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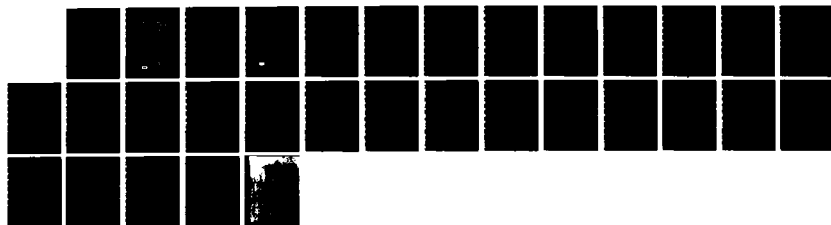
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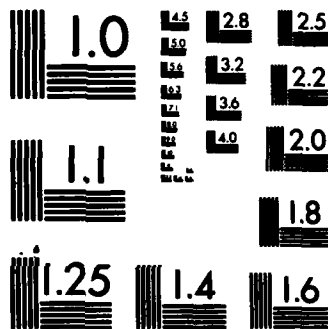
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PROFESSIONAL PAPER 405 / January 1984

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Charles C. Petersen

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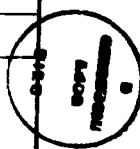
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Charles C. Petersen

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Naval Studies Group

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AIRCRAFT CARRIERS IN SOVIET NAVAL THEORY FROM 1960 TO THE FALKLANDS WAR

INTRODUCTION

Few developments in recent years have so captured the attention of naval specialists as the mounting evidence of a Soviet effort to design and deploy a carrier capable of accommodating conventional-takeoff-and-landing (CTOL) aircraft.

To some observers, who expected the Soviets to remain in the business of producing V/STOL aircraft carriers like *Kiev* and *Minsk*, this probably came as something of a surprise. To others, however, the CTOL carrier is *Kiev's* natural evolutionary successor, a logical next step in the Soviet Navy's long quest to take air power to sea.

The assumptions underlying both these reactions, however, are probably mistaken. Even before the first *Kiev*-class ship deployed in 1976, the Soviet Navy's general-purpose force had been charged with new missions—missions which in the judgement of influential Soviet naval officers, only a conventional aircraft carrier could perform. It was therefore wrong, in the case of those who were surprised, to have supposed that the Soviets would necessarily remain satisfied with a family of V/STOL carriers. It is just as wrong, on the other hand, to think of the CTOL carrier as *Kiev's* natural descendant, for in terms of the Soviet navy's mission requirements, the former is by no means an inevitable outcome of the latter. What, then, were the factors that

prompted the Soviets to embrace the idea of building a CTOL aircraft carrier, an idea they once dismissed out of hand? What is it about the way they have redefined the purposes of sea-based air power that has led them to conclude that they need such a carrier in their naval order-of-battle? Finally, what lessons have they drawn from the Falklands war, and what impact have these lessons had on their aircraft carrier program?

EVOLUTION OF SOVIET VIEWS ON AIRCRAFT CARRIERS SINCE 1960

It took the Soviet military establishment nearly seven years after the death of Stalin--and considerable prodding from Stalin's successors--to agree that the advent of nuclear-missile weapons called for extensive revisions in Soviet military doctrine. In 1960, the question of what that doctrine should be, and of what kinds of forces were appropriate for fighting a nuclear missile war, was thrown open for debate.¹

Among the issues hotly contested in the debate, as Robert Herrick's *Soviet Naval Strategy* shows, was the role and place of surface ships in a nuclear war.² No one, however, rose to defend aircraft carriers--not then, when the fate of the Soviet surface fleet hung in the balance, or later in the 1960s, when its advocates won approval for a modest surface-combatant construction effort.³ All who addressed the question of CTOL aircraft carriers unanimously agreed, then and later in the decade, that they were fated for extinction, like battleships--that they

were the dinosaurs of the nuclear age. First, they were too vulnerable to nuclear-tipped missiles; second, other naval force arms could perform the Soviet Navy's assigned tasks in a nuclear war as well as or better than aircraft carriers. And third, these ships simply weren't cost-effective: not only were they the most expensive ships afloat, but they required a disproportionate share of other naval assets for their own protection.⁴

None of this means, however, that Soviet naval theorists ruled out any kind of sea-based air power at the time. In the mid-1960s, these theorists began to point to vertical takeoff-and-landing aircraft as a means of augmenting the navy's strategic antisubmarine warfare capabilities,⁵ and of improving its then-marginal or nonexistent ability to perform some secondary missions, such as providing close air support to forces ashore.⁶ In assessing the Soviet decision to develop the Kiev class of V/STOL carriers—a decision which was probably made in the mid-1960s—we must therefore bear these two points firmly in mind, regardless of what the ship's *raison d'être* has since become. But as far as CTOL aircraft carriers *per se* were concerned, Soviet views remained almost unchanged until the close of the decade: CTOL carriers had no future in the nuclear age.

In the early 1970s, though, this attitude began to change, gradually but unmistakably. The most telling early sign was negative: references to the "obsolescence" or inevitable "extinction" of aircraft carriers disappeared from the literature, as did all comparisons of their fate to that of battleships. Soviet authors, to be sure, continued to point to the carrier's vulnerability, but on its future, they were now completely silent.⁷ Writing in 1967, Admiral Gorshkov had insisted that aircraft carriers were undergoing "a process of irreversible decline;"⁸ five years later, in his 50,000-word essay "Navies in War and Peace," he said nothing on the issue.

By the mid-1970s, this silence gave way to a positive evaluation. According to one well-known theorist, writing in 1978:

The importance of aircraft carriers in warfare at sea is enormous. It is not difficult to see that with the exception of tasks performed by strategic missile submarines, in a world nuclear war aircraft carrier forces are capable of performing nearly all the remaining ones, which virtually exhausts the modern notion of warfare at sea.⁹

It is true, wrote this theorist, that aircraft carriers remain "as before highly vulnerable to submarine and aircraft weapons." But that by no means implied that their future role was in doubt. "There is no reason," he stated, "to speak of any future diminution" of the importance of these ships in warfare at sea: "Rather one should speak of an increase of their role in naval warfare."¹⁰

FACTORS ACCOUNTING FOR THE ABOUT-FACE

What accounts for this about-face? Why are the Soviets so interested in large-deck, conventional takeoff-and-landing aircraft now, after so many years of predicting their extinction? This interest appears to derive from changes in Soviet views in three areas: command of the sea, fleet air defense, and more fundamentally, the probable length and character of a war at sea.

Revival of a Command-of-the-Sea Doctrine

One of the casualties of the "revolution in military affairs" of the early 1960s was the Soviet Navy's concept of "command of the sea" (*gospodstvo na more*), defined as "superiority over the enemy in a sea (or ocean) theater of military action (or part thereof) which provides naval forces with favorable conditions for their execution of basic combat missions."¹¹ According to the General Staff Academy's *Dictionary of Basic Military Terms*, published in 1965, this was a "foreign" term which "at the present time [the Soviet Armed Forces] do not employ."¹² What was the point of trying to get command of the sea in a nuclear war, went the argument: hostilities would be short and decisive, and the navy must spend its time destroying the enemy, not trying to gain command of the sea.¹³

But by the early seventies, the concept had been revived. It was important in World War II, Soviet theorists began to write, and it "has not lost its relevance today".¹⁴ In *Sea Power of the State*, Admiral Gorshkov devotes 4,000 words to a discussion of command of the sea.¹⁵

Along with the revival of "command of the sea" came that of a closely related concept—"command of the air," or *gospodstvo v vozdukhe* in Russian. As a number of naval writers began to put it, particularly in the last half of the 1970s, "command of the sea is unthinkable without command of the air,"¹⁶ and the role of sea-based air power here is regarded as critical.¹⁷

NEW REQUIREMENTS FOR FLEET AIR DEFENSE

A second factor in the Soviet reappraisal of aircraft carriers was a change in views on fleet air defense and on the role that sea-based air power should play in it.

In the 1960s, there was considerable evidence of a widespread conviction among Soviet theorists that modern offensive weapon systems possessed an all-but decisive edge over modern defenses.¹⁸ But they also believed that within the limits of what remained possible in the circumstances surface-to-air missiles made for a revolutionary simplification of the air defense problem—even to the extent of

allowing surface ships to dispense with fighter air cover altogether. "Fighter aviation," according to a typical statement of the 1960s, "has in considerable measure lost its past importance in the [fleet] air defense system."¹⁹

In the 1970s, however, Soviet writers began to doubt that surface-to-air missiles were all they had cracked them up to be. They were necessary components of fleet air defense, but they couldn't do it all. Interest in anti-aircraft guns--particularly small-caliber guns--began to revive.²⁰ And in the second half of the decade, interest in carrier-based fighters began to revive as well. By the end of the decade, Soviet theorists were insisting that "the ability of modern ships to remain long at sea far from their bases...is inseparably tied to the need to provide constant escort for warship task groups by fighters that use aircraft-carrying ships as their floating bases."²¹

Length and Character of the War at Sea

A final factor in the Soviet reappraisal of aircraft carriers was a new assessment of the probable length and character of the war at sea—a factor which itself may account in large part for the other two.

Nuclear-missile weapons, in the Soviet view of the 1960s, had had a fundamental impact on all aspects of naval warfare, including its length. "In all previous wars," wrote one admiral in 1966, "activity associated with destroying the enemy's striking forces as a rule took a

long time..., sometimes the entire war." But today only "a few days" would be required for this, "and even perhaps only a few hours"²² At the tactical level, being the first to strike was the key to victory, indeed to survival itself.²³ Command of the sea became irrelevant, and the best air defense was to sink the enemy before he could sink you.

As the 1970s dawned, however, the first signs of a fundamentally different consensus began to emerge. Was it reasonable to assume, Soviet military theorists began to ask, "that a general nuclear-missile war will end...right after both sides have delivered the first...nuclear-missile strikes[?]" Surely the "enormous reserves" of nuclear weapons wouldn't all be used at the very beginning of a war, or all at the same time. Not only that, but the "ways and means of ...defense against these weapons" would "without question be perfected." A nuclear war, in other words, might be protracted, lasting well beyond the initial exchange.²⁴

In the new Soviet scenario, the war would not only be longer, but also more closely contested. Inevitably, this made for heightened demands on the "combat stability"—the survivability under fire—of the Soviet navy's striking forces.²⁵ Very likely, then, the revival of Soviet interest in both command of the sea and in air defense fighters were themselves a result this changing scenario for warfare at sea.

WHAT KIND OF CARRIER?

But could not these new perceived requirements be handled by a ship that carried vertical-takeoff-and-landing aircraft only? There is evidence, in fact, that the Soviets considered that option in the early 1970s, even though, as we have seen, *Kiev* and *Minsk* were originally designed in response to a wholly different set of warfare requirements. Until the mid-1970s, for example, some Soviet theorists showed an interest in V/STOL ships for their potential role in gaining command of the sea.²⁶

But a comparison of Soviet statements since 1975 about V/STOL ships on the one hand and CTOL aircraft carriers on the other shows that until very recently the Soviets carefully distinguished between the respective capabilities of the two types of ships: only CTOL carriers were said to be capable of winning command of the sea or command of the air.²⁷ By the mid-1970s, in other words, the Soviets had concluded that there were limits to what V/STOL ships could accomplish in naval warfare, apparently because they thought the present and prospective generations of V/STOL aircraft aboard such ships possessed inherent liabilities that prevented them from performing effectively in an air-superiority role. An article appearing in 1977 in *Morskoy sbornik*, for example, claimed that the British-made Harrier was difficult to control during takeoff and difficult to fly, and pointed to its short range as a "basic shortcoming" that kept it from meeting requirements for use as a carrier-based aircraft.²⁸

Even so, there seems to have been some argument within the Soviet navy over some of the major specifications that a Soviet-built carrier should have.

One faction maintained that the carrier ought to be large--very large--and nuclear-powered.

Nuclear-powered aircraft carriers, wrote Vice-Admiral Stalbo--the leading spokesman of this faction--in 1978, "are more cost-effective. Even though they are more expensive than conventionally-powered aircraft carriers, they are considerably more effective....[Moreover,] the cost of building and maintaining a conventional carrier over its 25-year service life is higher than the cost of a nuclear carrier over the same period."²⁹

Large aircraft carriers, in turn, were preferable to small aircraft carriers; and by "large" Stalbo meant "more than 80,000 tons." They were better able than small ones, claimed he, to conduct all-weather flight operations; they had more usable space aboard; they were more survivable; they could carry more aircraft per displacement ton, and generate higher aircraft sortie rates.³⁰

There's no evidence that the second faction--which included some of the navy's top submariners--ever opposed the use of nuclear power. Nor, for that matter, did this faction question the need for a carrier

capable of taking CTOL aircraft to sea.³¹ But it does appear to have made an issue of the aircraft carrier's size, arguing that large carriers were just as vulnerable as smaller carriers, and far too expensive into the bargain. In one of the longest articles written for *Morskoy sbornik* since the war, Rear-Admiral Pushkin, the journal's chief editor, accused Stalbo of failing to "give the vulnerability of these ships to submarine weapons the attention it is due."³² He pointed to what happened to carriers in the Pacific during the war when torpedoed by submarines. "Analyzing the survivability of carriers as a function of their displacement and the number of torpedoes that hit them," he wrote, "it can be established that all the heavy aircraft carriers sunk were hit by no more than three to four torpedoes, while the sinking of escort carriers at times required even more than that...."³³

Other writers in *Morskoy sbornik* referred to this debate more obliquely, using American surrogates. In one remarkable instance in early 1981, the journal published 28 statements—without comment—from American congressional documents and periodicals on the pros and cons of supercarriers. Fifteen statements supported these ships, twelve opposed them, and the remaining two were neutral.³⁴ Nothing like this has ever occurred in the twenty-two years since 1961 that *Morskoy sbornik* has been published at the unclassified level.

IMPACT OF THE FALKLANDS WAR

"Modern local wars are influencing the development of the military art," wrote the Soviet Baltic Sea Fleet's commander-in-chief eight months after the war, "and are revealing characteristic trends and the future forms and methods of warfare."³⁵ It is still too soon to tell whether the conflict has had any impact on the debate over the aircraft carrier's size. What has been affected, though, is Soviet thinking about the mix of aircraft it should carry, and the uses to which these aircraft should be put when providing for a task force's air defense.

Until the Falklands war, Soviet naval theorists favored an air defense system closely resembling the "coordination zones" employed by the U.S. Navy's aircraft carrier battle groups. Most often, these theorists described three "air defense zones": a "distant" zone patrolled by high-performance air-superiority fighters and early warning aircraft; a "middle" zone delimited by the performance envelopes of the surface-to-air missiles aboard the task-force screening ships; and a "near" or "self-defense" zone where the carrier's own close-in weapon systems could be brought to bear on enemy missiles that had managed to penetrate the other two zones.³⁶ All of these accounts conspicuously failed to discuss air defense roles for V/STOL aircraft.

The performance of the Royal Navy's Harriers in the war's contest for air superiority, however, appears to have revived the Soviet Navy's flagging interest in V/STOL aircraft.

The Harrier's vectored thrust, state new Soviet analyses, gave it an insuperable advantage in maneuverability over its Argentine CTOL adversaries in close aerial engagements.³⁷ (As though to show that this advantage extended to more sophisticated varieties of CTOL aircraft, one article cited flight tests in 1973 in which Harriers were pitted against F-14s in simulated dogfights. Of sixteen engagements, Harriers were said to have won six, lost only three, and tied the remainder.)³⁸

Recent Soviet analyses also highlight the Harrier's flexibility: it was easily converted from fighter to attack aircraft, and could operate from any ship possessing a flat deck, which enabled the task force as a whole to carry more aircraft than would otherwise have been possible.³⁹

According to these same analyses, however, the Harrier's short combat radius proved to be a significant liability. Wrote the authors of the account comparing the Harrier to the F-14 in a follow-on article: "The absence of long-range supersonic fighter-interceptors...prevented [the British task force] from effectively intercepting enemy aircraft in the 640-km zone between the mainland and the Falklands Islands."⁴⁰

Nevertheless, the Harrier's performance has impressed the Soviets enough to cause them to revise their prewar solution to the fleet air defense problem. An aircraft carrier task group, Soviet theorists now

state, should be equipped not only with "long-range interceptors," but also with "highly maneuverable aircraft"—presumably V/STOLs with some form of vectored thrust capability—to conduct "group aerial engagements" with "enemy aircraft that have penetrated the first line of defense during mass air raids."⁴¹ Apparently, therefore, the new version of the "echeloned defense-in depth" is to include two fighter engagement zones—one of them for long-range fighters as before, and a second one for V/STOL fighters operating somewhat closer to the center of the task group.

* * *

To summarize, then, the 23-year record of Soviet thinking about sea-based air power suggests that the Soviets decided to invest in CTOL aircraft carriers because they were unable to find ways in which the generation of V/STOL carriers they had designed in response to requirements of the 1960s could of themselves satisfy the radically redefined naval warfare imperatives of the 1970s. This remains true in the early 1980s, even though, as we have seen, the Falklands crisis has persuaded the Soviets that V/STOLs can have a role—a limited one—in the battle for air superiority over the ocean.

The requirement for a CTOL carrier stemmed directly from a change in Soviet views on command of the sea, command of the air, and fleet air defense; and indirectly from a perception that the war at sea—contrary to earlier expectations—would be protracted and closely contested. It

would be wrong, therefore, to view the new carrier as the logical and inevitable successor to *Kiev* and *Minsk*, because for all the likelihood that it will have some V/STOL aircraft aboard, it will be built to meet requirements that are qualitatively different. It is no less erroneous to consider it the product of an ambition to project Soviet power in the Third World.⁴² This is not to deny that such ambitions exist, or that Moscow will find CTOL carriers useful in carrying them out, but only that the two might in some way be causally related. For the Soviets have believed since at least the mid-1960s--well before they decided to take a new look at CTOL carriers--that V/STOL ships will serve equally well for that purpose.

The evidence also suggests, however, that a decision--in principle at least--to acquire CTOL aircraft carriers was not made until the mid-1970s: only then did the Soviets break their five-year silence on the future of these ships, and only since then have Soviet spokesmen ascribed to them an exclusive command-of-the-sea and command-of-the-air role. Even so, debates over the new carrier's specifications--particularly its size--continued well beyond then, and in fact may yet be unresolved. We should not be surprised that this has happened, especially in a navy so long conditioned to view the aircraft carrier as the dinosaur of capital ships, its extinction fated by the birth of the nuclear age.

NOTES

¹Reference to this debate was made by Colonel-General N. Lomov, then chairman of the Department of Strategy at the General Staff Academy, in "O sovetskoy voennoy doktrine [On Soviet military doctrine]," *Kommunist Vooruzhennykh Sil*, No. 10, May 1962, p. 11.

²Robert W. Herrick, *Soviet Naval Strategy: Fifty Years of Theory and Practice* (Annapolis, Maryland: United States Naval Institute, 1968), pp. 67ff.

³According to Herrick, this victory was won by mid-1963. See *ibid.*, pp. 73-74.

⁴I.S. Isakov, *Nedelya*, No. 23 (3-9 June), 1962; S.G. Gorshkov, "Vernye syny Rodiny [True sons of the Motherland]," *Pravda*, 31 July 1960; Gorshkov, "Na strazhe mirnogo truda [On guard of peaceful labor]," *Pravda*, 28 July 1963; V. Sokolovskiy, M. Cherednichenko, "Voennoe iskusstvo na novom etape [The military art at a new stage]," *Krasnaya zvezda*, 28 August 1964; Gorshkov, "Razvitie sovetskogo voenno-morskogo iskusstva [Development of the Soviet naval art]," *Morskoy sbornik* [hereafter cited as *MS*], No. 2, February 1967, p. 19; V.D. Yakovlev, *Sovetskiy Voennno-Morskoy Flot [The Soviet Navy]* (Moscow: DOSAAF, 1969), p. 56; V. Kasatonov, "O roli nadvodnykh korabley v bor'be na more [The role of surface ships in warfare at sea]," *Voennaya Mysl'*, [hereafter cited as *VM*], No. 2, February 1969, p. 35; V.D. Sokolovskiy (ed.), *Voennaya strategiya [Military strategy]* (Moscow: Voenizdat, 1968), p. 363; I.M. Korotkin, Z.F. Slepenev, B.A. Kolyzaev, *Avianostsy [Aircraft Carriers]* (Moscow: Voenizdat, 1964), pp. 248, 271; K.K. Frantz, "Proshloe i budushchee avianostsev [Past and future of aircraft carriers]," *MS*, No. 4, April 1965, pp. 49-50.

⁵A. Chabanenko, "O bor'be s atomnymi podvodnymi raketonostsami [Warfare against nuclear-powered missile-carrying submarines]," *VM*, No. 12, December 1967, p. 46.

⁶N.M. Kharlamov, "O nekotorykh tendentsiyakh razvitiya voenno-morskikh flotov [Trends in the development of navies]," *VM*, No. 10, October 1967, p. 68.

⁷See, *inter alia*, V. Germanovich, N. Klimov, "Unichtozhenie aviatsiyei krupnykh nadvodnykh korabley v more [Destroying capital surface ships at sea with aircraft]," *MS*, No. 3, March 1972, p. 34; V. Eliseev, "Rezerv strategicheskikh sil [A strategic forces reserve]," *MS*, No. 8, August 1973, p. 91; R. Tumkovskiy, "Nastoyashchee i budushchee udarnykh avianostsev [Present and future of attack aircraft carriers]," *MS*, No. 6, June 1978, p. 96.

NOTES (Continued)

⁸"Razvitie voenno-morskogo iskusstva", p. 19.

⁹K.A. Stalbo, "Avianostsy v poslevoenny period [aircraft carriers in the postwar period]," *MS*, No. 6, June 1978, p. 96.

¹⁰*Ibid.*, p. 100.

¹¹*Sovetskaya Voennaya Entsiklopediya* [Soviet Military Encyclopedia], vol. 2 (Moscow: Voenizdat, 1976), p. 620.

¹²*Slovar' osnovnykh voennykh terminov* (Moscow: Voenizdat, 1965), p. 65.

¹³This argument was recalled by Gorshkov in *Morskaya moshch' gosudarstva* [Sea power of the state], 1st ed. (Moscow: Voenizdat, 1976), p. 377; 2nd ed. (Moscow: Voenizdat, 1979), p. 344.

¹⁴N.P. V'yunenkov, "Sovetskoe voenno-morskoe iskusstvo nakanune Velikoy Otechestvennoy voyny [The Soviet naval art on the eve of the Great Patriotic War]," *MS*, No. 6, June 1971, p. 31. See also Yu Bystrov, "Zavoevanie gospodstva na more [Winning command of the sea]," *MS*, No. 3, March 1977, pp. 15-20.

¹⁵*Morskaya moshch' gosudarstva*, 1st ed., pp. 372-380; 2nd ed., pp. 339-346.

¹⁶Bystrov, "Zavoevanie gospodstva na more", p. 20; see also G. Kostev, "Ob osnovakh teorii Voenno-Morskogo Flota [Foundations of the theory of the Navy]," *MS*, No. 11, November 1981, p. 25; B. Rodinov, E. Nikitin, N. Novichkov, "'Radioelektronnaya voyna' v yuzhnoy Atlantika [The 'electronic war' in the South Atlantic]," *MS*, No. 1, January 1983, p. 84; I. Kapitanets, "Rol' flota v anglo-argentinskoy konflikte [The navy's role in the Anglo-Argentine conflict]," *MS*, No. 2, February 1983, p. 11; A. Pushkin, "Boevye deystviya amerikanskikh i yaponskikh podvodnykh lodok protiv avianostsev v period vtoroy mirovoy voyny [American and Japanese submarine warfare against aircraft carriers in World War II]," *MS*, No. 11, November 1979, p. 11; K.A. Stalbo, "Avianostsy vo vtoroy mirovoy voyne [Aircraft carriers in World War II]," *MS*, No. 1, January 1978, p. 98.

¹⁸For a discussion of how this belief affected Soviet views on anti-surface warfare, see the author's "About-Face in Soviet Tactics", U.S. Naval Institute Proceedings, August 1983, forthcoming.

¹⁹V.S. Sysoev, V.D. Smirnov, "Protivovozdushnaya oborona soedineniy nadvodnykh korabley [Air defense of tactical formations of surface ships]," *MS*, No. 3, March 1966, pp. 36-37; Kharlamov, "O nekotorykh tendentsiyakh razvitiya voenno-morskikh flotov," p. 37.

NOTES (Continued)

- ²⁰Yu. Galich, "Tendentsii razvitiya korabel'noy artillerii i osnovnye napravleniya ee boevogo primeneniya [Trends in the development of naval guns and main directions of their employment in combat]," *MS*, No. 12, December 1974, p. 75; N. Petrov, "Vozvrashchenie artillerii? [A return for artillery?]," *MS*, No. 9 September 1975, p. 98.
- ²¹V.A. Dygalo, "Protivovozdushnaya oborona korabel'nykh gruppirovok--vazhneyshiy vid ikh boevogo obespecheniya [Air defense of ship groupings--a paramount form of their combat support]," *VM*, No. 10, October 1978, p. 57. See also *Sovetskaya Voennaya Entsiklopediya*, vol. 6 (Moscow: Voenizdat, 1978), pp. 587-588; V. Vasil'ev, "Razvitie PVO soedineniy nadvodnykh korabley [Evolution of air defense of tactical formations of surface ships]," *MS*, No. 2, February 1980, p. 26.
- ²²N.M. Kharlamov, "Tendentsii razvitiya voenno-morskikh flotov," *MS*, No. 1, January 1966, p. 35.
- ²³See Petersen, "About-Face in Soviet Tactics."
- ²⁴B. Balev, "Morskie i okeanskije kommunikatsii i bor'ba na nikh [Sea and ocean lines of communication and warfare on them]," *VM*, No. 10, October 1971, pp. 42-43.
- ²⁵Petersen, "About-Face in Soviet Tactics."
- ²⁶Yu. Nefed'ev, "Mnogotselevye avianesushchie korabli [Multi-purpose aircraft-carrying ships]," *MS*, No. 8, August 1974, p. 100.
- ²⁷Compare, for example, Yu. Bol'shakov, V. Belyaev, "Samolety vertikal'nogo vzleta i ikh nosileli [Vertical takeoff aircraft and their carriers]," *MS*, No. 2, February 1981, p. 73 ("Aircraft-carrying ships with vertical-takeoff aircraft and antisubmarine helicopters aboard are capable of...ensuring antisubmarine and antiaircraft defense of convoys and [surface] ship formations; delivering strikes against enemy surface ships; conducting tactical reconnaissance at sea; and providing close air support for amphibious landing forces ashore"); with N. Naskanov, "Avianostsy v planakh Pentagona [Aircraft carriers in Pentagon planning]," *Zarubezhnoe voennoe obozrenie*, No. 3, March 1982, p. 67 ("[Aircraft carriers] will be charged with the following basic tasks: gaining and maintaining command of the sea and the air in the combat area; air cover for warship formations, amphibious forces and convoys in transit...."). Emphasis mine.
- ²⁸Yu. Savel'ev, "Samolet 'Kharrier': Ego nastoyashchee i budushchee [The "Harrier" airplane: Its present and future]," *MS*, No. 8, August 1977, p. 97.
- ²⁹"Avianostsy v poslevoenny period," pp. 98-100.

NOTES (Continued)

³⁰*Ibid.*

³¹One of Stalbo's opponents has stated, for example, that "the course of operations in the Pacific theater [in World War II] demonstrated the great and at times decisive dependence of their outcome on command of the sea," and that "a paramount factor in command of the sea...was command of the air, which was determined by the presence of aircraft carriers" (A. Pushkin, "Boevye deystviya amerikanskikh i yaponskikh podvodnykh lodok protiv avianostsev v period vtoroy mirovoy voyny," p. 11.

³²*Ibid.*, p. 12.

³³*Ibid.*, p. 25.

³⁴"Amerikanskaya pressa ob avianostsakh [The American press on aircraft carriers]," *MS*, No. 1, January 1981, pp. 85-86, 89.

³⁵*Kapitanets*, "Rol' flota v anglo-argentinskoy konflikte," No. 2, February 1983, p. 20.

³⁶See *Sovetskaya Voennaya Entsiklopediya*, vol. 6 (Moscow: Voenizdat, 1978), pp. 587-588; V. Vasil'ev, "Razvitie PVO soedineniy nadvodnykh korabley", pp. 26-31; Dygalo, "Protivovozdushnaya oborona korabel'nykh guippirovok—vazhneyshiy vid ikh boevogo obespecheniya," p. 35; B. Rodionov, N. Novichkov, "Problema PRO: Razreshima li ona? [The ASMD problem: Can it be solved?]," *MS*, No 5, May 1978, pp. 96-99.

³⁷B. Rodionov, N. Novichkov, "Taktika deystviy aviatsii protiv korabley [Aircraft antiship tactics]," *MS*, No. 12, December 1982, pp. 86-87; E. Nikitin, "Kolonial'naya avantyura v yuzhnoy Atlanlike: Deystviya aviatsii [Colonial adventure in the South Atlantic: Aircraft actions]," *Krasnaya zvezda*, 14 January 1983, p. 3; N. Novichkov, "Boevaya aviatsiya v anglo-argentinskoy konflikte [Combat aircraft in the Anglo-Argentine conflict]," *Aviatsiya i kosmonavtika*, No. 3, March 1983, p. 46; Yu. Galkin, "Protivovozdushnaya oborona angliyskikh ekspeditsionnykh sil [Air defense of the British expeditionary forces]," *Zarubezhnoe voennoe obozrenie*, No. 3, March 1983, p. 66.

³⁸Rodionov and Novichkov, "Taktika deystviy aviatsii protiv korabley", p. 86.

³⁹*Ibid.*, p. 87; I. Uskov, "Uroki anglo-argentinskogo konflikta i rol' nadvodnykh korabley v bor'be na more [Lessons of the Anglo-Argentine conflict and the role of surface ships in warfare at sea]," *MS*, No. 11, November 1982, pp. 88, 90; Nikitin, "Kolonial'naya avantyura v yuzhnoy Atlanlike: Deystviya aviatsii," p. 3.

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⁴⁰Rodionov, Nikitin and Novichkov, "'Radioelektronnaya voyna' v yuzhnoy Atlantike," p. 83. See also E. Nikitin, "Kolonial'naya avantyura v yuzhnoy Atlantike: Deystviya nadvodnykh korabley i podvodnykh lodok [Colonial adventure in the South Atlantic: Surface-ship and submarine actions]," *Krasnaya zvezda*, 11 January 1983, p. 3; Galkin, "Protivovozdushnaya oborona angliyskikh ekspeditsionnykh sil," p. 66-67.

⁴¹Rodionov, Nikitin and Novichkov, "'Radioelektronnaya voyna' v yuzhnoy Atlantike", p. 85. See also Novichkov, "Boevaya aviatsiya v anglo-argentinskom konflikte," p. 47; S. Rodionov, "Avianosets [Aircraft carrier]," *Voennye znaniya*, No. 3, March 1983, p. 43.

⁴²See Dov S. Zakheim, "A Carrier for Admiral Gorshkov," *Naval War College Review*, January-February 1982, pp. 32-39.

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