berbera, and a third at Uanle-Uen, 80

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[42] *Europaische Wehrkunde*, West Germany, No. 10, 1976, p. 527-528.
[43] Ulrich Schulz Torge, *Die Sowjetische Kriegsmarine*, Bonn: Wehr & Wissen, 1975, p. 56.
[44] See *NAVSCAN*, Vol. 5, No. 6, March 1977, p. 14.
[45] *Statement by Rear Admiral Donald P. Harvey to the House Armed Services Committee*, 1976.

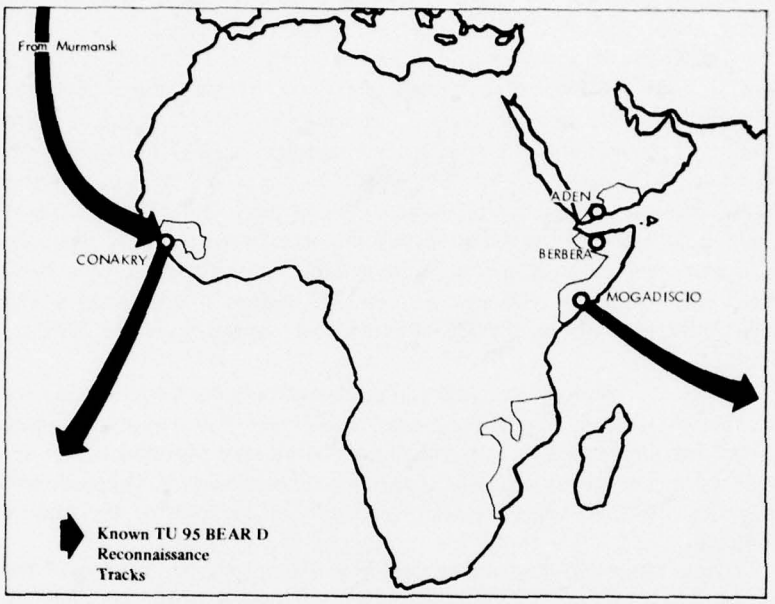


Figure 45. SNA Foreign Deployment.

kilometers from the capital.[46] Across the Gulf of Aden from Berbera is the former British airfield near Aden in the Peoples Republic of Yemen. In light of the losses in Somalia, this airfield may see some extended use by naval aircraft in the future.

Until recently the USSR used the major airfield they helped to build at Conakry, the former French colonial port on the West Coast of Africa, for BEAR deployments over the Atlantic. As noted earlier, BEAR D reconnaissance aircraft began flying to Conakry from Murmansk in 1973. During the 1975 Soviet naval exercises the Atlantic was reconnoitered by BEARs flying from and between Cuba and Conakry, and reconnaissance deployments were also made from Conakry during crises periods in Africa and the Middle East in recent years. Since deployments to and from Conakry were halted in 1977, evidently because of political disagreements between Guinea's President Sekou Toure and Moscow, the airfield at Luanda, Angola has been used as a substitute.

[46] *The Age*, Melbourne, Australia, 12 January 1977.

One area which has come under Soviet interest is Spitzbergen, in the Barents Sea. The Barents now holds enhanced importance for the Soviet Union for at least two reasons: first, to permit free egress of Northern Fleet submarines to the Atlantic; second, to assure the safety of DELTA ballistic missile submarines which are capable of launching their very long-range SLBMs from the Barents Sea to targets in the US.[47]

The growing worldwide capability of Soviet Naval Aviation was demonstrated in the naval exercises conducted in April 1975. Naval and Long-Range Aviation subordinated aircraft participated in all oceans of the world, except the Antarctic. An Italian assessment of the exercise drew some disconcerting conclusions from what was seen as "exceptional activity of long-range maritime reconnaissance aircraft." Italian analysts concluded that because long-range reconnaissance aircraft operated mainly over those commercial routes that are vital to the West, we should assume that an anti-SLOC role ranks high in the Navy's mission priorities. Some enhanced importance seems clear.[48] The Indian Ocean was patrolled by IL–38s which took off from Somalia and TU–95s which operated from southern areas of the Soviet home territory. IL–38s flew out over the Northern Pacific from coastal bases in Siberia, while TU–95s flew from Cuba, Guinea, and the Northern USSR.

Capabilities and Limitations

Both qualitative and quantitative changes have taken place in Soviet Naval Aviation in the past decade and a half, and these continue. Some major capabilities today are (1) launch of a surprise attack against the naval task forces from extended stand-off ranges; (2) interdiction of the sea lines of communication, especially in areas adjacent to the Eurasian land mass, and (3) strikes against enemy submarines, naval ports, and bases. At present, the latter is limited in some areas of the world, but as noted earlier, continued introduction of the BACKFIRE into the inventory and other developments will expand these capabilities.

Introduction of the KIEV carrier is potentially the most significant recent development in Naval Aviation. At last a breakthrough has been made from the near total dependence on land-based aircraft, which in global terms will ultimately give Naval Aviation greater flexibility in offensive and defensive capability. Some analysts have estimated the KIEV to carry up to 25 helicopters and 35 V/STOL aircraft. More conservative estimates show that it probably carries a mixed complement of about 36 helicopters and aircraft. Two variants, a single seat and a twin seat variant, of the V/STOL Yak 36 FORGER have been seen aboard.

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[47] Admiral Worth Bagley quoted in the *Chicago Tribune*, 18 May 1970.
[48] *Aviazione e Marina Internazionale*, Italy, July 1975, p. 30.

Some preliminary assessments of the FORGER's capabilities have been made based on photographic analysis. The aircraft is an advanced V/STOL which some analysts believe is roughly equivalent to the British SEA HARRIER in performance characteristics, although its manueverability and climb are estimated to be less.[49] Some reports have concluded that the aircraft is transonic and perhaps even supersonic at high altitudes.[50] Clearly the basic configuration lends itself to ultimate development as a supersonic fighter. Such a variant will no doubt emerge in the near future. The aircraft's range and loiter characteristics appear to be good. One estimate indicated that the aircraft, armed with four ATOL or APHID missiles, and employed in a limited air defense role, may have an unrefueled radius of about 320 nm. With a payload of missiles or bombs weighing 1,000 kg, and employed in an antiship attack role, it is estimated to have a lo-lo radius of over 100 nm. Hi-low radius would be somewhat greater.[51] The FORGER is probably meant to be employed in low level ground and antiship attack and tactical air defense roles. A versatile family of V/STOL aircraft may also find a role in target acquisition, classification, and the mid-course correction and guidance of cruise missiles as well as in air support to amphibious landings, and participation in antisubmarine defense of surface forces.

Recent introduction of the SU-17 FITTER C fighter bomber provides an added dimension to Soviet Naval Aviation capabilities, and is undoubtedly meant to fill another portion of the gap in tactical air support for the Navy. The aircraft has supersonic capability, an operational combat radius of 250–450 nm, and carries tactical ASMs and possibly AAMs. It entered service in 1975 shortly after it went into service in the Soviet tactical air forces. The aircraft's existence in Naval Aviation and deployment to the Baltic Sea fleet was made public by the US Department of Defense Chairman of the Joint Chiefs of Staff in January 1977. According to his report to Congress, the FITTER C could be used in a limited antiship strike role as well as to support amphibious operations in the Baltic area.[52]

Inter-service cooperation in the execution of naval air related missions is important. While problems of apportioning the effort certainly remain, the services have long experience in resolving many of the technical and command problems related to such inter-service cooperation. It is certain that many of the problems relative to efficient execution of naval missions were eliminated by permitting the Soviet Navy to exercise operational control over Long-Range Aviation aircraft assigned to it.

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[51] "An Initial Assessment of the YAK 36," *International Defense Review*, No. 5, 1976, p. 740; "Russia's Forger VTOL Aircraft—A More Detailed Analysis," IBID, No. 6, 1976, p. 911.

[52] *Military Posture*, 1978, p. 76.

In terms of vulnerability, Naval Aviation continues to be vulnerable in a number of critical areas. Basically, the aircraft are old and their number and capabilities still fall short of the mission requirements. Naval Aviation still has a modest number of long-range aircraft in view of today's mission requirements, especially for reconnaissance and ASW. Since the first POLARIS submarines took their patrol stations the existing Soviet strategic ASW forces have been inadequate. Their numbers and sophistication have considerably improved, yet remain inadequate, and the deficiency grows as the ranges of submarine launched ballistic missiles increase and the sea volumes to be reconnoitered grow geometrically. In addition, in ASW only on-station time is useful. When over one-half of the flight time is spent enroute, the numbers of necessary aircraft grow astronomically.

A large portion of Naval Aviation aircraft also remain vulnerable to attack beyond the range of land-based fighters. Long-range ASW and reconnaissance aircraft lack sufficient defense armament or support from carrier-based fighter aircraft. The V/STOL FORGER will offer some improvement in defending these aircraft, but will not help significantly. At the moment, the Soviet Navy continues to lack a meaningful sea-based tactical air capability.

Finally, Naval Aviation claims global capabilities, yet it still features a preponderance of intermediate-range aircraft. Most of these aircraft have in-flight refueling capability which, together with deployment to forward bases, gives some small validity to the claim. However, undue reliance is placed on support systems which considerably qualifies the navy's capabilities in this and other areas. Naval Aviation bears a significant burden in that the Soviet Navy's antiship missile systems often rely on other platforms (airborne and shipborne) to provide reconnaissance, mid-course guidance, etc. This practice ties down a considerable portion of naval aircraft to provide these services.

In short, a number of limitations are presently placed on Soviet Naval Aviation, some inherent in the organization itself, others beyond its control. Yet despite the limitations, Naval Aviation would play a major role in the Soviet Navy's mission in wartime. It is and will continue to be, as Admiral Gorshkov indicates, a primary striking force for the Soviet Navy and an important means of warfare at sea.

Chapter 11

US vs. Soviet Style in Fleet Design

By Norman Friedman

A fleet is the physical expression of a sequence of tactical and strategic ideas. The greater the cohesion of those ideas, the more consistent their physical expression, the more efficiently can the fleet carry out its intended mission. It follows that a clear and correct perception of our opponents' concepts can make more practical a counter to their fleet. A perception of the concepts inherent in the structure of our own fleet may guide us more effectively as we seek to modernize.

The task of analyzing Soviet fleet structure is made more difficult by a series of radical swings in Soviet fleet tasks since 1945—swings in no way matched by changes in fundamental US doctrine. Lags between doctrinal shifts and their physical realization mean that the current Soviet fleet is, in effect, the superposition of several different types of fleets. Most of what we see right now is the consequence of four programs:

—Stalin's attempt before *and* after World War II to build a conventional fleet, as a necessary concomitant of serious nationhood. At the same time large coast defense forces were organized: submarines and MTBs. It is well to keep in mind that the Soviet Union possessed the world's largest submarine force in 1941. Postwar consequences of Stalin's big-fleet ideas included the SVERDLOV class cruisers, and the big "fleet" destroyers of the SKORYY/KOTLIN—and probably KASHIN—classes. The coast defense element survives in OSA/KOMAR and NANUCHKA.

—A *strategic attack* fleet begun, at the latest, at Stalin's death, which included both ballistic- and cruise-missile firing submarines. The KYNDA class "rocket cruisers" may well have been intended at first as part of this program.

—An *anticarrier* fleet generally based on missile attack from aircraft (mostly BADGERs), surface ships (initially KILDIN/KRUPNYY, later KYNDA and KRESTA I) and submarines (ECHO II, JULIETT, more recently CHARLIE).

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—A *strategic ASW fleet:* the MOSKVA class helicopter ships, the "large ASW ships" (KRESTA II, KARA, KRIVAK), at least some of the submarines, and naval aircraft (BEAR F, IL–38 MAY).

This characterization omits important elements such as the amphibious forces, coastal ASW, and, most importantly, KIEV. Nor is the role of Soviet torpedo attack submarines entirely clear, as we shall see; it is difficult to divine from their characteristics whether the Soviets built so many WHISKEYs primarily to deny us our Sea Lines of Communication or to protect the sea approaches of the USSR. The low production of long-range "cruiser submarines" (ZULUs) rather suggests the latter. However, intentions at building or design time need by no means be intentions a decade or two later, when the submarine force presents other possibilities.

An interesting feature of US and Western naval concern is the emphasis on Soviet anticarrier forces, sometimes to the point of ignoring serious Soviet interest in ASW. It seems clear that at present the Soviets rate both tasks highly. They are no longer building specialized anticarrier surface ships, but that does not mean the abandonment of this task, only its more efficient execution by air and submarine forces less subject to countermeasure.

In strategic terms the builder of a fleet has two basic choices in his use of the sea. He can attempt to use it as a highway (force projection), which implies sea *control* in wartime; or he can opt for the simpler goal of preventing his enemies from so using it. Historically, in most cases the latter goal has proven unattainable by itself; real sea *denial* has generally entailed the establishment of sea control. However, in the context of US-Soviet naval rivalry it is well to keep in mind that whereas the Western Alliance is held together by the sea, the primary Soviet motive for sea power has been a desire to protect the maritime approaches of the Soviet Union.

This relation need not be immutable. The modern US Navy began as a coast defense force, fortunately cast in what we shall see is the form most suitable for sea control. The Soviets, with no intrinsic need for deep sea control, have made a substantial investment in merchant ships. They are beginning to try to project their power overseas, which means that ultimately they must try to achieve sea control. Even at present, coastal shipping is of considerable importance to the Soviet economy.

However, at present it seems possible to usefully characterize the main US and Soviet naval investments in coherent tactical and strategic terms, and to use those paradigms to seek effective counters to the Soviet naval threat.

In particular it makes sense to think of the Soviet fleet as the expression of the ideas of one man, Admiral Gorshkov. In our own case the direction is harder to perceive because overlaying it is the 4-year

cycle of CNOs and planning staffs. However, for many decades the basis of our naval philosophy has been the battle fleet idea.

Much of the coherence of our own fleet organization is a consequence of the continuity of doctrine-making bodies such as the General Board in the period prior to World War II. This is by no means to suggest that the basic doctrine is in any way obsolete. One reason our fleet doctrine has been less cohesive since 1945 than before is that the fleet mission was better defined before 1945: the defeat of Japan. Since V-J Day the role of all US forces has become more diffuse (or complex). A major tension in naval doctrine since 1945 has been a conflict between the strategic bombardment mission (e.g., POLARIS) and the older sea-control mission.

Another important element of the postwar Navy has been ASW, which before 1939 was not regarded as worthy of large specialized efforts. One might describe the conflict between carrier task force and ASW advocates as one between force projection and sea control, in a period in which the Soviet fleet was almost entirely a submarine threat, and one unlikely to be able to menace the fast carriers. Thus the early frigates, which were at one time designated "Fast Task Force Escorts," were optimized for AAW at the expense of ASW capability. Emblematic of this situation was the abandonment of most airborne antisurface ship weapons. The emergence of large Soviet surface forces returns the big carriers to a sea control role. Indeed, the Soviet missile-armed surface ship/submarine forces are most logically answered by the composite air groups of the CVs.

In what follows we will pass over this (temporary) contradiction.

The US Sea Control Force

Thus, our Navy achieves a concentration of offensive power in the form of a few very powerful units (capital ships)—be they battleships or aircraft carriers. Such ships are very expensive, but their great size implies great flexibility, as well as a high level of active and passive protection against enemy attack. The loss of a single unit is a severe blow, but on the other hand, serious problems of command and control are obviated. Much of the flexibility of the Fleet lies in the broad choice of the weapons it can launch because of greater magazine space and available top weight. One might say that it takes a big ship to launch anything as flexible as a reusable naval attack aircraft. The durability of the big units is associated with a strategy of *command of the seas;* it takes endurance and flexibility and the ability to absorb attack to maintain a naval presence in wartime.

To support our capital units we have built up a screen of lighter units, essentially (at present) platforms for AAW/ASW weapons and sensors. In principle it should be possible to build a fairly inexpensive

screen, since the screening units do not have offensive missions; but since 1945 the increasing dispersion of the Fleet and the speed of incoming weapons have combined to require greater and greater AAW ranges. This in turn means AAW weapons and sensors of great size and complexity—hence great weight and cost—so that the cloud of screening vessels shrinks down to a few CGNs each costing a large fraction of a capital ship.

Soviet Sea Denial Forces

Against US sea control forces, the Soviet alternative is a mass of essentially undifferentiated light expendable units of no great individual staying power. Effort is concentrated in their single purpose (anti-capital ship) weapon and in the command-and-control system which enables them to strike the big enemy units in such a coordinated manner as to break through passive and active defenses. A fleet of this type depends upon a preemptive strike. It can deny the sea to its adversary, but only on a one-time basis. The tactics associated with this "sea-denial" fleet are by nature inflexible. They demand dispersal (since the light units are individually vulnerable) and then coordinated firing of sophisticated weapons from maximum range. Anything which upsets the timing destroys the concentration and permits the battle fleet to survive the attack and reply effectively.

The preemptive strike in turn depends upon timely targeting information. To obtain the Soviets have built in a complex and expensive sea surveillance system: HF/DF, satellites both active and passive, long-range reconnaissance aircraft, intelligence collection ships. Data is fed into a central correlation center from which strike orders can be dispatched.

Sea surveillance may generally hope to locate a task force, but it is unlikely that most of the Soviet sensors are good enough to distinguish one type of ship from another, especially in the face of deceptive countermeasures. In the absence of precise data, however, a Soviet strike force must distribute its missiles over all of the ships of the task force.

All but the carrier act as missile absorbers, detracting from the value of the strike. For example, a carrier might well be screened by six escorts, at least some of which would be able to shoot down missiles in flight. The Soviets might well guess that four hits would disable the carrier. Given 80 percent reliable missiles, it takes eight shots to achieve a 99 percent chance of achieving those four hits. However, that means that in a seven-ship group in which the position of the carrier is *unknown*, eight missiles must be directed at *each* ship—56 in all. Moreover, the escorts may be able to deploy realistic (and long-lived) decoys which may themselves look to long-range radars like possible carriers.

Matters worsen, of course, in the face of active or passive anti-missile defense measures.

The Soviet solution has been the "tattletale," a surface trailer of task forces which can report back the position of the high value units relative to their consorts. Recent Soviet practice has been to arm destroyers selected for such duty with short-range antiship missiles (STYX) firing *aft:* the "tattletale" withdraws from the formation prior to the missile attack so that *she* will not act as a missile absorber, and contributes her weapons to the strike.

Note the key role of the observers aboard the "tattletale." Without them the anticarrier strike becomes far chancier; yet they can survive only in a prewar scenario. The long-range reconnaissance aircraft may possibly provide similar visual backup to the less precise Soviet electronic surveillance systems; but surely they, too, lack survivability in this role once a war has begun. One can speculate that shadowing and targeting may be important functions of the new Soviet air-capable ship. Her very heavy defensive armament, achieved at the expense of aircraft performance (i.e., arresting gear, catapults, deck space) suggests that, like the elements of the Soviet offensive force, she is intended to operate as a solitary unit. Moreover, KIEV mounts large antiship missiles for which her aircraft may be able to provide target data refinement.

The aircraft themselves are unlikely to have a serious *direct* antiship role: V/STOL aircraft are notoriously poor weight-lifters, and the Soviets use rather large antiship missiles. However, it is possible to envisage a valuable reconnaissance function, coupled perhaps with some measure of defense against US strike forces. It may also be that the Soviets are not optimistic as to the viability of their big maritime reconnaissance aircraft once war has begun.

The V/STOL fighters might also be used to counter US MR aircraft (P3, S3) which we regard as essential to clear lanes for our own carrier strike forces.

Thus the current Soviet *surveillance* system consists of layers of increasingly more precise sensors. Long-range systems like HF/DF can coach more accurate systems (ineffective for wide area search) such as radar satellites; the latter cannot be used for general search because of the mass of data they would have to process. Satellite data in turn can coach in BEARs and "tattletales." The latter include submarines using passive sonar; but we would argue that they have limited mobility while listening and that they are easy to decoy. Moreover, a submarine might find it quite difficult to say with precision just where in a complex formation a carrier was to be found.

That leaves manned platforms using visual or IR sensors—aircraft and surface ships.

In its current form the Soviet sea-denial force consists of cruise missile-armed surface ships, maritime bombers, and submarines. The missiles are necessary to ensure hits on fast well-screened capital ships. For example, it is very difficult even now for a submarine to be sure of hitting a fast carrier—which in any case can absorb a considerable

number of torpedoes. The diesel submarines built in very great numbers from about 1950 on are probably not so much connected with serious sea denial as with Stalin's perception of the near-success of the U-boats in 1939–45. It is worth remembering that in 1941 the Soviets had by far the largest submarine fleet in the world. From the point of view of interfering with fast warships, a torpedo armed diesel submarine is not too useful: it has little underwater mobility and its primary weapon has a low probability of hitting a fast target. Even a snorkel does not change matters fundamentally, since a snorkeling boat is both loud and visible to specialized radars. Nuclear power confers a mobility comparable with surface ships and cruise missiles provide a serious antisurface ship capability.

Presumably in wartime the diesel submarines would try by their numbers to block the sea approaches to the Soviet Union, using air reconnaissance to make up for their immobility; but it can be argued that that is a poor use of resources.

One suspects that only after the demise of Stalin and the perfection of the earliest cruise missiles did the concept of an integrated sea-denial fleet take form.

As the Soviets operate further from their land bases, they must come to rely entirely on the combination of ship and submarine missile launchers.[1] An important characteristic of this fleet is that it can fire only a single salvo: the size of the individual missiles precludes reloads. On the other hand, the tactic of saturating ASMD demands not only that each ship fire all of her missiles but also that the entire force fire together. In effect the Soviet fleet disarms itself every time it carries out its principal tactic. Hence its commanders must have a special fear of decoying, which means that they will be disinclined to shoot at inconclusive contacts.[2] On a smaller scale the commander of every detached Soviet missile submarine faces this problem. He almost has to fire everything, but that means that he can hope to make no more than one or two attacks per war patrol. This is not to mention the fact that the act of firing gives away his own position and hence may materially shorten his patrol.

The sea denial fleet described above is at heart an *anticarrier* fleet. From a US point of view the most likely kind of war is tactical, in which the carriers are absolutely vital to us. Hence our concentration on Soviet attempts to deny the sea to our surface forces. However, the Soviets are unlikely to view matters in that light. They generally consider the

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[1] The latter are far harder to kill, but at the same time they present much more serious communications problems.

[2] As we shall see below, to fire partial salvos is to reduce too dramatically the chance of success. A carrier is essentially different in that her aircraft are not a one-time asset; the same might be said of a fleet designed for easy and rapid rearming at sea—as the Soviets are not. At the least, a prerequisite for them would be the development of substantially smaller antiship missiles, the appearance of which might be an indication of a switch from sea denial tactics.

boundary between tactical and strategic operations a very fuzzy one. Soviet thinking appears to assume that wars begin on a tactical level and then escalate. Even if a strategic exchange is not reached, the Soviet view is that a settlement may well be based on both sides' perception of the results of such an exchange, i.e., of the strategic balance at the close of the war.

Strategic ASW thus becomes very profitable. If the conventional phase is a lengthy one, even relatively crude ASW forces may stand a fair chance of flushing out strategic submarines, especially since a war environment allows such steps as mining the approaches to US strategic submarine bases. The Soviets are building up an impressive strategic ASW force in the form of surface ships (KARA, KRESTA II, KRIVAK) and submarines, backed by long-range aircraft.

If they think of strategic attack as the decisive factor at the end of a conventional or tactical-nuclear war, they may well feel that the *primary* mission of US sea control forces is the elimination of their own ASW units—by our own ASW barrier operations against their submarines, and by carrier aviation against their "large ASW ships." In such a case the Soviets would have to consider anticarrier attack a *prerequisite* for serious surface ASW, since their surface ASW fleet consists of small relatively weak surface ships similar to those of their anticarrier forces. KIEV can be used to attack and disrupt NATO ASW barrier forces in, e.g., the G-I-UK Gap, sinking our own relatively weak surface units with her SS–N–12 missiles, killing our SSNs with her ASW weapons, and killing our ASW aircraft with her own. It may be significant that KIEV is the first Soviet missile-armed warship with a significant reload capability for *underway* use.

The October 1973 Middle East crisis provides some evidence of Soviet naval thinking. Before the crisis, the Soviet Mediterranean squadron consisted mainly of the newest Soviet units, e.g., the new KARA class cruiser NIKOLAYEV. However, as the crisis deepened, the newer ships passed into the Black Sea, and older ships, such as a KYNDA, replaced them. It was these older ships which shadowed the US carrier group. Some analysts felt that the use of older ships showed either a disposition to accept losses or else a desire to signal that the crisis was not so very serious.

In fact, however, the older ships were the *anticarrier* ships; the newer, the ASW types. What the Soviets were doing was removing their valuable ASW assets from the reach of our carriers while making possible the anticarrier strike which would make the Mediterranean safe for extended anti-POLARIS ASW operations.

Clearly a great deal depends on our perception of the vulnerability of missile submarines to Soviet ASW forces, especially in view of the prospective introduction of TRIDENT. Lags in Soviet procurement coupled with bureaucratic inertia inherent in their system of procurement

may well give them a fleet better attuned to the US threat of 1970 than to the threat likely in the eighties.

One interesting possible consequence of Soviet preoccupation with anti-SSBN ASW may be that for the first time they will have naval assets *per se* worth protecting. Hence the Soviets may come to be genuinely concerned with US antiship weapons (e.g., HARPOON) which are of relatively little consequence in anti-pro-carrier operations. Until now, the Soviets had little to fear from HARPOON because they could expect to fight at sea only at the very outbreak of war.

However, ASW warfare is by nature a protracted business, conducted once war has begun. It follows that the Soviets must now try to counter all US *antiship* platforms which may threaten their ASW operations. If such an interpretation is valid, then the *existence* of weapons such as tactical SLCM and HARPOON imposes very great demands on Soviet sea denial and sea surveillance systems—demands which may prove back-breaking.

Sea Denial and Platform Costs

The sea denial fleet is the usual vehicle employed by inexperienced naval powers to overthrow established fleets—as, presently, in the case of the Soviets vs. the United States.[3] Its key attraction is that the individual platforms are relatively cheap compared to the weapons they launch. Hence the force of *platforms* can be built up very rapidly, even if, in fact, the weapons they are supposed to fire are not quite ready; for no opponent can bank on that (unknown—unknowable) level of readiness. As the platforms increase in sophistication and in size relative to their weapons, the implicit strategy passes from one-shot sea denial to sea control;[4] this is also the transition from a relatively cheap fleet to an expensive formation which must be provided with elaborate means for its

[3] Also, e.g., the Japanese vs. USN and the French vs. the British circa 1890. An interesting example of a sea denial fleet is the German U-boat arm of World War Two. The U-boat was largely invisible until it approached and attacked its targets, at which time the concentrated ASW forces could counterattack. Classic U-boat tactics against these local concentrations called for a simultaneous attack from many bearings so as to dilute the attentions of the convoy escort. The chief obstacle to effective attacks was always command and control; command was exercised by the Commander, U-boats, from a base ashore. There is a striking analogy here with the way Soviet sea-denial forces are controlled, not from a flagship but from Navy HQ ashore. It seems suggestive that a principal element in the defeat of the U-boats was radio direction-finding, which (in effect) attacked the concentration point of the dispersed U-boat fleet, its communication net. Another was the signals *from* Commander, U-boats, to his fleet, which messages, broken, reflected the deadly effect of centralized control.

[4] In the Soviet case this transition would have to involve extensive provision of reload missiles and hence far larger ships.

own preservation. The primary costs of the system shift from weapons plus command-and-control to platforms and the means for their preservation. The latter are inherently higher costs, but we would argue that they buy far greater flexibility. The *total* cost of sea denial may even exceed the total cost of the sea control force. The key distinction is that the fragmented sea denial force can be built up incrementally, and presents a serious threat even at a low level of development: one KRESTA has a small (though finite) chance of killing a carrier, but a carrier built up to the engine room level in the building dock at Newport News cannot sink the KRESTA. On the other hand, after five years or so the carrier is more effective than (say) the five KRESTAs she costs; and this does not begin to count in the expense of missiles and command/control/targeting, or the need for more trained personnel per ton in a fleet of smaller ships. This disparity in the continuity with which effective naval power is built up is reflected in the effect of the loss of a single unit: one KRESTA costs the Soviets far less, sunk, than one CVAN costs us. But as long as a CVAN is many times harder to kill (from a passive point of view) this comparison is not a significant one. Matters become more interesting if we pass to a nuclear scenario (sure kill if the weapon hits) and a total absence of ASMD.

Historically the greatest problem in naval warfare has been command and control. For example, historians often fault the British commander at Jutland, Jellicoe, for his adherence to exhaustive and rigid Fighting Instructions in 1914–16, which tended to suppress personal initiative among his subordinates. What Jellicoe really saw was a confusion of smoke and shell splashes in which he might as easily lose capital ships by misadventure as by enemy action.[5] In such circumstances the individual unit must be powerful enough to make a substantial contribution to the battle on its own; it must survive minor breakdowns in tactical communications; and yet it must be amenable to cooperation with its sister units.

But it is very expensive to build capital ships. It is always possible to visualize weapons which can, in favorable circumstances, destroy such ships and which can be fired by very much cheaper craft.[6] The classical example of such a weapon was the torpedo. This device could, at least in

[5] The unwieldiness of capital ships made loss by collision a serious proposition. In peacetime exercises during the Nineteenth and Twentieth Centuries, quite a number of such accidents have occurred, e.g., the recent loss of the US destroyer FRANK E. EVANS to the Australian aircraft carrier MELBOURNE in night maneuvers, June 1969. Two British battle cruisers, AUSTRALIA and NEW ZEALAND, missed the Battle of Jutland because they had collided in fog over a month earlier. Jellicoe himself very narrowly missed drowning as a result of a peacetime collision which resulted in the loss of the flagship of the Mediterranean Fleet, HMS VICTORIA, in 1893.

[6] "Very much cheaper" often has to imply a self-propelled missile, since otherwise there would be problems associated with the missile launcher, e.g., recoil in a naval gun. Even some missiles make heavy demands. Thus, aircraft were originally thought of in this category of cheap weapons; many early advocates of carriers believed that one or

theory, be fired by craft the size of a cabin cruiser—from short range. Anyone who wanted a reliable sea-denial capability against a battle fleet would have to buy a great many torpedoes and torpedo boats, so as to guard against low reliability and countermeasures. His launch platforms would have to be relatively cheap craft. These rather vulnerable torpedo boats would have to attack from as many bearings as possible, or else face the concentrated fire of the battle line. Such a coordinated attack would in turn make severe demands upon command and control—or else demand an extremely rigid plan. In fact the surface torpedo sea-denial force would probably fail in practice. What it would give its owner would be a serious and sobering threat against the owner of an expensive battle fleet. The latter could never rely on the failure of planning or communications, especially in the standard "worst case" of a preemptive torpedo strike.

For example, a common scenario before 1914 was a mass night torpedo attack on a fleet anchorage at the outbreak of war. The British moved their Grand Fleet to Scapa Flow at least partly to prevent such a strike. In fact the Japanese tried it in 1904 at Port Arthur, but failed largely because of the inadequate lethality of their torpedoes—which goes to show that a sea denial force can be a lot more impressive *before* it makes its big preemptive attack. Of course, the great adherents of the torpedo were the French, and in the nineties a series of French naval propagandists wrote future war novels in which British naval suppremacy was broken by mass attacks. It was fitting that the most successful of these writers assiduously avoided actual cruises in the uncomfortable boats of which they wrote.

Here the "reliability" of torpedo attack craft might include the question of their seaworthiness. Countermeasures included weapons to attack both launch platforms and missiles. Expressed in these terms, the

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two 15,000 ton carriers could massacre a fleet of 35,000 ton battleships—as happened in a few instances. However, as aircraft developed, the inexpensive carriers became impractical; and even the smaller ones could not be produced in such numbers as to be considered expendable. Quite soon the combination of air group requirements and demands for extensive passive protection drove carrier displacements past those of the battleships. For example, in 1932, the US Navy regarded the 20,000 ton YORKTOWN as very nearly optimum. Ten years later the standard was more than a third larger (ESSEX, 27,500 tons) and the minimum for worthwhile passive protection (MIDWAY, 45,000 tons) larger yet. The reason this kind of growth paid was the flexibility of the manned airplane. The carrier commander could control his Air Group by having strike pilots briefed face to face; he had no command and control problem once the strike was launched. In contrast a missile has the basic inflexibility of any automated system. The missile is relatively easy to launch because it can sustain a high g-load upon takeoff and because it does not have to accommodate a life-support system (weight advantage). However, the possibility of catastrophic loss of main battery to ECM/ASMD suggests that it is not too profitable to build a missile-armed "battle fleet." We would add that even the missile makes considerable demands in terms of sea-keeping and control apparatus.

various doctrinal and technical issues of the nineties are hard to distinguish from current ones. Antimissile countermeasures have a particularly striking effect when each platform carries only a very few weapons. A typical Soviet missile ship carries no more than four or eight SSMs. Four hits might be required for a kill (cf. EILAT). Now, to get at least four hits out of eight shots 94 percent of the time, the eight-shot Soviet ship has to maintain an individual hit probability of about 70 percent. Anything which cuts this figure very much dramatically increases the number of platforms required: for example, at an individual hit probability of 20 percent, eight missiles have only a 59 percent chance of scoring any hits at all. Matters improve considerably as the number of missiles goes up, i.e., as the size of the launch platform increases. A salvo of 20 percent weapons has a 59 percent chance of achieving four or more hits and is virtually certain of achieving at least one. Recent work which improves greatly the lethality of relatively small warheads would tend to favor the construction of missile armed "capital ships" with large magazine capacities, as such capacities could be attained within reasonable dimensions. In such a case the ASMs begin to look more like the shells of classical naval guns and less like torpedoes.

Another way to make this comparison would be to allocate system cost between platform and individual missile. The larger ship can, of course, accommodate better ASMD. However, the inherent inflexibility of the ASM always remains.

A remarkable exception to the usual pattern of cheap torpedo craft was the US Navy's idea of a capital ship armed with torpedoes, i.e., a torpedo battleship. This concept received extensive war-game study between 1904 and 1911. What killed it was the calculation that the gun—the weapon of the larger platform—could keep it out of torpedo range. In effect this says that the switch from sea denial fleet to battle fleet using a new weapon is impractical until the new weapon is superior to the conventional battle fleet weapon. Then the question of missiles vs naval aircraft for our (battle) fleet resolves into the question of the *effective* range (ECM immunity, perhaps) of one or the other.

It does not seem so very farfetched to exchange Soviet antiship missiles for the old French torpedoes. The rub is still command-and-control, and despite all the glories of modern electronics, that is still a very great rub. It is the element absolutely essential to any sea-denial force; it is the element we can preferentially attack at our *sine qua non*, our capital units. And it is the can of worms we open if we attempt to move from a dimly perceived battle fleet doctrine to a Gorshkov-like sea-denial doctrine. It did not take the French very long to appreciate that even the best of naval missiles (torpedoes) did not represent a short cut to sea power; it should not take us—or the Soviets—so very long to appreciate the same thing now. This is not to denigrate the missiles *in their place*. The battle fleets did have torpedo craft in attendance; missiles *are* a very useful adjunct.

US submarines in the Pacific were able to perform some sea-denial in the absence of extensive C^2 by operating at natural concentration points of Japanese shipping. However, we would argue that it was a combination of low Japanese shipbuilding capacity and the strain applied by US sea control forces which made the submarine campaign so effective. For example, the Japanese showed little prewar interest in ASW, partly because they had to spend so much to achieve surface sea control.

"Effective command and control" is not a particularly evocative phrase. What it really means in this case is flexibility. The fewer the units, the closer together, the easier for a very few individuals *on the spot* to react to unforeseen circumstances. In tactical situations this flexibility is the most important thing lacking in a sea-denial fleet.[7] Allied with command-and-control is of course targeting or sea surveillance. In the case of the carriers, much of the targeting mechanism is incorporated in the strike force; but in the sea-denial (missile-oriented) fleet special provision must always be made for surveillance. The extra targeting mechanism only adds to the burden on command and control.

An Historical Example of Sea-Denial in Action

Probably the most interesting historical example of sea-denial in practice is provided by the Japanese Navy of World War II. Nominally the Japanese subscribed to the same battle fleet philosophy as did their opponents, the Americans. However, for many years prior to 1941 they had been precluded by treaty from building a battle fleet comparable to that of the United States. The standard combat theories of the time suggested that an engagement between the US and Japanese battle fleets must end in a Japanese disaster—*unless* the US fleet was shaved down to parity first.[8] Such a theoretical conclusion was tantamount to a shift in priority towards the sea-denial preliminary engagement. In order to fight this primary battle the Japanese developed the most sophisticated cruise missile of their time, an extraordinary powerful torpedo ("LONG LANCE"). Their preferred tactics were pure sea-denial: destroyers

[7] One might say that one reason is that once the self-guided missiles are on the way, there is not much chance of replying to an enemy's altered dispositions. We would suggest that the problem is a deeper one related to the absolute necessity for close coordination among elements of the sea-denial force.

[8] A common theory assumed that combat effect was proportional to the square of the number of equivalent units. The London Treaty (1930) allowed the Japanese 9 capital ships to 15 American units—a ratio of 2.78 even were the US ships counted equivalent to Japanese (an optimistic assumption for the Japanese). The destruction of four US ships *before the main battle*, i.e., before any Japanese main fleet losses, would cut the ratio to 1.23, a more acceptable risk. An interesting aspect of this "square law" is that it assumes a high degree of coordination among units *which may be lacking in a dispersed sea-denial force*.

bearing "LONG LANCES" would appear at night, fire their missiles and then retire before the targets could realize that they were under attack; clearly this has to be a very well coordinated strike, and it must have taken a lot of faith in the missile to release it for its half-hour run. The missile was specially designed to resist detection: an oxygen propellant was adopted to ensure wakelessness, despite the increased handling hazard it represented. The acceptance of such a vulnerability to catastrophic damage would be in line with the image of a sea-denial fleet as a collection of minor expendable units. The important surveillance/targeting function was to be carried out by seaplanes carried aboard fast tenders and aboard the cruisers accompanying the destroyers; the cruisers also carried torpedoes. So important were the aircraft that in some Japanese heavy cruisers they displaced the gun armament. Probably the classic Japanese torpedo strikes were their night attacks on US cruisers off Guadalcanal. These tactics were finally countered when reliable radar sets were issued to US ships; now the Japanese could be detected as they launched, and counter-maneuvers initiated after the torpedoes had already locked onto their (fixed) courses. Radar also, of course, permitted effective shellfire.

The "LONG LANCE" was not the sole Japanese sea-denial measure. For example, midget submarines were developed for launch at sea. Before World War Two the US Navy also regarded as Japanese sea-denial measures long-range (land-based) torpedo bombers, a force of which sank the REPULSE and PRINCE OF WALES; minelayers; and some of the unusually large Japanese submarines.

The battle line disparity could be taken to mean that any Japanese naval concentration would be vulnerable to the (unattrited) US fleet. It would be better to avoid entirely large concentrations until after the primary engagement; the valuable fleet could better be broken down into subgroups, the loss of any one of which would not be fatal. The classic Japanese strategy envisaged the concentration of these subgroups upon the attrited US Battle Fleet.[9]

By a peculiar twist of fate in 1942 the Japanese fleet was actually far stronger than was ours. But habits of thought—especially ones for which the basic reason is no longer perceived—are hard to discard. So at Midway we see in the Japanese plans what seems to us an inexplicable failure to concentrate forces. We also see in the Japanese commander, Yamamoto, psychological collapse under the success of what we can honestly call only a spoiling attack. We see the same pattern two years later in the Leyte battles, with different commanders. Often this pattern

[9] An alternative was to keep the Japanese Battle Fleet concentrated in protected (home) waters until after the battle of attrition. The choice between a sea-denial fleet *at sea* and one in port awaiting the arrival of the US main fleet corresponds to a choice of forward vs. home port deployment for the Soviet Fleet.

has been described as typically Japanese. It is not. It is, we would argue, the inevitable result of a sea-denial strategy.

On a personal level, the sea-denial strategy requires the suppression of initiative in the individual ship commander. It is best for him to fit into a plan worked out by a single overall command; for that plan is likely to be quite fragile, quite vulnerable to "spoiling"—either by timely attack or by misplaced elan on the subordinate's pact. This kind of denial of initiative is often ascribed to Communist political philosophy; but in fact it seems inevitable in any sea-denial strategy of the Soviet type. It is precisely in this vulnerability to "spoiling" blows that our great opportunity lies. *The Soviet fleet can be so spread out that even were its ships to be made of paper it would be a very difficult task to sink all of them before their missiles were off. What cannot be spread out is the communications net absolutely essential to that rigidly planned strike.*

Post 1945 Strategic Considerations

All of these considerations involve only the classical naval goals of domination or denial of sea lines of communication. Since 1945 another element has been added in the form of naval strategic attack. In fact it is often argued that the original goal of Soviet cruise missile ship construction was the destruction of the US strategic carrier threat. On this basis the goal of the Soviets was still the destruction of the US capital ships, although the underlying reasoning was new. The carriers were still capital ships because of their dual strategic/antiship capability. On the other hand, the SSBNs are not; they are purely strategic weapons—unless there are some very big changes in targeting, not the least of them technological.

In fact the emergence of US *submarines* as a serious strategic target for the Soviet fleet must have put a serious strain on their resources. Although a fast carrier task force is endowed with numerous defensive weapons, it can at least be seen with fair uncertainty by current sensors. That is not the case with an SSBN, at least with one operating quietly.

In recent years the Soviets have taken to designating their principal surface units as ASW ships. It is not clear whether this reflects a realization that some organizational reply to the SSBN is in order, i.e., that the money spent to counter carriers had better be applicable to the carriers' successors; or whether there is some expectation that the ASW sensor picture will soon come to resemble the surface-surveillance picture; or, finally, whether the Soviets expect ultimately to train SSBNs as they do carriers. Certainly their ASW differs from ours in that ours is primarily oriented to the defense of formations of surface ships, not to strategic ends.

Certainly the emergence of large numbers of expensive surface ships armed primarily with a KARA-type stand-off ASW weapon and equipped with powerful hull sonars as well as VDS suggests serious Soviet

intentions in ASW. However, such units, and any Soviet ASW-optimized submarines, are defective in that they cannot quickly cover the vast operating areas of even moderate-range submarine-launched missiles. Aircraft really present far better possibilities, except that they may lack effective sensors.

Ideally the Soviets would probably want to pattern their strategic ASW operations on their anticarrier operations: trail until the SSBN enters a defensive zone, then a quick concentration of ASW forces employing long-range weapons to reduce their own vulnerability to pro-SSBN US strikes. In this case saturation would increase the chance of hitting a poorly-defended target, in contrast to the role of saturation in anticarrier attack. Aircraft might be used to achieve fast concentrations in areas inaccessible to surface ships; alternatively, they might attack on the basis of surface ship sonar data.

Variations on these themes are not difficult to imagine. For the future, the Soviets are known to be experimenting with Wing-In-Ground (WIG) devices capable of high point-to-point speed.

Much of the Soviet strategic ASW system would seem to depend upon a subsurface surveillance system *which does not as yet appear to exist*. Should such a system materialize, one question for us is whether we should not counter it by submarine air defensive measures, e.g., by some variation on the British SLAM of a few years ago. It may be well to keep in mind the relatively small weapon load of the major Soviet ASW units, which parallels that of their anticarrier ships.

Because of their large and flexible magazine capacities, the carriers can easily combine their strategic and sea control roles. It is tempting for the user of sea-denial forces to attempt to attain a similar flexibility; he can, after all, use a nuclear rather than an HE warhead for his cruise missiles. However, the low ratio of missiles to platforms has unfortunate consequences for him.[10] In fact the low ratio of missiles to platforms must constantly impel the sea-denial operator to press the lethality of his individual missiles, e.g., to accept and even to prefer tactical nuclear warfare. But such an orientation on the part of the Soviet navy need not indicate a willingness on the part of the Soviet *government* to release nuclear weapons so as to achieve victory in what it might consider a peripheral conflict. But in any protracted conventional battle, the small size of the individual platform must militate against adequate self-protection, i.e., against staying power.

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[10] For example, say the 8-missile ship carries 6 HE and 2 nuclear missiles. Then its chance of scoring four or more hits with 70 percent missiles is only 74 percent. Reliability would require that at least two missiles be nuclear; flexibility, that the maximum number be HE. The assumption is that there exist no below-decks arrangements for warhead replacement, etc.: to achieve any kind of useful missile load in a small hull the sea-denial operator must dispense with reload arrangements. In effect the Soviets *must* build ships the way they do unless they are willing to add many thousands of tons to achieve marginal improvements. Their only alternative would be to scale down their missiles.

Special Characteristics and Vulnerabilities of the Sea-Denial Force

(i) Superior sea surveillance. Otherwise it may be spotted (i.e., destroyed) before it can strike. The only alternative is for the sea-denial force to assure its first strike by deciding always to initiate war. Such an assumption might not be tenable in limited warfare. In a tactical sense the sea-denial fleet is as destabilizing a force as is a field of soft ICBMs in the strategic sense. Once war begins, the sea-denial force is effective only as long as its targeting/surveillance component survives. Thus an effective counter to Soviet long-range naval forces would be an offensive against the big MR aircraft.

(ii) Very efficient command and control. This system must include continuous status reporting of individual units. Otherwise the fleet commander cannot assume that his fleet is ready to fire. As the complexity of fire-control gear increases (and its reliability decreases) this status reportage becomes more vital. It may be that the communications gear is the most appropriate target for radiation-seeking missiles. If the presence of these missiles tends to deter communication, the sea-denial fleet is in serious straits.

(iii) Maximum numbers, to maximize the dispersal of the fleet. Dispersal means both survivability of individual units and saturation of our terminal defenses. Hence the most logical *constructional* strategy is austerity and very little defensive armament. However, the sea-denial strategy is not so very well appreciated that its proponents will accept ships armed solely with big cruise missiles. Shipyard constraints may also tend to restrict somewhat the number of units. Of course, in a situation of limited resources, as the numbers rise so does the difficulty of command/control. Manning and shipyard costs also rise out of proportion to the number of weapons deployed; and the more austere the ships, the less durable they are.[11] Pure sea-denial may have more charm in theory than in practice.

(iv) Separation of the fleet commander from the zone of operations. There can be no unit the loss of which would destroy the cohesion of the dispersed force—i.e., there can be no fleet flagship in any serious sense. For example, Soviet "flagships"

[11] Austerity is also counterproductive in a Navy intended for its peacetime political clout: it is hard for the natives to gape at a cabin cruiser, even if their rulers know that the cabin cruiser has aboard a gizmo which can (perhaps) sink a carrier. That is why so few submarines have ever been used to "show the flag." The Soviets have not tended to use their most impressive units for port visits; however, one can consider the function of their Mediterranean Fleet a kind of "showing the flag." It is possible that the Politburo buys ships in direct proportion to how strong an impression they produce *on it:* ships are over-armed because the ministers want a lot of rockets for their rubles. Early US capital ships were over-armed (for their size) for very similar reasons.

perform administrative tasks only. To the extent, however, that the Soviets wish to operate their ships in tactical combination, they must provide local tactical commanders, hence back away from the dispersal their basic strategy requires. If in fact the air-capable ships are the key to shadowing/targeting in Soviet operations far from home, they present exactly this type of target. The same can be said of the big MR aircraft based in places like Cuba and Somalia: remove the aircraft and the missile ships find it hard to cooperate.

(v) The serious sea-denial force must forego *any* geographical concentration which makes it a tempting target for a preemptive strike. As tension increases the ships must disperse: they cannont present neutrals with an image of *increasingly concentrated* strength. Soviet behavior in 1973 may bear out this contention.

Some Future Prospects

The future course of the Soviet Navy is by no means clear at this writing. Soviet yards continue to produce ASW ships of the KARA/KRESTA II/KRIVAK series as well as submarines of types already well established. However, KIEV presents some new possibilities. For some time the Soviet CinC has written about Soviet state interests overseas, principally in terms of the support of local friends. In a future Angola, a KIEV could provide invaluable ground support and at the same time materially raise the ante for any Western intervention. It is not that she is invincible, but rather that she need not turn tail at the threat of a pair of US frigates—it takes a carrier or a good attack submarine to dispose of her.

This is the kind of short-of-major war mission not generally well-supported in the United States. In a larger sense, many writers suggest that the Soviet Navy is trying to expand its operational area well beyond the Soviet coastal seas. Should that Fleet try to maintain its sea-denial strategy, a serious problem may soon confront it: replenishment.

Operations far from home require either well-stocked foreign bases or mobile bases in the form of replenishment ships, or else very considerable sacrifices in the form of space and weight to improve endurance.

Foreign bases represent a considerable investment as well as a point of concentration attractive to attack. As the Soviets have shown, such bases are vulnerable to peacetime political assaults as well. Even worse, the maintenance of a string of bases forces upon the Soviet Navy the role of sea controller.

The basic problem of replenishment ships is that they pay only if one ship can top off several warships. In that case the replenishment ships can be concentrated and thus protected; but that requires a concentrated

fleet. Otherwise it is one (say AOR) auxiliary per combatant, and the costs are brutal for even a small sea-denial fleet.

An alternative which the Soviets may have adopted is a very large fleet of auxiliaries which pays for itself in peacetime as a big merchant fleet. Once more the problem is that the individual units are easy to sink—easier in fact than the warships they service, and just as rewarding—and far less efficient than specialized auxiliaries. Alternatively, merchant ships caught in ports uion the outbreak of war might be used for replenishment—as the Germans did in 1914 and in 1939. However, factors militating against such a strategy would have to include neutrals' discomfort at the use of their ports as bases; the special fuel required by Soviet gas turbine warships; and reloads for missile tubes, which are large and bulky loads. The latter would matter more as the fleet moved away from its cloud of MR aircraft and hence toward easier decoying.

The Soviets are left with the choice of warships of individually great endurance. That seems to mean both nuclear power and large capacity for stores and reloads (at least reloads for defensive weapons) and consequently high unit cost. As the number of major units multiplies, the cost becomes worse and worse, yet there is no good sea-denial alternative to nuclear power; indeed, nuclear power is far more essential to such a force than it is to our task forces. It is ironic that a force designed specifically to consist only of cheap expendable units ends up instead with *only* the most expensive ones.

One suspects, then, that for long-range operations the Soviets will have to abandon their centralized system in favor of flagships, task groups, and all the impedimenta we sometimes try to eliminate. And that will mean that there will be prime Soviet targets just as valuable as are our CVNs.

Sea-denial has its limits.

Chapter 12

Trends and Patterns in Major Soviet Naval Exercises

By Donald C. Daniel

Proper understanding of Soviet naval strategy involves focusing on at least three general categories of information: (1) what the Soviets say about their Navy, its composition, and utilization; (2) what they build in terms of ships, submarines, aircraft, weapons, sensors, and the like; and (3) what they do with their Navy as seen in deployments and exercises. This chapter is concerned with the latter portion of the last category. Its purpose is to set down trends and patterns associated with the major, open-ocean, high-visibility exercises of the Soviet Navy from 1961 through early 1977. The focus is almost exclusively on exercises involving the Western fleets (i.e., the Northern, Baltic, and Black Sea Fleets) due to the relative paucity of published information on Pacific Fleet activity. For the most part, only the most significant exercise of each year provides the basis for the identified trends or patterns.

The trends to be presented deal with the following features of the exercises: timing and frequency, geographic scope and fleet participation, ship and submarine participation, and functional training where the functions of concern are anticarrier warfare, antisubmarine warfare, amphibious warfare, sea lines of communication interdiction, logistics and replenishment, and command and control.

Proper understanding of the trends associated with each feature requires that one keep in mind a few points. First, the Soviets probably assume that their high visibility exercises will be observed by the West; hence, they can be expected to take some measures to avoid "giving too much away" and may even look for ways to confuse Western observers. Second, navies usually seek to maximize training opportunities during major exercises; hence, much of what goes on may consist of discrete, separate events which do not necessarily fit into some overall, logical, or unified scenario. Third, navies must exercise if they are to be proficient in

their wartime tasks, and they must do so in a manner at least generally corresponding to what they expect and want to do in wartime. If navies view the performance of their wartime tasks as involving large-scale maneuvers and the coordination of numerous forces, then they must in peacetime seek to simulate—again, at least in a general way—such maneuvers and coordination. As a result one should expect major exercises to be highly informative as to intentions and methods, notwithstanding the first two points made in this paragraph.

Some Trends as to Timing and Frequency

There evidently were no major open-ocean naval exercises of any significance prior to July 1961 when eight surface combatants, approximately four submarines, and a number of support ships trained together in the Norwegian Sea. Following a similar though more ambitious exercise in 1962, the Soviets established a pattern of bi-annual major open-ocean maneuvers in 1963—the first generally occurring in the spring and the second in the summer or the fall. The more significant of the bi-annual exercises through to 1968 most often occurred in the summer, but it has shifted since then to the spring.

Evidence suggests a pattern that every five years, beginning with 1965, the Soviet Navy ran an exercise which was definitely more extensive than any which occurred either in the previous or subsequent four years. That OKEANs 70 and 75 were the largest of all Soviet naval exercises is universally accepted and needs no documentation. The summer 65 maneuvers are less well known, yet they were particularly large for their day when compared to any exercise before them or, with one exception, any exercise after them up to the 70 OKEAN. The exception was a Warsaw Pact naval exercise in the summer of 1968 codenamed "SEVER." SEVER was very impressive in terms of the number of participants—which included E. German and Polish naval forces—and the geographic scope of activity, but to a high degree it was dedicated to amphibious warfare training. If one were to "subtract" the amphibious forces and activities from SEVER, one would end up with an exercise smaller than Summer 65, which did *not* have amphibious play. SEVER also involved non-Soviet Warsaw Pact naval forces which usually do not participate in the one or two major open-ocean naval exercises which take place yearly.[1]

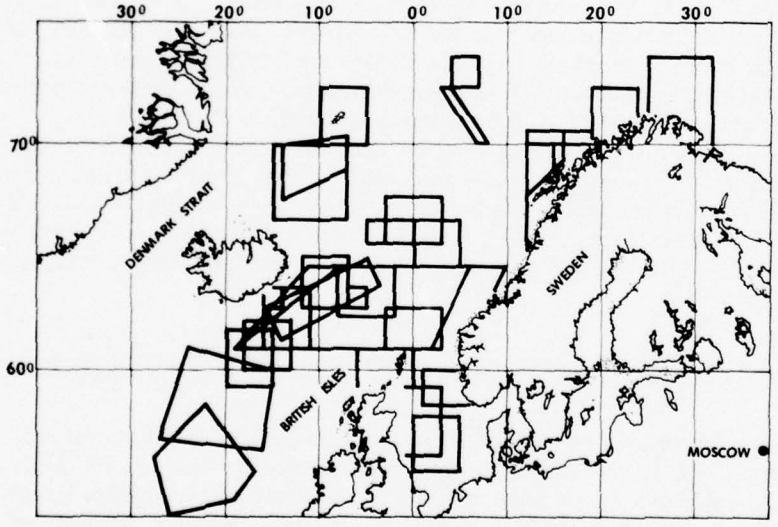
The 5 year-pattern identified above seems to be associated with the termination of one 5-year plan and the beginning of the next. Summer 65, OKEAN 70, and OKEAN 75 all occurred in the last years of three

[1] The fact that the major Soviet naval exercise in 1968 was a Warsaw Pact exercise and that it occurred in the midst of the Czech crisis suggest that it may have been motivated by the crisis and intended to serve as part of the background "orchestration" associated with pressuring the Czechs.

consecutive 5-year plans and at a time when decisions were being made relative to the allocation of resources for the next plan. In line with this hypothesis, Admiral Gorshkov, in an article written to honor the opening of the most recent CPSU Party Congress, stated that the "most complex" of Soviet naval exercises "rightly became the measure of the Navy before the Central Committee of the Communist Party, the Soviet Government, and all the people."[2] It is at the CPSU Congresses where the Soviets emphasize the progress made toward the fulfillment of the last 5-year plan and where projections for the next plan are officially promulgated.

Trends as to Geographic Scope of Activity and Fleet Participation

The most intense of the exercise activities always occurred in the waters between North Cape and the North Atlantic, though specific geographic areas of exercise play within those waters fluctuated significantly from year to year[3] (see figure 46). These activities always involved



(Drawn from "Soviet Naval Activities," *NATO Letter* (September, 1970), pp. 6–11 and "Soviet Naval Activities," *NATO Review* (December, 1976, pp. 8–11.)
Figure 46. Areas of Major Soviet Naval Exercise Activity—North Cape to North Atlantic 1961–1976.

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[2] Admiral Sergei Gorshkov, "Greeting the 25th Congress of the CPSU," *Morskoy Sbornik*, (No. 2, 1976), p. 10.
[3] On this point, please see the maps contained in "Soviet Naval Activities," *NATO Letter* (September, 1970), pp. 6–11 and "Soviet Naval Activities, 1971–1976," *NATO Review* (December, 1976), pp. 8–11.

forces from the Northern and very often from the Baltic Fleet. Particularly after the mid-sixties, Mediterranean squadron forces (which usually included ships from both the Northern and Black Sea Fleets) frequently transited through the Gibraltar Straits to participate in the North Cape to North Atlantic events.

In some cases concurrent but less intense maneuvers were also carried out in the Baltic and, at least during the OKEANs, in the Black Sea. What Mediterranean play occurred usually tended to be minor. Indeed it was not unusual for the Mediterranean forces to hold their own fairly large but separate exercise either shortly before or after the larger annual/bi-annual exercise focused on in this study. To the extent that the level of activity in the Baltic or Mediterranean was less than intense at the time of the most significant of the annual exercises, it was probably due to force levels in those waters being drawn down for the sake of the North Atlantic to North Cape evolutions.

It is clear that over the long run the Soviets deployed and exercised their forces at ever greater distances from the USSR. The 1961 maneuvers e.g., took place only in the north-central Norwegian Sea. By contrast, OKEAN 75, the most widespread of all the exercises, involved activity along the whole periphery of the Eurasian continent and as far south as the Hump of Africa, the Arabian Sea and possibly the Philippine Sea. In addition, Soviet aircraft, for the purposes of the exercise, deployed to and operated from bases in Cuba, Guinea, Somalia, and South Yemen.

Both OKEAN 75 and its 1970 counterpart were characterized by the Soviets as "worldwide" in nature since all four fleets and at least the Mediterranean squadron were being exercised simultaneously. OKEAN 70, however, was not as extensive as 75 since it did not seem to involve activity in the Indian Ocean or in areas as far south as the Hump of Africa.

Trends as to Ship and Submarine Participants

The number of ship and submarine participants differed considerably from year to year as did the ratio of surface combatants to submarines. As a rule only Soviet units took part in the yearly major exercises though there were exceptions such as SEVER. The two OKEANs, as the largest exercises, both involved approximately 200 ships and submarines. It is estimated that in OKEAN 75, 100 of these deployed and augmented the 120 or so platforms already on station. Not all 220 units, however, were actually OKEAN participants.

Surface-to-surface missile (SSM) ships first appeared in an open-ocean maneuver in 1964 and were increasingly prominent as players till the beginning of the seventies, after which both the SSM ships and the MOSKVA class helicopter carriers experienced declines in their participation. In contrast, it would seem that since that time ASW surface ships

other than the MOSKVA and possibly submarines have generally played more prominent roles. These shifts probably reflect a corresponding shift in emphasis on the naval functions being exercised and an increasing inventory of ASW platforms. As for the MOSKVA class, it may be that the Soviets are dissatisfied with its performance.

Trends as to Functional Training

Anticarrier Warfare

From 1961 onward anticarrier warfare (ACW) strike activities generally formed *a* major portion, and up through 1971 or so, *the* major portion of the primary open-ocean exercises. The ACW evolutions reflected the putting into practice of the tactical principles laid down by Gorshkov in numerous writings.[4] Specifically, until the beginnings of the seventies, the Navy primarily strove to get its surface, subsurface, and air assets to work together so as to subject enemy carriers to concentrated and well-coordinated missile strikes designed to saturate the carrier defenses. The exercises also reflected the principle, laid down as early as 1962 in Sokolovsky's *Military Strategy*, that the carrier must be attacked at a point beyond the range at which its aircraft can be launched to strike at the Soviet homeland. In line with that principle, the strike evolutions over the years generally took place farther and farther away and ultimately concentrated on establishing a 1500 nautical mile defense perimeter around the homeland.[5] This perimeter roughly corresponds to the United Kingdom-Greenland-Iceland Gap and to a point slightly east of the Straits of Sicily. Simulated carriers entering that perimeter were subject to heavy attacks. John Erickson points out, e.g., that the simulated carrier forces penetrating the UK–G–I Gap in OKEAN 70 had to run the gauntlet of ten missile-armed surface combatants, thirty submarines, and over 400 sorties of aircraft arriving in waves.[6]

At least through 1971, the emphasis of the ACW aspects of the major exercises seemed to be on the strike phase itself and on its coordination. Beginning in about 1974, however, the emphasis shifted more to the reconnaissance/surveillance phase, i.e., on finding and keeping constant track of the enemy and being ready to strike at him whenever necessary in a quick reaction manner. There seemed to be a greater concentration on a "buildup of tensions" scenario, on the use of satellites as reconnaissance/surveillance tools, and on the forward deployment to and

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[4] See particularly Gorshkov, "The Development of the Art of Naval Warfare," *United States Naval Institute Proceedings*, (June, 1975), pp. 55–63.

[5] Marshal V. D. Sokolovsky, *Military Strategy*, US Air Force, Foreign Technology Division Translation, (1968), p. 309.

[6] John Erickson, "The Northern Theater: Soviet Capabilities and Concepts," *Strategic Review* (Summer, 1976), p. 75. See also Drew Middleton, "Soviet Fleet Maneuvering in Atlantic," *The New York Times* (23 April 1970), p. 6.

use of reconnaissance aircraft from distant bases (Cuba, Guinea, Somalia, S. Yemen). Watson and Walton note that OKEAN 75, e.g., was a "more realistic test of surveillance capacity than seen in previous exercises," and they give as a case in point the fact that "surveillance aircraft appeared to have operated without prior knowledge of the location of the naval exercise forces."[7]

The greater emphasis on surveillance did not mean, of course, that the Soviets proceeded to ignore ACW strike training. OKEAN 75 was particularly interesting in this regard. The 75 strikes were conducted primarily by aircraft, possibly aided by submarines, and the main attack seemed to have taken place north of the UK–G–I Gap. "Preliminary" strikes also occurred in the Gap and beyond in the North Atlantic and appeared to reflect a more concerted attempt, compared with previous exercises, to attrite carrier forces prior to the main attack.

Antisubmarine Warfare

Prior to 1973 antisubmarine warfare (ASW) was a prominent feature of many of the exercises but not of all. In 1973 ASW became, for the first time, the main theme of a major exercise—this being a function, certainly, of the gradual increase since the mid-sixties of open-ocean ASW platforms, including aircraft, in the Soviet Navy. Also, the 1973 spring exercise involved—more so than ever before—coordinated air, surface, and subsurface ASW operations. The same type of operations figured very prominently in OKEAN 75 and were probably the main theme of the spring maneuvers in 1976 and 1977.

Repeated statements by Gorshkov and others about the need to neutralize Western SSBNs and to provide support and protection for Soviet submarines suggest that the ASW evolutions were aimed to increase Soviet proficiency to deal with both Western ballistic missile and attack boats.[8] While coordinated operations were emphasized in the exercises, it may be that the Soviets are relying very heavily on submarines in line with Admiral Gorshkov's oft-stated view that the best anti-submarine platform is another submarine. In a published article pointing out ASW nature of the spring 73 maneuvers, it was noted that the Soviets had a heavy concentration of submarines east of Iceland for the exercise.[9] In OKEAN 75 similar concentrations took place in an area south of Iceland and west of the UK, in the waters between Inceland and Jan Mayen Island, and possibly east of Iceland in a barrier running toward the Norwegian coast and reminiscent of the 73 concentration.[10]

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[7] LCDR Bruce Watson and LCDR Margurite Walton, "OKEAN–75," *United States Naval Institute Proceedings* (July, 1976), p. 94.

[8] See Gorshkov, *Sea Power of the State*, Moscow: Voyenizdat, (1976), chapter IV, particularly the section entitled "Fleet against Fleet and Fleet Against the Shore."

[9] "Soviet Naval Activities . . ." *NATO Review*, p. 9.

[10] *Ibid.*, pp. 9–10 and Erickson, p. 76.

Amphibious Warfare

More often than not, amphibious landing activities were not part of the major exercises which form the data base of this study. They usually take place in entirely separate and independent evolutions. Even in major exercise where landings did not occur, however, it was not unusual to have amphibious convoys formed for the sake of convoy protection and interdiction training.

One feature of the landings which were conducted is that they often tended to be joint Warsaw Pact operations in the Baltic and Black Seas. By contrast, landings in the Northern Fleet area involved Soviet forces only but not necessarily only Northern Fleet forces for, on occasion, Baltic amphibious units transited through the Danish Straits and thence north to participate in landings on the Rybachi Peninsula.

In his account of OKEAN 75, John Erickson observed that the Soviets conducted a Baltic amphibious exercise "which, if turned through an arc of 180°, could be a formula for an assault landing operation aimed at Schleswig-Holstein." The same point can be made about some of the Northern Fleet evolutions if one accepts that an objective of the Soviet Union in any major war is control of Northern Norway.

Soviet amphibious maneuvers indicate that the Soviet Naval Infantry serves only as the spearhead of any landing with regular ground forces following immediately behind and being transported by merchant ships, if necessary. These maneuvers also indicate Soviet intent, as Gorshkov emphasizes, to gain control of the air over the landing area. Such air support up to now has come only from local land-based air. It will be interesting to see if future exercises involving the KIEV have it playing an amphibious support role.

OKEAN 75 and Sea Lines of Communications Interdiction

For many commentators some of the most significant and surprising aspects of OKEAN 75 were activities which suggested heightened Soviet interest in sea lines of communications (SLOC) interdiction. Watson and Walton wrote, e.g., that "in comparison to previous Soviet naval exercises, OKEAN 75 was unique in the increased priority seemingly assigned" the anti-SLOC mission.[11] The Soviets assembled convoy-type formations west of Portugal, east of Japan, and in the Norwegian Sea. Merchant ships were part of the last two groups, but since amphibious ships were also part of the Norwegian group, it is probable that it was simulating an amphibious task force rather than a merchant convoy per se. The Soviets utilized all three formations to exercise not only interdiction—which was undertaken by aircraft and submarines—but also convoy protection.

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[11] Watson and Walton, p. 96. See also "Vast Soviet Naval Exercise Raises Urgent Questions for West," *The New York Times*, 28 April 1975, p. 6.

The following points may be useful for evaluating the significance of these OKEAN 75 maneuvers. The first is that a good case can be made that recent Soviet naval literature has given increased emphasis to the anti-SLOC mission.[12] The second is that an even stronger case can be made for the proposition that the USSR has in recent years stressed a need to be ready to fight major wars at whatever level, including the conventional where the anti-SLOC mission is most relevant.[13] In contrast to these two points, it should also be mentioned that convoy protection and interdiction training is not new to the Soviet Navy and did not first appear in OKEAN 75. The Soviets have often engaged in such training in the past, though, as already noted, primarily in relation to amphibious convoys. In addition, the Soviets have in peacetime convoyed men or materials (in aid of Third World clients, for instance), and they may feel a need to exercise protection tactics. The Cuban missile crisis no doubt sensitized the Soviets to providing adequate protection to their assets on the high seas against what Gorshkov has termed "imperialist encroachments." Finally, the Soviets may have wanted the West to observe their anti-SLOC training in order to force Western leaders to think twice about their own vulnerabilities before they take any specific action in peacetime which would be threatening to Soviet interests. Admiral Gorshkov has presented a number of examples in his writings where the Imperial Russian Navy scored political points for Russia, so to speak, by implicitly threatening the sea lines of communication of Russia's enemies in peacetime. For example, he wrote in his 72–73 series that the 1863 Polish insurrection against Russian rule exacerbated Russia's relations with the British and the French since they supported the Poles.

> In the same period relations worsened [, Gorshkov says,] between the USA and England leading to armed conflict against ocean communications. Under these conditions Russia felt it expedient, not expecting the outbreak of military actions to move its squadrons to the trade routes of the Atlantic and Pacific Oceans, to put pressure on her enemies in order to obtain a peaceful solution to the conflict which had arisen. Admiral Lesovskiy's ships secretly crossed the Atlantic and put into New York harbor. At the same time Admiral Popov's squadron appeared off the Pacific coast of the United States. The surprise arrival in US ports of two Russian squadrons capable of cutting the vitally important oceanic communications of the English and French made a strong impression on the leaders of England and France and forced them to change their political position.[14]

Quotes such as the above lead one to wonder if the anti-SLOC activities of OKEAN 75 might not have been intended just as much to make an

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[12] See, e.g., Captain first rank G. Morozov and Captain first rank B. Krivinsky, "Some Lessons and Conclusions Gained from Combat Experience on the Sea Lanes of World War II," *Morskoy Sbornik* (No. 5, 1976), pp. 22–28.

[13] See, e.g., Thomas W. Wolfe, *Military Power and Soviet Policy* (RAND Memo P-5388, March, 1975).

[14] Gorshkov, "Navies in War and Peace," *Morskoy Sbornik* (No. 12, 1972), p. 17.

impression on Western leaders in peacetime as they were to practice a wartime task.

Logistics and Replenishment Training

The Soviets are rather slowly but surely providing themselves with ships intended for sophisticated underway replenishment at great distances from the homeland. At the present time, however, they still rely heavily on merchant ship support, and they utilize, by US Navy standards, rather primitive methods. When the US Navy engages in at-sea replenishment, it does so quickly, at underway speeds of up to twelve knots, and in a formation intended to provide screening against enemy attack if hostilities were actually extant. There was very little of that kind of activity in the major exercises. Soviet at-sea replenishments usually took place with the ships dead-in-the-water or at dead slow speeds. Ship-to-ship transfers, whether of oil or solid-stores, took a great deal of time and were not done within the context of any simulated defensive screening. Soviet naval literature, however, has recently placed greater emphasis on the need to improve underway replenishment techniques, and some exercises in 1976 observed in the Mediterranean were indicative of Soviet attempts to achieve that goal.[15] It does not seem unreasonable then to predict that future exercises will see greater attention being given to increasing Soviet underway replenishment sophistication.

Some Comments on Command and Control

The Soviets published a volume about OKEAN 70, and in it they included a chapter on command and control (C^2). It seems appropriate to highlight some of the factors mentioned in it.[16]

The main command post or central headquarters for directing the OKEAN activities was manned by the Main Navy Staff, whose efforts were directed by the Chief of the Main Navy Staff, then Admiral Sergeyev. As expected, the command post contained "huge" maps and plotting charts for keeping track of the dispositions of "friendly" and "enemy" forces as well as of factors such as weather conditions. A captain first rank monitored the status boards and reported all changes to Sergeyev and, "in urgent cases," to Gorshkov himself. Sergeyev evidently had the authority to make many if not most of the necessary decisions, subject, of course, to ultimate review and override by

[15] See Captain William Manthorpe, "The Soviet Navy in 1976," *United States Naval Institute Proceedings* (May, 1977), p. 210.

[16] All citations and information in the C^2 section are from Captain first rank I. Panov and Captain second rank V. Yermolaylo, "All Oceans Are Nearby," as contained in *"OKEAN"—Maneuvers of the USSR Navy Conducted in April-May 1970* (Moscow: Voyenizdat, 1970), pp. 51–64.

Gorshkov. The article implied that Gorshkov was periodically briefed on the overall situation. Since "urgent cases" were brought directly to his attention, he must have been the one who made the decisions concerning them. His presence in the command post did not seem to be required since it was pointed out that he could "direct the maneuvers from on board a ship or from a shore-based point with firm confidence that the headquarters will implement his decisions."

An order from Gorshkov was described as "a basic instruction, containing the main missions." Fleet and operational commanders and their staffs were then to "work out specific aspects of these missions." From an example which was given, it appeared that operational commanders proposed a course of action they wanted their forces to pursue. That proposal was then evaluated by the headquarters staff which relied on electronic computers and "mathematical methods" to sort and assimilate the "hundreds of data items" which might be involved in identifying and evaluating alternatives. In this example, the decision was Gorshkov's to make and the alternatives before him were to have "the 'Northerners' either . . . take advantage of nighttime conditions and make a sudden attack with reduced forces, or to await reinforcements by dawn, but thus lose a certain amount of time." The article does not specify which alternative was chosen except to note that Gorshkov chose the alternative which had originally been proposed by the operational commander.

Other examples in the article make it clear that the command post received fairly detailed information on individual units and did issue rather specific orders. For instance, it maintained a plot of the tracks of ASW aircraft and kept itself informed as to how long it would be before the first sonobuoys were dropped. In another case, it followed the progress of a "squadron" (whether it consisted of aircraft, submarines, or surface ships was never specified) and ordered it to modify its intended movement and "not . . . follow the channel on the right" as originally planned. The level of detail implied by such examples makes it easy to understand why the officers in the command post were described as being "under constant stress."

Conclusions

From an exercise point of view, the Soviet Navy has been an open-ocean force for slightly over a decade and a half. If one had to choose an overall qualitative trend from analysis of the exercises, it would be that of an improved capability to operate large numbers of forces in the open-ocean, some at very great distances from the Soviet Union. The question of how those forces would fare in a major war situation forces one to stress that Soviet improvements are not uniform in all areas nor, does it seem, is Soviet commitment to improve.

From an exercise point of view, Soviet progress in ACW is truly impressive, reflecting a very strong commitment. Progress in ASW is more difficult to gauge, but the exercises, particularly those in recent years, indicate that the Soviet commitment to the ASW problem is just as strong if not stronger than the commitment to ACW. Soviet progress in amphibious warfare is also difficult to judge, but in this writer's opinion, progress was especially marked in the sixties through the beginning of the seventies with the Soviets possibly now being on a plateau. The question of progress in the anti-SLOC mission may not be as important as the question of commitment to that mission since residual Soviet capability for strike at SLOCs exists. Future exercises may be especially important to give the West greater insight as to specific Soviet intentions. It would seem to be generally accepted that the longer any East-West war, the greater the prospects of SLOC interdiction. At-sea replenishment is, I believe, the Soviet Achilles' heel. The Soviet commitment to improve their war-sustaining capability is there, but it does seem to be less strong than Soviet determination to improve their war-*fighting* posture. As for command and control, it is enough simply to note the following: any country which moved from a relatively small Norwegian Sea exercise in 1961 to worldwide 200 ship maneuvers in 1970 and 1975 must have made a strong commitment to improving C^2 and actually achieved significant results.

Part III—Naval Arms Limitations: The Soviet View

Chapter 13

Changes in Soviet Naval Policy: Prospects for Arms Limitations in the Mediterranean and Indian Ocean

By Anne Kelly Calhoun
and
Charles Petersen

This chapter discusses Soviet initiatives for agreement with the United States on naval arms control, and attempts to evaluate their significance in the context of the Soviet Navy's increasingly active role in support of Soviet foreign policy. It considers:

- Brezhnev's 1971 proposal** for naval deployment limitations in the Mediterranean and the Indian Ocean.
- Brezhnev's 1974 proposal for the withdrawal of ships carrying nuclear weapons from the Mediterranean.
- The political environment in which the proposals were made.
- An overview of naval arms limitations negotiations during 1977–78.
- The qualitative changes in Soviet naval diplomacy which became apparent beginning in 1973.

**As it is used here, the term "proposal" includes within its meaning not only negotiating offers submitted *formally*, but also authoritative position statements made *informally* (e.g., in a public speech) by the Soviet leadership. Brezhnev's 1971 and 1974 public statements on deployment limitations are thus considered here to be "proposals" of the latter type.

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It should be granted at the outset that there are a number of problems in assessing the intent and motivations of Soviet public statements proposing naval arms limitations. First, there is the question of how serious the Soviets are in pursuing naval limitations. Secondly, assuming they are serious, there is the difficulty of understanding what kind of agreement is desired, and what specific weapons systems an agreement along Soviet lines might effect. Finally, there is the problem of discerning the minimum Soviet bargaining position: taken at face value, for example, Brezhnev's 1974 proposal offered no Soviet concession to match a withdrawal of US strategic naval weapons platforms from the Mediterranean. Because of this vagueness and ambiguity, varying interpretations of these proposals are considered here.

Timing and Content of Soviet Naval Limitation Proposals

Since 1971, there has been a qualitative change in the character of Soviet peacetime naval operations and greater emphasis on the "internationalist mission" of the fleet. This development has been paralleled by what may appear to be an on-again, off-again verbal campaign for mutual US-USSR naval limitations, principally in the Mediterranean and the Indian Ocean. The timing and content of these proposals tell something about their motivation and the seriousness with which the Soviets have offered them.

The first of these initiatives was made explicit in the spring of 1971, when the USSR informally indicated to the US an interest in mutual naval restraint in the Indian Ocean.[1] In June of that year Soviet interest was made public when CPSU General Secretary Brezhnev stated the USSR was willing "to discuss any proposals" concerning measures to terminate the less than "ideal situation when navies of the great powers are cruising about for long periods far from their own shores. . . ."[2] In this context he referred specifically to the Mediterranean and the Indian Ocean.

At the same time—the spring of 1971—there were two related developments that explain Soviet interest in naval limitations and the lack of follow-through on Brezhnev's proposal: the promulgation of the Soviet Peace Program at the 24th CPSU Congress in April, and the Soviet campaign within the SALT forum for limitations on forward based systems (FBS).

The Peace Program confirmed the Soviet commitment to detente and proposed a number of measures—including arms control—for peaceful

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[1] Transcript of Statement of J. Owen Zurhellen, Deputy Director, US Arms Control Agency, before the House Subcommittee on the Near East and South Asia, Washington, DC: Alderson Reporting Company, 21 February 1974, p. 8.

[2] Speech by General Secretary of the CPSU Central Committee Leonid Brezhnev, 11 June 1971, Reported in *Pravda* (12 June 1971), pp. 1–2.

relations between East and West. The naval limitations proposal of 1971 accords with the general framework for the conduct of direct relations between the USSR and the West.

It was during the winter and spring of 1971 that the Soviets pushed hard for the inclusion of the FBS issue in a SALT agreement. By May 1971, according to John Newhouse, the Soviets had been persuaded to exclude the issue from the forthcoming agreement.[3] Only 1 month later, Brezhnev went public with the call for naval limitations in the Mediterranean and Indian Ocean. Thus, when the Soviets agreed to table the FBS issue until after the SALT I agreement, they merely changed the forum in which to conduct the campaign. Soviet persistence on the issue suggests more than mere exploitation of the issue for immediate political gain. For this reason the FBS issue was not a dead one even though the Soviets had stopped demanding its inclusion in the SALT agenda by the time the Vladivostok Agreement was signed in November 1974. The fact that the Soviets apparently decided to forego discussing FBS in this particular forum at this time by no means foreclosed the possibility of their raising it in the future. Indeed, the Soviets have raised the issue in the context of the Salt II negotiations, ie., Gromyko's press conference in April 1977.

In a July 1974 speech before the Polish *Sejm* (parliament), Brezhnev called for the "withdrawal of ships carrying nuclear weapons" from the Mediterranean.[4] Since the Soviets consider the US Navy's nuclear weapons platforms in the Mediterranean to be forward-based systems, the choice of an Eastern European country (directly involved in the NATO-Warsaw Pact negotiations on mutual force reductions) as a locus from which to discuss Mediterranean security issues could have been more than mere happenstance. A more explicit hint that the Soviets may have wished to discuss FBS in possible future European force reduction negotiations was given in September 1974 by then Soviet President Podgorny in a Sofia, Bulgaria speech honoring the 30th anniversary of the Bulgarian revolution:

> Among the more urgent practical steps which would substantially improve the international atmosphere, one of the paramount steps is the further easing of tension in sectors where NATO and Warsaw Pact forces are directly contiguous. In this plane the Soviet Union attaches great significance to the Vienna talks on the reduction of armed forces in Central Europe. *In addition, the Soviet Union advocates the turning of the Mediterranean into a zone free of nuclear weapons and into a zone of peace. This would be promoted by the withdrawal of ships with nuclear weapons on board from the Mediterranean region. The Soviet Union is ready to take such an important step, of course, on a basis of reciprocity. We believe that*

[3] John Newhouse, *Cold Dawn: The Story of SALT*, NY: Holt, Rinehart and Winston, 1973, pp. 194–195, 222.

[4] Speech by CPSU Central Committee General Secretary Leonid Brezhnev to the Polish Sejm, 21 July 1974; Reported in Foreign Broadcast Information Service (hereafter cited as FBIS), Daily Report, Vol. III, The Soviet Union, No. 141, 22 July 1974.

> *the taking of the above steps would facilitate in many ways the further normalization of the situation in Europe and throughout the world* [emphasis added].[5]

Clearly, Podgorny was drawing a link between Brezhnev's proposal and the issue of what the Soviets like to call "military detente in Europe." However, to date the Soviets have not, either officially or unofficially, alluded to the inclusion of FBS at MBFR. The nuclear weapon systems included in the Western proposal of late 1975 may be considered by the Soviets to be FBSs, but these are systems deployed in the NATO Guidelines Areas (NGA).

It should be pointed out that the Mediterranean currently falls outside the agreed scope of MBFR. To broach the FBS issue, even in general terms, at Vienna would vastly alter the negotiations and open the door for the West to introduce proposals addressing the SS–20 and the BACKFIRE—a situation the Soviets would most definitely want to avoid.

Nevertheless, the possibility that the Soviets may propose follow-on negotiations for that purpose cannot be excluded. A 1975 article in the Soviet journal *Mezhdunarodnaya Zhizn'* entitled "Problems of Military Detente in Europe" suggest such a prospect may have been considered at one time.

> The Soviet Union and other socialist countries proceed from the premise that the reduction of armed forces and armaments in Central Europe is by no means the end of the road toward European disarmament but just its beginning. As the Warsaw Conference of the Warsaw Pact countries' Political Consultative Committee pointed out in April 1974, as successes were achieved at the talks in Vienna, it would be possible *to begin talks on the reduction of armed forces and armaments in other regions of Europe too. Thus the process of reducing armed forces and armaments ought gradually to embrace the entire European continent. . . .*

Among the specific measures for "military detente" in Europe that the article alluded to in this connection were "the creation of a nuclear-free zone in the north of Europe and its guarantee by the nuclear powers" and "the withdrawal of Soviet and US ships equipped with nuclear weapons from the Mediterranean region on a reciprocal basis."[6] The article could not have drawn a clearer connection between Mediterranean arms limits on the one hand and European security issues on the other.

There are some potentially significant differences between the Brezhnev statements of 1971 and 1974.

- The 1971 statement stressed both the Mediterranean and the Indian Ocean; the 1974 statement is limited to the Mediterranean.

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[5] For text see *Pravda*, 9 September 1974, pp. 2–3.
[6] Article by A. Yefimov in *Mezhdunarodnaya Zhizn'*, No. 11, 1975 (signed to press 21 October 1975), pp. 17–19.

- The 1971 statement focuses upon continuous naval deployments in these regions—presumably the Soviet objection is to the stationing of naval forces abroad—not to intermittent deployment for "showing the flag," transits, and special operations, etc. The 1974 statement does not address the issue of continuous versus intermittent deployments. Here the emphasis appears to be on weapons systems of deployed forces. This later proposal may therefore have been designed to limit only forward-based strategic systems, rather than these and general purpose forces as well.

Compared to the 1971 proposal, which presumably would have affected the general purpose forces (GPF) of both sides, Brezhnev's 1974 proposal is manifestly one-sided; and this may well explain Admiral Gorshkov's unprecedented public endorsement of the latter in a Soviet Navy Day article published in *Pravda* on 28 July 1974. In view of the fact that Gorshkov has been advocating the enlargement of the Soviet Navy's GPF, he would presumably have been far more reluctant to support any proposal that limited Soviet naval GPF freedom of action. Moreover, if implemented, the 1974 proposal would achieve a long-standing goal of the Soviet political leadership and the Navy—pushing the seaborne threat to the USSR farther from Soviet shores. Indeed, Gorshkov's endorsement could even mean that the Soviets want to free assets devoted to countering POLARIS and Sixth Fleet nuclear weapons delivery systems for higher priority missions: protection of the Soviet SSBN force,[7] and support of Soviet foreign policy—"the internationalist mission" to which Gorshkov refers in this article. In any case, a denuclearization scheme would pose far less cost to his service than would a GPF deployment limitations scheme.

Soviet Interest in Mediterranean Naval Limitations

Between the late 1950s and 1967, a common theme of Soviet statements on the Mediterranean was the call for its denuclearization and establishment as a "zone of peace." These statements reflected the USSR's concern over the strategic threat posed by the Sixth Fleet, and were indicative of the Soviet Mediterranean squadron's inability to offer

[7] One interpretation of Gorshkov's "Navies in War and Peace" is that it reflects a comparatively recent Soviet decision on a "fleet in being" role for the Soviet navy's SSBNs; i.e., they will withhold at least some of their SLBMs through the main combat period to conduct intrawar bargaining and influence the ensuing negotiations for peace. Gorshkov may have been arguing for an increase in the Soviet navy's GPF for the protection of this SSBN "fleet in being." See James M. McConnell, "Gorshkov's Doctrine of Coercive Naval Diplomacy in both Peace and War," in *Admiral Gorshkov on "Navies in War and Peace,"* CNA Research Contribution CRC 257, September 1974, pp. 71 ff.

a credible counter to NATO naval forces in the region. At the same time, the Soviets put forth Middle East arms control proposals both at the UN and at various disarmament conferences.[8] Western interest in these earlier overtures was lacking due to NATO's overwhelming military superiority in the region. The Arab defeat of June 1967, however, enabled the Soviet Union to considerably improve its position in the Mediterranean through access to Egyptian naval facilities, and Soviet calls for a Mediterranean "sea of peace" correspondingly subsided. This change also appeared concomitantly with the beginnings of the SALT negotiations. At the same time, the Soviet Mediterranean squadron was portrayed as an effective deterrent to the perceived threat which the Sixth Fleet represented to the Arabs. The gap between words and deeds was somewhat narrowed during the height of the Arab-Israeli war of 1973. The Soviet threat to intervene militarily on behalf of Egypt was a qualitatively different reaction to the potential defeat of an ally compared to Soviet behavior in 1967. Though it is impossible to say with certainty that the Soviets would actually have done so, the very fact that they would indicate a readiness to commit their military forces to intervention should indicate that they were willing to accept a higher level of risk of military confrontation with the US, or, at the very least, a higher political risk, should their bluff, if it was one, be called.

In what may appear to be an exception to this pattern Leonid Brezhnev proposed "turning the Mediterranean Sea into a sea of peace and friendly cooperation" in June 1971. Some have suggested that Brezhnev's call was not a serious one. This interpretation, as we have seen, discounts the linkages between the issue and the course of the SALT negotiations at the time.

Brezhnev's revival in Warsaw of the "sea of peace" idea came at a time when the Soviet influence in the Middle East had diminished significantly. Thus, it may have reflected the Soviet Union's precarious position in the Arab world—most notably in Egypt, where the status of Soviet access to naval facilities, according to an April 1974 Sadat statement, was "under discussion."[9] Nevertheless, the Soviets may well

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[8] See for example: "Note from the Soviet Foreign Ministry to the American Embassy Transmitting a Draft Declaration on Nonintervention in the Middle East, 11 February 1957," *Department of State Bulletin*, 1 April 1957, pp. 524–6; "Soviet Note to the United States on Nuclear-Free Zone in Mediterranean, 20 May 1963," reprinted in Arms Control and Disarmament Agency *Documents on Disarmament, 1963* Washington, DC: GPO, 1964, pp. 187–92; "Statement by the Soviet Representative (Roshchin) to the Eighteen Nation Disarmament Committee: Nonproliferation of Nuclear Weapons, 14 March 1967," Arms Control and Disarmament Agency, *Documents on Disarmament, 1967* Washington, DC: GPO, 1968, pp. 143–51; "Brezhnev Report to the 24th CPSU Congress," *Moscow Domestic Service* in Russian, 1750 GMT, 30 March 1971; translated and printed in FBIS, *Daily Report*, Vol. III, *The Soviet Union*, Supplement No. 17, 31 March 1971, pp. 1–17; "Memorandum of the Soviet Government of 8 December 1964 on Measures for the Further Reduction of International Tensions and Limitations of Armaments," Part Six, *Pravda*, 8 December 1964.

believe that serious discussion of naval arms limitations in the Middle East is inappropriate as long as a final settlement of the Arab-Israeli conflict remains beyond reach. Until then the Soviets apparently see value in keeping the issue alive in anticipation of future developments which may provide a more urgent requirement for serious negotiation, such as further improvements in US-Arab relations or the use of Diego Garcia for strategic force deployments.

Soviet Interest in Naval Arms Limitation in the Indian Ocean

Brezhnev's 1971 proposal for mutual naval limitations named the Indian Ocean as an area of primary Soviet interest for superpower naval limitations. Since then the "zone of peace" theme has been a frequent one in Soviet propaganda on affairs in the region, but the Soviets have been generally reluctant to support specific proposals by littoral nations to implement the concept. However, the Soviets have supported some littoral initiatives. In the "Joint Declaration" issued following the Brezhnev-Gandhi summit in November 1973, both "reaffirmed their readiness to take part, together with all interested states on an equal basis, in the search for a favorable solution to the question of turning the Indian Ocean into a 'zone of peace.' "[10] More recently the Soviets supported the Zone of Peace proposal put forward in the United Nations in the fall of 1977.

Subsequent to the October War and the resurgence of the Diego Garcia facility issue in 1974, the Soviets launched a massive propaganda campaign against the increased US naval presence in the region and, concomitantly, revived calls for an Asian collective security system and an Indian Ocean "Zone of Peace."

In early 1977, the United States made overtures to the Soviets regarding arms control in the Indian Ocean. In his speech to the United Nations in early March 1977, President Carter stated that the United States was willing to seek Soviet interest in reaching agreement on mutual military restraint in the Indian Ocean. The principal US objectives are to reduce the possibility of Soviet military predominance and to prevent great power military competition in the area. Although the Soviets

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[9] Cairo Domestic Service in Arabic, 0500 GMT, 23 April 1974, reported in FBIS, *Daily Report*, Vol. V, *The Middle East and North Africa*, 23 April 1974, p. D10.
The Soviets are now denied access to Egyptian anchorages and their naval access to Alexandria is curtailed. See *Washington Post*, 20 July 1975, p. A14, and *New York Times*, 28 July 1975, p. 1.

[10] Moscow Tass in English 1540 GMT, 30 November 1973, reported in FBIS, *Daily Report*, Vol. III, *The Soviet Union*, 30 November 1973, p. J19.

calculated that the balance of power there is more favorable to them than to the West, and the level of risk of conflict escalation more acceptable, they agreed to begin limited negotiations on stabilizing their forces.

In retrospect, though, developments thus far indicate that the Soviets will be fairly hard-line. They have, for example, voiced deep concern over US SSBN deployments, calling for a complete ban to such activities. The US, of course, could not be expected to relinquish a major portion of its TRIAD capability by agreeing to this move. The Soviets have also indicated that continued US presence on Diego Garcia is an impediment to an agreement and have asked that the US facilities there be dismantled. It is doubtful that the US would give up this extremely strategic contingency support base. A unique Soviet tactic in the initial rounds of talks also called for any agreement to take into consideration strategic locations occupied by US allies and other strategic facilities held by the US in the Western Pacific area.

The first exploratory talks on the Indian Ocean were held in Moscow from June 22-27 1977 between delegations headed by Ambassador Warnke and Ambassador L.I. Mendelevich. Follow up talks took place in Washington in September, in December, and in early 1978. After four rounds of talks in which the Soviets and the US agreed to the concept of stabilization, the situation in the Horn of Africa apparently has brought the discussions to an impasse. In Round IV the US voiced strong concern over the Soviet support of Ethiopia and the increased Soviet naval presence in the Western Indian Ocean, calling both a destabilizing factor to the region. With the Soviets arguing that their increased presence currently does not play in the talks, it seems to some that Soviet entry into the arms control discussions may not have been as serious as first believed.

Changes in Soviet Naval Operations in the Indian Ocean

Beginning in 1973, there have been both quantitative and qualitative change in Soviet naval activity in the Indian Ocean. Although the increase in forces deployed has been modest, it is important in that it reveals something about Soviet intentions in the region: 1. a capability and willingness to match the increased US force levels deployed to the region and 2. a heavier commitment of Soviet military power to nations in the region. Following the October War the Soviet Indian Ocean squadron was further augmented in reaction to US naval deployments.[11] The Soviet crisis reaction was not unusual, but following the wind-down of the crisis,

[11] See the testimony of CIA Director Colby before the Senate Subcommittee on Military Construction of the Committee on Armed Services; Reported in Congressional Record-Senate (1 August 1974), p. S.14093.

the Soviets continued to maintain force levels slightly exceeding what they had been in 1972.

The qualitative change in Soviet naval activity in the Indian Ocean is clearly more significant than the change reflected in numbers of ships deployed. Since early 1974, the Soviet force has included more modern anticarrier and antisubmarine units.[12] Beginning in 1973, Soviet naval diplomacy manifested a critical expansion from essentially defensive operations on behalf of Third World friends to greater non-defensive use. Increasingly the lines between defensive and offensive political use of the Soviet Navy are becoming blurred. Soviet naval diplomacy in the Indian Ocean is illustrative of this overall change.

As an instrument of foreign policy prior to 1973, the Navy in the Third World was employed almost exclusively to deter external or internal attacks on Soviet friends in the Third World and to demonstrate against or provide a counterpresence to US naval actions in crisis periods. These trends continue, as the Soviet reaction to CVA deployments associated with the October War in the Indian Ocean revealed. The Soviet Navy's belated involvement in the efforts to reopen the Suez Canal was apparently reactive, and may well have come about in response to the US Navy's agreement to take part in de-mining the Canal, which the Soviets appear not to have expected.[13] The Soviets expressed fears through their broadcast media that the American role in clearing it would enable the US to influence the terms for warship transits of the Canal in a way adverse to Soviet interest.[14] By participating in the Canal's clearance, the Soviets may have hoped to have a voice on this issue. The employment of the helicopter carrier Leningrad in the operation did not appear justified on technical or military grounds. Thus, it may well have been an attempt to draw maximum attention to the Soviet role in reopening the Canal by establishing a credible counterpresence to US units participating in the aerial minesweeping of the Canal.[15]

In any event, the positive change in US-Egyptian relations—of which the US participation in operations to clear the Suez Canal was one of the most vivid symbols—could have been an additional incentive for the Soviets to discuss naval arms limitations.

In contrast to these reactive-defensive operations of 1973–74, at least four cases of Soviet naval diplomatic *initiatives* in the region have been observed.

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[12] Colby, *op. cit.*

[13] Soviet press statements on several occasions referred to DOD opposition to the Suez Canal's reopening. Though Kissinger was on record as favoring the Canal's reopening, the Soviets probably felt that the Pentagon would refuse to participate in its clearance.[14]

[14] *Mezhdunarodnaya Zhizn'* (Moscow), No. 3, 1974 (Signed to Press 20 February 1974); Moscow Radio Peace and Progress in Arabic to the Arab World, 1430 GMT, 20 March 1974, reported in FBIS *Daily Report*, Vol. III, *The Soviet Union*, 21 March 1974, p. B2.; *Ibid*, 22 April 1974, p. F2; *Ibid*, 16 May 1974, pp. B1–B2.

[15] Charles C. Petersen, "The Soviet Union and the Reopening of the Suez Canal: Mineclearing Operations in the Gulf of Suez," CNA Professional Paper 137, June 1975.

(1) Port Clearing in Bangladesh. The harbor-clearing operation in Bangladesh is a clear example of a Soviet initiative in naval diplomacy, undertaken to enhance and consolidate Soviet influence in this infant republic.[16] While the efforts to help reopen the Suez Canal represent an attempt to cut expected losses, the Chittagong operation was an attempt to maximize gains that resulted from Soviet support of the independence of Bangladesh.

(2) Soviet support of "national liberation." In 1973–74, there was at least one case of Soviet naval support of offensive actions by "Progressive" regimes engaged in conflict against pro-Western or non-aligned nations. In April 1973, the Soviets gave overt support to Iraq in its territorial contest with Kuwait. Although the Soviets probably did not approve of Iraq's attack on Kuwait, Admiral Gorshkov's and the Soviet Navy's presence in Iraq during the negotiations on the dispute indicated Soviet interest in border rectifications that would increase Iraq's security. The operation is also associated with other practical steps the Soviets undertook at the time to promote unity in the Arab ranks—the *sine qua non* for facing Israel. The activity in the Iraq-Kuwait case, along with the Soviet sealift of Moroccan troops to Syria in the spring and summer of 1973, were concrete steps to promote the long-preached Soviet message of Arab "unity," and actively involved the Soviet Navy.[17]

(3) Establishment of an AGI patrol in the Strait of Hormuz.[18] This patrol was not a reaction to real or potential threats to Soviet shipping in the Persian Gulf. It did provide a capability to monitor passage through this choke point and may have signalled Soviet desires to prevent control of the Gulf by Iran and the West.

(4) Creation of the Somalia/PDRY axis. At the other strategic choke point in the Northwestern Indian Ocean—the Bab el Mandeb—lie South Yemen and Somalia. Until the Soviets were expelled from Somalia in the fall of 1977, both were closely aligned with the USSR. The Soviet Navy had been both instrumental in deepening Soviet relations with, and a major beneficiary of enlarged Soviet access to, these countries. The Soviets used naval facilities in both Berbera and Aden, and their loss of Berbera must be sorely disappointing. The Soviet strategic objective was of course, to strengthen its position at the southern end of the Red Sea, another critical area where the Soviets do not want Western dominance.

In all these cases, no Soviet friend was threatened with immediate danger. All have two common themes: (1) they involved direct interventions to shift the balance (rather than to maintain the status quo) militarily and politically in favor of the preferred side and—more significantly—away from the West (and China); and (2) there was little, if any, danger

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[16] Charles C. Petersen, "The Soviet Port-Clearing Operation in Bangladesh, March 1972—December 1973," CNA Professional Paper 123, June 1974.
[17] Anne M. Kelly, "The Soviet Naval Presence During the Iraq-Kuwait Border Dispute: March–April 1973," CNA Professional Paper 122, June 1974.
[18] Colby, *op. cit.*, p. S.14092.

of immediate confrontation with US naval forces. These actions may be relatively low-key militarily but they represent a significant enlargement in the use of the Navy in a politically offensive or initiatory mode.

Prospects for Naval Limitations; The Soviet Perspective

The increasingly activist trend in Soviet naval diplomacy may appear, on the surface, to belie Soviet advocacy of naval arms limitation. However, one should not be led by this seeming inconsistency to conclude that Soviet pronouncements on "zones of peace" are lacking in seriousness.

Since the promulgation of the Peace Program at the 24th Congress of the CPSU, and its affirmation at the 25th Party Congress, the role of the Soviet Armed Forces—especially the Navy—in the prosecution of Soviet foreign policy has been measurably enlarged. In fact, today the Soviet Union views its military power as its principal asset in the international arena. As the foregoing discussion shows, the Soviet Navy is now used directly as well as indirectly in support of general long-term foreign policies and specific diplomatic initiatives. This includes its use as an instrument to affect arms control negotiations with the US. The classic case is Soviet naval deployments to the Caribbean. While these operations serve a number of ends, in their political aspect they are, in part, a direct support for two closely related issues in the Soviet campaign for naval limitations: (1) in the past, the inclusion of the forward-based systems (FBS) issue in SALT, and (2) general purpose force deployment restrictions. It can be reasonably argued that one objective of the forward deployment of the Soviet Navy was to improve the Soviet bargaining position *vis-a-vis* the West in achieving a Western stand-down in areas close to the Soviet homeland. Herein lies one reason for the essential compatibility of an increasingly activist naval policy and simultaneous proposals to end that same naval competition. As Brezhnev has stated: any arms limitations negotiations must proceed on a basis of "equality."[19]

But the establishment of a Soviet naval presence abroad is only partly explained by the incentive for arms control. As the Peace Program reveals, cooperation *and* competition are both essential elements in Soviet foreign policy. While seriously pursuing measures to normalize and improve relations with the West, the Soviets are committed to wage unending struggle against "imperialism" and render all assistance necessary to "national liberation." These words obviously apply to Soviet activities in the Third World. There is again no inherent contradiction—as seen from Moscow's perspective—between a program designed to reduce the risk of war between East and West and a program of policies geared

[19] Brezhnev, 11 June 1971, *op. cit.*

to support Moscow's rivalry with the West and China at a lower level of risk in the developing world; it is an integral part of Soviet "detente" strategy.

Implications for the US

Increasing importance is assigned the "internationalist mission" of the Soviet Armed Forces. Even the late Defense Minister Grechko—who long refrained from publicly sanctioning this mission—and Dimitry Ustinov who succeeded him, confirmed the importance of the political mission of the Soviet military abroad.[20] What is evident is that, in the absence of either an implicit or explicit agreement to mutually restrain the political content of naval deployments, we can expect intensified military-political behavior by the Soviets in the Third World.

Some Conclusions

Moscow has continued over time to raise the naval limitations question, and there are substantial incentives for Soviet interest in naval limitation—removal of US strategic forces from within striking range of the USSR, inhibiting US intervention in the Third World, and reducing the costs and risks of their own involvement there.

The Soviets have already concretely evinced an interest in at least one form of naval arms restraint: the prevention of unsafe navigation practices by the superpower navies vis-a-vis each other. In signing the Incidents at Sea Agreement in May 1972, each party undertook not only to "observe strictly the letter and spirit of the International Regulations for Preventing Collisions at Sea,"[21] but also to refrain from simulating attack by training naval weapons on the other party's ships, to "remain well clear" of the latter while operating in proximity to them, and to "avoid maneuvering in a manner which would hinder" the evolution of the other party's naval formations.[22] While this agreement does not limit forces or deployments, it is designed to limit the provocative or dangerous use of naval forces. Indeed, the Soviets have publicly indicated that this instrument, though a step in the right direction, does not go far enough. "It is quite evident," wrote Captain First Rank V. Serkov in the September 1972 issue of *Morskoy Sbornik*, "that the Agreement would more fully serve its purpose if it contained fixed maximal permissible distances for the approach of ships and aircraft . . . Therefore the Commission appointed by the parties in accordance with Article X [of the

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[20] A. A. Grechko, "The Leading Role of the CPSU in Building the Army of a Developed Socialist Society," *Voprosy Istorii KPSS*, No. 5, 5 May 1974; Reported in FBIS, *Daily Report*, Vol III, *The Soviet Union*, 30 May 1974, pp. A1–A18.

[21] Commonly referred to as "Rules of the Road." For text see Department of State, *United States Treaties and Other International Agreements*, Vol. 16, Part 1, 1965, pp. 796–811.

[22] For text of the Agreement, see *Ibid.*, Vol. 23, Part 1, 1972, pp. 1168–1180.

Agreement] will have to develop practical recommendations relative to concrete fixed distances which must be observed when approaching warships and aircraft." This reflects a clear Soviet desire to further constrain the freedom of action of US and Soviet ships operating near each other, perhaps even at some cost to their respective intelligence-gathering capabilities. Though neither side has explicitly stated that the Agreement is an "arms control" agreement, it is clear that these Soviet wishes, if realized, would go a long way toward making it one.

The probability that the Soviets are serious about pursuing some form of naval force limitation agreement cannot be discounted. Nevertheless, from the Soviet perspective there is no necessary connection between naval limitations on the one hand, and constraints on the Soviet Navy's increasing involvement in Third World affairs on the other. Those in the naval leadership who may appear to favor arms control may be taking a minimum position on the issue, supporting limitations on strategic forces and prosecution of the fleet's political activities in the Third World. Gorshkov may well be aboard, however reluctantly. In negotiating a mutual limitations agreement the US should consider the growing use of the Soviet Armed Forces, in ways that cannot be described as purely defensive, to support Soviet foreign policy. An agreement that does not take account the expanding political role of Soviet general purpose forces will have ignored the most likely stimulus to US-Soviet conflict.

Chapter 14

Gorshkov on Naval Arms Limitations: KTO KOGO?

By Abram N. Shulsky

During the past 5 years, Admiral of the Fleet of the Soviet Union S. G. Gorshkov, Commander-in-Chief of the Soviet Navy, has published 2 major works: "Navies in War and Peace,"[1] a series of articles in *Morskoy Sbornik* in 1972–73, and *Sea Power of the State*, a book published in 1976.[2] The series deals more extensively and more explicitly with the question of naval arms limitation and related matters in the series, but the treatment of the subject is sufficiently similar in the book to suggest that Gorshkov's views on it remain unchanged. Consequently, we will deal with the series, although, in most cases, parallel (or even identical) passages could be cited from the book.

Gorshkov presents a generally pessimistic view of the naval arms limitation agreements of the period between the two world wars. He notes that they did not achieve their stated purpose of naval arms limitation, and that "from the mid-1930s, a new unrestrained and in no way regulated naval arms race began." (#5 [1972], p. 24).[3] He borders on sarcasm in his description of the successive naval conferences as "the war of the diplomats for supremacy at sea." (#8, p. 14). Accordingly, he has been understood as arguing against any naval arms limitations.[4]

Yet, the period during which this series was published (February 1972 to February 1973) encompasses the first Nixon-Brezhnev summit

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[1] Published in 11 articles in the following numbers of *Morskoy Sbornik*, the highly respected and widely read professional journal of the Soviet Navy: #2–6, 8–12 (1972) and #2 (1973).

[2] Moscow: Voyenizdat, 1976.

[3] This and succeeding similar references in the text are to the designated issue and page in *Morskoy Sbornik*. When no year is given, the reference is to 1972.

[4] *Admiral Gorshkov on "Navies in War and Peace,"* Center for Naval Analyses Research Contribution 257, Weinland, Robert G., Michael K. MccGwire, and James M. McConnell, September 1974, pp. 12, 15, 21, 46, 108, *passim*.

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(24–30 May 1972), at which the ABM agreement and the Interim Agreement on offensive strategic weapons were signed. If one takes Gorshkov's references to the failure of the earlier naval limitations agreements to be criticisms of SALT (and Gorshkov does indicate that the SALT agreement "extend[s] to strategic missiles, including those belonging to the navies") then one must explain how Gorshkov could attack (in an article devoted to "fostering a unity of views") a major policy of Brezhnev with apparent impunity.

For this reason, if for no other, it might be valuable to review Gorshkov's treatment of the post-World War I naval agreements to see what precisely they did and did not accomplish. Given that they failed to prevent World War II, did they nevertheless produce other important results? After all, from a Marxist point of view, it is hardly surprising that the imperialist powers fell to fighting among themselves, agreements or no agreements. To understand the real importance of the agreements, ought we not apply the Leninist interpretative cannon of "kto kogo?": "Who [is doing in] whom?"

Anglo-American Naval Rivalry

According to Gorshkov, World War I caused a major shift in the relative power of England and the US:

> After the First World War stimulated the sharp growth of the US naval forces, the British Navy lost its leading position and Britain was forced to renounce its "two-power standard" which had been firmly adhered to up to the war. Now it maintained its fleet with difficulty at the level of the strongest—the American Fleet. (#5, p. 23).

At the same time, again according to Gorshkov, American ruling circles set their sights on "world supremacy," the avenue to which "lay in the strengthening of their naval might:"

> In striving to eliminate the opposition of its traditional competitors on the paths of imperialist expansion, the American leaders set themselves the primary goal of weakening the sea power of England.
>
> . . .
>
> The war of the diplomats for supremacy at sea was waged between all the imperialist powers at the Washington Conference of 1921–22, the 1927 Geneva Naval Conference, and the London Conferences of 1930 and 1936. *As a result of this prolonged struggle the USA achieved international recognition of the "parity" of its naval forces with the British forces, which meant that the USA and England emerged with equal rights in this area.* However, Japan, Italy, and later also Germany, not having achieved by the diplomatic route the armament relationships which they desired and favorable positions

for themselves in the world markets, continued to feverishly prepare for war. (#8, p. 14, emphasis supplied.)

During and after World War II, the same tendency operated:

> In the course of World War II, the decline of England as a great sea power accelerated, which was due to the effect of the law of the nonuniformity of development of capitalist countries and also to the revolutionary and national freedom movements embracing the entire world. . . . *The Americans succeeded in ousting the British from the ocean areas contiguous to the American continent,* in liquidating her former power in the Western hemisphere, in the Mediterranean Sea and Indian Ocean, in the Far East, and in the Pacific Ocean basin. (#12, p. 18, emphasis supplied.)

The underlined passage is striking in that it seems to allude to the "destroyer deal" in which, at the beginning of World War II, the US traded old destroyers to England in return for English naval bases in the Caribbean. If this allusion is intended, then this would be another example of an agreement which helped effect the transfer of naval supremacy from England to the US. "In this connection," Gorshkov notes, "the Americans have succeeded without a war with [England] in achieving what Germany could not achieve with two world wars." (#12, p. 18).

It remains true that the naval conferences not only did not prevent World War II, but they led in the mid-1930s to "a new unrestrained and in no way regulated naval arms race." The main turning point in the re-emergence of the naval arms race was the Anglo-German Naval Agreement of 1935, which "abolished the restrictions of the article of the Versailles Treaty on naval armaments and freed the hands of Hitler Germany to build a powerful navy." (#9, p. 14) This mistake (and Gorshkov notes that the agreement was attacked as such by the *Times* of London) was due to the "blind hate of imperialism toward the USSR." (#8, p. 15) In any case, from the American point of view, at least, the series of conferences (i.e., those at Washington, Geneva, and London) at which the "war of the diplomats for supremacy at sea" was waged was a successful "prolonged struggle," which won naval supremacy away from England.

As an aside to this study, Gorshkov notes that the building of a strong Russian Navy during the 1930s led England to invite the Soviet Union to the London Conference of 1936:

> The Soviet Government, true to its peace-loving policy, entered into the negotiations with Great Britain in order to check the naval arms race to some degree. However, Moscow laid down the condition at London that Germany also be obliged to limit armaments. Great Britain was forced to sign such an agreement with Germany. However, the accelerating preparation of the imperialist powers for a new world war made such an agreement unrealistic . . . the imperialist powers were aligning themselves not for the purpose of limiting

naval armaments, but to wage the forthcoming war and to seek allies for themselves for a future war. (#8, p. 24.)

The meaning of this passage is obscure,[5] but it would seem that British anti-Sovietism, as expressed in the Anglo-German naval agreement of the previous year, made a serious attempt to make the German threat impossible. No arms agreement, Gorshkov seems to be saying, could protect England from the effects of her blundering perfidy.

Importance of the Agreements

Assuming that the various naval conferences were steps along the road toward American naval supremacy, the question of their importance would still remain. If "the law of the nonuniformity of development of capitalist countries" was behind the "dethroning" of English sea power, then it might seem that the agreements were irrelevant since their presence or absence could hardly affect the operation of a basic historical law.

Nevertheless, "the Americans . . . succeeded without a war . . . in achieving what Germany could not achieve with two world wars." The fact that naval supremacy could shift from England to America without war between them (indeed, for a great part of the time, they were explicitly or implicitly allied) was due in large part to the willingness and ability of the English statesmen to face facts and to cede peacefully to America what the latter could in any case claim unilaterally.

Because of the importance of sea power, "England took economic, military, *diplomatic*, and *propagandistic* measures in order to ensure the primacy of its Navy over the navies of other states." (#12, p. 16, emphasis supplied.) These diplomatic and propagandistic measures were extraordinarily successful over a long period of time. (Gorshkov, for instance, attributes Tsarist Russia's mistaken notion that "a large continental power . . . could not have interests at sea" to "centuries-old" English propaganda (#3, p. 20) and it consequently required a "prolonged struggle" before she was willing to abandon them with respect to the US (see above).

Having agreed to "parity" for the American Navy, England was no longer free to use "diplomatic and propagandistic measures" to control the growth of American sea power. This was all the more important since

[5] One possible interpretation is that Gorshkov is suggesting that the Soviet Union demand the inclusion of China in SALT. The equation of Maoist China to Hitlerian Germany is common in Soviet "Aesopian" writing: the underlying thought is that just as Britain and France hoped in the 1930s to use Germany against Russia, so now the United States hopes to use China against Russia. This parallel was explicitly drawn by Novosti commentator Georgiy Dadyants in 1969. "The Border Which We Are Defending," *Le Monde*, 2 April 1969, p. 2. However, no such demand was ever made, nor would it have appeared reasonable given the vast disparity between the Chinese strategic forces and those of the US and USSR.

these were the only two of the four traditional measures available to England: "economic" measures would be unavailing given America's economic superiority, and "military" measures were out of the question given the necessity of Anglo-American military cooperation vis-a-vis a potential German threat.

General View of Naval Arms Limitations

This view of naval arms limitations admittedly differs greatly from the surface impression with which Gorshkov leaves the reader, and some effort at reconciliation of the two is necessary. In this connection, one must note that there are two kinds of naval arms limitations agreements: the dominant power (or powers) may either try to preserve its superiority by forcing a weaker power to sign an agreement "freezing" the relationship of forces existing at that time, or it may grant equal status to a rapidly-gaining rival in order to avoid conflict with it.

Most agreements, it is true, are of the first type: frequently (but not always) they occur when a power defeated in a war (e.g., Russia after the Crimean War, Germany after World War I) is forced by the peace treaty to accept an inferior naval position. (Gorshkov notes, however, that Japan and Italy, members of the victorious coalition in World War I, were also forced to accept a resented naval inferiority at the Washington Conference.) Of these agreements, it is fair to say that they help (for as long as they last) the dominant power.[6] It is equally fair to say that, if they attempt to freeze an inherently transient relationship of forces (i.e., that exists between victor and vanquished at the end of an exhausting war), they cannot last for very long.

The agreements between England and America, on the other hand, are clearly of the second type. Rather than engage in a difficult, costly, and probably hopeless naval arms race with America, the English leaders wisely decided to concede equality. Soviet discussion of detente in general, and SALT in particular, reflects this same theme: these advances toward world peace have come about because realistic Western statesmen have abandoned the policy of trying to deal with the Soviet Union from a position of strength, and instead have agreed to the principle of equal security so the Soviets contend.

The discussion of America's successful "prolonged struggle" to achieve equal status with England appeared in the August 1972 number under the heading "The Building of the [Soviet] Navy (1928–1941)." The July issue (see footnote 1) did not contain an article in the series, while the June issue was signed to press on 29 May 1972, before the conclusion of the Nixon-Brezhnev summit, and was obviously written and approved even earlier. In other words, this discussion occurs in the first article of the series to appear after the summit. This circumstance supports the

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[6] Michael MccGwire, "Advocacy of Seapower in an Internal Debate," in *Admiral Gorshkov on "Navies in War and Peace,"* p. 46.

suspicion that it was intended as a suitably veiled discussion of the proper relation between the US and the USSR with respect to arms limitation agreements.[7] By this means, Gorshkov is able to explain to naval officers (and perhaps officers of the other services as well) the benefits the USSR can hope to attain from SALT.

Relevance for the Soviet Union

SALT and the Recognition of Strategic Parity

Even though the SALT agreements were signed in the year during which Gorshkov's articles were being published, there are only two explicit references to SALT issues in the series. The longer reference is elusive and backhanded:

> The special role of navies in the policy of the major imperialist states is also attested to by the repeated attempts in the period 1922–1935 to limit and regulate the construction of warships, undertaken at specially convened international conferences. True, they fulfilled only a delaying function in the naval construction of the largest states and then only up to the mid-1930s (thereafter the naval arms race proceeded without any sort of limitations). It is interesting that no such attempts were undertaken until our day with respect to the other branches of the armed forces. Even today, when the arms limitation talks have become a reality and ways of solving this problem have been defined, arms control is still only being extended to strategic missiles, including those belonging to the navies. (#12, p. 18.)

The main point of this passage is to assert that the central political role of navies in the past is now possessed by strategic missile forces, including those belonging to the navies. In fact, the navies retain their crucial political importance since their strategic missiles, being more survivable than land-based missiles, are more likely to be around at the end of a war and hence able to affect the terms on which the war is concluded. (The importance of the Navy as a factor in securing favorable peace terms is a major theme of Gorshkov's recounting of naval history.)[8]

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[7] It may be argued that the appearance of the discussion of America's "prolonged struggle" in the August number of *Morskoy Sbornik* is mere coincidence and that the discussion, however awkwardly placed in an article entitled "The Building of the [Soviet] Navy," would have been even more awkwardly placed elsewhere. Michael MccGwire, "Naval Power and Soviet Oceans Policy," in *Soviet Oceans Development*, US Senate, Committee on Commerce and National Ocean Policy Study Washington, DC: GPO, October 1976, n. 111 to p. 123. However this may be from the point of view of logic, Gorshkov does discuss, cursorily, the post-World War I naval agreements in the article "The First World War," which appeared in the May 1972 number.

[8] Gorshkov notes many examples from history in which the peace terms were decisively affected by the relative naval strength of the contending powers at the *end* of the war.

The description of the naval arms agreements, both in terms of their goals ("to limit and regulate the construction of warships") and achievements ("a delaying function in naval construction" followed by an arms race proceeding "without any sort of limitations"), sounds very much like a realistic appraisal of the Interim Agreement on offensive weapons reached in May 1972, with a reassurance to the officer corps that the Soviet leadership realizes that, if the Interim Agreement cannot be extended, major new expenditures for arms will become necessary. (Note that Gorshkov does not say that the failure of the naval arms conferences in the mid-1930s led to war.)

Since strategic missiles now play the central political role formerly belonging to general purpose naval forces, they have become subject to arms limitations which affect not only the war-fighting potential of the parties, but their political status as well. Just as the "prolonged struggle" of the Americans resulted in "equal rights in this [i.e., naval] area" between America and England, so too the first SALT agreement gives "International recognition" to the equality of status between the US and the USSR. No longer will the US be able to attempt to confront the USSR from a "position of strength:" both in diplomacy and propaganda, the US is constrained to recognize the "equal rights" of the USSR in the area of strategic forces.

This perspective on the importance of SALT is often expressed in the Soviet Union. Consider the following discussion of the Vladivostok agreement of November 1974 by an *Izvestiya* international affairs observer:

> Another senator hurling down thunderbolts [against the agreement] is Barry Goldwater, the reactionary US Air Force General. He does not like the passage in the Soviet-American statement speaking of the principle of equality. He is still thinking, in spite of realities, in terms of the so-called massive American superiority which he applies to our age. However, this no longer exists. Responsible statesmen in the United States are perfectly well aware of the new situation—the new alignment of forces which has developed in the world arena. That is why they are now admitting and enunciating the principle of equality and identical security. *The international legal consolidation*

For example, he notes with respect to the numerous wars with Turkey:

> In the closing moments of wars, when naval power on which policy could be based where particularly needed, the Russian Fleet was frequently too weak to compel the enemy and the powers supporting him to accept peace conditions vital to Russia. Though *one of the strongest land powers*, she possessed a fleet in the Black Sea sufficient only for single combat with Turkey. Therefore, as soon as other powers, presenting primarily a naval threat, entered the war on the side of Turkey, Russia was compelled to abandon the fruits of her victories, and sometimes even suffer defeats. (#4, p. 15, emphasis supplied.)

of this principle is one of the most important results of the Vladivostok meeting.[9]

Equality in Naval Forces?

With respect to naval forces generally, the US has not recognized the "equal rights" of the USSR:

> And today abroad there is widespread propaganda produced by American ideologists asserting that the Soviet state does not need a powerful navy. An example of this is President Nixon's speech of 4 August 1970 in which he stated: "That which the Soviet Union needs in way of military preparations differs from what we need. The USSR is a land power . . . while we are primarily a sea power and our needs are therefore different. . . ."
>
> One hardly has to say that this speech of Nixon's, which is a modern version of the old attempts by the English politicians to show Russia's lack of need for a strong navy, bears no relationship to the actual state of affairs and contradicts the interests of our state both past and present. (#3, p. 20)

Gorshkov's main purpose in this passage is to attack, by means of a comparison with the old Tsarist dupes of English propaganda, any current Soviet official who would willingly accept naval inferiority. Gorshkov has already indicated that the old English propaganda influenced important officials; may not Nixon's propaganda also be effective?

Some form of naval arms agreement which recognized the "equal rights" of the USSR would put an end to this danger. For instance, in advocating, in 1971, limitations on "out of area" naval deployments (in the Mediterranean, the Indian Ocean, or elsewhere), Brezhnev expressed a willingness to solve the problem of "the navies of the great powers . . . cruising about for long periods of time far from their own shores, but to solve it, as they say, on an equal basis. On the basis of such principles, the Soviet Union is ready to discuss any proposals."[10]

While Brezhnev maintained that any agreement would have to be on an "equal basis," he did not specify just how the principle of equality would be applied. Since he specifically mentioned Soviet deployments in the Mediterranean Sea and Indian Ocean as the source of US complaints,

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[9] International Observers' Roundtable, Moscow International Service in Russian, 0730 GMT, 15 December 1974, in FBIS *Daily Report: Soviet Union*, 16 December 1974. (Emphasis supplied.)

[10] Brezhnev election speech, 11 June 1971, in FBIS, *Soviet Union*, 14 June 1971, pp. J1–12.

some interpreted his proposal as a call for deployment limitations in those 2 bodies of water.[11]

On the other hand, he counters the US complaints as follows:

> But at the same time American politicians consider it normal and natural that their Sixth Fleet is constantly in the Mediterranean—next door, as it were, to the Soviet Union—and the Seventh Fleet off the shores of China and Indochina.

If the Mediterranean is "next door" to the Soviet Union, then Soviet Mediterranean deployments can hardly be part of the "problem" of great power navies "cruising about for long periods far from their own shores"—the problem the Soviet Union is prepared to solve "on an equal basis." In this sense, equality might require an American withdrawal from the Mediterranean in return for a Soviet withdrawal from some body of water (e.g., the Caribbean) "next door" to the United States.[12]

To some extent, the goal of equality was achieved by the Interim Agreement which allowed the USSR to build even more nuclear powered ballistic missile submarines (SSBNs) than the US (An advantage of the "withholding strategy"[13] from Gorshkov's point of view is that the need to protect the SSBNs provides a basis for supporting increases in the Russian surface fleet and naval aviation.) For the time-being, however, the achievement of overall naval equality with the US may seem a utopian goal for the USSR: for the immediate future, at least, the Soviet Union will "remain not only *one of the strongest* continental powers but also [i.e., only] *a mighty sea power.*" (#2, [1973], p. 25, emphasis added.) Nevertheless, America had to engage in a "prolonged struggle" before achieving international recognition of her equality with England, and presumably the Soviet Union is willing to attempt the same path.

The final achievement of American naval supremacy was due to two causes: 1. the effect of the law of the nonuniformity of development of capitalist countries, and 2. the revolutionary and national freedom movements embracing the entire world. (#12, p. 18). The first cause simply refers to the fact that America outstripped England in economic development; for the time being, the Russians seem to have accepted the idea that the US will remain the economically predominant power,

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[11] See the preceding chapter, pp. 233–234.

[12] This interpretation of Brezhnev's proposal may be rejected as being too far-fetched and ambitious. However, during the controversy over the construction of support facilities for Soviet ballistic missile submarines at Cienfuegos, Cuba, *Izvestiya* noted that "the Soviet Government has submitted proposals on restricting the region of missile-submarine movement. It is not our fault that these proposals have not been implemented." V. Matveyev, "Version or Diversion," 10 October 1970, in FBIS, *SU*, 13 October 1970, pp. A2–3. Presumably, the reference was to the numerous Soviet proposals for banning US strategic submarines from the Mediterranean; in return, *Izvestiya* suggests, the Caribbean would be off limits to similar Soviet submarines.

[13] See James M. McConnell, "Gorshkov's Doctrine of Coercive Naval Diplomacy in Both Peace and War," in *Admiral Gorshkov on "Navies in War and Peace,"* for an exhaustive treatment of this question.

although they presumably have not given up the belief that, eventually, the economic superiority of socialism will make itself manifest. The second cause, that operated to the advantage of the US vis-a-vis England, now operates against the US, which has taken over (from England) the role of "stifler of the national liberation movement of peoples who are being freed of the imperialist yoke." (#12, p. 19). It would therefore seem that the basic factors which led to American naval supremacy now open the long-range prospect of Russian supremacy.

As is obvious from the analogy with the Anglo-American rivalry, the existence of "detente" should not impede the Russian "prolonged struggle" for naval parity and perhaps eventually superiority. Furthermore, there would seem to be no reason why naval arms agreements could not play a role in this long-range development.

In discussing the process by which American naval supremacy was gained, Gorshkov notes that the "Americans succeeded in ousting the British from the ocean areas contiguous to the American continent." In the second article, (#3 [1972]) Gorshkov explained the Russian naval presence in the Mediterranean as resulting from the need to counter the threat posed by the American Sixth Fleet; this naval presence is in accord with past Russian practice:

> Historically it has turned out that when a threat arises of an enemy encroachment on the territory of Russia from the southwest, the Russian Fleet has been moved into the Mediterranean where it has successfully executed great strategic missions in defending the country's borders from aggression. (#3, p. 31.)

In contrast to the later articles of the series, the second article (which concentrates on Russian presence in the Mediterranean) does not mention the protection of "state interests" as being a mission of the Navy. Instead, Gorshkov quotes Brezhnev's "peace program," as presented to the XXIV Party Congress: "In contrast to the aggressive policy of imperialism, the Soviet Union presents a policy of active defense of peace and the strengthening of international security." (#3, p. 32.)

The Russians would no doubt like to "oust" the Americans from the Mediterranean, a body of water which they seem to consider uncomfortably close to the Soviet Union. Brezhnev's 1974 proposal for the denuclearization of the Mediterranean would be a major step in this direction, and the Gorshkov series, while not proposing such an agreement, seems to suggest it.

In fact, Gorshkov's second reference to SALT notes that, despite it, the US has acquired bases in Greece "within carrier aircraft range of the central regions of the Soviet Union." (#2 [1973], p. 20.) His assertion that "we cannot be indifferent to the creation of a naval base for the Sixth Fleet in Greece" is an implicit rebuke to Brezhnev for agreeing to drop the forward based systems issue from SALT.

It is therefore no accident that soon after Brezhnev proposed "the withdrawal from the Mediterranean of all Soviet and American ships and submarines carrying nuclear weapons,"[14] Gorshkov publicly supported it.[15] While the proposal formally placed restrictions on both navies, it in fact called for the "ouster" of part of the United States Navy from the Mediterranean (the ballistic missile submarines) and the "withdrawal" from another part (the aircraft carriers) of their strategic strike and tactical nuclear projection missions; it placed no similar restrictions on the Soviet Union, whose ballistic missile submarines have no reason to enter the Mediterranean, and whose incipient carrier "force" probably has no projection mission in tactical nuclear war.[16]

Conclusion

Gorshkov makes no real claim to naval equality with the United States. As noted above, he refers to the Soviet Union as "one of the strongest continental powers" but as (only) "a mighty sea power." Nevertheless, he strongly suggests that the absence of naval equality will detract from the political equality which the Soviet Union has more or less attained. Unless the Soviet Union can defend its "state interests" with the same facility as the US Navy permits the United States to protect its interests, complete equality will not exist.

Toward this end, Gorshkov advocates a "balanced navy," consisting of submarines, surface ships, and naval aviation. He tries to strengthen his case by arguing that an "unbalanced navy," as he might be tempted to call a navy which overemphasizes submarines, is not able to perform even the single mission for which it is designed. This point is made primarily by analogy to the German failure, in both world wars, to disrupt decisively allied sea communication lines.[17]

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[14] The proposal is contained in Brezhnev's speech to the Polish Sejm (Parliament) on 21 July 1974. Moscow Domestic Service, 1015 GMT, 21 July 1974 in FBIS, *SU*, 22 July 1974, pp. D10–17.

[15] Gorshkov interview, "The Maritime Might of the Land of the Soviets," *Pravda*, 28 July 1974, p. 2 in FBIS, *SU*, 2 August 1974, pp. A2–4.

[16] See, for example, Oles Smolansky, "Soviet Policy Toward Aircraft Carriers," in *Soviet Naval Influence: Domestic and Foreign Dimensions* (Ed) Michael MccGwire and John McDonnell, NY: Praeger, 1977, pp. 232–33, and Bradford Dismukes, "The Soviet Naval General Purpose Forces: Roles and Missions in Wartime," in *Soviet Naval Policy: Objectives and Constraints* (Eds) Michael MccGwire, Ken Booth, and John McDonnell (NY: Praeger, 1975), pp. 579–81.

[17] The German failure in World War I was "primarily due to the fact that the German command, after having assigned the prosecution of the main effort to [the submarines], failed to divert other naval forces to support their operations." (#5, p. 17) Similarly, in World War II, "just as in World War I, only mainly submarines operated against the British shipping, and now they did not have the requisite combat support on the part of the other naval forces which permitted the British without any particular difficulty to strengthen the defense of her sea communications." (#9, p. 17) See James M. McConnell, "Gorshkov's Doctrine of Coercive Naval Diplomacy in Both Peace and War," in *Admiral Gorshkov on "Navies in War and Peace."*

What Gorshkov seems to fear most is that current Soviet officials will repeat the mistake of Tsarist bureaucrats in believing that Russia can and ought to accept willingly a position of naval inferiority. In particular, he might fear that some Soviet leaders would be willing to freeze Soviet naval inferiority by means of a naval arms limitation agreement, in return for concessions from the United States in other areas. He might have read the Nixon remark he cites (see above) as evidence that the United States was thinking along the same lines: i.e., that it would be reasonable for the United States to recognize, possibly formally, Soviet superiority with respect to ground troops in return for a similar Soviet recognition of US naval superiority.[18] Such an agreement Gorshkov would obviously find unacceptable. Naval agreements "on an equal basis," on the other hand, to the extent that they can be reached, would seem in general to serve Gorshkov's purposes. They are steppingstones on the way to equality and perhaps even superiority; the "prolonged struggle" is already underway.

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[18] It should be emphasized that no such interpretation of Nixon's remarks is here asserted. What is suggested is merely that Gorshkov may have believed (1) that they were subject to such an interpretation, and (2) that others in the Soviet hierarchy might wish to probe the matter further.

PART IV FORWARD DEPLOYMENT: SOME CASE STUDIES

Chapter 15

Egypt and Support for the Soviet Mediterranean Squadorn: 1967–1976

By Robert G. Weinland

Introduction

This discussion concentrates on two important questions, neither of which has been given the attention it deserves in public consideration of Middle Eastern problems. The first is the nature and extent of direct support provided the Soviet Mediterranean Squadron in the late 1960s and early 1970s from (although not necessarily *by*) Egypt. The second is the importance this support had for the Squadron. Importance cannot be measured directly; but the size and composition of the Squadron did change as the Soviets first gained and then lost access to facilities in Egypt, and examination of those changes can reveal quite a bit about the extent to which Soviet naval forces require—and receive—direct support while deployed. The evidence suggests they require more support than is commonly thought necessary. The evidence also suggests that in the course of the last few years, the level of support received by the Squadron has fallen below that minimum, forcing the Soviets to first alter

the Squadron's makeup and then reduce its strength in compensation.

Four equally important questions are not addressed here. The first is the history of Soviet attempts in the early and mid-1960s to obtain local support for their naval forces in the Mediterranean. This has been covered in depth elsewhere.[1]

The second question not addressed concerns the ultimate Soviet objective in searching for local support. There is little doubt about their immediate objective: the Soviets wanted to have a more capable force in the region, and needed access to facilities ashore in order to sustain it there. However, why they wanted that force in the Mediterranean, and what they planned to do with it, cannot be specified with any certainty. Various explanations have been suggested, the most plausible of which are the defense of the Soviet Union itself—against NATO strategic offensive forces deployed to the Mediterranean—and the protection of Soviet interests along the Mediterranean littoral.[2]

Two further questions—the price the Soviets had to pay to obtain support for the Squadron, and the reasons why the Egyptians agreed to provide it—are also not addressed. The price the Soviets paid cannot be separated from, and was clearly dwarfed by, the total cost of their Egyptian "adventure." The same applies to the benefits Egypt received;[3] although, as will be seen later on, these cost-benefit equations changed markedly after 1972.

The "Bases" Question

It has been noted—most often by Soviet spokesmen, but on occasion by others as well—that while the United States maintains a vast network of military bases located on foreign soil, the Soviet Union has none at all.[4] It may indeed be true that the Soviets do not have "bases" as such overseas. If it is, it is a trivial truth. What counts is not forms but

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[1] George S. Dragnich, "The Soviet Union's Quest for Access to Naval Facilities in Egypt Prior to the June War of 1967," in: MccGwire, Booth and McDonnell (eds.), *Soviet Naval Policy: Objectives and Constraints*, NY: Praeger, 1975, pp. 237–277.

[2] Michael MccGwire, "Soviet Naval Capabilities and Intentions," in: *The Soviet Union in Europe and the Near East; Her Capabilities and Intentions*," London: RUSI, 1971, pp. 33–51; Robert G. Weinland, "The Changing Mission Structure of the Soviet Navy," Arlington, Va.: Center for Naval Analyses, Professional Paper No. 80, November 1971, reprinted in: MccGwire (ed.), *Soviet Naval Developments: Capability and Context*, NY: Praeger, 1973, pp. 292–305.

[3] Soviet involvement in Egypt has received extensive coverage both in the general press and in the specialized foreign affairs literature. However, most of this coverage has been superficial at best; few systematic analyses of this subject have appeared. Probably the most informative are: Jon Glassman, *Arms for the Arabs: The Soviet Union and War in the Middle East*, Baltimore, Md. and London: The Johns Hopkins Press, 1975; and Alvin Z. Rubinstein, *Red Star on the Nile: The Soviet-Egyptian Influence Relationship since the June War*, Princeton, NJ: Princeton University Press, 1977.

[4] For example, see: Admiral of the Fleet of the Soviet Union, S. G. Gorshkov, "A Most Important Factor in the Navy's Combat Readiness and Efficiency," *Tyl i Snabzheniye* (Rear Services and Supply) No. 7 (July 1976), pp. 3–9.

functions, and support functions *are* regularly performed by and for Soviet naval and air forces in various locations outside the Soviet Union.

This discussion attempts to circumvent the "bases" issue. It does so by distinguishing among: (a) *access* to others' facilities; (b) one's own *facilities*, generally located on others' bases; and (c) *bases* themselves. The crucial element in these distinctions is control over access. The size, configuration, and function of a particular facility are not material. Whose flag flies over the installation on which it is located, or the nationality of that installation's perimeter guards, is not of great import either. The nationality of the guard at the door to the facility itself *is* important, however. Regardless of where it may be located, a Soviet facility is one to which the Soviets control access—and, if their control extends throughout an installation, it is *de facto* if not *de jure* a Soviet base. The "rights" the Soviets once enjoyed to move their ships into and out of Alexandria virtually at will, and to have first call on the ship repair facilities there, were examples of "access." The Soviet communication station and barracks ship in the military complex at Berbera, Somalia, clearly fell into the "facilities" category.[5] What they at one time had in Porkkala, Finland, and Port Arthur, Manchuria were "bases" in the classic sense of the term. As the discussion below should make abundantly clear, however, one does not need to have "bases" in the area in order to obtain the support necessary to maintain forces deployed overseas. All that is required is a little help from one's friends.

Obtaining Egyptian Support

Not enough is known about Soviet naval support requirements or how they are met to describe the Mediterranean Squadron's support system in detail, or to evaluate its performance in other than gross terms. The support of deployed Soviet naval forces is not, however, a complete mystery.

A strong correlation has always existed between the nature and magnitude of the Soviet naval presence in the Mediterranean and the Soviet Navy's ability to meet its requirements for sea- and land-based support. The Soviet Union first deployed naval forces to the Mediterranean in 1958.[6] Since they did not have an integral air defense capability—at the time the Soviet Navy had neither ship-based fighter aircraft nor surface-to-air missiles (SAMs)—they sent only submarines. The Soviets also lacked the ability to support deployed forces at sea logistically.

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[5] The Berbera complex is described in detail in : *Disapprove Construction Projects on the Island of Diego Garcia*, Hearing before the Senate Committee on Armed Services, 94th Congress, 1st Session (1975), pp. 7–21.

[6] The growth of the Soviet naval presence in the Mediterranean is described in: Robert G. Weinland, "Soviet Transits of the Turkish Straits: 1945–1970. . . ," Arlington, Va.: Center for Naval Analyses, Professional Paper No. 94, April 1972, reprinted in: McGwire (ed.), *op. cit.*, pp. 325–343.

Consequently, these submarines, and a tender, were based ashore—at Vlone, Albania. In 1961, as a by-product of the Sino-Soviet dispute, Albania cancelled this arrangement and, unable to obtain access to an alternative basing point, the Soviets withdrew all of their combatant forces from the Mediterranean.

When they returned in 1964, the Soviet Navy had shipborne SAMs; and this time they sent both surface combatants and submarines to the Mediterranean. They had also developed a limited capability to provide logistic support to deployed forces at sea. Lacking ready access to supplemental support facilities ashore, however, the Soviets held down the size of their Mediterranean deployments; the composition of those forces fluctuated erratically, and there were occasional gaps in their presence—especially during the winter, when the weather in the Mediterranean leaves much to be desired. The data in table 10 below give some indication of what happened to this force after the Soviets finally obtained both their own, and ready access to Egyptian facilities in the wake of the June 1967 Arab-Israeli War.

In 1966, there were on the average 12 Soviet naval units located in the Mediterranean each day. By 1968, this figure had more than doubled; and by 1969, it had more than tripled. By 1971, the average strength of the Soviet Mediterranean Squadron had reached 52 units.[7]

This increase in Squadron strength was achieved in two ways. First, more units were sent to the Mediterranean. Second, the units *that went* there stayed longer.

Table 10. Soviet Naval Presence in the Mediterranean: 1964–76.*

	Annual Ship Days**	Average Daily Strength
1964	1,500	5
1965	2,800	8
1966	4,400	12
1967	8,100	22
1968	11,000	30
1969	15,000	41
1970	16,500	45
1971	19,000	52
1972	18,000	49
1973	20,600	56
1974	20,200	55
1975	20,000	55
1976	18,600	50

*Data through 1973 extracted from: Robert G. Weinland, "Soviet Naval Operations—Ten Years of Change," Arlington, Va.: Center for Naval Analyses, Professional Paper No. 125, August 1974. Data for 1974 in: Office of the Chief of Naval Operations, "Understanding Soviet Naval Deployments," Washington, DC: GPO, April 1975. Data for 1975 and 1976 provided by US Navy (Director of Naval Intelligence).
** All naval and naval-subordinated units.

[7] A number of anomalies are concealed in this picture of the Squadron's growth. The 1967 and 1970 figures were inflated by the reinforcement of the Squadron during the June War and Jordanian Crisis. The figure for 1968, on the other hand, may have been deflated in recuperating from the exertions of 1967 and by preparations for the invasion of Czechoslovakia. Were it not for those distortions, these figures might have shown distinct jumps upward in 1968 and 1971—reflecting Soviet successes in acquiring access to local support.

Since all but a fraction of the surface combatants and auxiliaries that operate in the Mediterranean come from the Black Sea (the remainder come from the Northern and Baltic Fleets, primarily as escorts for Northern Fleet submarines deploying for or returning from Mediterranean operations), changes in the pattern of Soviet transits through the Turkish Straits provide rough but generally reliable reflections of changes in those deployments. As can be seen in table 11 below, between 1966 and 1968 the number of such transits undertaken each year increased by 50 percent: from 153 to 230. Those totals continued to grow after 1968, but by no means as sharply (the increase between 1968 and 1970 was only 18 percent).

More significant—from the standpoint of support requirements at any rate—was the increase that took place over the same period in the length of surface combatant deployments: they more than doubled! In 1966, the average surface combatant deploying from the Black Sea to the Mediterranean stayed 41 days. By 1968, the average deployment lasted 86 days.[8]

It is axiomatic in naval operations that the longer a ship remains away from its home port, the more support it requires. The March 1968 agreement with Egypt on the use of its facilities consequently must have had a major impact on the Soviets' ability to extend the length of their Mediterranean deployments.[9] In part, this agreement probably did little more than formalize existing practice; on the other hand, it probably encouraged the Soviets to continue to strengthen the Mediterranean Squadron, since they could now count on the support they would need to deploy more of their ships away from home and keep them there for longer periods.

Table 11. Soviet Naval Transits of the Turkish Straits: 1964–75.*

	Auxiliary Transits	Surface Combatant Transits	Total Transits
1964	56	39	95
1965	80	49	129
1966	71	82	153
1967	149	93	242
1968	113	117	230
1969	142	121	263
1970	149	122	271
1971	154	123	277
1972	140	114	254
1973	159	126	285
1974	145	93	238
1975	146	79	225
1976			

*Data compiled from successive editions of the Turkish Foreign Ministry's *Rapport Annuel sur le Mouvement des Navires a Travers les Detroits Turcs*.

[8] *Ibid.*

[9] The existence of this agreement was revealed by President Sadat in a speech to the Egyptian Students Federation at Alexandria University on 3 April 1974 (reported in: FBIS *Daily Report: The Middle East and North Africa*, V–66 (4 April 1974), p. D7). He did not discuss the substantive provisions of this agreement, however; and thus far, the Soviets have said nothing at all about the agreement.

Support Received from Egypt

Beginning at some point in the fall of 1967, then, the Soviet Mediterranean Squadron began to receive direct support from Egypt. Some of this was provided by the Egyptians; but most of it appears to have been provided by the Soviets themselves, making use of facilities located in Egypt—some Egyptian, some under joint Egyptian-Soviet control, and some exclusively Soviet.

Precisely what was done, for whom, and by whom, has not been revealed. On the other hand, the facilities that were involved and some of the functions each performed have been identified.[10] Therefore, while it cannot be described in detail, it is possible to at least outline the general size and shape of this operation.

The amount of support the Squadron received from Egypt varied significantly over the years, peaking in most aspects immediately prior to President Sadat's expulsion of Soviet combat and advisory forces in July 1972. For the most part, the descriptions that follow reflect the state of affairs at that mid-1972 peak.

The aspect of this support operation that received the most attention in the West was the assistance the Squadron was—or at least might have been—provided by Soviet aircraft operating from Egypt. Some of those aircraft had been deployed to Egypt expressly to support the Squadron. Most of them, however, were there to defend Egypt against Israeli air strikes.

By mid-1972, the Soviets were making more or less exclusive use of seven airfields in Egypt.[11] Approximately 150 Soviet Air Force fighter aircraft—120 MIG-21 MFs from Frontal Aviation and 30 SU-19s from PVO STRANY—occupied six of these airfields (Jiyanklis, El Mansura, Inchas, Cairo West, Beni Suef, and Aswan). Small numbers of Mig-25 and TU-16 reconnaissance aircraft and TU-16 air-to-surface missile (ASM) launching bombers also operated from two of those six airfields (the reconnaissance aircraft flew from Cairo West, the ASM bombers were located at Aswan). Comparably small contingents of BE-12 and eventually IL-38 maritime patrol and AN-12 electronic surveillance aircraft operated from the seventh airfield (Mersa Matruh).

Some of these aircraft—the reconnaissance TU-16s, both types of maritime patrol aircraft, and the electronic surveillance AN-12s—operated frequently over the Mediterranean, where their activity was often directed at the US Sixth Fleet. It was widely assumed that these operations were

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[10] Jim Hoagland, "After Sadat's Bombshell: Fate of Soviet Bases Weighed," *Washington Post*, 21 July 1972.

[11] This description is based primarily on information presented in: Robert P. Berman, *Soviet Air Power: Trends and Implications*, Washington, DC: The Brookings Institution, Studies in Defense Policy, 1977.

undertaken both by and for the Soviets, although since the aircraft carried Egyptian markings that could not be established with certainty.[12]

The potentially most powerful contingent of Soviet aircraft in Egypt—the 150 fighters—appear not to have operated over the Mediterranean. Their mission was to defend Egypt's political and economic heartland: the Nile Valley and Delta. They were based in that area, and that is where they operated.[13]

This does not mean that the fighters could not have contributed to the defense of the Squadron. They could have. It means only that they appear not to have done so, and that it wasn't very likely that they would be diverted to a naval support role except *in extremis*. After all, the fighters had been drawn from different branches of the Soviet Armed Forces; they had been brought to Egypt to do an entirely different job; their basing in Egypt was more appropriate to that job than to fleet air defense; and they appear neither to have prepared for nor to have exercised naval support missions. For all practical purposes, then, although supported by land-based air, the Squadron operated without the sustained protective umbrella to which most observers refer when speaking about land-based air cover. And even if a major crisis had occurred and these aircraft had been diverted to a fleet air defense mission, the drawbacks listed above would have degraded their effectiveness in that role severely.

Furthermore, the fighters were located in Egypt for only 2 years. They were deployed in 1970; they left in 1972. It was mid-1976 before Soviet fighter aircraft capable of making a significant contribution to fleet air defense reappeared in the Mediterranean, but that was aboard the KIEV, and is part of a different story.

Combat and combat support forces—like fighters and reconnaissance aircraft—attract attention to themselves. In comparison, logistic and other more mundane forms of direct support, and the forces and facilities that provide them, tend to remain invisible. The latter, however, are no less important to forces operating far from home.

For most of the period under examination here, the Soviets could easily maintain a substantial naval presence in the Mediterranean because they enjoyed ready access to Egyptian ports and anchorages. They made extensive use of four harbors on Egypt's Mediterranean coast: Port Said, Alexandria, Mersa Matruh, and Sollum. They also called at Berenice on the Red Sea. While all five of these harbors undoubtedly provided

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[12] Michael McGuire, "Russian Subs in Mediterranean Are Greatest Danger to 6th Fleet," *Chicago Tribune*, 18 March 1969; Michael Getler, "Badger Game in the Middle East," *Washington Post*, 21 November 1971.

[13] Had the fighters operated over the Mediterranean—as did the reconnaissance aircraft, routinely—their operations there clearly would have been reported. The operations of the reconnaissance aircraft were routine. No such reports of fighter operations appeared, however.

essentially the same fundamental services, each appears to have played a substantially different role in support of Soviet naval forces. Some of them played more than one role.

Port Said, for example, served for a number of years as the home of the Squadron's small amphibious warfare contingent, normally one large and two medium-sized amphibious lift ships accompanied by a destroyer. These units left Port Said in October 1973—shortly before the War broke out—and never returned. When amphibious lift ships went back to Egypt after the War, they were sent to Mersa Matruh.[14]

Mersa Matruh thus played host to the Squadron twice—in what appears to have been entirely different capacities, during quite separate periods. The earlier period probably began in 1970 or 1971, and ended abruptly in mid-1972. The Soviets appear to have been developing Mersa Matruh into a focal point of their naval presence in Egypt. Their maritime patrol and surveillance aircraft were based at the airfield there. They were constructing a deep-water port. And they had started to build facilities ashore. If the projects the Soviets had under way in July 1972 had reached completion, Mersa Matruh probably would have emerged as the Mediterranean Squadron's primary "coastal base," providing specialized services not available elsewhere along the littoral.[15] Those projects, however, were all stopped in 1972 when the Egyptians began to put pressure on the Soviets.[16]

Even if those facilities had been completed, Mersa Matruh would not have been able to meet all of the Squadron's needs, particularly its heavy repair and maintenance requirements. Such services are obtainable only from a full-fledged shipyard with supporting industrial facilities. In Egypt, those were to be found only in Alexandria.

Alexandria emerged quite early in the period as the "center of gravity" of the Soviet naval presence in the Mediterranean, and it retained this position as long as the Soviets remained in Egypt. Alexandria appears to have served three major functions: it was the Squadron's "headquarters," it provided a secure and sheltered location from which replenishment and other ships of the service force could operate, and it had those repair and maintenance facilities.[17]

Alexandria is also Egypt's main commercial port. Like most ports in the developing world, it is congested. Traffic in and out is closely

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[14] Lawrence Griswold, "Base Necessities: The World Lineup," *Sea Power* 17–8 (August 1974), pp. 16–21.

[15] Joseph Alsop, "Russian Imperialism," *Washington Post*, 8 January 1971; Roger F. Pajak, "Soviet Arms and Egypt," *Survival* 17–4 (July-August 1975), pp. 165–173; Griswold, *op. cit.*; Jim Hoagland, "After Sadat's Bombshell: Fate of Soviet Bases Weighed," *op. cit.*

[16] Griswold, *op. cit.*; "Soviet Likely to Lose Egyptian Naval Facilities," *Baltimore Sun*, 17 March 1976.

[17] Pajak, *op. cit.*; Griswold, *op. cit.*; Jim Hoagland and William Dullforce, "Soviet Military Men Going Home Quietly," *Washington Post*, 20 July 1972; Jim Hoagland, "After Sadat's Bombshell: Fate of Soviet Bases Weighed," *op. cit.*

controlled. Merchant vessels sometimes wait weeks in the roadstead before they can enter port. Until 1975, however, Soviet naval units were able to come and go more or less as they pleased, a distinct advantage for the service force. Soviet ships also had first call on Alexandria's shipyard facilities, and what amounted to a reserved parking place at its otherwise crowded piers.[18]

These advantages, typical of the special status enjoyed by the Soviets in Egypt prior to 1972, made Alexandria the locus of what became one of their most important Egyptian-based support activities; mid-deployment repair and maintenance of the Mediterranean Squadron's conventional submarines. This operation grew in size and import over the years. In many respects, as would become increasingly apparent as the Soviets wound-down their presence in Egypt, it represented one of the Squadron's major peacetime vulnerabilities.[19]

The remaining facilities made available to the Squadron were of far less importance. Although never as well-equipped with facilities ashore as was Mersa Matruh, the harbor at Sollum, and the protected anchorage developed by the Soviets in international waters off Sollum, were used heavily by the Squadron's combatants. The offshore anchorage is reportedly still in use.[20]

Further, at one time the Soviets apparently wanted to develop roughly the same sort of "coastal base" at Berenice as they set out to establish at Mersa Matruh.[21] They appear not to have implemented this plan, however.[22]

Loss of Egyptian Support

The restriction and eventual termination of Egyptian support for the Soviet Mediterranean Squadron were part and parcel of a larger campaign undertaken by President Sadat to improve Egypt's strategic position vis-a-vis Israel. This campaign was directed primarily against the Soviet Union, and it went through a number of distinct phases. In each

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[18] Henry Tanner, "Cairo Prods Moscow on Debt Dispute by Hampering Naval and Air Activities," *New York Times*, 28 July 1975; Tahani Ibrahim, "Shipyard Seeks Overseas Contacts to Break Soviet Monopoly," *Akhbar al-Yawm* (Cairo), 19 February 1977, reported in: FBIS, *Daily Report: The Middle East and North Africa*, V–38 (25 February 1977), pp. D3, 4.

[19] William Beecher, "Egypt Ends Soviet Ship Preference," *Washington Post*, 20 July 1975; Charles W. Corddry, "Moscow Pulls MIGs from Egypt," *Baltimore Sun*, 23 September 1975; "Soviet Subs Face Mideast Squeeze," *Baltimore Evening Sun*, 23 March 1976.

[20] John K. Cooley, "Soviet Ships Prowl for New Havens," *Christian Science Monitor*, 7 April 1976.

[21] Mohammed Heikal, *The Road to Ramadan*, NY: Quadrangle/The New York Times Book Company, 1975, pp. 164, 169.

[22] It is not inconceivable that the complex of support facilities the Soviets eventually developed in Berbera, Somalia, was essentially what they originally wanted to establish in Berenice (and for that matter, what they had under construction at Mersa Matruh).

successive phase, the continuation of support for the Squadron played an increasingly prominent role.

The origins of the campaign are not entirely clear.[23] It appears to have begun in 1971, and to have been occasioned primarily by Egyptian-Soviet disagreement over arms deliveries. It first became public in July of 1972, when President Sadat abruptly ordered the withdrawal of both the massive Soviet air defense contingent then deployed in Egypt and the large body of Soviet advisers serving with the Egyptian armed forces. He also ordered what amounted to the confiscation of much of the military equipment the Soviet forces had brought to Egypt, such as the SA–3 SAM systems they had installed and were manning at critical locations along the Nile and in the Delta. Furthermore, Egyptians took control of all Soviet military facilities in the country.[24]

This move appears to have had two objectives. The first was to pressure the Soviets into providing Egypt with the weapons it considered necessary for an offensive to recover the Sinai. The second was to ensure Egypt's freedom of action to undertake such an offensive. Although not targeted against it, President Sadat's actions did have significant impact on Squadron support. The reconnaissance and ASW aircraft that had been operating over the Mediterranean from Mersa Matruh and Cairo West, and the ASM-launching bombers located at Aswan, were all withdrawn.[25] Further, the complex of naval support facilities the Soviets were developing at Mersa Matruh was "nationalized" by Egyptian forces.[26]

Aside from this, Squadron support was left untouched—undoubtedly by design. Soviet ships continued to use Egyptian ports and anchorages without restriction, and maintenance and repair activity at the shipyard in Alexandria continued unabated.[27]

In December 1972 the Egyptians increased their pressure on the Soviets, this time switching from obviously negative to apparently positive incentives. They offered, several months in advance, to renew the 1968 support agreement for a second 5-year term[28] This may or may not have been the key, but not long after that offer was made the Soviets began

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[23] A variety of accounts of the origins and course of this campaign have begun to appear recently. Some of these—Heikal, *op. cit.*; President Sadat's "memoirs"—are the work of insiders; others have been produced by more (or less) impartial observers. The most informative of the latter are: Glassman, *op. cit.*; Galia Golan, *Yom Kippur and After: The Soviet Union and the Middle East Crisis*, Cambridge: Cambridge University Press, 1977; and Rubinstein, *op. cit.*

[24] William Dullforce, "Surprise Order by Sadat Sparks Military Exodus," *Washington Post*, 19 July 1972; Jim Hoagland and William Dullforce, "Soviet Military Men Going Home Quietly," *op. cit.*

[25] Since these forces appear not to have been covered by the expulsion order, it is possible that the Soviets withdrew them on their own initiative.

[26] "The Mediterranean: The Russians Have Lost a Lot," *The Economist* 244- (12 August 1972), p. 26.

[27] *Ibid.*

[28] 3 April 1974 Sadat speech, *op. cit.*

delivering the requisite weapons to Egypt (and Syria), and active preparations got under way for the offensive that eventually produced the October 1973 Arab-Israeli War.[29]

The next phase in the Egyptian campaign against the Soviets appears to have begun shortly after the October War. Egypt was dissatisfied with Soviet performance during the War. Soviet opposition to the postwar negotiations, and the apparent Soviet refusal to rearm the Egyptian armed forces and reschedule the debt from previous arms purchases only computed that dissatisfaction.[30] In addition, Egypt had also begun to court the United States. What measures, if any, the Egyptians took in the immediate post-war period to coerce the Soviets into changing their position are unknown. By the spring of 1974, however, whether in response to open threats by President Sadat to curtail Soviet access to Egyptian facilities,[31] or because Soviet use of those facilities had already been restricted, the Soviets were searching for alternative sources of support for the Squadron.[32] Within a year—i.e., by the spring of 1975—both the Egyptian efforts to pressure the Soviets by "putting the squeeze" on the Mediterranean Squadron, and the various efforts undertaken by the Soviets to relieve that pressure, had emerged into the open.

In May 1975, Egypt sharply curtailed Soviet access to its facilities. Soviet combatants were denied entrance to the harbors at Mersa Matruh and Sollum. They retained the use of the anchorage off Sollum, but were required to remain outside Egyptian territorial waters. Although the nucleus of support ships the Soviets had stationed in Alexandria was allowed to remain, and submarine maintenance and repair operations at the shipyard there were allowed to continue, the Soviets lost the "right" to enter and leave the harbor at will.[33]

By this time, the Soviet effort to develop alternative sources of support for the Squadron was far advanced. Soviet units were calling with increased frequency at other Mediterranean ports. Some of the direct support activities that previously had been carried out for the Squadron in Egyptian ports had now been shifted to Syria, and the Soviets were

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[29] These preparations are detailed in MGEN, Chaim Herzog, *The War of Atonement: October 1973*. Boston/Toronto: Little Brown and Company, 1975; and Glassman, *op. cit.*

[30] C. L. Sulzberger, "Sadat Says Soviet Sought Leverage in Arms Supply," *New York Times*, 22 April 1974; Paul Martin, "Soviet Union Refused to Rearm Egypt, Mr. Sadat Discloses," *Times* (London), 9 January 1975.

[31] C. L. Sulzberger, "Sadat Says Soviet Sought Leverage in Arms Supply," *op. cit.*

[32] Legislation enacted by Yugoslavia in April 1974, limiting the number of foreign naval vessels that could be serviced in Yugoslav facilities may have been a reaction to this search.

[33] William Beecher, "Egypt Ends Soviet Ship Preference," *Washington Post*, 20 July 1975; Henry Tanner, "Cairo Prods Moscow on Debt Dispute by Hampering Naval and Air Activities," *op. cit.*; Charles W. Corddry, "Moscow Pulls MIGs from Egypt," *Baltimore Sun*, 23 September 1975.

making the maximum allowable use of Yugoslav ship repair facilities.[34] Furthermore, the Soviets had made an agreement with Libya—formerly highly suspicious of the Soviets but now decidedly at odds with Egypt—for a major arms sale. This agreement (which was negotiated prior to, and may have served as a stimulus to, the May 1975 Egyptian actions) reportedly gave the Soviets access to naval support facilities in Libya, although confirmation of their use of facilities there has yet to appear.[35]

President Sadat delivered a further blow to the Soviets when the Suez Canal was reopened in June 1975, including the United States but not the Soviet Union in the opening ceremonies.[36] On the other hand, he left untouched the remaining support activities being carried out for the Squadron in Alexandria. These activities—especially those connected with submarine maintenance and repair—were clearly critical to the Soviets. Allowing them to continue presumably left the Egyptians with a significant amount of leverage for bargaining purposes.

Potent though it may have been in theory, that leverage proved inadequate in reality. The Soviets continued to deny the Egyptians the weapons they felt they should receive. The Soviets also refused to reschedule the Egyptian debt. Moreover, they blocked Egypt's acquisition of spare parts from third countries, such as India, that were producing Soviet-developed weaponry. When confronted with this ultimate step, the Egyptians retaliated.[37]

In March 1976, Egypt abrogated its not quite 5-year-old Treaty of Friendship and Cooperation with the Soviets. At the same time, President Sadat gave the Soviets 1 month to close down their submarine support operations and remove their remaining units from Alexandria.[38] As they had done at each previous stage in the dismantling of their presence in Egypt, the Soviets complied. They apparently withdrew on schedule.[39]

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[34] Malcolm W. Browne, "Yugoslav Dockyards Repair Soviet Ships," *New York Times*, 7 February 1977.

[35] "Cairo Paper Says Libya Gives Soviet Military Facilities," *New York Times*, 23 May 1975; Henry Tanner, "Libyans Confirm Soviet Arms Deal," *New York Times*, 25 May 1975; Christopher S. Wren, "Soviet Denies it Plans Bases in Libya," *New York Times*, 28 May 1975; "U.S. Confirms Soviet-Libyan Arms Deal," *New York Times*, 29 May 1975; Charles Corddry, "Libya Reportedly Readies Pens for up to Six Soviet Submarines," *Baltimore Sun*, 30 June 1975.

[36] Marquis Childs, "Sadat: Peace Cannot be Imposed," *Washington Post*, 1 July 1975.

[37] "Military Affairs; Egypt," *Air International* 10–5 (May 1976), p. 210; "Soviets to Deny Egypt MIG Parts," *Washington Star*, 19 February 1976; "India Confirms Ban on Parts for Egypt," *New York Times*, 18 March 1976; "Egypt Begins Search for Arms Supply," *Aviation Week and Space Technology*, 104–12 (22 March 1976), pp. 21, 22.

[38] Thomas W. Lippman, "Egypt to Cancel Friendship Pact With the Soviets," *Washington Post*, 15 March 1976; "Egypt to Oust Soviet Ships, Technicians," *Washington Post*, 16 March 1976; Flora Lewis, "Soviet Navy Loses Right to Use Egyptian Ports," *New York Times*, 5 April 1976.

[39] Henry Tanner, "Major Gain Seen in China-Arab Ties," *New York Times*, 23 April 1976; Assem Abdel Mohsen, "Egypt Takes An Independent Line," *Middle East*, No. 20 (June 1976), pp. 16–20.

Impact of the Loss of Support

The prospect of losing the local support that had enabled them to achieve, and then sustain, a high level of naval deployments to the Mediterranean forced a difficult decision on the Soviets. A number of alternatives were open to them.

In order to maintain the Squadron as it was, neither reducing its strength nor changing its composition, the Soviets would have had to find a substitute for the support the Squadron had been obtaining in Egypt. The Soviets could have sought access to comparable facilities elsewhere in the Mediterranean, but the countries possessing comparable facilities were not those most likely to grant them access, and the countries most likely to allow them in had no such facilities. If, on the other hand, the Soviets could have extracted increased effort from the Black Sea Fleet service force, they could have dispensed with local support and attempted to sustain the Squadron at sea; but the service force appears to have been making a maximum effort already, and there is in any event an inescapable minimum of support functions that are at best difficult to carry out at sea. Finally, the Soviets could have modified the pattern of combatant deployments to the Squadron, reducing the length and increasing the frequency of each ship's Mediterranean cruises. However, adoption of such a *modus operandi* probably would have put an unacceptable strain on their combatant inventory, and while it would have reduced, it would not have eliminated the need to support the forces that did deploy. In addition, the Montreux Convention, which restricts Soviet freedom of movement into and out of the Black Sea, might have made either of the last two potential solutions difficult to implement.[40]

Alternatively, the Soviets could simply reduce the strength and modify the composition of the Squadron to the point where existing and obtainable support, both that provided directly from the Soviet Union through the service force and that to which they could gain access locally,

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[40] It is worth noting in this regard that in July of 1976, as the new Soviet aircraft carrier KIEV left the Black Sea on its maiden voyage, the Soviet Navy's professional journal *Morskoy Sbornik* published an article on the Montreux Convention that elicited wide attention in the West. That attention was focused on the assertion that Black Sea powers were entitled to send *any* ship through the Turkish Straits—even aircraft carriers, ostensibly denied passage by the Convention. This article contained a second, only slightly less radical departure from the norm: the contention that the ships of Black Sea powers operating outside the Turkish Straits should be able to return to port if necessary without the eight days' prior notice called for by the Convention. This argument attracted little attention. Its full implementation, however, could well open the Turkish Straits to the degree that adequate support for the Soviet Mediterranean Squadron could in fact be provided from the Black Sea. See Captain 1st Rank V. Serkov, "Legal Regulations for the Black Sea Straits," *Morskoy Sbornik*, No. 7 (July 1976), pp. 83–86; "Soviets See Bosphorus Open to Its Warships," *Washington Post*, 13 August 1976; Barry Buzan, "The Status and Future of the Montreux Convention," *Survival* 18–6 (November-December 1976), pp. 242–247.

would be adequate. It appears that, in the end, they had to settle for this last alternative—at least as an interim measure.

What little evidence is available on recent Soviet deployments to the Mediterranean—listings of transits through the Turkish Straits and annual totals of ship days in the region, essentially the same gross measures employed above to describe the growth of the Squadron—suggests that the character of the Soviet naval presence there has begun to change. The Squadron appears to be declining in strength.[41] In addition, the relative number of submarines and surface combatants assigned to the Squadron may have been altered. These changes appear to have been initiated in 1972, and to have accelerated significantly after the October War—roughly in parallel with the campaign that the Egyptians mounted against the Soviets.

As can be seen in table 11 above, the number of Soviet naval units transiting the Turkish Straits increased sharply in the mid- to-late 1960s. However, those increases did not continue into the 1970s. Total transit activity leveled off in 1967. Combatant and auxiliary transits leveled off in 1968 and 1969 respectively. From 1969 through 1973, some 270 Soviet naval units (roughly 120 surface combatants and 150 auxiliaries) transited the Straits each year.

But these high activity levels were not maintained beyond the early 1970s either. Between 1973 and 1975, the number of Soviet surface combatants transiting the Turkish Straits *declined by 40 percent*. This decline may have started in 1972; but any trend in that direction was swamped the following year by the reinforcement of the Squadron during the October War. In sharp contrast, the number of Soviet naval auxiliaries transiting the Turkish Straits has remained essentially unchanged.

As shown in table 10 above, Soviet Mediterranean ship day totals also remained essentially unchanged from 1973 through 1975—but then declined in 1976. The sustained growth that had begun in 1964 ended in 1971, and 1972 showed a decline. Like the decline in the number of combatants transiting the Turkish Straits, any trend toward decline in the overall strength of the Squadron that might have been started in 1972 was interrupted by the October War. Unlike the decline in combatant transits, however, the drop in overall Squadron strength was not resumed immediately after the war. It began again when Soviet access to Egyptian support was finally ended.

If both of the measures used here actually describe the same phenomenon—the Soviet naval presence in the Mediterranean—they should change as it changes, and those changes should occur more or less in unison. That does not happen in this instance. One reason for this

[41] This does not necessarily mean that there has been a concomitant reduction in the Squadron's combat capability. The individual capabilities of Soviet warships have increased substantially in the last few years. Whether this increase is sufficient to offset the decrease in the number of ships operating in the Mediterranean remains an open question, however.

discrepancy may lie in the fact that data on Turkish Straits transits provide only a partial picture of the size and composition of the Soviet Mediterranean Squadron. As noted above, the transit listings reflect almost all of the surface combatants and auxiliaries that operate in the Mediterranean, but none—or, at most *very few*—of the submarines. It could well be that the decline in surface combatant deployments apparent in the 1973-1975 transit data was not matched by an equally significant decline in total ship days during the same period because the Squadron's submarine strength increased to compensate for the decrease in surface combatant strength.

A direct measure of Soviet Mediterranean submarine strength, which would show whether this is in fact what occurred, is unfortunately not available. However, circumstantial evidence, and the logic of the situation, support this explanation for the discrepancy. The alternative explanation—that the decrease in the number of combatant transits of the Turkish Straits was offset by an increase in the length of time deploying units spent in the Mediterranean—isn't entirely credible. The length of the average surface combatant deployment to the Mediterranean had long since been stabilized at slightly under 90 days. The Soviets must have considered that to be the optimum deployment length, beyond which a cruise could not be extended significantly without either increasing the amount of support the ship required or degrading the Squadron's combat readiness. Under the circumstances, neither would have been welcome. In the end, the Soviets did increase the average length of surface combatant deployments in the Mediterranean, but only by somewhat under 10 percent—not enough to make a real difference.[42]

The Egyptians had allowed submarine support activities in Alexandria to continue long after support of Soviet surface combatants had been terminated in all Egyptian harbors. The Soviets may have thought that Egypt would not curtail those submarine support activities at all—preferring to retain the bargaining leverage that their continuance provided. The Soviets could thus add submarines to the Squadron, support them, and compensate to some degree for the necessary reduction in the Squadron's surface combatant strength—which, without either Egyptian support, or a reasonable surrogate, could not remain as before.

If that is in fact what the Soviets thought, and did, they appear to have made a costly mistake. The drop in overall Squadron strength in 1976, as Egypt finally stopped providing support to its submarines, suggests that was indeed what occurred. What happens to the size and composition of the Squadron now may reveal just how costly that decision really was.

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[42] Data compiled from the editions of the Turkish Foreign Ministry's *Rapport Annuel sur le Mouvement des Navires a Travers les Detroits Turcs* covering movements through 1975.

Chapter 16

Soviet Strategy and Policy in the Indian Ocean

By Albert E. Graham

Historical Perspectives

Most analysts have referred to the historical continuity which links Tsarist and Soviet expansionist ambitions. Russia's drive for warm water ports and an outlet to the great oceans of the world can be traced back to Peter the Great and Catherine the Great. Tsarist interest was concerned with Russian penetration into Central Asia and conflicts with Britain over influence in the Middle East and the border areas between India and Russian Asia, especially in Iran, Afghanistan, and Tibet. The first attempt to conquer an Indian Ocean nation dates from 1801 when Tsar Paul I ordered a detachment of Don Cossacks to seize India and eliminate British influence there. This venture came to naught, however, as the Tsar was assassinated and one of the first official acts of his successor was to recall the expedition.[1] Detailed plans to invade India were devised again in 1877 by General M. D. Skobelev, one of the architects of Russia's Asiatic expansion. This idea was later abandoned as not being feasible to carry out at the time.[2]

Stalin's ambitions in this area were first revealed in a secret draft protocol to the 1940 Four Power Pact, accepted but never signed, between the Soviet Union and the Axis Nations (Germany, Italy, and Japan). The text of this secret protocol offered to recognize Soviet aspirations "south of the national territory of the Soviet Union in the direction of the Indian Ocean," and the Soviet counterdraft spoke of "the

[1] Geoffrey Jukes, *The Indian Ocean in Soviet Naval Policy*, Adelphi Papers, No. 87, London, The International Institute for Strategic Studies, 1972, p.1.
[2] Michael T. Florinsky, *Russia; A History and an Interpretation*, v.2, NY: Macmillan, 1947, p. 986.

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area south of Batum and Baku in the general direction of the Persian Gulf," which Moscow asked to be recognized as the center of its territorial aspirations in Asia.[3] At the same time Stalin gained Italian and German support for the abolition of controls on the passage of Soviet vessels through the Dardanelles and Bosphorus. The fact that the 1940 "protocols" did not constitute a Soviet tactical maneuver vis-a-vis Nazi Germany but rather a restatement of Soviet Russia's ambitions is further evidenced by Soviet attempts to maintain troops in northern Iran and to establish a military and naval base in the Straits immediately following World War II.[4]

Post-war incidents such as the 1956 Suez invasion by Anglo-French forces, the 1958 landing of US forces in Lebanon, and the 1962 US blockade of Cuba completely frustrated and humiliated the Soviets who, at that time, did not possess any means of naval conflict intervention or means for challenging the US at strategic levels. T. B. Millar suggests that there is a causal relationship between the present Soviet military (naval) build-up, the diplomatic interest in the entire area east of the Suez, and the unsuccessful attempt by the Soviets to install nuclear missiles in Cuba.[5]

Nonetheless, most observers attribute the initial shift to forward deployment on the part of the Soviet Union as a response to the threat posed by US seaborne nuclear delivery systems.[6] They claim that the operational deployment of the POLARIS A–3 missile submarine in September 1964 accentuated the strategic importance of the Indian Ocean to the Soviet leadership and Soviet naval staff. The northwest corner of the Indian Ocean acquired a particular strategic importance since POLARIS submarines operating from here could threaten the whole area between the western Soviet border and Eastern Siberia on an arc extending almost as far north as Leningrad and including all the major industrial areas from the Ukraine to the Kuzbas.[7]

The British withdrawal of all UK forces from the Persian Gulf states and elsewhere east of Suez in the late 1960s and early 1970s created a power vacuum in the Indian Ocean which the Soviet Union opportunistically strived to fill. The United States, recoiling from its experience in Vietnam, did not wish to become further involved in Asian affairs and curtailed its already limited naval maneuvers in the Indian Ocean. Thus,

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[3] Raymond James Sontag and James Stuart Beddie, *Nazi-Soviet Relations 1939–1941*, Washington, DC: Department of State, 1948, p. 257–259.
[4] Adam B. Ulam, *Expansion and Coexistence, Soviet Foreign Policy 1917–1973*, 2d ed., NY: Praeger, 1976, p. 390.
[5] T. B. Millar, *Soviet Policies in the Indian Ocean Area*, Canberra Papers on Strategy and Defense, Canberra: Australia National University Press, 1970, p. 6.
[6] Michael MccGwire, "Naval Power and Soviet Oceans Policy," In US Senate, Committee on Commerce, *Soviet Oceans Development*, Wash., DC, GPO, 1976, p. 165.
[7] Christopher Stevens, *The Soviet Union and Black Africa*, NY: Holmes and Meier Pub., 1976, p. 172.

scarcely a month after the British announced their withdrawal in January 1968, the Soviet Navy entered the Indian Ocean for the first time.[8]

Soviet Indian Ocean Deployments

Admiral Sergei Gorshkov, the Commander-in-Chief of the Soviet Navy, paid a visit to India in February 1968, presumably in an effort to obtain rights for Soviet warships to refuel and be repaired in Indian ports.[9] A month later, a Russian flotilla consisting of a SVERDLOV class cruiser, a KASHIN guided missile frigate, a KRUPNYY guided missile destroyer,[10] a nuclear powered submarine, and a Navy tanker called on various ports in India, Ceylon, Iran, Iraq, Somalia, and South Yemen. This was followed by the visit of another two squadrons of Russian warships to the region in the latter half of 1968.[11] In the following years, the deployment of Soviet naval vessels to the Indian Ocean was systematically continued. By 1971, there were 10–20 Soviet naval vessels in the Indian Ocean.[12] A "major" force usually consisting of a cruiser, a couple of destroyers, a submarine, and assorted auxiliaries would arrive in the area sometime in December or January and return to its home port sometime between late April and July. A "minor" force consisting of nothing larger than a destroyer generally arrived before the "major" force departed. Peak periods are usually in December–January and May–July when one force arrives before the other departs.[13] During the 1971 Indo-Pakistani War the Soviets had more than 20 ships in the Indian Ocean, including submarines, guided missile cruisers, guided missile destroyers, tankers, supply ships, and tenders.[14] Two years later during the Arab-Israeli outburst in late 1973, the Kremlin simultaneously massed more than 30 ships in the Indian Ocean and 95 in the Mediterranean Sea,[15] an unprecedented feat for a navy that in the recent past was a coastal defense force. Presently, a naval force averaging about twenty units is maintained in the Indian Ocean. As in previous years, operations continue

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[8] US Congress. House Committee on Foreign Affairs; Subcommittee on National Security Policy and Scientific Developments. *The Indian Ocean: Political and Strategic Future*. Hearings 92nd Congress, 1st session, July 20, 22, 27, 28, 1971. Wash., DC: GPO, 1971. p. 69.

[9] B. Vivekanandan, "Naval Power in the Indian Ocean," *Round Table*, No. 257, January 1975, p. 61.

[10] US Congress. Committee on Foreign Affairs. Subcommittee on the Near East and South Asia. *Means of Measuring Naval Power with Reference to US and Soviet Activities in the Indian Ocean*. Washington, DC: GPO, May 1974. p. 8. [Hereafter cited as *Means of Measuring Naval Power*.]

[11] Vivekanandan, p. 61.

[12] Neville Brown, "Soviet Naval Expansion—The Global Scene Assessed," *New Middle East*, No. 30, March 1971, p. 19.

[13] Jukes, p. 15–16.

[14] Maharaj K. Chopra, "Zunehmender machtkampr in Indischen Ozean," *Wehrkunde*, v. 24, no. 2, 1975, p. 74.

[15] *Means of Measuring Naval Power . . .*, p. 8–9.

to be largely centered in the northwest, including the Gulf of Aden and the Horn of Africa. Interest in Mozambique has also led to an increase of naval activity in the Mozambique canal.

Port calls are an important part of Soviet Indian Ocean policy. They have become a matter of "showing the flag" and giving the crews periodic rest and recreation. The Soviet Union has sought to exploit the presence of its naval units on forward deployment for political purposes, and after 1968, there was a marked increase in foreign port visits, especially to countries bordering the Mediterranean Sea and Indian Ocean. The first two Soviet deployments between March 1968 and April 1969 which put in at 15 ports from the Andaman Islands to Mauritius were familiarization tours.[16] Since then, Soviet Indian Ocean units have made port visits to India, Pakistan, Iran, Iraq, the Peoples Democratic Republic of Yemen (Yemen, Aden), the Yemen Arab Republic (Yemen, Sana), the Sudan, Ethiopia, Somalia, Tanzania, Mauritius, Sri Lanka,[17] Egypt,[18] Singapore,[19] and Mozambique.[20] Between January 1968 and November 1971, 54 visits were made to East African ports (including Mauritius) as opposed to 42 to the Red Sea area and 66 to the remaining Indian Ocean countries. When examined further, the figures on the East African visits reveal that 32 of the 54 visits there were made to the Somali ports of Berbera, Mogadiscio and Chisimaio, making Somalia the country most frequently visited by Soviet warships.[21] In fact, during the 1970–1971 period, Berbera alone received fourteen visits,[22] getting twice as much attention during this period than the entire Persian Gulf region.

While there is no best yardstick for measuring naval power, one criteria is ship days. The number of ship days accrued by Soviet naval vessels in the Indian Ocean since 1968 are respectively 1760 (1968), 3668 (1969), 3579 (1970), 3804 (1971), 8800 (1972), 8543 (1973) and about 10,500 in 1974.[23] These figures reveal that since 1970, Soviet naval units have shown a greater presence in the Indian Ocean than any other outside power, with the possible exception of the French.[24] In comparison with

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[16] *Means of Measuring Naval Power . . .*, p. 4–5.

[17] Jurgen Rohwer, *Superpower Confrontation on the Seas*, Wash., DC: The Center for Strategic International Studies, 1975, p. 74.

[18] Anne M. Kelly, *Port Visits and the "Internationalist Mission" of the Soviet Navy*, PP. no. 145, April 1976, Arlington, Va.: CNA, 1976, p. 1–2.

[19] Millar, p. 19.

[20] David B. Ottaway, " 'Afrocommunism' Seen as a New Force in Mozambique," *Washington Post*, 16 Feb. 1977, p. 1.

[21] Stevens, p. 174.

[22] Jukes, p. 18.

[23] *Means of Measuring Naval Power . . .*, p. 4. (One ship at sea or in port for a single day counts as one shipday. One ship in the area for 5 days or five ships for 1 day, count as five shipdays. All vessels from landing craft to aircraft carriers accrue shipdays at the same rate.) See also Paul J. Murphy, *Trends in Soviet Naval Force Structure*, Chapter 6, this volume.

[24] E. R. Zumwalt Jr. "The Shifting Balance of Seapower," *The Wall Street Journal*, 1 July 1975, p. 12.

US forces, the Soviets held a 4:1 edge in 1974.[25] Since then, shipdays have declined somewhat in this area for reasons that are, in part, discussed in chapter 6.

Soviet leaders rationalize that surface deployments are needed to protect Soviet merchant ships engaged in the transport of sensitive cargo to client states.[26] At any given time, the Soviets are alleged to have about 100 merchant ships, 40 fishing trawlers, and dozens of oceanographic and hydrographic research vessels in the Indian Ocean, many of which are better equipped for intelligence gathering. In this regard, it should be noted that the Soviet merchant, fishing, and research fleets are entirely government-owned and frequently served as an instrument of Soviet policy in the Third World, bringing in weapons and supplies for client states and used in support of national liberation movements. Admiral Gorshkov recently stated in a *Pravda* interview that the Soviet merchant, fishing, and scientific research fleets are part of the Soviet naval forces.[27] As such, they add to the Soviet presence in the Indian Ocean and must be regarded as an important instrument of Soviet policy in this region.

Soviet Naval Strategy in the Indian Ocean

Strategic Significance of the Indian Ocean

The Indian Ocean stretches 28,350,500 sq. miles from Aden, at the southern tip of the Arabian Peninsula, to Freemantle in Southwest Australia and from Durban, South Africa to Singapore, at the tip of the Malay Peninsula. This vast area encompasses dozens of littoral nation states which form a large bloc of Afro-Asian countries having a great diversity of race, religions, resources, and politics. As such this includes the nations of the Southwest Indian Ocean: South Africa, Mozambique, Tanzania, Kenya, Madagascar, Seychelles, Mascarene Islands (Reunion and Mauritius), Comoro Islands, Aldabra Islands, Corzet Islands and Kerguelen; the Red Sea Zone: Somalia, Djibouti, Ethiopia, the Sudan, Saudia Arabia, Yemen (Sana), Yemen (Aden), and Socotra Island; the Persian Gulf Zone: Kuwait, Iran, Iraq, Bahrain, Oman, Qatar, and the United Arab Emirates; the Indian Subcontinent: India, Bangladesh, Sri Lanka, Pakistan, the Maldive Islands and the Andaman Islands; the Southeast Asian countries: Burma, Thailand, Malaysia, Singapore, Aus-

[25] *Means of Measuring Naval Power . . .*, p. 4.
[26] See James McConnell, *The Soviet Navy in the Indian Ocean*, PP. No. 77, Arlington, Va.: CNA, 1971, p. 4–5.
[27] "Morskaya moshch' otchizny," *Pravda*, 25 July 1976, p. 2.

tralia, and Indonesia as well as the Central Indian Ocean Islands which includes the Chago Islands.[28]

Twenty-five percent of the world's population lives in Indian Ocean littoral states making the area one of tremendous market and labor potential.[29] Historically, this ocean has served as the maritime gateway from the Atlantic to the Pacific. The most important commodity presently passing through this gateway is vast quantities of Middle East and Persian Gulf oil destined for Japan, West Europe, Australia, and the United States. It has been estimated that as much as 70 percent of the non-Communist world's oil reserves are contained in the Indian Ocean littoral area.[30] The countries most dependent on Persian Gulf oil are Japan which draws 90 percent of its annual supplies from this area, followed by Italy at 84.5 percent, Australia at 69 percent, Great Britain at 66.1 percent, West Germany at 62 percent, France at 51.1 percent and the United States to a limited extent.[31] Thus, the strategic might of numerous nations can be said to rely in part on the oilfields of the Middle East and Persian Gulf.[32]

Moreover, long-range CIA findings forecast a possible oil shortfall in the Soviet Union by 1980.[33] Soviet worries about their oil supply have recently surfaced in an 10 August *Pravda* article which stated that "the immediate future of Soviet fuel resources" is endangered by a lack of adequate official support for oil exploration and development.[34] Moscow's involvement in developing Iraq's North Rumaila oilfield and its interest in

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[28] CIA. *Indian Ocean Atlas*. August, 1976, p. 26; US Department of State. This is the only source that could be found which presents any official US position on just what is considered an Indian Ocean littoral state. Even the United Nations is hazy on this subject. The UN Ad Hoc Committee on the Indian Ocean constituted as a result of a 28th UN General Assembly resolution, for instance, listed the following 36 states as Indian Ocean littoral and *hinterland* states. Afghanistan, Australia, Bahrain, Bhutan, Botswana, Burma, Democratic Yemen, Egypt, Ethiopia, India, Indonesia, Iran, Iraq, Kenya, Kuwait, Lesotho, Madagascar, Malawi, Malaysia, Maldives, Mauritius, Nepal, Oman, Pakistan, Qatar, Saudi Arabia, Singapore, Somalia, Sri Lanka, Sudan, Swaziland, Thailand, Uganda, Tanzania, Yemen, and Zambia (see UN General Assembly Official Records. *Report of the Ad Hoc Committee on the Indian Ocean*, 28th Session, Supplement no. 29, 1973–1974, p. 7). There are many incongruities in the UN list which excludes such countries as South Africa, Mozambique, and Bangladesh while including such land-locked states as Nepal, Bhutan and Afghanistan. One explanation for excluding South Africa, at least, was that its primary concern was deemed to be with the Atlantic Seaboard. The rationale for including land-locked countries was that their foreign trade is principally conducted through the Indian Ocean.

[29] R. M. Burrell and Alvin Cottrell, eds. *The Indian Ocean: Its Political, Economic and Military Importance*. NY: Praeger, 1972, p. xix.

[30] William Roscoe Kinter and Robert L. Pfalzgraff Jr. *Soviet Military Trends: Implications for U.S. Security*. Wash., DC: American Enterprises Institute, [1971], p. 40.

[31] R. D. M. Furlong, "Strategic Power in the Indian Ocean," *International Defense Review*, v. 5, no. 2, April 1972, p. 133.

[32] Edward B. Atkeson, "Hemisphere Denial: Geo-political Imperatives and Soviet Strategy," *Strategic Review*, v. 4, Spring 1976, p. 29.

[33] CIA. *Soviet Economic Plans for 1976–80: A First Look*. August, 1976, p. 12.

[34] S. Vorushin and A. Murzin. Iskat' novyye klady, *Pravda*. 10 August 1977, p. 2.

exploiting the Luhais oilfield in southern Iraq[35] seems to indicate that the Russians are hedging against future oil deficits.

Access to the oil in the Indian Ocean region is reportedly vital to the survival of NATO, Australia, and Japan.[36] Moreover, the wealth and, more important, the power that could result from control of Persian Gulf oil and the Indian Ocean trade routes have tempted Soviet strategists for many years. They never tire of pointing out, quite correctly, that no single event would more decisively shift the global balance to the USSR's advantage than that nation's acquisition of prominent influence in the Middle East and Indian Ocean.[37]

Aside from oil, many other resources of importance originate from Indian Ocean littoral states. These include such minerals as manganese, asbestos,[38] gold, chrome, lead, antimony, uranium, beryl, cobalt, bauxite, graphite, platinum, vanadium, to name a few.[39] Soviet interest in many of these minerals in the Indian Ocean area is likely to increase as its own consumption in some areas increase. Moreover, the USSR probably has an interest in limiting Western access to these resources.

Outflanking Strategy

Strategic challenges to the Soviet Union have required an increase in oceanic capabilities either to solve the problems they create or to capitalize on the opportunities they afford. Thus, with regard to the two-front threat, the Soviets perceive a need not only for land forces but also for naval capabilities in order to outflank from the sea both China and NATO.[40] Moscow believes it has found a field of action for wide-ranging initiatives which combine military with political and subversive operations to outmaneuver the "Western European Bridgehead" on the European land mass from the sea.[41] By enveloping Europe on both its wet flanks, the Soviet position would coalesce with that in the Indian Ocean into a strategic combination which surrounds the Arabian Peninsula, extends into the Persian Gulf and stretches to the coast of India. In the Persian

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[35] CIA. *Communist Aid to Less Developed Countries of the Free World*. July 1976, p. 25–26.

[36] Atkeson, p. 29.

[37] Zumwalt, p. 12.

[38] Furlong, p. 133.

[39] See Larry D. Church, *Soviet, Chinese and United States Confrontation in the Indian Ocean: Fact or Fiction*, Professional study no. 5871, Maxwell AFB, Alabama, Air War College, Air University, April 1976, p. 8; "Angola and the Cape Sea Route," *Navy International*, v. 81, June 1976, p. 5.; and J. A. Parker, "Indian Ocean: A New Soviet Lake?" *New Guard*, March 1975, p. 8–9; "Russia and Africa," The Mineral Connection. *The Economist*, 9 July 1977, p. 82–83.

[40] John R. Thomas, "Political-Strategic Framework for Soviet Oceanic Policy," *In* US Senate, Committee on Commerce, *Soviet Oceans Development*, Wash., DC: GPO, 1976, p. 29.

[41] Wolfgang Hopker, "Soviet Global Strategy: The Great Challenge to the West at Sea," *US Naval Institute Proceedings*, December 1975, p. 26.

Gulf, oil interests mesh with strategy. The prospect of being able to deny this oil to the West may be a major impetus to Soviet global strategy.[42]

The Indian Ocean appears to be the logical place for the Soviet Union to introduce and maintain a naval presence. It is close to the Middle East—an area of recognized and admitted strategic importance to the USSR. In addition, it serves as a strategic link between Soviet positions in the Mediterranean, Red, and Arabian Seas on the one hand and the Pacific Ocean on the other. The reopening of the Suez Canal by Egypt, although it has seen limited use by Soviet warships, provides a link between the Black Sea and Pacific Fleets. The vulnerability of the Trans-Siberian Railroad to Chinese seizure in the event of a war makes sea and airlift the only remaining means by which Moscow could supply the Soviet Far East and its civilian and military populations. For these reason, the Indian Ocean as a sea line of communication is of ever increasing importance to the internal cohesion of the Soviet Union.

Chokepoint Strategy

Soviet strategy in the Indian Ocean is to establish a naval presence, perhaps ultimately a naval dominance in this area, through which Moscow can influence the policies of the Indian Ocean littoral states as well as control the approaches to the Western Pacific.[43] Suez Canal, Cape of Good Hope, and Strait of Hormuz should the need arise, such as in wartime. In the mid-fifties the Soviet Union attempted to gain influence in Indonesia—one of the countries which dominates the Straits of Malacca. The unsuccessful communist coup in Indonesia in September 1965 failed to dissuade Moscow. She turned her attention to other Indian Ocean states which guard or border on strategic entrances into the Indian Ocean, namely, Somalia, South Yemen (Aden), Ethiopia, and Mozambique. The latter occupies a strategic position in the southwest section of the Indian Ocean on the sea route around the Cape of Good Hope. Moreover, the Soviets apparently intend to pursue this strategy despite the ignominious defeat they suffered in Egypt and recent expulsion from Somalia.

Western naval strategists have become increasingly concerned about the Soviet naval presence in the Indian Ocean chokepoints such as those mentioned above and the Bab-el-Mandeb (the narrow neck of the Red Sea). Several years ago, a group of senior officers at the Naval War College claimed these Indian Ocean chokepoints were vulnerable to the Soviet Navy. "The Soviet Union," they maintained, would now be able to "contest control of these strategic waterways which were hitherto not traversed by combatants potentially hostile to the West."[44]

Moreover, the Communist Chinese allege that the Soviets hope to gain control over the Straits of Malacca by aligning the existing

[42] For supportive arguments see *Ibid.*, p. 27–29.
[43] *Soviet Interest and Influence in the Indian Ocean Area*, Short Paper no. 50, Bangkok: South East Asia Treaty Organization, March 1971, p. 10.
[44] "Russia Drives East of the Suez," *Newsweek*, 18 January 1971, p. 27.

governments of Malaysia and Indonesia which, together with Singapore, jointly control the Straits and have guaranteed passage through them to all ships of innocent passage. By doing this, the Soviet Union could ensure passage of its Pacific Fleet through the Straits for purposes of conducting Indian Ocean operations with the Black Sea and Mediterranean Fleets.[45] Even if one attributes these reports to Chinese propaganda, the fact remains that Soviet overtures for use of port facilities over the past few years to such states as Sri Lanka, Malaysia, Singapore,[46] Vietnam,[47] India, the Andaman Islands,[48] and the Maldive Islands[49] indicates a strong Soviet desire to move its forces closer to the Straits of Malacca. Actually, the Soviets, to date, have only received permission to dock in Singapore,[50] to use facilities for its fishing vessels in Colombo and Galle, Sri Lanka,[51] and, allegedly, to have access to an anchorage at Chittagong, Bangladesh[52] and Indian naval installations.[53]

In the Red Sea zone Moscow obtained permission to use the air, communication, and naval facilities at Berbera, (Somalia, [until November 1977]) and Aden in South Yemen.[54] These flank the southern access routes to the Suez Canal.[55] In addition, permission to use the facilities at the Iraqi Persian Gulf ports of Umm Qasr and Al Basrah[56] as well as the establishment of a Soviet AGI patrol in the Strait of Hormuz (a relatively narrow waterway between Muscat and Oman on one side and Iran on the other which connects the Persian Gulf with the Gulf of Oman, Arabian Sea, and ultimately the Indian Ocean) in 1974 to monitor the passage of Western ships through this chokepoint perhaps reflects Soviet interest in checking Western and Iranian control of the Persian Gulf.[57] In this regard, it should be noted that all but a fraction of the oil pumped from the Persian Gulf region must transit through the Strait of Hormuz. In recent years, PETYAs (FFL) have patrolled the Strait.

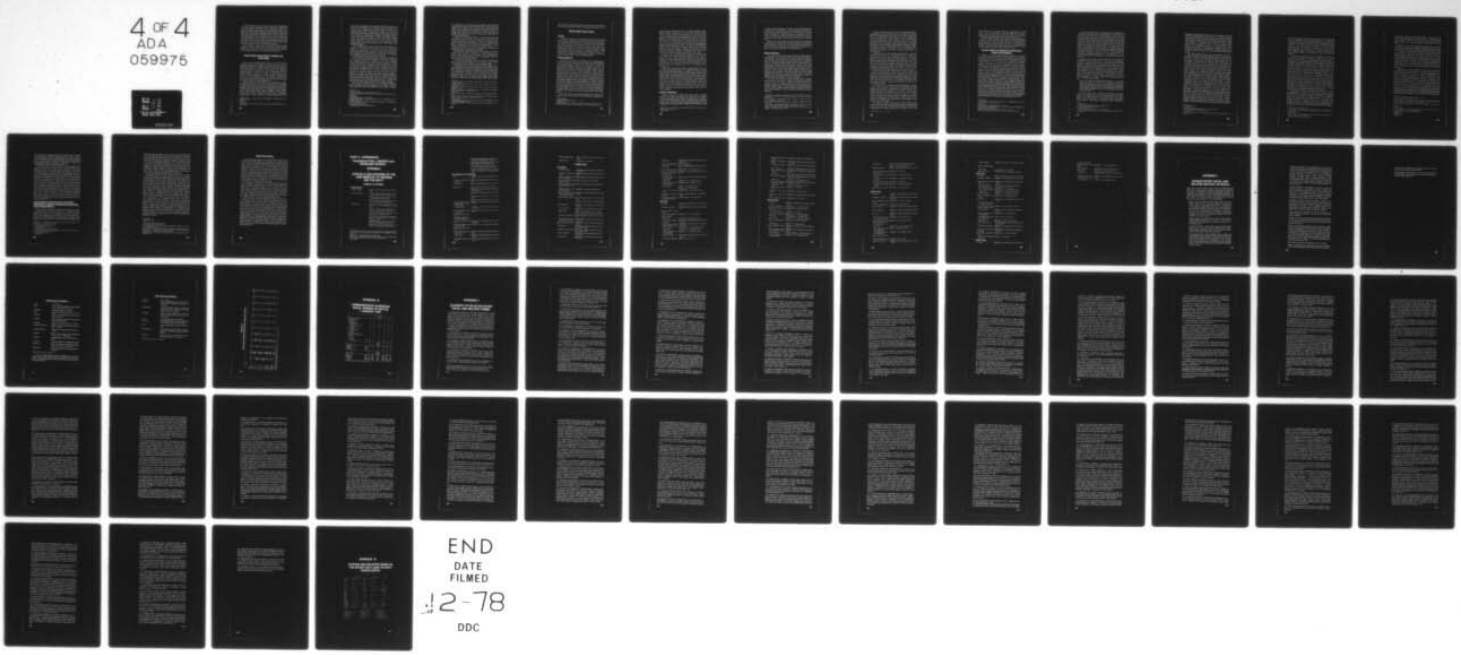
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[45] *Intelligence Digest*, 26 September 1974, p. 2.
[46] Oles M. Smolansky, "Soviet Entry into the Indian Ocean: An Analysis," *In* R. M. Burnell and Alvin J. Cottrell, *The Indian Ocean: Its Political, Economic and Military Importance*, p. 346.
[47] Guy Halverson, "Why China Leaked Rumors of Soviet Bases in Vietnam," *Christian Science Monitor*, 30 May 1975, p. 1.
[48] *Means of Measuring Naval Power . . .*, p. 12.
[49] Reginald Nicholas, "Moscow Woos Maldives for Indian Ocean Base," *Christian Science Monitor*, 3 March 1975, p. 1.
[50] *Means of Measuring Naval Power . . .*, p. 12.
[51] *Ceylon Daily News* (Colombo), 20 August 1971.
[52] *Der Spiegel*, 14 May 1973, p. 104, 106.
[53] Ulrich Schulz-Torge. *Die Sowjetische Kriegsmarine*. Bonn, West Germany: Wehr and Wissen Publishing House, 1976, p. 65; *Soldat und Technik*, no. 5, 1977, p. 265.
[54] CIA. *Indian Ocean Atlas*, p. 25.
[55] US Senate Armed Services Committee. *Soviet Military Capability in Berbera, Somalia*. Report of Senator Bartlett to the Committee on Armed Services, July 1975, p. 21.
[56] CIA. *Indian Ocean Atlas*, p. 25.
[57] See Anne M. Kelly and Charles Petersen, *Recent Changes in Soviet Naval Policy: Prospects for Arms Limitations in the Mediterranean and Indian Ocean*, in this volume.

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Soviet attentions have most recently turned toward Mozambique with whom a 20-year Friendship Treaty was signed on 31 March 1977. The treaty disclosed that the Soviet Union had already signed several military agreements with Mozambique.[58] By all appearances, Moscow has followed the same strategy in Mozambique that it pursued in Somalia and Iraq, namely providing aid in exchange for the use of one or more of the excellent anchorages or port facilities for its naval units or fishing vessels which frequently move north or south in these waters. The so-called Cape route from the Gulf to Europe which passes Mozambique carries a large percentage of the strategic material needed by NATO and remains the major route traversed by the very large crude oil carriers.[59]

Thus, attempts to acquire bases and facilities along the strategic entranceways into the Indian Ocean as well as at key points along the periphery of the Indian Ocean show that the Soviet Union is pursuing a sound "chokepoint strategy" in the world's third largest ocean.

Soviet Indian Ocean Bases, Facilities and Anchorages

Since actively entering the Indian Ocean in 1968, the USSR has attempted to acquire naval facilities in one form or another in several Indian Ocean littoral states. While no overt official treaty exists guaranteeing formal base rights in any Indian Ocean state, the Soviet Union has constructed major naval facilities for host nations, thus sometimes creating facilities for use by her own Navy. The informal nature of the facilities enjoyed by Moscow in a number of Indian Ocean harbors permits it to deny having bases at all. Even though the USSR did not vote in favor of the "Indian Ocean as a zone of peace" resolution in the UN General Assembly, she has paid lip service to it and used it to declare that she has no naval bases in the Indian Ocean.[60]

Until November 1977, Soviet efforts were concentrated in Somalia. Facilities built at Berbera since 1974 were quite extensive. They included a sophisticated and powerful long range communications station which reportedly became the nerve center for Soviet operations in the Red Sea, the Persian Gulf, and the Indian Ocean.[61] In addition, the Soviets installed a large, tightly guarded missile complex at Berbera to service missile warships. Also available at Berbera were tank farms, air-conditioned housing facilities, a naval storage area, a large jet airport and a deep

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[58] David B. Ottaway, "Soviet Pact Shores Up Mozambique". *The Washington Post*, 4 April 1977, p. A-1.
[59] Parker, p. 9.
[60] Ibid., p. 8.
[61] Brian Crozier, *The Soviet Presence in Somalia*, London, Conflict Studies, no. 54, Feb. 1975, p. 9.

water port.[62] The airfield here is reportedly 4000 meters long and was used by TU-95s BEARs to patrol the Indian Ocean.[63] The harbor, on the other hand, was dredged by the Soviets to depths of 50-60 feet and is reportedly large enough to accommodate a sizable naval task force.[64] Soviet naval vessels up to 12,000 tons operating in the Indian Ocean could put in at Berbera for replenishment of supplies and emergency repairs.[65] A newly constructed Soviet facility in the port of Chisimaio contained storage and maintenance facilities for the STYX surface-to-surface missiles employed by Soviet warships, oil storage depots, modern communications stations and several missile sites.[66] Other facilities were located at Mogadiscio.

When President Barre ordered the Russians and Cubans out of Somalia on 13 November 1977, all Soviet naval and air facilities in Somalia were closed down.[67] The Soviets towed away the massive drydock from Berbera and dismantled or destroyed their telecommunications equipment and removed the missiles stocked there. The equipment was reportedly headed for Aden across from Berbera.[68]

It is too early to tell what impact the loss of facilities in Somalia will have on Soviet naval operations in the Indian Ocean. It may lead to some lesser capability. However, it is unlikely that it will have a significant impact on the operations of the Soviet Indian Ocean squadron. It should be remembered that the squadron has relied primarily on its own auxiliaries from the Baltic and Pacific fleets for logistics support. While the auxiliaries used Berbera in the past, they can relocate to carry out their functions elsewhere such as at Aden. The Soviet Union may therefore try to improve relations with Aden or seek base rights or agreements for facility use elsewhere such as in Mozambique, Ethiopia or in some of the Indian Ocean islands. However, in light of the intense nationalism found in the littoral states, there is no reason to believe that they would be any more successful in their endeavors in the future than in the past when their requests for permanent base rights were denied.

The Soviet Navy currently has the use of air and port facilities at Aden in the Peoples Democratic Republic of Yemen (PDRY).[69] Here the Soviets reportedly renovated the British built port complex,[70] adding a

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[62] MccGwire, p. 147.
[63] *Aviazione e Marina Internazionale*, November 1975, p. 29.
[64] US Senate Armed Services Committee. *Soviet Military Capability in Berbera, Somalia*, p. 21.
[65] Crozier, p. 9.
[66] Luftwaffen Revue, No. 2, 1977, p. 21-22.
[67] See Raymond Wilkinson, "Somalia Orders Soviets Out," *The Washington Post*, 14 November 1977, p. A-1.
[68] Jonathan C. Randal, "Soviets Leave Somalia; US Envoy Returns", *The Washington Post*, 21 November 1977, p. A-15.
[69] CIA. *Indian Ocean Atlas*, p. 25.
[70] *Intelligence Digest*, No. 426, April 1974, p. 5-6.

new ship repair yard.[71] The Soviet use of the facilities in Aden reportedly entails the right to refuel,[72] take on food and water,[73] make repairs,[74] and change crews.[75] Thus far Soviet naval visits to the port have been limited. However, this deep-water port is frequented by Russian merchant and fishing vessels.[76] With the loss of Berbera, for the time being, Aden, and possibly other facilities listed below, will assume greater importance for the Indian Ocean squadron.[77]

Another port with extended facilities is Umm Qasr at the head of the Persian Gulf in Iraqi territory. This port was constructed with East European assistance for commercial use. However, its location is such that it can be reached only through the narrow Khor Abdullah Channel, which is situated between Iraqi territory and the Kuwaiti islands of Bubayan and Warbe.[78] The Soviet-Iraqi Friendship Treaty of 1972 provided the Soviet Navy with use of some facilities at Al Basrah, but these pertain mainly to refueling and provisioning.

Increased Soviet interest and activity in Mozambique over the past couple of years have been accompanied by a flurry of reports in the Western media which assert that the Soviet Union is building facilities and an air base at Bazaruto Island owned by Mozambique.[79] However, there is no basis in fact to these claims.

Socotra Island, strategically located on the Horn of African, and areas near the Seychelles Islands and the Cargados Carajos Islands provide the Indian Ocean squadron with its principal anchorages.

In addition to the use of certain facilities in other countries such as Sri Lanka, Singapore and possibly Mauritius and India, the Russians also make extensive use of deep sea mooring buoys. By relying on these buoys, the Russians can refuel and resupply their warships, weather ships and oceanographic and fishing vessels on the high seas.[80] Favored locations for these buoys have been off Mauritius, the Seychelles, Southwest Malagasy, the St. Brandon group, Cargados Island, Diego Garcia and at various points in the Mozambique Channel and the Arabian

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[71] Paul Wohl, "Moscow Courts Somalia and South Yemen," *Christian Science Monitor*, 15 August 1974, p.16.

[72] "Soviet Naval Quality Worries NATO," *Aviation Week and Space Technology*, 25 November 1974, p. 22.

[73] Jürg Meister, "Spotlight on the Indian Ocean," *Swiss Review of World Affairs*, March 1975, p. 18.

[74] Wesley A. Groesbeck, "The Transkei—Key to US Naval Strategy in the Indian Ocean," *Military Review*, v. 56, June 1976, p. 19.

[75] Miller, p. 12.

[76] Ferenc A. Vali, *Politics of the Indian Ocean Region*, NY. The Free Press, 1976, p. 138.

[77] Murrey Marder, "Call for US to Vie with Soviets in South Yemen Gets Cool Response", *The Washington Post*, 25 January 1978, p. A-12.

[78] Vali, p. 178.

[79] See Jurgen Rohwer, *Superpower Confrontation on the Seas*, Washington, DC: The Center for Strategic Studies, 1975, p. 75.

[80] "Indian Ocean Security," *Bulletin of the African Institute of South Africa*, no. 2, 1975, p. 43.

Sea.[81] Moreover, civilian trawlers operating out of Port Louis in Mauritius help service the fleet. The upshot is an austure self-sufficiency at sea.[82]

Soviet Indian Ocean Policy

General

An observer cannot fail to recognize Soviet activities in the Indian Ocean region as reminiscent of classic Russian policies in the pre-World War I period. Soviet endeavors do not pursue one particular objective, nor are they directed to control any one country or piece of territory. What Moscow pursues is the chance to exploit any weakness, any possibility that offers itself a chance to increase its influence, to bring adversaries into disarray, and to create a clientele among the Indian Ocean regional states. For purposes of understanding, however, it is probably best to categorize the multi-purpose objectives of the Soviet Union in the Indian Ocean under the following headings:

Political Objectives

Perhaps, the key concept in contemporary Soviet foreign policy in the Indian Ocean is to reduce and exclude Western and Chinese influence in the area and replace it with their own, wherever this is possible and with indigenous influence where this is not possible. In essence, the Soviet Union would like to turn the Western aligned nations into non-aligned and to encourage the genuinely non-aligned nations to adopt a pro-Soviet stance or, at least, a "positive neutrality."[83] Thus, convinced that political gains can be made only in the relatively non-aligned areas of Southern Asia and Africa, Moscow has begun to pursue its short-term objective there in search of clients and allies. Soviet propaganda in the Indian Ocean littoral area calls to the masses for solidarity and a common front against imperialism, racism, and colonialism.[84] Politically, the Soviet Union hopes to influence the developing Indian Ocean nations, and guide them toward modern nation statehood. Soviet policy around the Horn of Africa specifically reflects the Soviet desire to encourage the development of socialist regimes in this area. The Soviet Union has the reputation of an underdeveloped state that has raised itself to a modern industrialized superpower. This enhances its prestige among the Indian Ocean littoral states.

Those states in the area which have established ties with the Soviet Union in recent years include the Somali Democratic Republic, the

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[81] Vivekanandan, p. 62.
[82] "Means of Measuring Naval Power . . .," p. 10.
[83] McConnell, p. 8.
[84] Thomas Nsega Kanza, "Chinese and Soviet Aid to Africa: An African View," *In* Warren Weinstein, ed. *Chinese and Soviet Aid to Africa*, NY: Praeger, 1975, p. 231.

Peoples Democratic Republic of Yemen, the Peoples Republic of Mozambique, Ethiopia, and Iraq. Moreover, since 1972, several other Indian Ocean states have inched closer to the USSR. These include: Mauritius (where the Militant Marxist Youth Group took 34 of the 70 seats in the legislative assembly during the 20 December 1976 election),[85] Tanzania, Madagascar, the Comoro Islands, and the Seychelle Islands—the latter two of which have abandoned their non-aligned status and developed closer ties with the Soviet Union. However, Soviet policy regarding the Ethiopian-Somali dispute placed them in a position of supporting hostile neighbors. Moscow increased its shipments of military arms to Ethiopia while it decreased arms supplies to Somalia. This alienated the Somali government, causing it to abrogate its Friendship Treaty with the Soviet Union and to expel all the Russians and Cubans from the country.

The Soviet Union's long range political objectives in the Indian Ocean are evidently to become the dominant external power in all or certain parts of this area, to contain the Peoples Republic of China and, as a consequence, enhance Soviet global power status and increase influence throughout the world. The Soviet goal of replacing Great Britain as the dominant power in the region was helped by the withdrawal of major British forces from the Indian Ocean and the US entanglement in Southeast Asia.

Soviet efforts in Egypt and Somalia to achieve influence over the Suez—Red Sea passage for purposes of strengthening the Soviet strategic and diplomatic negotiating position were initial steps in pursuit of these long-term objectives. Soviet attempts to gain the support of Indian Ocean littoral nations at international forums such as the United Nations and to undermine PRC and Western influence further reflect this policy. Moscow realizes that to achieve a position of great influence in the Indian Ocean and its littoral, it must strive to check Chinese expansion southward in much the same fashion as Britain, as an imperial power, sought in the nineteenth century to forestall Tsarist Russian expansion.[86] For that purpose, the Soviet Union has been most anxious to sign collective security agreements and bilateral trade agreements with nations on China's periphery.

Economic Objectives

Moscow looks upon the Indian Ocean littoral states as potential markets for its products and military arms. Arms sales to this region, formerly considered an economic burden, are perhaps viewed by Moscow as one means of obtaining hard currency and hard currency goods such as gas and oil. This new economic interest superimposed on the old political interest in using arms sales to supplant Western influence is likely

[85] Mohan Ram, "Youth Movement Gains Hold in Mauritius," *Christian Science Monitor*, 26 January 1977, p. 6.
[86] Kinter, p. 40.

to reinforce Soviet disinclination to enter into international agreements restricting such sales.[87] Moreover, the earlier reported oil shortfall in the Soviet Union by 1980 and the 200 mile territorial water limit being declared worldwide are additional reasons for exploiting the land resources and seabed in the Indian Ocean region. The Soviets are likewise most aware of the benefits of trading with the littoral states for political profit.

Besides the economic benefits accruing to themselves, the Russians are interested in the Indian Ocean for the potential economic denial their presence there poses to the West. They recognize that some capability to interdict Western oil supplies gives them great political leverage, even if they never exercise that capability in an operational sense.

Military Objectives

The primary peacetime military purpose for Soviet naval presence in the Indian Ocean is to promote as well as defend Soviet global interests. This statement can be supported by Admiral Gorshkov's writings in which he states that the relevance of navies in peacetime is to demonstrate the state's economic and military might beyond its national borders,[88] to maintain good relations between states, and to resolve various foreign policy problems.[89] The Soviet Union implemented the policy of "forward deployment" after the 23rd CPSU Congress when the Soviet Navy was directed to move forward into the hostile maritime environment dominated by the West and project a visible symbol of Soviet power in support of global state interests.[90] As regards the Indian Ocean, Soviet naval intentions are not very different from those of any other navy, namely to influence the political attitudes of the states in the region.

The Soviet Union hopes to produce tangible shifts in regional balances in favor of the USSR. To support their foreign policy objectives, the Soviets have, on occasion, conducted politically oriented naval operations to protect an established interest that was perceived to be in immediate danger—either the territorial integrity and political independence of a client state (Egypt), a major economic or political investment in a client state (Ethiopia), or Soviet men and materiel stationed overseas (Somalia).[91]

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[87] US Congress. Joint Economic Committee. *Soviet Economic Problems and Prospects*. Washington, DC: GPO, 1977, p. 27–28 [Hereafter cited as *Soviet Economic Problems and Prospects*]

[88] S. G. Gorshkov, "Voyenno-morskiye floty v voynakh i v mirnovoye vremya," *Morskoy Sbornik*, no. 12, 1972, p. 16.

[89] S. G. Gorshkov, *Morskaya moshch' gosudarstva*, Moscow: Voyenizdat, 1976, p. 409–411, 452.

[90] W. F. Bringle, "The Challenge Proposed by the Soviet Navy," *Journal of the Royal United Services Institute for Defense Studies*, v. 18, June 1973, p. 11–12.

[91] Robert G. Weinland, *Soviet Naval Operation—Ten Years of Change*, PP no. 125, Arlington, Va. CNA, August 1974, p. 8–9.

As already mentioned, Soviet port visits are particularly important in projecting power and the perception of power to Indian Ocean nations. The extremely high number of Soviet port calls to Indian Ocean littoral states are tangible proof of Soviet interest in the area. Together with "special naval operations," these "goodwill" visits serve to influence host nation attitudes toward the Soviet foreign policy line. It is generally accepted that a naval presence sensitizes local nations to the possible consequences of their own decisions on superpower objectives.[92] Deployments and port visits are visible reminders of US or Soviet military power and superpower interest in the area as well as an implicit threat of superpower involvement in local affairs, should events proceed in an adverse fashion.

The emphasis in both word and deed on the Soviet Navy's role as an instrument of state policy—its "internationalist functions"—suggests that naval diplomacy has become an important factor in its own right. Moreover, aside from the larger goals of diminishing the US and PRC influence and preventing or correcting an unfavorable balance of power in these vulnerable Indian Ocean regions, the Soviet Union is also using port visits to seek out more immediate and pragmatic rewards such as the acquisition of naval support facilities. Such facilities can enhance Soviet war-fighting capabilities against the US or the PRC as well as support Soviet strategy for local "National-Liberation" type wars in the area.

Another major peacetime military mission of Soviet naval units stationed in the Indian Ocean is to detect and track US, CENTO, and French Naval forces operating in the area, especially US ballistic missile submarines and attack aircraft carriers threatening strategic areas of the USSR. Soviet units likewise serve to protect Soviet submarines, research ships, and merchant and fishing vessels operating in the region, not so much against US attacks as against possible interdiction at the lower end of the conflict spectrum.

The Soviet Union is becoming increasingly dependent on its east-west sea route that connects European Russia with the Pacific maritime provinces. In the event of a conventional war with the PRC, the Trans-Siberian Railroad would be interdicted by the Chinese. This means that supplies to the Far East would have to move by air or sea—the shortest route thru the Red Sea and across the Indian Ocean. In a wartime scenario, the Indian Ocean would be utilized to maintain contact between the three European fleets (Northern, Baltic, and Black Sea) and the Pacific Fleet. The Indian Ocean squadron may also be assigned a role in a Warsaw Pact/NATO conflict.

As regards a possible conventional war with the West, Soviet warships in the Indian Ocean would be used to attack US strategic naval forces in the area as well as interdict Western tankers and cargo ships transporting oil and strategic minerals from this region to the US and

[92] Kelly, "Port Visits . . .," p. 30–31.

Western Europe. Soviet wartime strategy to disrupt Western oil shipments, in fact, was manifested in the Soviet OKEAN–75 maneuvers where, for the first time, the oil routes of the Indian Ocean and South Pacific figured most prominently in Soviet naval exercise activity.[93]

Moscow's military objective in the Indian Ocean primarily appears to be based on a policy of simply denial of the area, and potential mineral and fuel deposits to either of its major adversaries. US Admiral James Holloway best put it by describing the Soviet Navy as an interdictory one designed to sink ships and prevent the enemy from exercising its influence abroad in support of its allies and basic national interests.[94]

Soviet Treaties and Agreements With Indian Ocean Littoral Nations

Indonesia, one of the guardians of the Straits of Malacca, is an Indian Ocean littoral nation where the Soviet Union attempted to gain influence in the mid-1950s. In the second half of 1956, Indonesia signed trade and aid agreements with the Soviet Union and the commodities subsequently 'traded' under the first of these pacts included Soviet military equipment.[95] By the early sixties, Soviet-supplied ships gave Indonesia the most modern and numerically the strongest navy in the Indian Ocean. On 28 February 1960, Indonesia signed a second agreement with the Soviet Union on economic and technical collaboration[96], and in late 1963 another accord was signed which provided for a limited supply of weapons as well as for a moratorium on arms payments. Moscow and Prague negotiated additional military aid credits and another postponement in payments on Djakarta's arms debts in October of 1964.[97] After the abortive Communist coup in September 1965 and Sukarno's subsequent disposal, Indonesia turned to the West, although remaining nonaligned. The Soviet Union retaliated by stopping shipments of spare parts for warships and military equipment already delivered, and insisted on the payment of the debt incurred. Only in 1970 could an agreement be signed which rescheduled debts totaling 750 million dollars payable over a period of 30 years.[98] Continued Communist Bloc interest in this country is evidenced by the Soviet-Indonesian Trade agreement signed on 23 March 1974, the Soviet-Indonesian Economic and Technical Cooperation agreement signed on 26 December 1974, and economic agreements signed by Jakarta with Bulgaria, Czechoslovakia, and Romania early in 1974.[99]

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[93] Zumwalt, p. 12.
[94] James Holloway, "French Courses for the Navy in a Changing World," *US News and World Report*, 20 October 1975, p. 62.
[95] Stevens, p. 8.
[96] *Sbornik Deystvuyushchikh Dogovorov*, v. 21, p. 329.
[97] Wynfred Joshua and Stephen Gibert, *Arms for the Third World*, Baltimore: John Hopkins University Press, 1969, p. 67.
[98] *Sbornik Deystvuyushchikh Dogovorov*, v. 30, 1976, p. 152, 154.
[99] *CIA, Communist Aid to Less Developed Countries of the Free World*, p. 18.

Yemen (Sana) signed an arms aid agreement with Czechoslovakia in 1956. Moscow used the Czechs as its intermediary in its early military aid accord. Soon after, both Czech and Russian military advisers were sent to Yemen to instruct its troops in the use of the new arms. In all, between 1956–1962, Yemen reportedly received 30 million dollars in Soviet Bloc aid.[100] Even after the King was overthrown in September 1962, the USSR continued to provide direct military assistance to the new regime and signed an economic and technical agreement with the newly formed Yemen Arab Republic on 21 March 1964.[101] In exchange, the Soviet Union was granted access to the port facilities in Hodeida (Al-Hudaydah). The Russians proceeded to build several berths at Hodeida and dredged the approach channel to a depth of 28 feet to accommodate their submarines and guided missile destroyers.[102] The USSR has also said to have negotiated economic and military assistance agreements with Yemen (Aden).[103]

Receptivity to Russian arms aid overtures also facilitated the establishment of Soviet military aid ties with India. Prior to signing its first arms aid agreement with the Soviet Union in November 1960, India obtained its weapons from the West, primarily from Britain. A Soviet-Indian naval aid agreement was negotiated as early as 1965. Both nations came economically closer together, however, with the signing of the 20 year Indo-Soviet Treaty of Friendship and Cooperation on 9 August 1971[104] (the first such treaty signed with an Indian Ocean littoral state). Several of the clauses in this treaty are worth examining. For instance, Article 8 states that "each Party solemly declares that it will not enter into or participate in any military alliances directed against the other Party."[105] Article 9 reads as follows:

> Each of the High Contracting Parties undertakes to refrain from giving any assistance to any third party taking part in an armed conflict with the other party. In case any of the parties is attacked or threatened with attack the High Contracting Parties will immediately begin mutual consultations with a view to eliminating this threat and taking appropriate effective measures to ensure peace and security for their countries.[106]

The Treaty calls only for "consultations" between the two governments in case of aggression or threat of agression against one of them. However, it should be pointed out here that there are many mutual defense treaties providing only for "consultations" which are considered defensive alliances. Many nations, including the British, originally saw

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[100] Joshua, p. 12.
[101] *Sbornik Deystvuyushchikh Dogovorov*, v. 23, 1970, p. 42.
[102] "Soviet Naval Quality Worries NATO," p. 22.
[103] "Soviet Expansion," p. 13.
[104] *Sbornik Deystvuyushchikh Dogovorov*, v. 27, 1974, p. 23.
[105] *Treaties and Alliances of the World*, NY: Charles Scribner and Sons, 1974, p. 127.
[106] Vali, p. 90.

nothing wrong with this treaty. They viewed it as a measure to cope with the situation in Bangladesh. However, the actual working of the treaty aroused suspicions that India had agreed to provide special facilities, including service facilities, for Soviet warships and submarines in Indian ports. Suspicion was heightened by the admission of India's Foreign Affairs Minister on 9 May 1973, that "Soviet naval engineers" were present at the Vishkapatnam dockyard.[107] In December 1976 Admiral Gorshkov visited India, but unsuccessfully negotiated the use of an airfield and naval facilities at Vishkapatnam. Subsequent Indian elections resulting in Gandhi's downfall led to a more favorable Western outlook for India.

The USSR negotiated its first arms aid agreement with Iraq in November 1958 and Soviet military equipment and instructors followed a month later.[108] Since then, Iraq has signed agreements to collaborate with the Soviet Union in radio, television, the fishing industry and oil development.[109] Probably the most important treaty signed to date with the USSR, however, was the 9 April 1972 Treaty of Friendship and Cooperation. This made Iraq the second Indian Ocean littoral state to sign such a treaty and gave the Soviet Union some use of facilities. This accord, which is to last 15 years, in many respects, resembles the Indian-Soviet Treaty of 1971. Among the pertinent provisions of the treaty, Article 4 pledged the two countries to continue "their determined struggle against imperialism and zionism and for the total elimination of colonialism." Article 8 declares that "in situations creating a threat to peace or the danger of violation of peace, both countries would immediately contact each other with the aim of coordinating their positions.[110] Article 9 announced that it was in the interest of the two countries "to pursue cooperation in the field of strengthening each other's defense ability." (Although the ominous clause "to consult in case of attack on one of the parties" as contained in the Indo-Soviet Treaty is missing, many observers are said to feel that Article 9 in this treaty sounds just as threatening.)[111] Article 10 stipulates that "each party agreed not to participate in actions directed against the other side and would not permit the use of its territory for any act capable of doing military harm to the other side. Since this treaty, the Soviet Union also signed a maritime commerce agreement with Iraq in April of 1974, several economic assistance accords and became the first Third World country to sign a cooperation agreement with the Council for Mutual Economic Assistance (CEMA).[112] The maritime agreement was based on a most-favored nation

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[107] Vivekanandan, p. 69.
[108] Joshua, p. 13.
[109] *Sbornik Dystvuyushchikh Dogovorov*, v. 26, 1973, p. 188–196.
[110] *Treaties and Alliances of the World*, p. 128.
[111] Vali, p. 118.
[112] *CIA. Communist Aid to Less Developed Countries of the Free World*, 1975, July 1976, p. 26.

status, allowing ships of both nations to make port calls, use navigational services and implement various mercantile operations.[113] In May of 1976, during Kosygin's visit to Iraq, the Soviets signed an agreement with Iraq for economic and technical cooperation. This accord provided for Soviet assistance in the construction of an irrigation system, the Haditha hydropower station on the Euphrates River and an oil refinery at the Rumaila oilfield.[114] The contract won by the Soviets to develop Iraq's fabulous Rumaila oilfields is said to be their reward for the more than 550 million dollars in military and economic aid to Iraq over the last two decades.[115]

The Soviet Union sought to establish a foothold at the opposite end of the Red Sea in Somalia. The Somali port of Berbera was one of the projects listed in the first Soviet-Somali cooperative agreement signed on 2 June 1961.[116] It is quite likely that the initial expansion of credits and subsequent commitments to Somalia were partly based on the hope of eventually using this port for military purposes. Marshal Grechko's visit to Somalia in February 1972, in any event, was believed to be for the purpose of signing an agreement with Somalia which would give the Soviet Union access to, if not control of, the facilities at Berbera.[117] The Soviet-Somali Treaty of Friendship and Cooperation signed on 11 July 1974, was apparently a Soviet effort to consolidate its influence in Somalia. This was the third in the series of such treaties with an Indian Ocean littoral nation and the first one signed with a black African state. This treaty provided for the expansion of facilities at Berbera and was understood to have accorded the Soviets access to all Somali airfields and base rights, in exchange for Russian arms. Unlike the other Treaties of Friendship and Cooperation, the text of this one was not published immediately but withheld until the end of October 1974.[118] As noted earlier, the treaty was abrogated by Somalia in November 1977.

The fourth such Treaty of Friendship and Cooperation was signed with Mozambique on 31 March 1977. This 20-year treaty clearly opens the possibility of Soviet military assistance to the southern African nation in the event of an attack from white-ruled South Africa or Rhodesia. There are provisions in the treaty which state that "in case of situations tending to threaten or disturb the peace," the two countries, "will immediately contact one another with the aim of coordinating their positions in the interest of eliminating the threat or reestablishing peace." Another clause in the treaty states that the two countries will continue to

[113] *Vodnyi Transport*, 27 April 1974, p. 4.
[114] V. Kuchin, "Fruitful Cooperation," *Soviet Military Review*, no. 3, 1977, p. 49–50.
[115] Edward Hughes, "Soviet Strategy in the Indian Ocean," *Navy International*, v. 77, no. 3, March 1972, p. 12.
[116] Stevens, p. 73.
[117] J. Bowyer Bell, "Strategic Implications of the Soviet Presence in Somalia," *Orbis*, v. 19, No. 2, Summer, 1975, p. 403–404.
[118] Crozier, *The Soviet Presence in Somalia*, p. 4.

develop their cooperation in the military sphere "on the basis of the relevant agreements signed by them in the interest of strengthening their defense capacity." The treaty thus disclosed that the Soviet Union had already signed several military agreements with Mozambique in the past.[119]

Ethiopia is the most recent Indian Ocean littoral state to deal with the Soviet Union. It signed a declaration of friendship and cooperation and a protocol providing for economic and technical assistance on 6 May 1977.[120] There was also widespread speculation that the Ethiopians signed a secret military pact with the Soviet Union in December 1976 when an Ethiopian military delegation visited Moscow. The arrival of Soviet military equipment began in late May. In June and July 1977, the Soviet Union signed agreements on Trade and Cooperation in the field of Radio and Television and established a Soviet Ethiopian Friendship and Solidarity Committee.[121] A strong pro-Soviet Ethiopia dependent on the Soviet Union for arms, technical aid, and economic assistance may be seen in Moscow as a balance to growing US influence in Saudi Arabia and Egypt.

Aside from those states mentioned above, the Soviet Union has made diplomatic moves and has entered into bilateral treaties with several other Indian Ocean littoral states, e.g., Sri Lanka, Bangladesh, Iran, Kenya,[122] Singapore,[123] Tanzania,[124] the Sudan,[125] Mauritius and, very possibly the Maldive Islands. Moscow, moreover, has sought to obtain the use of port facilities in Trincomalee, Sri Lanka,[126] Singapore,[127] and allegedly in the Maldive Islands.[128] As noted earlier, the Soviet Union has not been successful in its attempt to obtain base rights. Singapore does permit the Soviet Union along with the US and Japan access to its shipyards.[129] It has an extensive repair yard, but for security and prestige reasons it is a last resort for the Soviets. Reportedly the Soviets have been engaged in secret diplomatic talks with the Maldive Islands to obtain facilities for its Indian Ocean ships. The USSR purportedly offered this island government $1 million a year to lease the former Royal Air Base

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[119] Ottaway, "Soviet Pact Shores up Mozambique," p. A-1.
[120] *Krasnaya Zvezda*, May 7, 1977, p. 1.
[121] Keith W. Stump, "Africa's Horn—Latest Hot Spot," *The Plain Truth*, Aug/Sept 1977, p. 9; Moscow TASS in English, 6 July 77 (FBIS, SU, 25 July 1977, p. H-1); Moscow Domestic Service, 6 July 1977, (FBIS 7 July 77, p. H-3).
[122] *Sbornik Deystvuyushchikh Dogovorov*, v. 23, 1970, p. 276, 304; v. 28, 1974, p. 120, 127.
[123] Millar, p. 18.
[124] Stevens, p. 73.
[125] *CIA, Communist Aid to Less Developed Countries of the Free World*, p. 15; *African Research Bulletin*, v. 5, no. 1, 15 Feb 1968, p. 963.
[126] *Hong Kong Standard*, 23 Dec 1973; Furlong, p. 136.
[127] Millar, p. 18.
[128] Nicholas, p. 1.
[129] Millar, p. 18.

on Gan Island for its fishing vessels, but were turned down.[130] Further unconfirmed reports allege that Bangladesh agreed to allow the Soviet Navy to establish an anchorage at Chittagong as a reward for clearing this port.[131] If such is the case, this would be another prime example of Soviet naval diplomatic initiative, undertaken, in this instance, to enhance and consolidate Soviet influence in this infant republic.[132]

The Soviets have also signed a number of fishing agreements with Indian Ocean littoral states. In this regard, it should be noted that such agreements usually provide fishing and merchant fleets with docking privileges and access to bunkering supply, and sometimes repair facilities.[133] For instance, on 19 August 1971, Sri Lanka and the Soviet Union entered into an agreement on cooperation in marine fisheries. As per the agreement, the USSR agreed to provide Sri Lanka with technical assistance for the training of Ceylonese nationals for the fishing industry and for the establishment of a training center for this purpose in Sri Lanka. In return, Sri Lanka agreed to provide facilities for Soviet fishing vessels in the ports of Colombo and Galle.[134] Another example of this is the Soviet-Mauritius fishing agreement signed in July of 1970. This accord allows Soviet trawlers and merchant ships to use the Port Louis facilities up to 12 times annually for purposes of servicing these ships and changing their crews,[135] as well as permits the Soviets restricted aircraft landing rights in this country.[136] One source maintains that the Soviets have misused this agreement by having its trawlers replenish its warships at sea as well as by using them to bring Soviet naval personnel ashore for "rest and recuperation."[137]

Some Evidence of Soviet Direct and Indirect Participation in Military Activities Involving Indian Ocean Littoral Nations

Soviet export of weapons to the Indian Ocean littoral states is mainly for political purposes. The principal goals are to eliminate Western influence in the region, draw the recipients more closely to the Soviet Union, and gain logistical access and support for Soviet naval units in the Indian Ocean. An additional part of the Soviet military assistance program includes the numerous military and technical advisors assigned to the

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[130] Nicholas, p. 1; Dusko Doder, "Soviets Fail in Bid for Indian Ocean Base," *The Washington Post*, 27 October 1977, p. A–48.
[131] *Der Spiegel*, May 14, 1973, p. 104, 106.
[132] Kelly and Peterson, This Volume.
[133] Vivekanandan, p. 62.
[134] *Ceylon Daily News* (Colombo), 20 Aug 1971.
[135] Alfred Latham-Koenig, "Shadow of Marxism over Mauritius," *Round Table*, no. 266, April 1977, p. 179–191; Brown, p. 19.
[136] "Soviet Expansion," p. 13.
[137] Furlong, p. 134.

Indian Ocean littoral countries as well as those native born military and civilian personnel studying in the Soviet Union. In addition, Soviet fighter pilots reportedly participated in the 1967 Yemeni Civil War as well as in the Sudan in 1971. Russians reportedly also manned air defense systems in the United Arab Republic during 1970–71[138] to prevent deep penetration raids by Israeli aircraft.[139] As regards Somalia, a Soviet naval visit to Mogadiscio in April 1970 coincided with an unsuccessful coup against the government.[140] Other examples of direct Soviet involvement in this area include Soviet support to Iraq in its territorial contest with Kuwait,[141] as well as Soviet assistance in ferrying Bangladesh troops to St. Martin's Island to be used against the guerillas there in April 1973.[142]

In general, however, the Soviet Union has been reluctant to commit its own military personnel to combat in the area. However, as previously in Somalia and currently in Ethiopia, high ranking Soviet military officers have functioned in an advisory and support role. Soviet aircraft have provided military airlift to Ethiopia. The Ethiopian Ambassador to the Soviet Union reported in late January 1978 that Soviet aircraft were being used to ferry Cuban combat units to Ethiopia. He further indicated that Soviet and Cuban military advisors, instructors, and technical personnel were being used to help repel Somali forces from the Ogaden region.[143] Most recently, Dr. Zbigniew Brzezinski, President Carter's National Security Adviser, revealed that Soviet Army General Vasiliy Ivanovich Petrov, the former Commander of the Far East Military District (1972–1976) and *First Deputy CINC of the Soviet Ground Forces*, is employed in a combat advisory role to Ethiopian military forces in the area of Harrar, Ogaden.[144] Petrov's presence as well as about 1000 Soviet personnel now serving in Ethiopia, and 400 tanks and 50 MIG jet fighters,[145] enhance Soviet prestige in the area and demonstrate Soviet resolve to determine the outcome of the conflict with Somalia in favor of Ethiopia. African sentiment is behind Ethiopia. By countering Somali aggression, the Soviet Union has enhanced its image among a large number of African states. The Soviets may also hope to ultimately reestablish relations with Somalia, thus better themselves politically and militarily in the region.

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[138] McConnell, p. 12.
[139] MccGwire, p. 104.
[140] Ibid.
[141] Kelly and Petersen, this volume, p. 242.
[142] *Der Spiegel*, 14 May 1973, p. 104, 106.
[143] Craig R. Whitney, "Soviet Portrays Itself as Peacemaker in Ethiopia", *New York Times*, 19 February 1978, p. 11.
[144] See Bradsher, "Soviet General Leading Force in Ethiopia", *The Washington Star*, 3 February 1978, p. A–4; Graham Harvey, "Brzezinski Asserts that Soviet General Leads Ethiopian Units", *New York Times*, 2 February 1978, p. 1.
[145] Murrey Marder "US Links SALT to Horn of Africa", *The Washington Post*, 2 March 1978, p. 1.

Some Conclusions

The Soviet leaders appear to have inherited their ambitions in the Indian Ocean area from their Tsarist predecessors. They were only able to move into the area in 1968 when the British Navy withdrew from the Indian Ocean. In conformity with Soviet long-range plans to become a global power, the Indian Ocean—an area of strategic and political importance—seemed to be the logical place for them to introduce and maintain a naval force. They set out to establish footholds in the Indian Ocean in a fashion reminiscent of 19th century Great Britain. First came the fleet, then the flag, the merchant marine, the traders, the (now secular Marxist) missionary, the political, military, and technical advisors. From 1968 on, Soviet naval vessels deployed to the Indian Ocean assumed an "internationalist mission," making port visits to select Indian Ocean littoral states and "showing the flag" in the area.

To consolidate its influence in select Indian Ocean littoral states the USSR extended a very large portion of its total economic assistance and military aid for Third World countries to about a dozen Indian Ocean littoral states and established bilateral accords with others in the area. Soviet engineers, technicians, and military advisors soon followed. Many of them currently occupy positions in, at least, nine Indian Ocean littoral states. Also, a high percentage of the military personnel and one-third of the academic students selected from less developed countries to study in the USSR come from over a dozen Indian Ocean littoral states.

The Soviet Union, to date, has enhanced its influence in the area. It should be noted, however, that due to their heavy-handedness, they have also encountered several reversals. What is surprising, however, is that these defeats have not deterred them in their pursuit of influence and military facilities in Indian Ocean littoral states. Although many reasons may be given for the Soviet Union's dogged persistence in maintaining a presence in the Indian Ocean, strategic considerations, and politics stand out as the primary ones. Despite setbacks, such as the most recent one in Somalia, Soviet leaders are still encouraged by the prospect of building socialist regimes in the littoral states and by the basic trends in the international arena, ie., the flagging interest of the West to contest Soviet influence in the Third World. Soviet support of Ethiopia now affords the USSR the prospect of becoming entrenched in one of the largest East African countries. As regards Soviet Indian Ocean naval presence, the Indian Ocean squadron will remain an important instrument of Soviet policy in the region.

PART V—APPENDICES

Compiled by PAUL J. MURPHY and MARGARET MURPHY

APPENDIX I

OFFICIALS AND OFFICERS OF THE USSR MINISTRY OF DEFENSE AND THE NAVY[1]

MINISTRY OF DEFENSE

Leading Officials

Ministry of Defense	USTINOV, Dmitriy Fedorovich, MSU,* 29 Apr 76,† 1908·
First Deputy Ministers	KULIKOV, Viktor Georgiyevich, MSU, 22 Sep 71, 1921 (Responsible for: Warsaw Pact Forces)
	OGARKOV, Nikolay Vasil'yevich, MSU, 6 Jan 77, 1917 (Responsible for: General Staff)
	SOKOLOV, Sergey Leonidovich, Gen Army, 12 Apr 67, 1911 (Responsible for: Undetermined)
Deputy Ministers	ALEKSEYEV, Nikolay Nikolayevich, Gen Col Engr, 15 Oct 70, 1914 (Responsible for: Armaments)
	ALTUNIN, Aleksandr Terent'yevich, Gen Army, 4 Oct 72, 1921 (Responsible for: Civil Defense)
	BATITSKY, Pavel Fedorovich, MSU, Jul 66, 1910 (Responsible for: Air Defense Forces)
	GELOVANI, Archil Viktorovich, Gen Col Engr., 28 May 74, 1915 (Responsible for: Construction & Billeting of Troops)
	GORSHKOV, Sergey Georgiyevich, Flt Adm SU, Feb 62, 1910 (Responsible for: Naval Forces)
	KURKOTKIN, Semen Konstantinovich, Gen Army, 28 Jul 72, 1917 (Responsible for: Rear Services)

[1] Data derived from *Reference Aid, Directory of USSR Ministry of Defense and Armed Forces Officials*, CR 77-12060, Unclassified Publication, Central Intelligence Agency, May 1977.

* Denotes rank, e.g., MSU: Marshal of the Soviet Union.

† Denotes date of appointment to position; otherwise date in this column indicates the earliest date on which the official is known to have held the position.

· Date of Birth.

KUTAKHOV, Pavel Stepanovich, Ch Mar Avn, 19 Mar 69, 1914 (Responsible for: Air Forces)

MOSKALENKO, Kirill Semenovich, MSU, Oct 60, 1902 (Responsible for: Main Inspectorate)

PAVLOVSKY, Ivan Grigor'yevich, Gen Army, 12 Apr 67, 1909 (Responsible for: Ground Forces)

TOLUBKO, Vladimir Fedorovich, Gen Army, 26 Apr 72, 1914 (Responsible for: Strategic Rocket Forces)

General Staff of the Armed Forces

Chief	OGARKOV, Nikolay Vasil'yevich, MSU, 6 Jan 77, 1917
Assistant to the Chief for Naval Affairs.	LOBOV, Semen Mikhaylovich, Flt Adm, 3 Nov 72, 1913
First Deputy Chief	KOZLOV, Mikhail Mikhaylovich, Gen Col, 28 May 74
Deputy Chiefs	ABOLINS, Viktor Yakovlevich, Gen Lt, 19 Jul 75
	AKHROMEYEV, Sergey Fedorovich, Gen Col Tank Trps, 23 Aug 74
	DRUZHININ, Valentin Vasil'yevich, Gen Col, 4 Dec 70
	IVASHUTIN, Petr Ivanovich, Gen Army, Mar 66, 1909
	VOLKOV, Anatoliy Vasil'yevich, Gen Col, 1 Dec 71
Chief, Main Directorate of Foreign Military Assistance (10th Directorate).	SKORIKOV, Georgiy Petrovich, Gen Col Avn, Jul 75, 1920
First Deputy Chief	POSTNIKOV, Vyacheslav Vyacheslavovich, Gen Lt, Dec 1975
Chief, Main Intelligence Directorate (GRU).	IVASHUTIN, Petr Ivanovich, Gen Army, Jul 63, 1909
Chief, Main Operations Directorate.	
Chief, Main Organization and Mobilization Directorate.	
Chief, Main Artillery Directorate.	KULESHOV, Pavel Nikolayevich, Mar Arty, Nov 69, 1908
Chief, Central Military Topographic Directorate.	NIKOLAYEV, A. S., Gen Lt Tech Trps, 12 Sep 68
Chief, Communications Directorate.	
Chief, External Relations Directorate (*UVS*).	BORISOV, Gennadiy Aleksandrovich, Gen Maj, 30 Sep 75
Deputy Chief	KHOMENKO, Aleksandr Andreyevich, Gen Maj, 23 Oct 74
Chief, Military Science Directorate.	GAREYEV, Makhmut Akhmetovich, Gen Lt, 23 Apr 75, 1922

Chief, Political Department	BUKOV, Aleksandr Ivanovich, Gen Col, Dec 69, 1915
Deputy Chief	UMOLINOV, A., Col, 9 Nov 76

SOVIET NAVY

Flag Officers

Commander-in-Chief	GORSHKOV, Sergey Georgiyevich, Flt Adm SU, Mar 56, 1910
First Deputy Commander-in-Chief.	SMIRNOV, Nikolay Ivanovich, Flt Adm, 4 Oct 74, 1917
Deputy Commander-in-Chief for Combat Training.	BONDARENKO, Grigoriy Alekseyevich, Adm, 5 Jul 73
Deputy Commander-in-Chief for Rear Services.	MIZIN, Leonid Vasil'yevich, Adm, 1974
Deputy Commander-in-Chief for Shipbuilding & Armaments.	KOTOV, Pavel Grigor'yevich, Adm Engr, Mar 66
Chief, Main Directorate of Ship Repair Plants.	GEVORKOV, A., Rear Adm Engr, 8 Dec 75
Deputy Commander-in-Chief/ Chief of Directorate for Naval Educational Institutions.	MIKHAYLIN, Vladimir Vasil'yevich, Adm, 11 Jun 76, 1915
Deputy Commanders-in-Chief	AMEL'KO, Nikolay Nikolayevich, Adm, 27 Jul 69, 1914
	NOVIKOV, Vasiliy Grigor'yevich, Adm Engr, 26 Jul 70
Chief of Main Staff	SERGEYEV, Nikolay Dmitriyevich, Flt Adm, Jul 64, 1909
First Deputy Chief	NAVOYTSYEV, Petr Nikolayevich, Vice Adm, 14 Jun 76
Deputy Chiefs	KOVEL', Yuriy Petrovich, Vice Adm, 17 Dec 68
	SORNEV, Igor' Andreyevich, Vice Adm, 13 Aug 73
Chief, Political Department	AVERCHUK, Stepan Ivanovich, Vice Adm, 7 Feb 68
Chief, Observation & Communications Directorate.	TOLSTOLUTSKY, Grigoriy Grigor'yevich, Vice Adm, Jul 66
Chief, Hydrographic Directorate	RASSOKHO, Anatoliy Ivanovich, Adm, 15 Sep 64, b. 1914
Deputy Chief	MOTROKHOV, Aleksandr Nikanorovich, Rear Adm, 22 Feb 74, 1919
Commander, Naval Aviation	MIRONENKO, Aleksandr Alekseyevich, Gen Col Avn, 29 Apr 75, 1918
Deputy Commander	TOMASHEVSKY, Aleksandr Nikolayevich, Gen Col Avn, Aug 72
Chief of Staff	KUZNETSOV, Georgiy Andreyevich, Gen Col Avn, May 75, 1923

Deputy Chief	VISHENSKY, Nikolay Ivanovich, Gen Maj Avn, 24 Sep 71, 1922
Chief, Political Department	MORDASHENKO, P. V.
Chief Engineer	KRUGLOV, Mikhail Mikhaylovich, Gen Lt Avn, Jul 74
Chief, Personnel Directorate	BODAREVSKY, Yu. S., Vice Adm, Feb 73
Chief, Political Directorate/ Member, Military Council.	GRISHANOV, Vasiliy Maksimovich, Adm, Jul 58, b. 1911
First Deputy Chief	
Deputy Chief/Chief, *Agitprop* Department.	USENKO, Nikolay Vital'yevich, Rear Adm, 29 Jul 73
Deputy Chief	AMBAROV, K., Capt 1st Rank, 5 Oct 76
Chief, Organizational-Party Work Department.	ANDRIYEVSKY, V., Rear Adm, 28 Oct 76
Senior Inspectors	NOSKOV, A. K., Rear Adm, Nov 74
	SERIN, K. T., Rear Adm, 1 Dec 74
Secretary, Party Commission.	KONDRASHOV, I. F., Rear Adm, 3 Sep 74
Chief, Rocket & Artillery Directorate.	SYCHEV, Veniamin Andreyevich, Vice Adm Engr, Aug 67
Chief, Auxiliary Fleet and Salvage-Sea Rescue Service.	ZUYENKO, Sergey P., Rear Adm, Mar 75

Baltic Fleet

Commander	KOSOV, Anatoliy Mikhaylovich, Vice Adm, 27 Dec 75, 1927
First Deputy Commander	SIDOROV, Vladimir Vasil'yevich, Vice Adm, 29 Jan 76
Deputy Commander for Rear Services.	
Chief, Political Department	KABANOV, V. G., Capt 1st Rank, 1974
Deputy Commander	
Chief of Staff	KALININ, A. M., Rear Adm, 25 Jan 76
Chief, Combat Training Department.	KALASHNIKOV, Mikhail Prokopevich, Rear Adm, 19 Jul 68
Chief, Political Directorate/ Member, Military Council.	SHABLIKOV, Nikolay Ivanovich, Vice Adm, 23 Sep 72, 1923
First Deputy Chief	KORNIYENKO, A., Capt 1st Rank, 31 Dec 76
Deputy Chief	SLAVSKY, A., Capt 2nd Rank, 3 Oct 75
Deputy Chief/Chief, *Agitprop* Department.	MOROZ, Yu. A., Capt 1st Rank, Aug 70
Commander of Aviation	PAVLOVSKY, Anatoliy Ivanovich, Gen Lt Avn, 14 Jan 77
Chief, Political Department	GREKOV, B., Col, 5 Oct 76

Commander of Kronshtadt Naval Base.	SKVORTSOV, Aleksandr I., Rear Adm, Jun 74
Commander of Leningrad Naval Base.	LEONENKOV, Vladimir Matveyevich, Vice Adm, 6 Jan 72, 1921
First Deputy Commander	KAS'YANOV, Viktor Ivanovich, Vice Adm, 8 Jun 75
Deputy Commander	KOLCHIN, Ivan Mikhaylovich, Rear Adm, 7 Jun 74
Deputy Commander for Rear Services.	MASHKANTSEV, Petr Grigor'yevich, Rear Adm, 3 Oct 71
Chief of Staff	KAS'YANOV, Viktor Ivanovich, Vice Adm, Aug 73
Chief, Political Department	PLEKHANOV, Aleksandr Andreyevich, Vice Adm Engr, 3 Nov 71, 1915
Deputy Chief	KAZAKOV, S., Capt 2nd Rank, 2 Nov 75
Chief, Naval Training Establishments in Leningrad.	PLEKHANOV, Aleksandr Andreyevich, Vice Adm Engr, 3 Nov 71, 1915
Deputy Chief	VARGIN, S., Capt 1st Rank, 24 Nov 73
Chief, Physical Training & Sport.	VYSOTIN, G., Col, 7 Oct 75
Commander of Riga Naval Base.	VERENIKIN, I. I., Rear Adm, May 75
Commander of Tallinn Naval Base.	ZARUBIN, Leonid Kirillovich, Rear Adm, 25 Mar 75
Chief, Naval Engineer Service	FILIPPOVICH, V., Col, 12 Sep 75

Black Sea Fleet

Commander	KHOVRIN, Nikolay Ivanovich, Adm, 23 Apr 74, 1922
First Deputy Commander	SAMOYLOV, V. A., Vice Adm, 7 Oct 73
Deputy Commander for Rear Services.	BOCHKAREV, M. P., Rear Adm, Mar 72
Chief, Trade Directorate	BICHAYEV, V., Col, Nov 73
Chief, Political Department	MOROZOV, A. F., Capt 1st Rank, Sep 71
Chief of Staff	PONIKAROVSKY, V., Rear Adm, Apr 76
Deputy Chief	CHAADAYEV, B. A., Rear Adm, 25 Jul 70
Chief, Naval Engineering Service.	SVIRIDOV, Yu., Col Engr, 25 Aug 73
Chief Engineer	KHAZOV, V., Col Engr, 28 Jan 76
Chief, Hydrographic Directorate.	ABRAMOV, Petr Yakovlevich, Capt 1st Rank, 16 Dec 70
Chief, Political Directorate/ Member, Military Council.	MEDVEDEV, Pavel Nikolayevich, Vice Adm, 31 May 75
First Deputy Chief	PASHKIN, Aleksandr A., Rear Adm, 30 Dec 64
Deputy Chief/Chief, *Agitprop* Department.	NEKRASOV, V. P., Capt 2nd Rank, Jun 75

Deputy Chiefs	ALIKOV, Ivan Fedorovich, Rear Adm, Apr 74
	POPOV, V., Capt 1st Rank, 13 Jun 75
Commander of Aviation	VORONOV, Vladimir Ivanovich, Gen Lt Avn, Aug 71
Deputy Commander/Chief, Rear Services.	MALYAVIN, A., Col, 3 Jun 75
Chief of Staff for Naval Aviation.	NEFEDOV, F. G., Gen Maj Avn, Dec 73
Chief Engineer for Naval Aviation.	TARASENKO, A., Gen Maj Avn, 13 Nov 73
Chief, Political Department	SINYAKOV, Yu., Col, Sep 75
Chairman, Physical Training & Sport.	SUNAYEV, A. N., Capt 1st Rank, Feb 75
Chief, Construction Directorate.	POLOTSKY, S., Col Engr, 3 Jul 76

Northern Fleet

Commander	YEGOROV, Georgiy Mikhaylovich, Flt Adm, 28 Jun 72, 1918
First Deputy Commander	KRUGLYAKOV, Vladimir Sergeyevich, Vice Adm, 21 Oct 76
Deputy Commander for Rear Services.	FILIMONOV, S., Vice Adm, 31 Aug 76
Chief, Political Department	BUKAN', P. Z., Rear Adm, Sep 74
Deputy Commander	IL'CHENKO, Yuriy Anatol'yevich, Rear Adm, May 74
Assistant Commander	YEREMEYEV, Zakhar Vladimirovich, Rear Adm, Jul 70
Chief of Staff	CHERNAVIN, Vladimir Nikolayevich, Vice Adm, 5 Jan 76
Chief, Observation & Communications Directorate.	TRUKHININ, N. I., Rear Adm, Nov 70
Chief, Political Directorate/ Member, Military Council.	PADORIN, Yu., Rear Adm, 26 Aug 76
First Deputy Chief	
Deputy Chief	POLIVANOV, V., Capt 1st Rank, 30 Nov 76
Deputy Chief/Chief, *Agitprop* Department.	ZIMIN, E., Capt 1st Rak, 5 Sep 74
Chief, Organizational Party Work Department.	SMIRNOV, B., Capt 1st Rank, 18 Jun 76
Chief, Construction Directorate.	
Chief, Political Department	PLOKHOV, G. P., Col, 1974
Commander of Aviation	RUCHKOV, Viktor Yevtikhovich, Gen Lt Avn, 4 Aug 76

Deputy Commander	POTAPOV, Viktor Pavlovich, Gen Maj Avn, 29 Apr 75
Chief, Naval Engineering Service.	
Deputy Chief	KHANUKOV, B., Col, 22 Dec 76
Military Procurator	MATVIYENKO, G., Gen Maj Justice, 22 Jul 76

Pacific Fleet

Commander	MASLOV, Vladimir Petrovich, Adm, 8 Nov 74, 1935
First Deputy Commander	SPIRIDONOV, Emil Nikolayevich, Vice Adm, 6 Aug 75
Deputy Commander for Rear Services.	SIDORCHUK, Nikolay Nikolayevich, Rear Adm, 27 Mar 74
Chief, Finance Service	NOVIKOV, V., Gen Maj Intend Serv, 20 May 76
Chief, Trade Directorate	CHERKASHIN, B., Col, 11 Jul 75
Chief, Political Department	CHECHULIN, V., Capt 1st Rank, 8 Jun 76
Deputy Chief	CHERNENKO, V., Capt 2nd Rank, 8 Jun 76
Assistant Commander	KORBAN, V. YA., Rear Adm, 21 Apr 76
Deputy Commander for Construction.	KOSTRYNIN, V., Gen Maj Engr, 27 Feb 77
Chief of Staff	KUDEL'KIN, Yaroslav Mikhaylovich, Vice Adm, Sep 76
Chief, Observation & Communications Directorate.	
Chief, Political Directorate/ Member, Military Council.	SABANEYEV, V. D., Rear Adm, 19 Nov 76
First Deputy Chief	SHIGAYEV, Dmitriy Afanas'yevich, Rear Adm, 3 Sep 75
Deputy Chief/Chief, *Agitprop* Department.	SKVORTSOV, I., Capt 1st Rank, Jul 73
Chief, Organizational Party Work Department.	PANIN, V., Capt 1st Rank, 3 Jun 76
Deputy Chief	ABRAMOV, V., Capt 1st Rank, 3 Aug 76
Commander of Aviation	PORTYANCHENKO, Ivan Afanas'yevich, Gen Maj Avn, 19 Nov 76
Chief, Political Department	TROPYNIN, Ivan Mitrofanovich, Gen Maj Avn, 8 Jan 76
Commander of Vladivostok Naval Base.	KOSYACHENKO, Mark Alekseyevich, Rear Adm, 22 Aug 75
Chief, Combat Training Directorate.	PERELYGIN, V. N., Rear Adm, 23 Jul 74
Chief, Physical Training & *Sport*.	PETROV, V., Col, 29 Oct 71

Caspian Flotilla

Commander	RYABTSEV, Leonid Danilovich, Vice Adm, 26 Jan 74

First Deputy Commander ----	
Deputy Commander for Rear Services.	BASHKIN, V. N., Capt 1st Rank, May 73
Deputy Commander----------	ZHUCHKOV, V. M., Capt 1st Rank, 5 Aug 76
Chief of Staff----------	BUYNOV, V. M., Rear Adm, 25 Jul 75
Deputy Chief----------	ZAKHARCHENKO, Aleksey S., Capt 1st Rank, Jul 70
Chief, Political Directorate/ Member, Military Council.	SERGEYEV, Vasiliy Nikolayevich, Rear Adm, 26 Jan 74
First Deputy Chief --------	VLASOV, V., Capt 1st Rank, 13 Aug 76

APPENDIX II

HIGHER SOVIET NAVAL AND RELATED MILITARY SCHOOLS;

Higher naval schools (Vysshey Voyenne-Morskoye Uchilishche) [listed below] are 5 year educational institutions which afford the prospective naval officer an opportunity to obtain an undergraduate education with training in a naval specialty and commissioning following graduation. An annual promotion campaign is made to elicit applications for these and other military schools. The following requirements were set out in *Krasnaya Zvezda* (16 February 1977) for 1977 applicants.

> Military schools accept males from among civilian youth and soldiers, sailors, sergeants, and master sergeants of all arms and services who have a secondary education, are of fit health for study in military training institutions, and have successfully passed the competitive entrance examinations. The age of candidates—from 17 to 21—is determined as of September 1 of the year of admission. Servicemen who reenlist are accepted for training upon expiration of the period of reenlistment indicated in their first commitment, up to the age of 23.
>
> Warrant officers and michmans may enroll in higher military training institutions upon expiration of three years of service as warrant officers and michmans or as officers, up to the age of 25 (23 in flight schools).
>
> Servicemen who wish to enroll submit a report through channels in the name of their unit [chast'] commander by 30 March; civilians submit an application to their local rayon military commissariat or to the director of the school by 30 April.
>
> The serviceman's report indicates his military rank, last name, first name and patronymic, post, date of birth, education, and the name of the military training institution in which he wishes to enroll. Attached to the report are an autobiography, service reference, party or Komsomol reference, notarized copies of the secondary school record and birth certificate, and three certified photographs (size 3×4, no hat).

Civilian youth indicate in their application their last name, first name and patronymic, date of birth, address of place of residence, and the name of the military training institution in which they wish to enroll. Attached to the application are an autobiography, a reference from place of work or study, a party or Komsomol reference, the original secondary school record (those currently enrolled in secondary schools, vocational and technical schools, and tekhnikums submit a report of current progress), birth certificate, statement by a military medical commission of fitness for enrollment in military school, and three certified photographs (size 3×4 cm, no hat).

Komsomol members recommended for training by Komsomol raykoms (gorkoms) or the political sections of military units [chast'] and units [soyedineniye] attach the all-union Komsomol travel order to their application (report) and receive right of preference in consideration among other candidates with identical examination scores. Leading workers and kolkhozniks and graduates of junior military-patriotic schools also have these rights.

Candidates for military schools take competitive entrance examinations in the secondary school curriculum in mathematics (oral and written), physics (oral), and Russian language and literature (composition). In addition, civilian candidates are tested for physical fitness in the requirements of individual standards of the USSR GTO ["Prepared for Labor and Defense"] program.

Warrant officers and michmans take entrance examinations in weapons materiel, mathematics (oral and written), and general military regulations.

Servicemen who have excelled in combat and political training for at least 1 year and who are announced in their military unit order are automatically admitted upon scoring positive results on the entrance examinations.

Persons who have graduated from secondary school with a medal or from a secondary special educational institution with distinction take the examinations in only one of the subjects, which is announced to the candidates along with the decision on admission to the entrance examinations no later than a month prior to the start of the examinations. If they score "excellent" in this subject, these persons are not required to take further examinations, but if they score "good" or "satisfactory" they take the examinations in the rest of the subjects as well.

The entrance examinations are held from 15 July to 5 August.

Military commissariats and commanders of units send candidates to the entrance examinations upon notification from the directors

of the schools. Candidates are provided free travel and, upon arrival at the schools, free room and board.

Upon graduation the candidate is awarded a higher military education degree (roughly equivalent to the Bachelor degree) and is commissioned a lieutenant.

HIGHER NAVAL SCHOOLS*

Location	Name of School
Baku	Order of the Red Banner Caspian Higher Naval School imeni S. M. Kirov
Kaliningrad	Kaliningrad Higher Naval School
Kiev	Higher Naval Political School (4 yr course)
Leningrad	Higher Naval Submarine Academy imeni Lenin Komsomol
Leningrad	Order of Lenin & Ushakov Naval Academy imeni Marshal Grechko
Leningrad	Higher Naval School imeni M. V. Frunze
Leningrad-Petrodvorets	Higher Naval Radio-Electronics School imeni A. S. Popov
Leningrad-Pushkin	Higher Naval Engineering School imeni V. I. Lenin
Leningrad	Order of Lenin Higher Naval Engineering School imeni F. E. Dzershinsky
Leningrad	Leningrad Higher Naval School imeni V. I. Lenin
Sevastopol	Sevastopol Higher Naval Engineering School
Sevastopol	Order of the Red Star Black Sea Higher Naval School imeni P. S. Nakhimov
Vladivostok	Pacific Ocean Higher Naval School imeni S. O. Makarov

* Source: *Krasnaya Zveda*, 10 Feb 77, p. 4

Entry level qualified officers trained in specialities such as aviation, supply, medical, legal, financial and other specialities also come from joint-service training institutions. These include, but are not limited to the following institutions:

JOINT-SERVICE SCHOOLS*

Location	*Name of School*
Barnaul	Barnaul Higher Military Aviation School for Pilots imeni Chief Marshal of Aviation K. A. Vershinin
Chelyabinsk	Chelyabinsk Higher Military Aviation Red Banner School for Navigators imeni 50th Anniversary of the VLKSM
Leningrad	Higher Military Engineering Construction School imeni General of the Army A. N. Komarovsky
Lvov	Lvov Higher Military Political School
Orenburg	Orenburg Higher Military Aviation Red Banner School for Pilots imeni I. S. Polbin
Syzran	Syzran Higher Military Aviation School for Pilots
Voroshilovgrad	Voroshilovgrad Higher Military Aviation School of Navigation imeni Proletariat of the Donbass
Yaroslavl	Yaroslavl Military Finance School imeni General of the Army A. V. Khrulev

* Source: *Krylya Rodiny*, No. 3, March 1977

APPENDIX III

DISTANCES BETWEEN CHIEF SOVIET AND WORLD PORTS*

USSR ports \ World ports	Athens	Bombay	Gilbraltar	Djakarta	Lisbon	London	Port Arthur	Port Said	Rangoon	Singapore	Istanbul	Shanghai
Arkhangelsk	4751	8229+ 12654	3270	13237	2994	2042	16139	5183	13543	10197	5070	15692
Batumi	938	4418 12055	2386	6646 12638	10457 13237	3686	9005	1372	12944	13067	586	15093
Vladivostok	8620 13587	5458	9950 12106	3338	10252 11928	12531	1045	14019	4140	3023	13906	976
Izmail	666	4146 11783	2114	6374 12366	2416	3414	8733	1100	12672	12795	314	14824
Kaliningrad	3684	7162 11587	2203	12170	1927	981	15072	4116	12476	12599	4003	14625
Korsakov	9049 13079	5877	11598	3775	10671 11420	12033	1498	13511	4559	3442	13398	1421
Murmansk	4381	7859 12284	2900	8863 12867	2624	1675	15769	4813	13173	9827	4700	15323
Nikolayevsk-na-Amure	13300	6199	11819	4083	11641	12244	1791	13732	4881	3764	13619	721
Novorossiysk	804	4284 11921	2252	6512 12504	2554	3552	8871	1238	12810	12933	452	14595
Odessa	694	4174 11811	2142	6402 12394	2444	3442	8761	1128	12700	12823	342	14849
Petropavlosk-Kamchatskiy	12364	6637	10883	4538	10705	11318	2246	12796	5319	4202	12683	2176
Sevastopol'	651	4130 11768	2099	6400 12351	2401	3399	8718	1085	12657	12780	299	14806

*Compiled from Soviet sources/Distances in Nautical Miles.
' Fraction shows distances through Suez Canal in numerator and around Cape of Good Hope in denominator.

APPENDIX IV

COMMUNIST/EAST EUROPEAN NAVAL ORDERS OF BATTLE 1 JANUARY 1978*

1. Ships		Alb.	Bul.	German Democratic Republic	Pol.	Rom.	Yug.
A. Principal Surface Combatants							
Destroyer/Frigate Types		0	2	1	1	0	1
B. Submarines		4	4	0	4	0	5
C. Coastal Patrol Types							
Patrol Escorts		0	3	0	0	3	0
Missile Attack Boats		0	3	15	13	5	10
Submarine Chasers		4	8	12	25	7	16
Other Patrol and Torpedo Types		50	12	100	10	33	38
TOTAL		54	26	127	48	48	66
D. River/Roadstead Patrol Types							
TOTAL		0	1	0	0	29	21
E. Mine Warfare Types							
TOTAL		8	26	34	49	30	27
F. Amphibious Warfare Ships							
TOTAL		0	0	12	23	0	0
G. Landing Craft							
TOTAL		0	25	12	19	0	36
H. Principal Fleet Support Ships							
Small Oilers/Small Transport Oilers		2	0	4	3	2	6
Others		0	0	1	0	0	7
TOTAL		2	0	5	3	2	13
I. Auxiliary Ships							
TOTAL		1	7	42	21	4	12
J. Service Craft							
TOTAL	about	20	45	75	100	70	135
TOTAL SHIPS	about	89	136	308	268	183	316

2. Naval Aircraft		Alb.	Bul.	German Democratic Republic	Pol.	Rom.	Yug.
Reconnaissance/Bombers	about	0	0	0	10	0	0
Jet Fighters	about	0	0	0	50	0	0
Helicopters	about	0	0	0	25	0	0
Miscellaneous Aircraft	about	0	0	0	5	0	0
TOTAL	about	0	0	0	90	0	0

3. Personnel Strength		Alb.	Bul.	German Democratic Republic	Pol.	Rom.	Yug.
Afloat	about	1,500	4,000	6,000	7,500	4,000	6,000
Naval Aviation	about	0	0	0	2,000	0	0
Coastal Defense	about	0	2,000	4,000	5,000	2,000	0
Training	about	500	1,000	2,000	2,000	1,000	1,500
Shore Support	about	1,000	3,000	4,000	6,000	3,000	6,500
TOTAL	about	3,000	10,000	16,000	22,500	10,500	14,000

*Unclassified DIA quarterly order of battle, 1 January 1978.

APPENDIX V

GLOSSARY OF SELECTED SOVIET NAVAL AND RELATED TERMS*

1. AVIANOSETS (aircraft carrier)—A surface warship which is a mobile airdrome and a naval aviation base. The main striking power of an aircraft carrier is its deck aviation. Some very large carriers may have rocket-launching installations. An aircraft carrier is intended to deal blows by nuclear or conventional weapons against coastal targets and objectives in the interior of enemy territory and within the range of its deck aircraft or rocket weapons, and against enemy warships and transport vessels at sea or in port. An aircraft carrier may also render assistance to ground forces. According to their displacement, aircraft inventory, and the mission they are performing, aircraft carriers may be subdivided into strike and anti-submarine categories.

2. AVIANOSNAYA AVIATSIYA (carrier-borne aviation)—Aviation based on aircraft carriers. The role envisaged for carrier-borne aviation is to strike coastal targets, warships, transports and landing ships at sea or in port, and also to cooperate with the fleet.

3. AVIANOSNAYA PROTIVOLODOCHNAYA POISKOVOUDAR-NAYA GRUPPA (APPUG) (Carrier Antisubmarine Search-and-Strike Group)—In foreign navies a group of surface warships, having an anti-submarine aircraft carrier as its nucleus. The role of such a group is to seek out and destroy enemy submarines.

4. AVIANOSNAYA UDARNAYA GRUPPA (AUG) (Carrier Strike Group)—In foreign navies, a group of surface warships consisting of one (less frequently two) aircraft carrier, a cruiser, and six to eight escort vessels. A Carrier Strike Group is usually included organizationally in a Carrier Strike Force.

5. AVIANOSNOYE SOYEDINENIYE (carrier force)—In foreign navies, a force of surface warships having aircraft carriers as its nucleus.

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*Source: Terms compiled from the *Slovar osnovnykh voyennykh terminov*, Moscow: translated and published as the *Dictionary of Basic Military Terms* in the USAF "Soviet Military Thought" series, Washington, DC: Government Printing Office, 1976.

The terms are listed in Russian alphabetical order as they appear in the dictionary.

6. AVIANOSNOYE UDARNOYE SOYEDINENIYE (AUS) (Carrier Strike Force)—In foreign navies, a force of surface warships consisting of two or three Carrier Strike Groups. The role of such a force is to use nuclear or conventional weapons against targets on the enemy's territory and against his warships and transports at sea. The total strength of a Carrier Strike Force is 2–3 strike aircraft carriers, 2–3 cruisers, and 16–20 escort vessels. At the present time, Carrier Strike Forces and missile submarines are the principal striking forces of the US Navy.

7. AVIANOSNYYE SILY FLOTA (naval carrier air arm)—One of the arms possessed by the navies of the USA, Britain, and France.

8. AVIATSIONNAYA BAZA (air base)—(1) Repair-and-supply base (military unit) servicing aviation units and formations. (2) A large capitally equipped airfield with one or more surfaced runways, permitting all forms of activity appropriate to the aviation based upon it, materiel maintenance, and quartering of personnel. Such an air base is used only in the armed forces of foreign armies.

9. AVIATSIONNAYA MINA (aerial mine)—A mine of special design, which may be laid from an aircraft or helicopter.

10. AVIATSIONNAYA ESKADRIL'YA (air squadron)—The basic tactical aviation subunit. An aviation squadron may be a separate unit.

11. AVIATSIYA VOYENNO-MORSKOGO FLOTA (naval aviation)—One of the basic naval arms intended for combat operations at sea, either independently or in cooperation with submarines. Naval aviation may be also called upon to attack coastal targets or to cooperate with ground forces in maritime sectors.

12. AKVATORIYA (water area)—The water area within the limits of a port or harbor (bay); an expanse of sea water used for a specific purpose, e.g., for warships in a commercial port; for merchant vessels in a naval harbor; or set aside for the use of seaplanes.

13. AKTIVNYYE MINNYYE ZAGRAZHDENIYA (active mine fields)—Active mine barriers laid at various depths in waters belonging to the enemy or used by him at the approaches to, and exits from, naval bases and ports, at junctions at sea routes, in straits, etc. The purpose of active mine fields is to inflict shipping losses upon the enemy, to restrict the freedom of movement of enemy warships and transports, to raise tension generally and, in particular, to increase the load on the enemy's mine-sweeping forces.

14. BEREGOVAYA ARTILLERIYA (coastal artillery)—A type of naval artillery placed on the sea coast. Coastal artillery is intended to be used in the defensive system of naval bases, important coastal regions, and islands against enemy attack by sea or by land. Coastal artillery is subdivided into fixed and mobile (moved by rail or mechanical traction).

15. BEREGOVOYE NABLYUDENIYE ZA MOREM (coastal surveillance)—A special system of observation, organized on the sea coast by every navy for the purpose of detecting submarine, surface and airborne objects belonging to the enemy, and other changes in the situation within the range and capabilities of instrumental and visual means of observation.

16. BEREGOVYYE RAKETNYYE CHASTI (coastal missile units)—Naval units and subunits armed with mobile or fixed missile launchers, primarily intended for use in a system for the defense of naval bases and the most important coastal regions and islands against enemy attack by sea; but also intended for use in cooperation with ground forces and with naval forces operating at sea.

17. BESPRICHAL'NOYE BAZIROVANIYE (offshore berthing)—Berthing a naval unit at an anchorage or at any place where there is no jetty frontage. Offshore berthing is supported by the use of mobile engineering facilities and small-displacement floating craft.

18. BESPRICHAL'NOYE SNABZHENIYE KORABLEY (offshore resupply of warships)—Method of resupplying a warship with various types of stores, without the ship coming to a jetty or to moorings in a harbor (bay). Offshore resupply of warships may be accomplished either when under way or when at anchor. Under way at sea, resupply is done with special equipment, and at anchor in a roadstead, by means of flexible hoses or by tankers or waterboats. Offshore resupply of warships with other types of stores is accomplished by using rear services harbor-craft.

19. BLOKADA MORSKAYA (naval blockade)—Isolation of all or part of enemy territory from the sea, using naval and air forces; isolation of all or part of the enemy's naval forces, curtailment of enemy merchant shipping.

20. BLOKADNYYE SILY (blockading forces)—Forces effecting a blockade. Their composition depends on the nature and conditions of the blockade. Blockading forces may include submarines, naval aviation, surface ships, naval coastal missile units, and sometimes naval coastal artillery units.

21. BOYEVAYA OBSTANOVKA (combat situation)—The aggregate of the various factors and conditions pertaining to a particular period during which combat or an operation is to be prepared for and conducted. The combat situation includes: the state of the enemy, friendly troops and adjacent units, degree of radioactive and chemical contamination of the terrain and of the air, nature of the terrain and the state of the road network, economic condition of the region, political outlook and morale of the population, weather, time of day and time of year.

22. BOYEVAYA EKONOMICHESKAYA SKOROST' KORABLYA (combat maximum range speed of a warship)—The speed attainable with

the least expenditure of fuel per mile run, at normal displacement and with all ordnance and other auxiliary machinery operating in a system ensuring full readiness for combat. A warship must maintain a maximum range speed during the entire time required for execution of a combat mission.

23. BOYEVAYA CHAST' (na korable) (stations [on a warship])—Subdivision of a warship intended for the performance of particular functions. Included are: battle stations, weapons, instruments, machines, steering gear, communications, lookout posts, and other stations.

24. BOYEVOY INFORMATSIONNYY POST NA KORABLE (operations control center on a warship)—A room (place) on a warship, especially equipped to collect and process information (reports) concerning the surface, air and underwater situation, obtained by the ship's own equipment or received from other sources.

25. BOYEVYYE DEYSTVIYA SIL FLOTA PO OBORONE SVOIKH MORSKIKH KOMMUNIKATSIY (naval combat operations conducted to defend sea communications)—Operations conducted by naval forces indpendently or in cooperation with front troops and maritime national air defense units in order to protect merchant shipping and government-sponsored shipments for military or national-economic purposes from enemy action.

26. BOY ZA VYSADKU MORSKOGO DESANTA (combat for an amphibious assault landing)—An offensive battle in a coastal region, involving penetration of the enemy's antilanding defense, both on the water and on shore, seizure of a beachhead (port), and landing thereon (therein) all the troops pending assignment of onshore missions to them; combat activities of ground forces or a naval infantry assault force, in coordination with other types of Services (Air Force, Navy, Air Defense), when landed in the enemy's rear from the sea or from the air.

27. BOR'BA ZA ZHIVUCHEST' KORABLYA (ship damage control [navy])—The aggregate of measures implemented by a ship's crew to deal with ingress of water and outbreaks of fire, to prevent the explosion of ammunition in magazines, to restore damaged services, and armament, thus maintaining the ship's combat capability.

28. BRIGADA KORABLEY OKHRANY VODNOGO RAYONA (brigade of ships for the close protection of a sea area)—A tactical task force assigned to guard a particular sea area, and made up of various kinds of naval vessels (mine sweepers, antisubmarine vessels, patrol vessels, power boats of various types, etc.).

29. BRIGADA MORSKIKH (RECHNYKH) KORABLEY (brigade of seagoing [river] warships)—A tactical force of warships of one "class," consisting of individual vessels of Categories 1 or 2 (submarines,

destroyers, monitors, etc.), or of divisions of vessels of Categories 3 or 4 (minesweepers, torpedo boats, armored cutters, etc.).

30. BRONEVAYA BASHNYA (armored turret)—Armored cover for guns, machine guns, observation and control mechanisms, shaped in the form of a segment of a sphere, a cylinder, or a truncated cone. According to their design, armored turrets are subdivided into rotating, non-rotating, and self-concealing categories. Armored turrets are mounted on armored vehicles (tanks, armored cars, armored trains), warships, and on permanent fortifications.

31. BRONEKATER (armored cutter)—A warship of moderate displacement (up to 100 tons), intended for operation in coastal and skerry regions (the seagoing armored cutter) or on rivers (the river armored cutter). It has one or two guns (57–85 millimeters caliber) and light armor plating.

32. BUY RADIOGIDROAKUSTICHESKIY (radiohydroacoustic buoy)—A small floating device containing a hydroacoustic station and a radio transmitter. When a submarine is detected, a radiohydroacoustic buoy automatically transmits prearranged signals.

33. VERTOLET (helicopter)—A heavier-than-air flying machine which flies with the aid of one or more lift rotors. A helicopter possesses the capability of taking off and landing without a run, and of hovering at a fixed altitude above a given point on the ground or water surface. Helicopters are used for carrying airborne units in landing operations, for submarine search-and-strike purposes, for reconnaissance, for artillery spotting purposes, for liaison, for evacuating wounded, etc.

34. VERTOLETONOSETS (foreign) (helicopter carrier)—A surface warship used to base and support helicopters designated for transport and landing operations, and to accommodate marine detachments participating in such operations. In the US Navy helicopter carriers are in the landing-ship category.

35. VIZUAL'NOYE NABLYUDENIYE (visual observation)—One of the methods of reconnaissance, done with the naked eye or with the aid of optical instruments.

36. VNUTRENNIYE VODNYYE PUTI (inland waterways)—Natural (rivers, lakes) and artificial (canals, reservoirs, locked rivers) watercourses used for mercantile and naval vessels. Inland waterways are an integral part of a state's unified transportation network, and may be used to maneuver naval forces between various maritime (ocean) theaters of military operations.

37. VNUTRIESKADRENNAYA SVYAZ' (intrasquadron communication)—Communication between warships under way, accomplished by visual or hydroacoustic signalling, and by low-power radio, predominantly in the ultra-short wave band.

38. VODNAYA PREGRADA (water barrier)—A natural or artificial water obstacle (a river, lake, stait, canal, estuary, bay, etc.) substantially affecting the conduct of ground force operations. The pricipal elements of a water barrier are: width, depth, speed of current, wave state, the nature of the banks, bottom, and approaches to the shore, and the presence of underwater obstacles (rocks, shoals).

39. VODOIZMESHCHENIYE (displacement)—The weight of water displaced by a floating ship, measured in tons. In the case of warships, a distinction is made between empty, standard, full, normal and maximum displacement, according to the presence on board of the following: fuels and lubricants, drinking water, munitions, provisions, ship's stores, and personnel. In the case of merchant ships and naval auxiliary vessels, a distinction is made between empty displacement and full cargo displacement.

40. VOYENNAYA DOKTRINA (military doctrine)—A nation's officially accepted system of scientifically founded views on the nature of modern wars and the use of armed forces in them, and also on the requirements arising from these views regarding the country and its armed forces being made ready for war.

Military doctrine has two aspects: political and military-technical. The basic tenets of a military doctrine are determined by a nations's political and military leadership according to the socio-political order, the country's level of economic, scientific and technological development, and the armed forces' combat materiel, with due regard to the conclusions of military science and the views of the probable enemy.

41. VOYENNO-MORSKAYA BAZA (VMB) (naval base)—The fundamental element of the system for the basing of naval forces. A naval base is an equipped and defended coastal region which has several basing points and which permits dispersed basing and extensive maneuvering of naval forces.

42. VOYENNO-MORSKAYA GEOGRAFIYA (naval geography)—An independent discipline of military geography. In the interest of the military and naval arts, naval geography investigates geographic, economic, demographic, military and morale factors and natural conditions in maritime theaters and countries, and also determines to what extent these factors and conditions may affect operations and combat activities within the limits of the investigated maritime theaters.

43. VOYENNO-MORSKAYA NAUKA (naval science)—A component part of military science dealing with questions pertaining to the role of the navy in armed conflicts, its organization, and training.

44. VOYENNO-MORSKAYA RAZVEDKA (naval reconnaissance)—The aggregate of measures taken by naval commands and units to obtain such information about the enemy in theaters of naval operations as is needed to support the day-to-day combat and operational activities of

naval forces. According to the affiliation of the personnel engaged in it, naval reconnaissance is subdivided into the air, ship, coastal, radio-technical, cladestine, and special (mine, ice, etc.) categories.

45. VOYENNO-MORSKAYA FLOTILIYA (naval flotilla)—An operational grouping of naval forces intended to conduct operations and combat actions in a separate sector of a theater of naval operations. According to the missions assigned to it, a naval flotilla includes submarine, naval aviation, surface ship, and coastal missile and artillery forces. Organized to support the combat operations of the components of a naval flotilla are naval bases, special services, rear service units and establishments, and communication, observation, armament ship repair, and other elements.

46. VOYENNO-MORSKOYE ISKUSSTVO (naval art)—A branch of military art and a field of naval science, namely, the theory and practice of organizing and waging armed conflict at sea. Naval art investigates, studies and determines methods of armed conflict at sea, ways of achieving victory in such conflict, and the organization and conduct of naval operations and combat actions. Naval art includes the strategic use of the navy in warfare, naval operational art, the tactics of branches of naval forces, and also questions concerning training the navy for war. Naval art is governed by the general laws of military art, but armed conflict at sea is also governed by the specific laws arising from the unique features of the navy as a service of the armed forces, the uniqueness of its missions, and the special features of theaters of naval operations.

47. VOYENNO-MORSKOY FLOT (VMF) (Soviet Navy)—A service of the armed forces of the Soviet Union intended to wage war in water areas. Organizationally, the Soviet Navy consists of operational forces, fleets and flotillas, carrying out combat activity in maritime or ocean theaters of war (or parts of them), on lakes and rivers, independently or in coordination with other services of the armed forces.

48. VOYENNYYE DEYSTVIYA (military operations)—Operations of the armed forces in wartime, directed at destroying the enemy on land, at sea, and in the air.

49. VOZDUSHNAYA RAZVEDKA (air reconnaissance)—One of the main types of reconnaissance which obtains information concerning enemy objects on the ground, in the air, or at sea. Air reconnaissance is done by reconnaissance aviation units, by reconnaissance subunits of aviation units and formations, and also by all crews carrying out combat missions. Air reconnaissance is accomplished both by piloted aircraft and by unmanned means in support of the combat operations of major formations and formations of all the services of the armed forces. The principal methods of air reconnaissance are visual observation, aerial photography, use of radio-technical facilities, etc. Depending on the character and scale of the missions to be carried out, air reconnaissance

is divided into strategic, operational, and tactical. Air reconnaissance carried out in support of aviation and missile forces, according to the plan, the assigned mission and the time of its execution, is subdivided into preliminary, direct ("final") and surveillance categories.

50. VOYNA NA MORE (naval warfare)—A term which has become widespread in the military literature of capitalist countries. The term "naval warfare" is a farfetched, collective concept embracing the aggregate of military operations conducted during wars in naval theaters of operations. The concept of naval warfare is used by bourgeois historians and military theorists in the USA and Britain for the purpose of exaggerating their sea power, and when describing World War II, creating the false impression that the military operations of the US and British fleets were of decisive significance in that war.

51. VYGRUZOCHNAYA PRISTAN' (PORT) (off-loading wharf [port])—A waterway counterpart of an off-loading station.

52. VYSADKA MORSKOGO DESANTA (amphibious assault force landing)—A method of taking possession of a region of enemy coastal territory in order to create a grouping of friendly forces on it. During a landing of an amphibious assault force, troops to be landed and the assault materiel are transported by sea to the enemy coast in assault craft, opposing naval and air forces are destroyed, enemy antilanding defense is neutralized, troops are debarked and engage in combat actions on shore, combat materiel is unloaded from ships onto the beach, and the operations of the assault landing force are supported.

53. GIDROAERODROM (seaplane base)—A water basin (area of water) and the adjacent coastal region with the appropriate buildings and equipment, affording seaplanes room to land and take-off, and serving as a base for them.

54. GIDROGRAFICHESKAYA RAZVEDKA (hydrographic reconnaissance)—The operations of reconnaissance forces directed toward obtaining information concerning navigational-hydrographic conditions in a given region to provide hydrographic support for naval operations and combat actions.

55. GIDROGRAFICHESKOYE SUDNO (hydrographic vessel)—A vessel especially built or converted for hydrographic work at sea (on rivers, lakes), i.e.,: soundings; surveys of shores, islands, shoals, and coastal landmarks; tidal studies; etc.

56. GIDROLOKATSIYA (sonar)—Detection of underwater objects and determination of their position by sending underwater acoustic signals and receiving those signals as reflected from the objects.

57. GLAVNAYA VOYENNO-MORSKAYA BAZA (main naval base)—A system of strong points supporting the combat and operational activity of main naval forces.

58. GLUBINA POGRUZHENIYA PODVODNOY LODKI (submarine submersion depth)—The vertical distance from the surface of the sea to the submarine's waterline, when the latter is under water. The depth of submersion of a submarine is measured with a depth gauge. A submarine has a working depth, extreme depth, design depth, periscope depth, and a depth at which it is safe from ramming.

59. GLUBINNAYA BOMBA (PROTIVOLODOCHNAYA) (depth charge [antisubmarine])—A bomb intended to damage or destroy submerged submarines. Depth charges are subdivided into the shipborne and airborne categories (the latter may have a nuclear charge). A depth charge is fitted with a special device ensuring that it will explode under the pressure of the water at a preset depth.

60. GRUPPIROVKA SIL NA OKEANSKOM (MORSKOM) TEATRE (grouping of forces in a naval theater)—The composition and disposition of naval forces intended to conduct military operations in a given naval theater. This term is often used in the sense of the composition of naval forces intended to fulfill a particular operational (or combat) mission.

61. DAL'NYAYA AVIATSIYA (long-range aviation)—The element of the Air Force intended to carry out missions in accordance with the plans of the Supreme High Command.

62. DEYSTVIYA VOYENNO-MORSKOGO FLOTA NA PRIMORSKIKH NAPRAVLENIYAKH (naval activities in coastal areas)—Combat activities by formations and units of all types of naval forces together with troops of a maritime front. The fleet may be assigned the following missions: destroy aircraft carriers and other warship groupings; disrupt (break off) troop transport and materiel shipments to enemy maritime groupings; disembark amphibious assault forces; destroy enemy amphibious assault landing forces at sea and participate in preventing their landing on the beach; safeguard sea transportation of troops and supplies for the friendly maritime front, etc. Specific naval missions are defined by the Supreme High Command, and are refined jointly with the officer commanding the troops of the maritime front.

63. DESANT (landing force)—Troops intended for landing, or which have already landed, on enemy occupied territory for the purpose of conducting combat operations. According to the transportation method used, a landing force may be amphibious, airborne, or combined; and according to its scale and purpose, such a force may be strategic, operational, or tactical.

64. DIVIZIYA KORABLEY (naval squadron)—A tactical formation of warships of the same class (e.g., a submarine squadron) or of various classes (e.g., a naval squadron for the defense of a sea area). Such a force includes brigades of warships, and sometimes divisions of warships as well.

65. YEDINONACHALIYE (unity of command)—A most important principle of the structure of the Armed Forces of the USSR. The main essence of unity of command is the personal responsibility of a commander for the morale, discipline, military and political training, combat readiness and combat activity of his subunit, unit, formation, or major field force. Unity of command is developed and reinforced on a Party basis. A commanding officer, making a decision personally in combat, depends on the support of Party organizations and the entire military collective. The Communist Party reinforces unity of command, which is indispensable in the Armed Forces, skillfully combining it with the principle of collectivism.

66. ZAGRAZHDENIYA MORSKIYE (obstruction of waterways)—A system of artificial obstacles on probable enemy shipping routes. Means of obstruction used at sea include mines, boom defenses, nets, underwater cribs, sunken vessels, etc.

67. ZAKRYTYY MORSKOY TEATR VOYENNYKH DEYSTVIY (enclosed theater of naval operations)—An expanse of sea bordered by the shores of one or several states, and having straits used for access to the ocean (directly or through an adjoining sea). Such a theater is characterized by relatively limited extent in terms of latitude and longitude.

68. ZAKRYTYY RAYON MORYA (closed area of the sea)—An area of the sea which is out of bounds either to all ships and vessels or to ships of one particular type (areas assigned for gun trials, or exercises involving submarines, surface ships, aviation, etc.).

69. ZAMORSKIYE BAZY (foreign) (overseas bases)—Missile bases, naval bases, air force bases, and supply bases of imperialist states, founded in colonies or on the territory of occupied or dependent countries to suppress national-liberation movements, and to prepare for, and conduct, aggressive military activities. The system of US military bases on foreign territories is a consequence of the aggressive policy and strategy of American militaristic circles that envisages attack on the USSR.

70. ZVUKOPODVODNAYA SVYAZ' (underwater acoustic communication)—A form of communication used in the Navy between submarines which are submerged. It is also used for communication between such submarines and surface ships.

71. ZONA PROTIVOLODOCHNOY OBORONY (antisubmarine defense zone)—The water expanse, around a mobile objective at sea or at any part of the coast, in which antisubmarine defense forces engage in the search for, and destruction of, enemy submarines and fulfill their mission of protecting the given objective from underwater attack. An antisubmarine defense zone is usually divided into near and distant (sectors).

72. ZONA TAKTICHESKOGO RASSREDOTOCHENIYA SIL FLOTA (zone of tactical dispersal of naval forces)—A region in which ships, aircraft, missile launchers, and artillery of any naval force whatever are dispersed in order to preclude their destruction by a single enemy nuclear burst. The size of such a zone depends on the expected yield (TNT equivalent) of the enemy nuclear weapon and the nature of its burst, on the character of the objectives, and on the degree of their dispersal and cover.

73. INZHENERNO-AERODROMNOYE OBESPECHENIYE AVIATSII (airfield-engineering aviation support)—A type of support for all kinds of aviation, consisting in the implementation of airfield-engineering measures for the purpose of creating, for the Air Force, conditions of constant combat readiness, successful performance of combat operations, dispersed and mobile basing, and also protection of aviation units and formations against weapons of mass destruction. Airfield-engineering aviation support includes: locating, planning, building, and restoring airfields; equipping them with artificial runways; mining and mine-clearing at airfields and other objectives of the aviation rear areas; providing cover for materiel and personnel at airfields and in dispersal zones; constructing cover and shelters for control posts; implementing camouflage measures, etc.

74. INZHENERNOYE OBESPECHENIYE SIL VOYENNO-MORSKOGO FLOTA V OPERATSIYAKH (engineering support of naval forces during operations)—The assemblage of engineering measures adopted for the purpose of creating on the sea coast, with engineer facilities, the most favorable conditions under which naval forces may conduct active combat operations. Engineering support of naval forces during operations includes: equipping the system of dispersed-basing points for warship formations; equipping naval aviation airfields and ensuring their rebasing in the course of an offensive operation; equipping positional areas for missile units, control posts and regions for storage of materiel stockpiles; preparing a road network to permit maneuver of coastal units and supply of naval forces; using camouflage; and clearing the aftereffects of enemy nuclear strikes.

75. ISTREBITEL' PALUBNYY (deck-based fighter)—A fighter aircraft intended for combat use from aircraft carriers.

76. KANONERSKAYA LODKA (MORSKAYA I RECHNAYA) (gunboat [seagoing and river])—A surface warship with artillery armament, used to destroy enemy coastal objectives and to suppress enemy fire power. Having a relatively limited displacement, shallow draft, powerful artillery, and limited armor, a gunboat may conduct combat operations in coastal regions, predominantly in shallow water, and in areas which are restricted from the navigational viewpoint, i.e., in skerries, lakes, and rivers.

77. KATER (cutter)—(1) A small warship of less than 100 tons displacement, but sometimes more, intended to fulfil combat missions. Depending on its armament, it may be a missile boat, torpedo boat, or minesweeping boat. A missile boat is armed with cruise missiles, air defense machine guns and submachine guns. It is used to destroy surface warships and transport vessels and other floating and coastal objects. A torpedo boat is used to make torpedo attacks on surface warships, transports, and other floating objects. A minesweeping boat is intended to sweep mines in shallow regions of the sea, or in the area of a base or port; it is of small displacement, has limited speed, and is equipped with boat-type sweeps. (2) A small self-propelled vessel displacing up to 40–50 tons. Such craft are subdivided into the ship (or vessel) category and the special-purpose category (sea, river, port, base, harbor, tug, etc.).

78. KLASS KORABLEY (class of ships)—A homogeneous group of warships which meet certain special requirements with regard to their construction, sea-keeping qualities, and armament, and are therefore eligible for identical combat missions. A ship class is subdivided into subclasses according to displacement, armament, armor speed, disposition of armament and mechanisms, and other characteristics. Sub-classes, in turn, are subdivided into types, which differ in constructional details and technical equipment, reflecting development of naval technology and a change in the methods of combat utilization of the given class of ships.

79. KONVOY (MORSKOY) (convoy [sea])—A group of merchant-type ships organized for joint passage by sea escorted by warships and aircraft. The number of merchant-type ships and the numerical strength of the escort force in a convoy may vary according to the nature and value of the cargo, the degree of threat of enemy attack, and other factors.

80. KONTAKTNOYE TRALENIYE (contact minesweeping)—Minesweeping with the use of towed and cutting sweeps, intended for sweeping anchored mines. Also used in contact minesweeping are net sweeps for picking up floating mines or mines at a given depth.

81. KORABEL'NAYA ARTILLERIYA (naval guns)—One of the types of armament fitted to surface warships and certain auxiliary vessels. According to its purpose, naval guns are subdivided into main armament, which fulfils the basic missions of the warship, and secondary armament, universal or high-angle. As regards caliber, naval guns are subdivided into large caliber (230–400 mm), medium-caliber (100–180 mm), and small-caliber (20–85 mm).

82. KORABEL'NAYA POISKOGO-UDARNAYA GRUPPA (KPUG) (ASW group)—An antisubmarine warfare group is used to search out and destroy enemy submarines. Such a group may include special antisubmarine vessels, and ships having an antisubmarine armament. A warship antisubmarine warfare group is capable of fulfilling the missions

assigned to it independently, or in coordination with aviation anti-submarine warfare groups.

83. KORABEL'NAYA RAZVEDKA (shipboard reconnaissance)—A type of naval reconnaissance. It is conducted by submarines and surface ships.

84. KORABEL'NAYA UDARNAYA GRUPPA (KUG) (surface strike group)—A grouping, namely a combat force of warships, intended to fulfil a particular mission in a battle (delivering a blow). Such a grouping is created from ships of one type, or of different types armed with identical weapons, e.g., a torpedo strike group made up of torpedo boats and destroyers. Each surface strike group usually consists of several attack groups and special-purpose groups.

85. KORABEL'NYY POST UPRAVLENIYA I NAVEDENIYA ISTREBITEL'NOY AVIATSII (KPUNIA) (shipboard station for fighter control and direction)—A control room organized in a ship (or ships) for the purpose of directing fighters to a tactically advantageous position relative to the air enemy at a distance of radar or visual contact. The direction of fighter aviation is accomplished with the aid of automated systems, radar systems, and radio stations.

86. KORABLEVOZHDENIYE (navigation)—The applied science which studies and finds practical solutions to all problems associated with the safe sailing and maneuvering of a ship. Navigation includes a number of disciplines: navigation in the narrower sense of position-fixing, radionavigation, pilotage, mariners' astronomy, the theory of compass deviation, tactical maneuvering, the technical means of navigation, hydrography, hydrometeorology, oceanography and the rules for sailing inland waterways. Navigation must also include the "Rules for the Prevention of Collisions of Ships at Sea."

87. KORABL' NA PODVODNYKH KRYL'YAKH (hydrofoil craft)—A ship having a mechanism in the underwater part of its hull to reduce considerably the water resistance associated with its motion. When under way, the underwater wings (planes), which are positioned at a certain angle to the horizontal, lift the greater part of the ship's hull above the surface of the water, greatly increasing the speed of the ship without increasing the amount of power developed by the propulsion machinery.

88. KORABL' PROTIVOVOZDUSHNOY OBORONY (air defense ship)—A combatant surface warship having as its main armament air defense systems (antiaircraft guided missiles, high-angle artillery, guidance instruments, and radio-technical facilities for detecting targets and controlling the flight of missiles). An air defense ship is intended to destroy air targets.

89. KORABL' PROTIVOLODOCHNOY OBORONY (antisubmarine warfare ship)—A warship used to detect and destroy enemy submarines.

It has, in its armament, the means of destroying submarines (torpedoes, depth charges), and means of search (sonar, radio-technical facilities, etc.). In addition, it has air defense weapons and equipment, and possesses good maneuvering characteristics.

90. KORABL' RADIOLOKATSIONNOGO DOZORA (radar picket ship)—A warship equipped with radar stations, and intended for long-range detection of air and surface targets. Radar picket ships are used in convoys, and in the system of coastal antiaircraft and antilanding defense.

91. KORABL'-RAKETONOSETS (RAKETNYY KORABL') (missile ship)—A warship with launchers for ballistic (or cruise) missiles and for air defense guided missiles. It carries defensive weapons, and is very fast. A missile ship is used to destroy surface warships, transport vessels, and enemy coastal targets.

92. KORABL' SVYAZI (communications ships)—A warship especially equipped with communications facilities, and intended to ensure control on occasions of mobile (dispersed) basing of naval forces.

93. KREYSER (cruiser)—A surface warship used to destroy enemy warships and merchant vessels at sea, to neutralize firepower and other targets on shore, and to protect and support friendly forces operating at sea. A cruiser has artillery armament of heavy and medium caliber, is protected by vertical and horizontal armor, and possesses great speed and cruising range. It may carry launchers for cruise missiles and ballistic missiles.

94. KRIZIS OPERATSII (BOYA) (operational [or battle] crisis)—A turning point in the course of an operation or battle.

95. KRYLATAYA RAKETA (SAMOLET-SNARYAD) (cruise missile)—An unmanned airborne vehicle which has lifting planes (wings), and which is guided throughout its entire flight trajectory. As a rule, such a missile has a nuclear charge, a jet engine, and guidance instrumentation. It may be launched from the ground, from aircraft, from surface warships, or from submarines (on the surface).

96. LEGKIY KREYSER (light curiser)—A surface warship used to deliver strikes against warships and merchant vessels at sea, and coastal targets, and to cover or escort convoys, assault detachments, etc. A light cruiser is armed with missiles and low-angle artillery, and has a strong air defense armament. Some light cruisers also have a torpedo armament. A light cruiser is very fast (up to 40 knots) and has a large cruising range. It has light armor over the most vital parts of the ship.

97. LINEYNYYE KORABLI (ships of the line)—The largest of naval ships having heavy-caliber guns as their main armament, but which have lost their former importance due to the advent of nuclear weapons, and the ascendancy of aviation and the submarine.

98. LINIYA DOZORA (picket line)—A line of patrol vessels or aircraft, or coastal observation posts doing picket duty.

99. LOVUSHKA (decoy for homing weapons [radar, sonar, thermal, and optical categories])—A device used to mislead (attract) homing missiles and projectile guidance stations. It is used to reduce the probability of damage to one's own missiles, aircraft, and warships.

100. LOZHNYYE NAVIGATSIONNYYE ORIENTIRY (dummy navigational aids)—Navigational aids specially placed so as to mislead the enemy. The dummies used are exact replicas of real navigational aids, but they are put in the wrong places in order to conceal safe channels through mine fields, and entrances to bays, bases, roadsteads, etc.

101. MANEVRENNAYA BAZA (maneuvering base)—A naval base created previously, or in the course of hostilities, and used for maneuvering and concentration of a given strike grouping of naval forces in the appropriate operational sector. A maneuvering base may be permanent or temporary.

102. MINNOYE POLE (mine field)—A sector (area) of terrain (or the sea) within which mines have been laid. According to their purpose, mine fields may be antitank, antipersonnel, mixed, dummy, or antiship; according to their method of detonation they may be uncontrolled or controlled.

103. MINNO-ZAGRADITEL'NYYE DEYSTVIYA (mine-laying operations)—Laying large mine obstacles in both friendly and hostile waters.

104. MINNO-TORPEDNAYA AVIATSIYA (mine and torpedo aviation)—A branch of naval aviation armed with mines and torpedoes.

105. MINNYY ZAGRADITEL' (minelayer)—(1) An engneering vehicle intended for rapid laying of antitank mines in the ground or distributing them on the surface of the earth. (2) A submarine or surface warship used for laying mine obstacles. Surface mine layers are in either the sea or river category, and are either specially built as such, or are converted from transports or auxiliary vessels. Mines may also be laid by other naval vessels (destroyers, torpedo boats, torpedo-armed submarines, etc.).

106. MINY (mines)—Engineer munitions used as a means of obstruction. According to their purpose, mines are subdivided into the antipersonnel, antitank, antivehicle, antilanding, and special-purpose categories; according to the method of activation—into controlled, detonation of which is effected at the appropriate time by wire, radio, or mechanical device, and uncontrolled (instantaneous or delayed action); according to their design—into pressure, tension, release operated, and magnetic; according to their susceptibility to retrieval—into recoverable and non-recoverable; and according to the possibility of rendering them harmless—into disarmable

and non-disarmable. Projectiles of various calibers, used as mortar shells, are used to destroy enemy weapons and personnel, whereas large-caliber ones are also used to demolish enemy field installations.

107. MINY MORSKIYE (sea mines)—One of the types of naval munitions consisting of a hermetically-sealed explosive charge, furnished with a fuze and devices permitting it to be laid and exploded under water. Sea mines may be laid by submarines, surface ships, or aircraft, and are therefore subdivided into the submarine, surface ship, and aviation categories. According to the firing device used, sea mines are subdivided into contact, proximity, and engineer categories.

108. MOREKHODNOST' KORABLYA (seakeeping ability)—A warship's ability to make headway in a marine environment under adverse wind and sea conditons without loss of maneuverability or weapon efficiency. Seakeeping ability is one of the basic operational and tactical properties of a warship, and is a prerequisite for combat effectiveness.

109. MORSKAYA TAKTIKA (naval tactics)—One of the component parts of naval art dealing with objective natural laws governing sea battle, and developing methods whereby such a battle may be planned and fought by the various naval arms. Naval tactics consists of naval weapon and combat materiel tactics, combined naval arm tactics, and general naval tactics.

110. MORSKIYE (OKEANSKIYE) KOMMUNIKATSII (naval communication)—Lines (sea lanes) of established seagoing (or oceangoing) navigation, including the points of departure and arrival of vessels.

111. MORSKOY BOY (sea battle)—A battle fought at sea by ship or aircraft formations of a fleet, or by units of them. A sea battle consists of one tactical strike or of a system of such strikes inflicted on the enemy by individual ships (or aircraft), or by ship (or aircraft) formations and coastal missile and artillery units, independently or in coordination with one another. Depending on its purpose, a sea battle may be an offensive, a defensive, or an encounter battle.

112. MORSKOY (OKEANSKIY) TEATR VOYENNYKH DEYSTVIY (theater of naval operations)—The water and air space of one or several seas (or oceans), together with its islands and coastlines, where naval operations may take place in wartime.

113. NAVEDENIYE KORABLEY NA PROTIVNIKA V MORE (directing warships to the enemy at sea)—One of the methods of controlling naval forces in the course of combat operations, consisting in bringing a naval striking force toward a designated enemy objective to within range of direct contact, or onto the course which it is following, with a view to subsequent use of weapons. As a rule, direction is accomplished from coastal command posts, and it gives the striking force time to detect the enemy, and to occupy an advantageous position for a strike or attack.

114. NAVIGATSIONNOYE OBORUDOVANIYE MORSKOGO TEATRA VOYENNYKH DEYSTVIY (navigational organization of a theater of naval operations)—Measures and facilities for ensuring navigational safety during operations by friendly forces, and impeding the activities of hostile forces. It consists in installing coastal and deep-sea navigational aids (radio-beacons, light-houses, sirens, electric foghorns, buoys, signs), and in establishing a special system for their operation, to permit covert determination by a warship of its own position in the open sea, in the vicinity of the coast, and in channels.

115. NADVODNYY YADERNYY VZRYV (water-surface nuclear explosion)—A nuclear explosion in which the fireball touches the surface of the water.

116. NASTUPATEL'NAYA OPERATSIYA NA PRIMORSKOM NAPRAVLENII (offensive operation in a maritime sector)—An operation accomplished by ground forces, in coordination with the Navy and long-range aviation, in order to break up an enemy maritime grouping of land, sea, and air forces, and in order to take possession of the sea coast, the most important naval bases, and strait zones.

117. NASTUPATEL'NYY BOY V MORE (offensive sea battle)—The principal type of sea battle, the purpose of which is to destroy the hostile naval forces that are at sea. This purpose is achieved by means of powerful strikes by nuclear missiles and conventional weapons, inflicted by naval forces independently, but sometimes in coordination with formations of the other services. An offensive sea battle is characterized by its dynamic nature, by the suddenness and short duration of its strikes, by energetic attacks by mobile forces, and by rapid and decisive actions of the forces throughout wide expanses of sea. Variants of the offensive sea battle are: a battle to destroy a carrier strike group; a battle to desstroy a grouping of missile-armed warships; and a battle fought in order to demolish an enemy convoy under various conditions of the maritime situation.

118. NEKONTAKTNAYA MINA (noncontact mine)—A mine which explodes at a certain distance from a ship's hull, without requiring direct contact with it in order to detonate. The burst of a noncontact mine is initiated by an influence fuze, which reacts to the magnetic, acoustic, hydrodynamic, or other physical field of the vessel.

119. NEKONTAKTNOYE TRALENIYE (sweeping of noncontact mines)—Minesweeping with the use of various noncontact sweeps, intended for clearing bottom mines in the noncontact category, having fuzes of various types.

120. OBORONA VOYENNO-MORSKOY BAZY (naval base defense)—The aggregate of measures and combat operations adopted to prevent seizure of a naval base by the enemy, and also to ensure the safety of

naval forces in the base, and protection of installations located on its territory (or sea area) against enemy attack by land, sea, and air. The composition of the forces and facilities required for the defense of a naval base, as well as of the necessary reinforcements, will depend on the importance and nature of the missions to be completed, on the ratio of forces in the theater of operations, and on the military-geographical conditions in the region in which the base is situated.

121. OBORONA MORSKOGO POBEREZH'YA (sea coast defense)—The aggregate of combat operations and measures adopted to prevent seizure of a coast by the enemy and to safeguard coastal installations from enemy attack. Defense of a sea coast includes antilanding defense, and protection of important maritime objectives from enemy attack by sea. Measures pertaining to defense of a sea coast are planned and partially implemented in peacetime, and are developed and perfected on the outbreak of hostilities, in accordance with the actual situation.

122. OBORONA SOYEDINENIYA KORABLEY (TRANSPORTOV) NA PEREKHODE MOREM (defense of a formation of warships [or merchant-type ships] during sea transit)—The complex of combat support measures adopted in order to preserve the combat effectiveness (or integrity), and to ensure the safety, of warships (or merchant-type ships) during sea transit. Such defense includes operations of escorting ships and aircraft, and measures adopted by the escorted forces (or vessels) for their own defense. These activities and measures are directed toward anticipation and repulse of enemy attacks from the sea and from the air, and toward destruction of the attacking enemy forces.

123. ODINOCHNYYE UDARY AVIATSII (strikes by single aircraft)—Strikes made against enemy objectives by single aircraft. Such strikes are dealt using nuclear, chemical, or conventional weapons, in order to complete particular tactical missions (destruction or neutralization of targets).

124. ODINOCHNYY YADERNYY UDAR (single nuclear strike)—A strike delivered against an objective with one nuclear weapon. It is used in those cases when the yield of a nuclear weapon ensures that the required damage will be inflicted on the target.

125. ODNOVREMENNYYE UDARY AVIATSII (simultaneous strikes by aircraft)—One of the methods of combat operations employed by aviation, and used to put the objective (or objectives) out of commission in the shortest possible time.

126. OPERATIVNYY RADIUS DEYSTVIYA SIL FLOTA (operational radius of action of naval forces)—The greatest possible distance of a grouping of forces (warships, aircraft) from their bases at which these forces retain their ability to carry out their assigned missions and return to the points where they are based. The operational radius of action of

naval forces depends on the tactical-technical features of the kind of force (range, self-sufficiency, speed, etc.), on the nature of the mission to be completed, and on the situation which the operating forces will encounter.

127. OPERATSIONNAYA ZONA FLOTA (VOYENNO-MORSKOY BAZY) (operational zone of a fleet [or of a naval base])—A region of a maritime (or ocean) theater of operations, within whose limits, during a limited period (or throughout the entire war), a naval strategic formation carries out the missions assigned to it, by conducting naval operations or other forms of combat activity. Demarcation of such a zone, its boundaries and dimensions, depend on the general situation in the theater of operations, the ratio of forces, the operational radius of the forces, the nature of the missions to be carried out, and on the physico-geographic conditions of the given theater. Insofar as these factors change, the boundaries and dimensions of operational zones may alter during the course of a war (or in peacetime).

128. ORDER UNIFITSIROVANNYY (unified order)—A naval combat formation envisaging the simultaneous use of all basic types of defense and protection by escorted warships (or merchant vessels) and escorting forces, during a sea passage.

129. ORIENTIRNAYA MORSKAYA AVIATSIONNAYA BOMBA (an aerial sea marker bomb)—A special-purpose bomb used to make a bright, readily visible, stain, or a smoke (fire) trace, on the water, i.e., a sighting point permitting navigational measurements to be taken.

130. ORUZHIYE MASSOVOGO PORAZHENIYA (weapons of mass destruction)—Weapons used to inflict heavy casualties. They include nuclear, chemical, and bacteriological weapons.

131. OTRYAD VYSADKI (landing detachment)—A special temporary formation of forces created to transport and land an amphibious assault force on the enemy coast. A landing detachment includes formations of surface warships of various types, groups of transports, landing craft, security forces, and assault troops, from the moment of their going on board the landing ships until they disembark onto the shore. The main mission of a landing detachment is to fight a battle for a landing by an amphibious assault force in coordinated actions with formations of aviation, formations of air defense troops, airborne assault forces, and other forces.

132. OTRYAD KORABLEY PODDERZHKI (force of support ships)—Forces intended to provide fire support for assault troops in the battle to effect an amphibious landing, or for ground troop formations engaged in operations on the sea coast. In composition, a force of support ships includes formations of warships armed with ordnance capable of destroying coastal targets and the forces whose function is the direct security of such targets.

133. OKHRANA VODNOGO RAYONA (OVR) (a defense of a sea or waterway area)—A type of daily combat activity of naval forces, consisting in carrying out patrol duty, and also in organizing and implementing measures and operations directed toward the antisubmarine, antitorpedo boat, and antimine defense of a limited area of the sea. Defense of a sea or a waterway area has, as its purpose, timely detection of the enemy, notification of naval forces, and the protection—within the limits of the guarded area—of ships under way or at anchor from torpedo-boat attack, enemy submarine attack, and the action of mines. Defense of a sea or waterway area may also be an element of combat support (for example, defense of a sea or waterway area of an amphibious landing).

134. PARTIYNYYE ORGANIZATSII V VOORUZHENNYKH SILAKH (Party organizations in the Armed Forces)—Party organizations uniting Party members in units (warships), in military educational institutions, and in establishments.

The principal task of Party organizations is to implement requirements of the Program of the Communist Party of the Soviet Union, namely, that the Soviet Armed Forces shall be an efficient and coordinated organism, having a high level of organization and discipline, fulfilling in an exemplary manner the missions assigned to them by the Party, the government, and the people, and being ready at any moment to inflict a shattering repulsive blow against imperialist aggressors.

135. PEREBAZIROVANIYE SOYEDINENIY FLOTA (redeployment of naval formations)—Changing the place at which naval formations are based in a maritime theater of operations, for the purpose of creating groupings of forces in new operational sectors or for other purposes relative to the operational situation.

136. PEREVALOCHNAYA BAZA (transshipment base)—A specially prepared and equipped region (or place) in which rear service elements reload troop trains and freight from one mode of transport to another, or from one railroad gauge to another. A transshipment base usually has warehouses for the temporary storage of freight, and has the necessary labor force, transportation, and cargo-handling equipment.

137. PERERAZVERTYVANIYE SIL FLOTA (redeployment of naval forces)—A change in the position of naval forces for the purpose of occupying a more advantageous initial position for the accomplishment of subsequent combat operations. Redeployment of naval forces is usually associated with a change of the sector of operations, and with the distribution of naval forces in new sectors. It may be strategic, operational, or tactical.

138. PLAVAYUSHCHIY TANK (amphibious tank)—A light tank capable of negotiating water obstacles.

139. PLAVAYUSHCHIY TRANSPORTER (BRONETRANSPORTER) ((1)-amphibious personnel carier [armored personnel carrier]; (2)-amphibi-

ous cargo carrier [armored cargo carrier]—(1) A combat vehicle that can be fired from, used to transport troops on land, and can carry troops across water barriers; (2) assault-crossing equipment used to carry artillery and motor transport (special vehicles) across water obstacles. Combat materiel may be loaded or unloaded on shore or afloat.

140. PLAVUCHAYA BAZA (tender)—An auxiliary vessel (specially built or converted) used as a base for formations of combatant vessels (submarines, topedo boats, etc.), and to provide such vessels and their crews with repair and maintenance services, material and technical support, housekeeping and personal facilities.

141. POVSEDNEVNAYA OPERATIVNAYA DEYATEL'NOST' VOYENNO-MORSKOGO FLOTA (routine operational activity of the navy)—One of the ways in which the fleet resolves the general missions assigned to it. Routine operational activity of the Navy is carried on throughout the entire duration of a war, and consists in: ensuring the stability of the system for basing naval forces; organizing observation within the theater; conducting reconnaissance and patrols; securing friendly sea communications; organizing and implementing all forms of defense within the theater; attacking enemy targets that appear suddenly at sea, etc.

142. PODVIZHNYYE SREDSTVA BAZIROVANIYA KORABLEY (mobile naval base facilities)—Naval engineering support facilities. They are intended to permit temporary naval bases to be set up on short notice.

143. PODVODNAYA LODKA (submarine)—A combat vessel intended to cruise and conduct combat operations under water. A submarine is used to destroy surface warships, other submarines, and transport vessels, at sea and in bases (ports), and also to demolish important installations in a wide coastal zone of enemy territory. The basic combat feature of a submarine is the covert nature of its actions. According to their armament, submarines are divided into missile, torpedo, minelaying, and special categories. Special-purpose submarines include those in the radar-patrol, transport, amphibious-assault, and oil-tanker categories. According to their displacement, submarines may be classified as large, medium, or small; and according to their type of propulsion machinery, they may be identified as diesel-battery, gas-turbine, or atomic-powered.

144. PODVODNAYA LODKA ATOMNAYA (atomic submarine)—A submarine having an atomic power plant for propulsion under water and on the surface. An atomic submarine is capable of moving underwater for a long time, and can thus travel great distances without surfacing.

145. PODVODNAYA LODKA RAKETNAYA (PODVODNYY RAKETONOSETS) (missile submarine)—A submarine whose main armament consists of ballistic or cruise missiles. The number and kind of missiles,

their performance data, and the type and power of their charge depend on the type of mission assigned to the submarine.

146. PODVODNYYE LODKA FLOTA (fleet submarines)—One of the main branches of a fleet, which includes strategic formations and formations of submarines of various classes and sub-classes (or types). Fleet submarines are used to destroy enemy warships and transports, and to demolish installations on enemy territory, both independently and in coordinated action with other branches of the fleet. Fleet submarines may also be used to conduct reconnaissance, lay mines, land reconnaissance-sabotage groups clandestinely on the enemy coast, guide friendly strike forces to enemy targets at sea, transport personnel and important cargoes, etc.

147. PODVODNYY YADERNYY VZRYV (underwater nuclear explosion)—A nuclear explosion which takes place under water.

148. PODGOTOVKA OKEANSKOGO (MORSKOGO) TEATRA VOYENNYKH DEYSTVIY (fitting out of an ocean [or maritime] theater of operations)—A system of measures effected in peacetime and wartime within the limits of a given theater for the purpose of creating favorable conditions for combat operations by a friendly navy in its execution of wartime missions, and for the purpose of hindering enemy operations. The fitting out of an ocean (or maritime) theater of operations consists in building and equipping naval bases and dispersed basing facilities for naval forces, airfields, positions for coastal missile units and coastal artillery; in deployment, on the coast, of a system of technical facilities for communications, observation, navigation, and radio reconnaissance; in the organization of all types of defense and protection against enemy attack by sea and by air, including anti-submarine.

149. POISKOGO-UDARNAYA GRUPPA PLO (korabel'naya, aviatsionnaya) (antisubmarine warfare search-and-strike group [naval aviation])—A group especially made up of surface ships and aircraft (or helicopters) used to seek out and destroy enemy submarines.

150. PORT (MORSKOY, RECHNOY) (port [sea, river])—A sector (or region) of sea coast (or river bank) with harbors and basins which are not only used for loading and unloading (operations), but also provide warships and merchant vessels with shelter from foul weather.

151. PRORYV MINNO-ARTILERIYSKOY POZITSII NA MORE (historical) (breaking through a mine-artillery position at sea)—The aggregate of combat operations conducted by naval forces in order that warships might negotiate a mine obstacle that is covered by fire from coastal batteries and shipboard ordnance.

152. PROTIVODESANTNAYA OPERATSIYA (antiamphibious operation)—A defensive operation by strategic formations of the vaious services, conducted for the purpose of preventing an enemy landing

operation. An antiamphibious operation consists in the utter defeat of enemy assault forces by destroying his troops, warships, and landing facilities at points of concentration and embarkation (loading), during passage by sea, and in the region of disembarkation.

153. PROTIVOGIDROAKUSTICHESKAYA MASKIROVA (antihydroacoustic masking)—One of the types of submarine camouflage, consisting in the implementation of measures hindering enemy use of hydroacoustic facilities to observe a submarine which is submerged.

154. PROTIVODESANTNAYA OBORONA POBEREZH'YA (antiamphibious defense of the sea coast)—A system of measures implemented for the purpose of frustrating any invasion of national territory by enemy troops from the sea. Antiamphibious defense of the sea coast consists in the timely preparation of the coast, and seaward approaches to it, in preparing positions for ground troops, primarily missile units, in deploying troops on the terrain, in arranging obstacles on land and in the water, in organizing a fire plan, and in joint combat operations by ground troops, naval, and air forces to repulse landings by enemy amphibious assault forces.

155. PROTIVOLODOCHNAYA AVIATSIYA (antisubmarine aviation)—One of the branches of naval aviation used to seek out and destroy enemy submarines at sea. Anti-submarine aviation is subdivided into the short-range and long-range categories.

156. PROTIVOLODOCHNAYA OBORONA (PLO) (antisubmarine defense)—Antisubmarine defense is a component element for engaging enemy submarines, and is one of the types of naval defense. Antisubmarine defense is the aggregate of combat operations of formations (or groups) of warships and units (or subunits) of naval forces, as well as certain special measures directed toward safeguarding warships, transports, and important coastal installations from submarine-inflicted strikes, and toward denying enemy submarines the opportunity to conduct reconnaissance, lay mines, land amphibious assault forces, or engage in other activities. As a result of the development of submarines, and the increasing sophistication of their armament, the role of antisubmarine defense has grown considerably.

157. PROTIVOMINNAYA OBORONA (PMO) (antimine defense)—The aggregate of combat operations of formations (or groups) of warships and units (or subunits) of naval forces, directed toward safeguarding warships and transports against the danger of mines, as well as certain special measures adopted for this purpose. Antimine defense is organized and conducted in order to eliminate the mine threat, and to ensure safety of navigation to warships and transports.

158. PUNKT POSADKI DESANTA (assault-force embarkation point)—The area (or place) where an assault force boards ships or aircraft (helicopters).

159. RAZVEDYVATEL'NOYE TRALENIYE (reconnaissance minesweeping)—One of the methods of mine reconnaissance at sea. It is conducted by special ships, namely minesweepers, and helicopters, for the purpose of detecting enemy minefields, and determining their location, boundaries, and nature.

160. RAZVERTYVANIYE SIL FLOTA (deployment of naval forces)—The process whereby naval forces assume the initial position (designated areas, lines, and positions) for the commencement of activities, in accordance with the plan of an operation. Depending on its nature and scale, deployment of naval forces may be strategic, operational, or tactical.

161. RAZMAGNICHIVANIYE KORABLYA (demagnetizing a ship)—An antimine defense measure, consisting in artificial alteration (reduction) of the ship's magnetic field strength for the purpose of protecting it against magnetic and magnetic-induction mines.

162. RAYON VYSADKI MORSKOGO DESANTA (amphibious assault force landing area)—The part of the sea coast, and the sea area adjoining it, where an assault force disembarks, and the warships supporting the landing operate. The size of an amphibious assault force landing area depends on the composition of the forces attacking the coast, and on the geographical features of the terrain. Each amphibious assault force landing area includes one or several sectors.

163. RAKETONOSNAYA AVIATSIYA (missile-carrying aviation)—Aviation consisting of missile-carrying aircraft, armed primarily with air-to-air, air-to-ground, and air-to-ship missiles.

164. REZHIM PLAVANIYA NA MORSKOM TEATRE (navigational discipline in a maritime theater)—A system of measures implemented for the purpose of ensuring the safety of warships and merchant vessels when under way, and also while in bases or ports. The essence of navigation procedures consists in the creation of a system of channels and formulation of rules for their use; in the adoption of a strict procedure for the entry of ships and vessels into bases, ports, and other points, and for exit from them; in the establishment of recommended courses and routes for the movement of ships and vessels in a theater (especially in coastal areas); and in the organization of a continuously-operating identification and warning system.

165. RODA SIL VOYENNO-MORSKOGO FLOTA (branches of the navy)—The structurally and qualitatively different component parts of the fleet intended to conduct combat operations in the appropriate physical environment, both independently and in coordinated action with one another. The branches of the Navy are: submarines, naval aviation, surface ships, and coastal missile-artillery troops.

166. RUBEZH (POLOSA) VZAIMODEYSTVIYA SREDSTV PVO (air defense zone)—The line (or zone) of terrain (or water) in the air space above which the forces and weapons of cooperating air defense strategic formations, formations, or units, engage in air enemy, and exchange data concerning air targets between themselves.

167. RUBEZH PROTIVOLODOCHNOY OBORONY (PROTIVOLODOCHNYY RUBEZH) (antisubmarine defense area [antisubmarine area])—The aggregate of positional facilities and mobile naval forces that are echeloned in depth and act in a particular water area for the purpose of preventing enemy submarines pentrating into a given area of the sea (or ocean).

168. SAMOLET PROTIVOLODOCHNOY OBORONY (antisubmarine defense aircraft)—An aircraft used to engage enemy submarines.

169. SAMONAVODYASHCHAYASYA TORPEDA (homing torpedo)—A torpedo having, in its warhead, a homing device which guides it to a (underwater or surface) target. Such devices are either active or passive, and are further subdivided into the monoplanar (horizontal) and biplanar (horizontal and vertical) categories.

170. SISTEMA BAZIROVANIYA SIL VOYENNO-MORSKOGO FLOTA (naval basing system)—The aggregate of naval bases and airfield areas mutually interconnected by transportation routes and communications facilities, as well as the enterprises, establishments, and elements of the rear services, ship-repair and ordnance-repair facilities, medical and sanitary services, etc., existing in a given maritime (or oceanic) theater of hostilities for the purpose of ensuring the conditions necessary for the deployment of naval forces and maintaining them at the appropriate state of readiness to resolve the missions confronting them. A distinction is made between permanent and temporary basing.

171. TAKTICHESKAYA GRUPPA PODVODNYKH LODOK (tactical submarine group)—Two or three conventionally-powered submarines of the same class on the same combat mission under the command of the group commander.

172. TAKTICHESKIY RADIUS DEYSTVIYA SAMOLETA (tactical radius of action of an aircraft)—The extreme distance which an aircraft can fly (i.e. its range), from an airfield to its objective, allowing for the return flight to the airfield of departure (with a specified reserve of fuel for aerial combat, or a change in the situation).

173. TAKTICHESKIY RADIUS PLAVANIYA KORABLYA (tactical cruising radius of a warship)—The greatest distance which a warship can go from its base at economical operational speed, while allowing enough fuel for completion of the assigned mission and for return to base. The tactical cruising radius of a warship is usually three- to four-tenths of its range.

174. TORPEDA (KORABEL'NAYA, AVIATSIONNAYA) (torpedo [shipborne, aerial])—A self-propelled, self-guiding, cigar-shaped, underwater projectile, with an explosive charge in its warhead intended to cause heavy damage to the underwater part, i.e. the most vulnerable part, of a warship or transport vessel. The torpedo is the main armament of torpedo-armed submarines, torpedo boats, torpedo-armed aircraft, and certain classes of surface ships.

175. TRALENIYE (mine sweeping)—The most effective method of eliminating mine fields, constituting the basis of antimine defense.

176. TRAL'SHCHIK (minesweeper)—A surface warship especially intended for the detection and destruction of mines with the aid of sweeps, and for conducting warships (vessels) behind the sweeps. According to their displacement, speed, seaworthiness, and armament, minesweepers are subdivided into the fleet, coastal, inshore, small inshore, and river categories.

177. UCHASTOK VYSADKI MORSKOGO DESANTA (amphibious assault force landing sector)—A part of an amphibious assault force landing area, within the limits of which the landing of a unit or formation of an amphibious assault foce usually takes place. A main sector is that part of an amphibious assault landing sector where landings take place by the forces designated to fulfil the main mission. Each sector contains several landing points.

177. FLAGMANSKY KORABL' (flagship)—The warship on which the commander of a formation, or the flag officer commanding a strategic formation or fleet, has his official location.

179. FLOT (fleet)—A naval strategic formation intended to conduct hostilities in a given maritime (or ocean) theater. A fleet consists of formations and strategic formations of various branches of the Navy (flotillas, squadrons, divisions, brigades, and individual units). A fleet includes naval bases, one of which is a main naval base. The operational activity of a fleet is supported by the rear elements and special services which form part of it.

180. FLOTILIYA (MORSKAYA, RECHNAYA, OZERNAYA) (flotilla [sea, river, lake])—A naval strategic formation in a given area of the sea, on a river, or a lake. A flotilla may be an independent naval strategic formation, subordinated to the Commander-in-Chief of the Navy, or it may form part of a fleet.

181. FORSIROVANIYE VODNYKH PREGRAD (forcing water barriers)—An offensive involving forcing a water barrier which is defended by the enemy. Forcing a water barrier is usually effected from the march. At the beginning of an offensive operation (or battle), when the forces and facilities of the warring parties are disposed on opposite banks, forcing is effected through prompt systematic preparation.

182. FORSIROVANIYE MINNOGO ZAGRAZHDENIYA (forcing a mine obstacle)—Negotiation of a mine obstacle by submarines or surface ships. Forcing a mine obstable may take place under conditions of active opposition on the part of enemy forces defending the mine obstacle, or in the absence of opposition.

183. SHKHERNYY RAYON (skerry region)—A coastal water area with a very rugged coastline, numerous rocky islands of diverse size, and underwater navigational hazards. A skerry region usually has a very involved network of transverse and longitudinal navigable channels.

184. ESKADRA (squadron)—(1) An operational-tactical naval formation, including warships of one basic branch of the Navy; (2) in some capitalist countries, the basic tactical formation of identical warships.

APPENDIX VI

OFFICER AND ENLISTED RANKS IN THE SOVIET NAVY (AND US NAVY EQUIVALENTS)

OFFICER

SOVIET NAVY				US NAVY
	SEAGOING		SHORE BASED	
Admiral Flota Sovetskogo Soyuza	(Admiral of the Fleet of the Soviet Union)	Marshal Sovetsogo Soyuza	Marshal of the Soviet Union	Fleet Admiral
	(None)	Glavnyy Marshal	(Chief Marshal)	None
Admiral Flota	(Admiral of the Fleet)	Marshal	(Marshal)	Admiral
Admiral	(Admiral)	Polkovnik General	(Colonel General)	Vice Admiral
Vice-Admiral	(Vice Admiral)	Leytenant General	(Lieutenant General)	Rear Admiral (upper half)
Kontr-Admiral	(Rear Admiral)	Mayor General	(Major General)	Rear Admiral (lower half)
Kapitan 1-go Ranga	(Captain 1st Rank)	Polkovnik	(Colonel)	Captain
Kapitan 2-go Ranga	(Captain 2nd Rank)	Leytenant Polkovnik	(Lieutenant Colonel)	Commander
Kapitan 3-go Ranga	(Captain 3rd Rank)	Mayor	(Major)	Lieutenant Commander
Kapitan-Leytenant	(Captain Lieutenant)	Kapitan	(Captain)	Lieutenant
Starshyy Leytenant	(Senior Lieutenant)	Starshyy Leytenant	(Senior Lieutenant)	Lieutenant (junior grade)
Leytenant	(Lieutenant)	Leytenant	(Lieutenant)	Ensign
Mladshyy Leytenant	(Junior Lieutenant)	Mladshyy Leytenant	(Junior Lieutenant)	Ensign

ENLISTED

Michman	(Midshipman)	Warrant Officer 1-4
Glavnyy Korabel'nyy Starshina	(Ship's Chief Petty Officer)	Senior Chief Petty Officer
Glavnyy Starshina	(Chief Petty Officer)	Chief Petty Officer
Starshina 1-y Stat'i	(Petty Officer 1st Class)	Petty Officer 1st Class
Starshina 2-y Stat'i	(Petty Officer 2nd Class)	Petty Officer 2nd Class
Starshyy Matros	(Senior Seaman)	Seaman Petty Officer 3rd Class
Matros	(Seaman)	Seaman Recruit/Apprentice