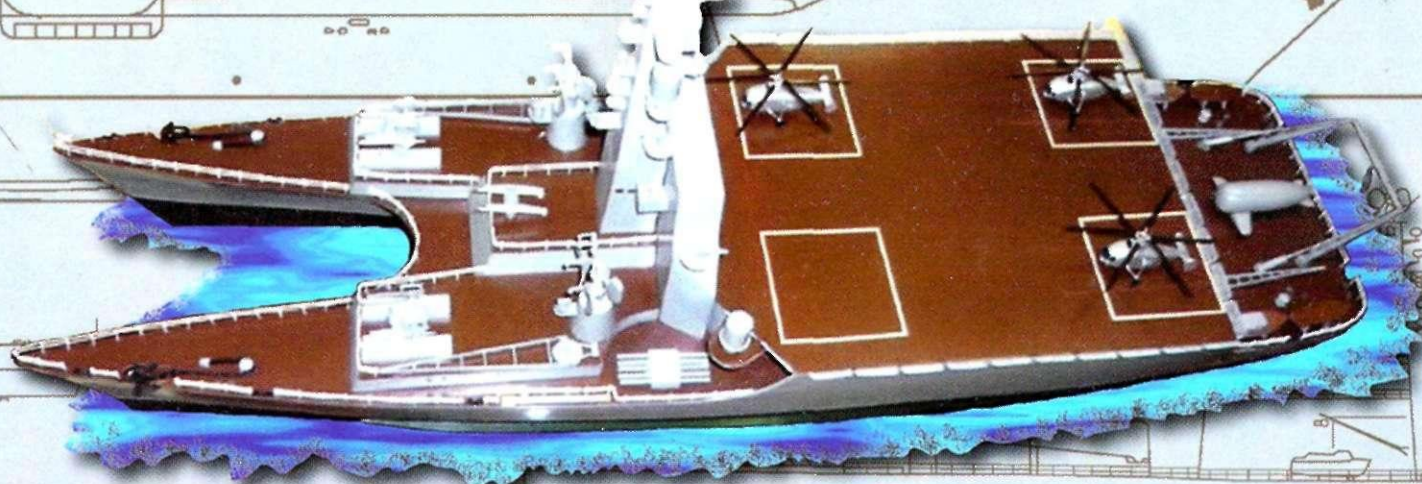


А. Н. Соколов

АЛЬТЕРНАТИВА



**НЕПОСТРОЕННЫЕ КОРАБЛИ
РОССИЙСКОГО ИМПЕРАТОРСКОГО И
СОВЕТСКОГО ФЛОТА**



В чертежах остались многие корабли — как новые, подчас весьма перспективные разработки, так и варианты реализованных проектов.

Большой крейсер проекта «Х». 1935 г.

Линкор-авианосец. Предэскизный проект. 1935 г.

Большой эсминец проекта 35. Эскизный проект.

Авианосец проекта 72. 1944 г.

Ракетный крейсер проекта 63. Вариант 1957 г.

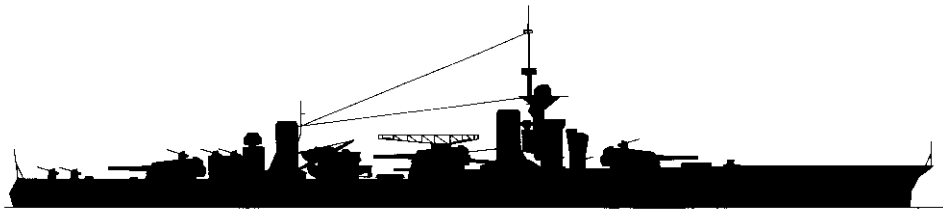
Корабль ПВО с РЛС дальнего воздушного дозора с ЗУР «Колонтер» разработки ЦКБ-53. 1959 г.

Эскиз эскадренного миноносца проекта 57. Середина 1950-х гг.



A. N. Sokolov

ALTERNATIVE



**Unbuilt ships
Russian Imperial
Soviet fleet**

And

Moscow, 2008

Sokolov A.N.

Alternative. Unbuilt ships of the Russian Imperial and Soviet fleet. / A.N.Sokolov. - M.: OOO Voennaya Kniga, 2008. - 56 p.
ISBN 978-5-902863-15-1

This book is about how the ambitions of the fleet management and politicians, plus the conservatism of production, prevented our fleet from developing harmoniously. About how relevant is the thesis that "desire must always coincide with possibilities."

On the front cover:

Model of the Project 1123 helicopter carrier - a version of a catamaran.

On the fourth page of the cover:

Models of the Project 11780 universal helicopter-carrying dock ship Kherson and the Project 923 Granat squadron minesweeper on the Project 1155 hull.

Reference and historical publication

Sokolov Alexey Nikolaevich

Alternative

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*In memory of friend and
comrade Igor Lvovich Bunin
Dedicated to*

Military shipbuilding is the most expensive in the weapons production system due to the volume of work carried out and the number of enterprises involved, since there are several hundred weapons systems, equipment and components for each ship project.

Since one of the most important factors in the existence of the fleet is its political factor, the fleet and politics are inseparable. Therefore, the fleet development program depends entirely on the policy pursued by the state over a certain period of time. And it is good if this policy has a constant, not changing sharply, vector that does not affect naval construction programs in their prospective development for 5-15 years. After all, ships are not created in 1-2 years, but over 10-15 years from the start of design until the end of construction. The construction of a series of identical ships is usually extended over a decade, since the capabilities of shipyards are not unlimited, and financing options are also of considerable importance. New programs and new weapons systems appear in the next decade.

The main factor in the formation of military shipbuilding programs is the economic power of the country and the development of its scientific and technical structure. The country must itself produce all the necessary modern equipment for equipping all types of ships proposed for construction. There must be well-trained and prepared personnel, both for the development and production, and for the maintenance of all modern weapons systems.

First, the country's military-political leadership must, based on its own strategy, clearly define the intended

opponents and their own capabilities in confronting them, and build their policy on this basis. And for this policy they develop an armament program with a perspective for a certain period of time. Overestimation of one's own capabilities, as a rule, leads to disaster.

In the naval armament program, the main task is to determine the types of ships, their number, weapons systems, and basing locations. This is especially important for our country, since we have four practically isolated naval theaters with different climatic conditions. Competent and experienced specialists must participate in the development of programs. Otherwise, enormous human and economic resources will be spent ineffectively. Of the large number of projects ordered under the approved program for a given period of time, at best two or three projects are implemented in practice. And even those, due to the extended construction periods, do not quite correspond to the intended tasks and require significant modernization.

The second main task of naval construction is the development of infrastructure, i.e. the creation of conditions for basing the fleet, since the preservation of already built ships, their operation and the possibility of modernization as new weapons systems appear depend on it. Extending the service life of a ship is a major economic component. The issue of disposal is also very important. When developing naval programs, this must be taken into account especially, even at the expense of quantity. It is better to have one combat-ready unit than three in long-term repair, or, even worse, in "layup" due to lack of money.

After the Russo-Japanese War of 1904-1905, Russia gradually recovered from the shock of Tsushima. The Baltic Fleet, which had practically ceased to exist, began to be replenished with newly built ships. Some of them were built using voluntary donations. Unfortunately, without taking into account the experience of the war. Destroyers ordered from France and Germany, as well as from Russia, were commissioned in large series. In 1908, the cruiser Admiral Makarov, built in France according to the design of the pre-war cruiser Bayan, was commissioned. It was followed by the similar Bayan and Pallada, built in Russia and commissioned in 1911. The armored cruiser Rurik was built in England. In August 1908, the St. Andrew's flag was raised on it. After numerous modifications, the Rurik entered service in July 1909. Based on the drawings of the Rurik, it was planned to build two more identical ships in Russia.

The first to draw conclusions from the Russo-Japanese War were the British, as befits a leading naval power. They fundamentally revised the role of battleship artillery in combat, abandoning intermediate calibers in favor of increasing the number of main caliber guns.

At the Vickers company, almost simultaneously with the Rurik, literally on the next slipway, a new type of battleship was laid down and built in record time (11 months). With almost the same dimensions of 160 x 25 m (Rurik - 161 x 23 m), it carried 10 305 mm guns in five turrets against 4 254 mm and 8 203 mm guns on the Rurik. A new type of ship was born - a battleship, and its name became a household word for all subsequent ones in all countries - "Dreadnought". It entered service in 1906, having successfully passed all tests.

In Russia, they held a pause for more than a year, determining which battleships to build, how many, and for which theaters of military operations. They approached this issue, by the way, quite thoughtfully, comprehensively, starting with a complete modernization of the shipbuilding industry, preparing the basis for building large ships.

Since 1907, plans for conducting a future war in the Baltic and Black Sea theaters began to be developed. The Naval General Staff was involved in drawing up these plans. The first plan was ready in 1908. The potential opponents in the Baltic Sea were Germany and Sweden. It was assumed that Germany would land troops on the coast of the Gulf of Finland for a joint offensive with the Swedish army on St. Petersburg, and Sweden would strive to seize Finland by landing troops and advancing on Vyborg, and then on St. Petersburg. In accordance with this, the plan provided for:

1. Creation of mine positions to the south and north of the ost Rowa Gogland.
2. Conducting reconnaissance by cruisers on the island line Dago - Oland.
3. Attacks by destroyers concentrated in the area of Sveaborg and Kotka.
4. Decisive battle at the Hogland mine position. In 1911, at the insistence of N. O. Essen, a second mine position was included in the plan on the line of Nargen Island - Cape Porkkala-Udd, where it was supposed to repel the enemy without "giving this clash the character of a decisive battle."

In the 1912 plan, emphasis was already placed on the Nargen-Porkkala-Uda position, which was equipped with artillery and was named the Central Mine-Artillery Position. The main base of the fleet was now not Kronstadt, but Revel, where the naval fortress and military port of Emperor Peter the Great was being built. Until its construction was completed, it was planned to use Helsingfors.

The plan of operations in the Black Sea assumed "preservation of control of the sea", destruction of the Turkish fleet and blocking of the straits from the north. Subsequently, it was assumed that a landing force would be landed in the Bosphorus area. The plan was adjusted in 1911 and 1912 taking into account the planned strengthening of the Turkish fleet with battleships ordered from England, as well as the possible entry of Turkey into the war in a coalition with other countries (Germany, Romania, Austria-Hungary).

There was another plan, for the long term. Tsushima was "bleeding" and giving no rest. The humiliation had to be avenged. The rematch was planned for 1923.

It was for these plans that the shipbuilding program was developed and the necessary types of ships were determined. At first, the Small Shipbuilding Program of 1908-1912 appeared. For the Baltic Fleet, 4 battleships, 3 destroyers and a floating base for submarines were to be built, for the Black Sea Fleet - 14 torpedo boats and 3 submarines. But in 1911, in connection with the sharp increase in the Turkish fleet, the program for the Black Sea Fleet was additionally included the construction of 3 battleships, 9 destroyers and 6 submarines.

In 1912, a program for urgent strengthening of the fleet for 1912-1916 was developed. For the Baltic Fleet, 4 battlecruisers, 4 light cruisers, 36 destroyers and 12 submarines were additionally ordered, for the Black Sea Fleet - 1 battleship, 4 light cruisers, 8 destroyers and 6 submarines. In addition, 2 small cruisers of the Admiral Nevelskoy type were ordered from Germany for the Siberian Flotilla. The decision was not entirely correct. The fact is that for such an ambitious armament program, Russia took out a huge loan from an ally in the supposed war - France. And ordering ships from a supposed enemy was, to put it mildly, not very reasonable. And that is what happened later. With the outbreak of war in 1914, these two cruisers were requisitioned by the Germans, completed and commissioned under the names Elbing and Pillau.

For the construction of battleships, as the most expensive ships, requiring enormous financial resources and loading of related industries, a plan was developed until 1931. Battlecruisers were also included in it. The service life of battleships and battlecruisers was set at 22 years: 4 years during construction, 12 years in the active fleet and 6 years in the reserve squadron. This plan envisaged the commissioning of: 4 battleships in 1914, 4 battlecruisers in 1916, 4 battleships in 1918, 4 battleships in 1920, 4 battleships in 1922, 4 battlecruisers in 1924, 4 battleships in 1926, 4 battleships in 1928, 4 battlecruisers in 1930. It was also envisaged to gradually decommission ships that had served out their service life: 4 battleships in 1926, 4 battlecruisers in 1928, 4 battleships in 1930.

Given the rate of industrial development that existed at that time, Russia was quite capable of mastering this program by 1931 and, as a result, having a fleet of 16 battleships and 8 battlecruisers, which would have placed it among the leading naval powers.

A competition was announced to develop the design for the first Russian battleship. At the final stage, the Italian firm Ansaldo and the German firm Blohm und Voss emerged as leaders. The German firm took first place. But then the French "howled". The French press screamed that France had not placed Russian loans in its territory so that Russia would transfer the money to Germany.

The Italian project with its ideologist Cuniberti, according to whose project the battleship Dante Alighieri was built in Italy (incidentally, the only ship of such a design), did not completely satisfy the Marine Technical Committee and with its comments smoothly flowed into the Baltic Shipyard project. The Baltic Shipyard presented a revised project with the same linear arrangement of towers on one level. The project remained the only one and was accepted for the development of working documentation. At the final stage of the design, the Baltic Shipyard was assisted by the English company John Brown. According to the plan, it was supposed to begin construction of four battleships. The English proposed to carry out construction at English shipyards. The commissioning period was determined at 20 months for each ship. But in Russia they decided to build battleships at home. After all, loading the industry, gaining experience, prestige, in the end. The deadline, however, was set at 38 months for each ship.

The design of battleships in Russia did not go unnoticed abroad. Noting the merits of future ships, the foreign press questioned their armor, the survivability of the three-gun turrets and seaworthiness, as well as the possibility of construction within the established timeframe. Since the four main caliber turrets were placed along the centerline of the entire ship's hull, the armor was "smeared" along the entire length and the thickness of the side armor was comparatively small, the side was low, and there was no forecastle. Because of this, seaworthiness was sharply reduced.

When designing such ships, there is a strict relationship: main caliber - armor - cruising range. Always something at the expense of something. The Germans, for example, chose to reduce the caliber and strengthen the armor of the ship, thereby ensuring its increased survivability. In Russia, the advantage was in favor of increasing the number of main caliber guns at the expense of everything else. In addition, Cuniberti's pernicious idea lived on for a long time in the design of both battleships and battle cruisers in Russia, and the linear arrangement of the main caliber turrets along the entire hull was not abandoned soon. But when designing specific ships, the probable enemy of Russia was clearly defined - Germany and, consequently, the future center of military operations - the Baltic Sea. It was precisely to actions in this very unique area that the new battleships were adapted in the design process. The result was, practically, floating batteries.

Construction of the Sevastopol-class battleships began simultaneously at two plants, the Baltic and Admiralty. On July 3, 1909, the Sevastopol and Petropavlovsk were laid down at the Baltic Shipyard, and the Gangut and Poltava at the Admiralty. The displacement of the battleships was 23,000 tons, the power plant capacity was 42,000 hp, and the speed was 23 knots. Armament was 4x3 305 mm and 16 120 mm guns, dimensions were 181 x 26.5 x 8.3 m. Almost all the doubts of foreign experts regarding this project were confirmed. The deadline for the battleships to be ready was constantly postponed due to poor financing and organizational problems and was eventually set for the first half of 1914. However, the slipway period lasted for more than two years and the final deadline was pushed back again. As a result, the battleships were not yet ready by the start of the war. Accelerated trials were conducted until the end of December 1914, and the ships were finally commissioned after numerous accidents and modifications only at the end of 1915. However, the combat effectiveness of the new ships was extremely low. The gun turret drives and sighting devices were constantly out of order. In addition, the ships turned out to have a trim by the bow, which made them difficult to control at low speeds and buried their bows at high speeds, i.e. they had a "wet deck". The absence of a forecastle was taking its toll. And the most important thing: in the Black Sea, on the old battleship ("excluded ship") "Chesma" a fragment of the battleship hull with casemates of anti-mine caliber (120 mm) was mounted and shot at from different distances and with different calibers. The result stunned everyone - the ship's hull was vulnerable even to the artillery of the German light cruiser. But the tests were clearly too late. They should have been carried out even before the start of construction, and after the ships were built it was too late to do anything. The nine-inch armor (229 mm) was clearly weak. That is why they cruised the entire war between Helsinki and Reval behind the Central Mine Position. In addition, due to the long construction period, they were already morally obsolete. By 1914, England already had battleships with 343 mm artillery in service, and the USA - with 356 mm. In England, battleships with 381-mm artillery of much greater displacement and, accordingly, greater capabilities were being completed.

The Black Sea battleships were somewhat different from the Baltic ones, they became shorter and wider with almost the same displacement of 22,600 tons. The increase in width with the same draft as the Baltic battleships should have led to an increase in stability, but in fact this did not happen due to the overloading of the ships. At the same time, the Black Sea battleships had a reduced length-to-width ratio of the hull, which led to a deterioration in propulsion. The designers considered it possible to go for this, since the speed requirement was reduced by the Naval Ministry from 23 to 21 knots, and completely in vain, as the following events will show. The decrease in speed made it possible to slightly reduce the power of the main machinery and the number of boilers. The gain in hull length made it possible to reduce the length of the armor belt. All this in total made it possible to strengthen the main armor belt to 262 mm. The armor of the main turrets became significantly more powerful.

caliber. The experience of building the Baltic battleships had an effect. The construction of three Black Sea battleships began in the spring of 1912. Construction proceeded much faster than that of the Baltic ships. "Empress Maria" and "Empress Ekaterina" were commissioned in the fall of 1915. The third battleship, "Emperor Alexander III", having completed all tests, was commissioned only in October 1917. The normal displacement of the battleships was 22,600 tons, the power of the turbine installations was 26,500 hp, the speed was 21 knots, the dimensions were 168 x 27.4 x 8.4 m, and the armament was 4x3 305 mm and 20 130 mm guns. Anti-aircraft guns were installed during the war. The Black Sea battleships inherited a number of shortcomings inherent in the Baltic ships. In particular, trim by the bow, digging by the bow while moving and a number of other shortcomings.

Time showed that the plans for the war in the Black Sea were seriously mistaken. This led to a mistake with the types of ships needed for this war. Not only was the construction of the battleships late, but it turned out that they were not very suitable for the current situation. The fact is that in 1914, Admiral Souchon entered the Black Sea with the battlecruiser Goeben and the light cruiser Breslau. By shelling the Black Sea coast of Russia, he not only drew Turkey into the war on the side of Germany, but also sealed off the Bosphorus and Dardanelles. By making constant raids, the Germans escaped danger, having a great advantage in speed (28 knots). The problem was partially solved by the end of the war, by "blocking" the exit from the Bosphorus with mines. But the main thing was done - Russia was deprived of a transport artery through which all the missing military materials from the Allies were supposed to arrive. This was the main calculation when joining the coalition, since the country was not ready for a long war and could only rely on human resources.

The fate of the Black Sea battleships is sad. For reasons that have not yet been established, the Empress Maria exploded in Sevastopol almost immediately after being commissioned on October 20, 1915, capsized, and was never commissioned again. The Empress Ekaterina was sunk by the Bolsheviks in Novorossiysk to avoid being captured by the Germans under the Brest Treaty. The Emperor Alexander III, when the White Army left Crimea, ended up in Bizerte, where it finally rotted. Only the main caliber guns, which had a long and amazing history, were removed from it. But that is a completely different topic.

The fourth Black Sea battleship was laid down on June 9, 1914. It was significantly different from the three previous ones, many shortcomings were taken into account. The displacement was 27,300 tons, the main dimensions also changed - 188 x 29 x 9 m. Initially, the main caliber was supposed to be 356 mm, but due to the fact that the British requisitioned all the Turkish battleships, it was decided to leave the turrets with 305 mm artillery as on the previous ships. Due to the freed up weight, it was decided to increase the armor. The previous power plant was also retained. Thanks to changes in the theoretical drawing, developed under the supervision of V. P. Kostenko, the battleship retained a speed of 21 knots. It was launched on the 5th

October 1916. Its completion was delayed due to the lack of ready mechanisms and equipment, and from October 1917 it was postponed until "a more favorable time."

Next in line were to be battlecruisers. Among other requirements were "uniformity" with the Sevastopol-class battleships, an icebreaker-like stem, and a draft limitation of 8.8 m, allowing passage through the Sea Canal. The competitive design was of a formal nature. Ultimately, the Admiralty and Baltic Shipyards were jointly tasked with finalizing the project.

In appearance, battlecruisers differed from battleships only slightly—only by the presence of a forecastle and two-tier casemates for eight guns. Otherwise, the requirement for "uniformity" was met. The bow turret, installed on the forecastle, and the anti-mine artillery of the second tier were much less exposed to water flooding, which allowed them to be used in fresh weather. The displacement was 32,500 tons, dimensions 224 x 30.5 x 8.8 m, the armor belt had a thickness of 237.5 mm, armor of the turrets: walls—300 mm, roof—200 mm, armor of the conning towers—300-400 mm. The artillery armament included: 12 356-mm guns in 4 three-gun turrets, 24 130-mm guns in casemates and 4 63.5-mm anti-aircraft guns. The total design capacity of the power center was 600,000 tons, the ship's speed was 26.5 knots, 28 knots when forced, the estimated cruising range was 2280 miles at full speed. The Baltic was too cramped for such ships. They were, of course, supposed to be used in the war, but they were most likely intended for the Pacific Ocean. The laying of all four ships took place in October 1913.

The launch of the battlecruiser Izmail took place on June 9, 1915, Borodino and Kinburn were launched on June 18 and October 17, 1915, respectively. The launch of Navarin took place only on October 27, 1916. On October 11, 1917, the Provisional Government suspended the construction of Borodino, Kinburn and Navarin. Construction of Izmail ceased on December 1, 1917.

The construction of cruisers in Russia was treated with great coolness during this period. It was decided to do without heavy cruisers altogether, using old ships of earlier construction. And light cruisers, designed since 1908 due to the constantly changing concept, were laid down only in 1913. The main caliber for them became 130 mm, the same as the auxiliary one on the battle cruisers and Black Sea battleships. This was done for the purpose of unification. The 130 mm gun turned out to be very good, powerful and ensured the solution of all the tasks assigned to it. It was mainly intended for the destruction of destroyers.

Four cruisers were laid down in the Baltic and Black Seas, differing only slightly from each other. The Baltic cruisers had a displacement of 6,800 tons, and the Black Sea cruisers had a displacement of 7,600 tons. The design was transferred by the plant itself, so everyone tried their best, to the point that everyone installed different turbines. The Russo-Baltic plant in Revel intended to install turbines from the German company Vulcan for the cruisers Svetlana and Admiral Greig, since it had helped in the design.

research institutes, the Putilov shipyard for the Admiral Butakov and Admiral Spiridov—turbines of the English design of the Parsons system. The Black Sea light cruisers Admiral Lazarev and Admiral Nakhimov were initially designed for French turbines. The fact is that the Baltic cruisers could reach a speed of 26.5 knots, and on the Black Sea cruisers they wanted to increase the speed to at least 28 knots. But the war put everything in its place. It was necessary to switch only to English supplies, including for the last Black Sea cruisers Admiral Kornilov and Admiral Istomin.

There was no hurry to build light cruisers. Firstly, most of the mechanisms and equipment ordered, including from abroad, were late. And most importantly, due to insufficient speed, the cruisers would not have been able to perform their main function - the destruction of destroyers, since destroyers had long since crossed the 30-knot threshold. All cruisers remained unfinished by the end of the war, and the last two Black Sea cruisers were not even launched. This attitude towards cruisers was also due to the fact that the Novik-class destroyers launched into series, which had a significant advantage over all destroyers of all countries due to their displacement and, accordingly, armament, performed most of the functions not only of flying cruisers, but also of minefields. Possessing great speed, having powerful artillery armament, they even had somewhat excessive torpedo armament. They were truly the "workhorses" of the fleet. The ships of the first series entered service in 1915. Subsequent series differed from each other insignificantly, mainly in the direction of increasing the number of 102-mm guns. Their construction was carried out in the Baltic in Riga, Revel and St. Petersburg, in the Black Sea - in Nikolaev. By the end of the War, many destroyers remained unfinished due to the loss of Riga, the evacuation of Revel and a number of other reasons.

The PA was also late for the start of the war. The concept of developing a PA with a displacement of 650 tons was adopted as a basis. They succeeded only in the Black Sea. The first to enter service were the submarines "Morzh", "Tyulen" and "Narval", developed by their own forces. Then followed three double-hulled submarines, designed with the help of the American Holland. All subsequent submarines, built in St. Petersburg, Revel and Nikolayev, belonged to the "Bars" type and were put into service from the autumn of 1915. During their construction, the experience of the previous series, but unfortunately not completely.

For boat builders in Revel and St. Petersburg, ordered diesel engines from a potential enemy—in Germany. They were never received, which led to a delay in construction, since it was necessary to set up production at the Kolomensky plant. Specific features

The design features of all the boats included a torpedo-brake device (apparatus) of the Dzhevetsky system and an absolute reluctance to install bulkheads between compartments (with the exception of three Black Sea Narval-type boats), which was the main element of survivability.

In 1917, 2 submarines, Yersh and Forel, were converted into minelayers.

By agreement with the Americans, sectional assembly of AG-type submarines ("American Holland") was established in Russia in 1916. This significantly strengthened Russia's submarine fleet, since these boats were made to a higher quality level and were more modern.

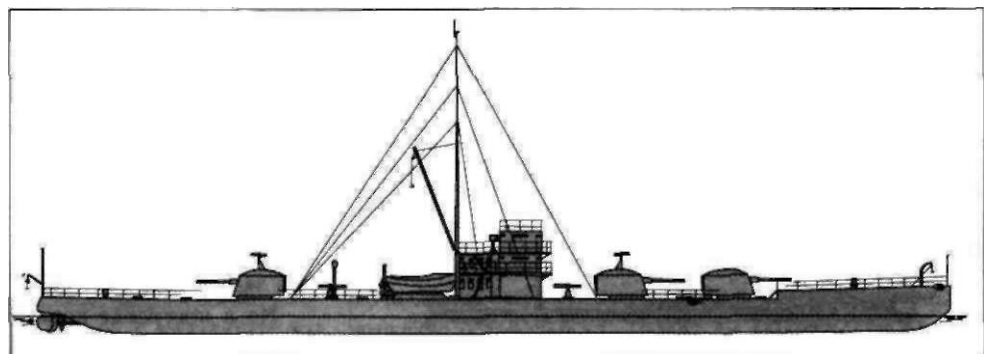
Ships, as was said above, were designed in Russia for a specific theater of military operations. If you look at the Black Sea battleships, you can notice that the guns of the first three turrets were facing the bow. This was done for more intensive fire along the course during operations to break through the Bosphorus. To help them, by 1915, monitors with a displacement of 1,400 tons were designed. With dimensions of 80 x 15 x 1.5 m, they carried 6 120-mm guns in 3 twin-gun turrets, as on the monitors. torahs of the Amur flotilla. Speed 10 knots, range 3000 miles of travel. But they were not even laid down. The sad experience, thank God, someone else's, took its toll.

In 1915, the combined Anglo-French squadron tried to break through the Black Sea straits. It was necessary to save the allies, who had lost all supplies. But to no avail. Russia could not help in any way, and besides, having no means, no longer tried. There was no time for that. It would be better to deal with the Goeben.

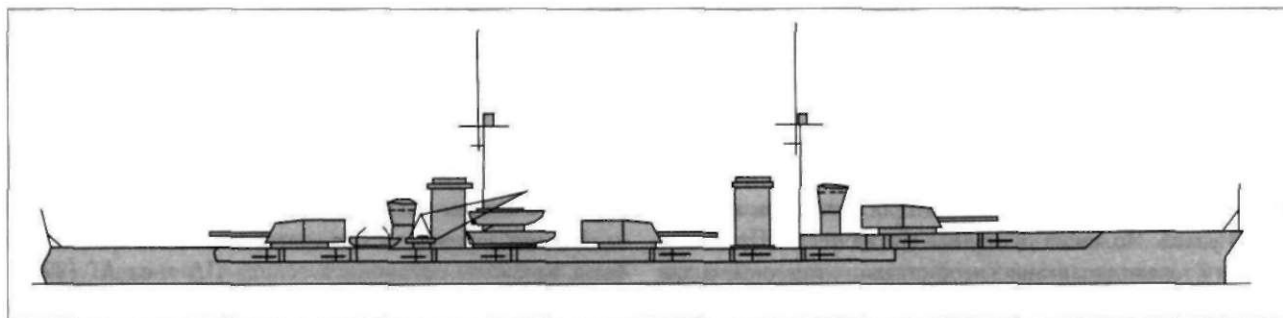
Having lost all hope of breaking through the Bosphorus and the Dardanelles, the Allies in 1916 established the delivery of everything they needed through the northern ports, mainly through Arkhangelsk. To do this, they had to urgently build a railway to St. Petersburg. It managed, with great difficulty, to handle the enormous flow of cargo.

By 1916, Russia had gradually established its own production of ammunition and weapons, which were urgently needed for the front. Evidence of this is the Brusilov breakthrough, which almost knocked Austria-Hungary out of the war. It was also intended to develop further plans for warships.

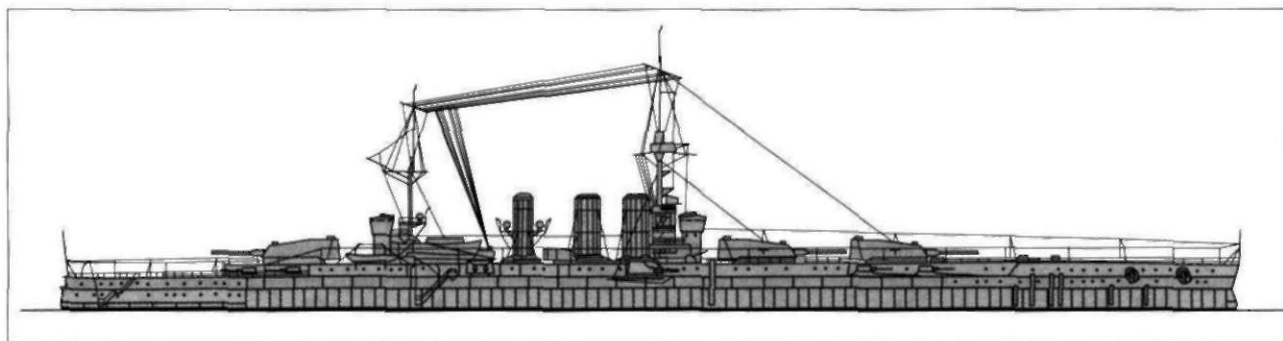
In 1916, the Russian-Baltic Plant in Revel, the Admiralty and Baltic Plants in St. Petersburg, and the Putilov Plant participated in the competitive development. The highest priority was given to the so-called "project



**Monitor, designed in Technical bureau
The main shipbuilding management. 1915**



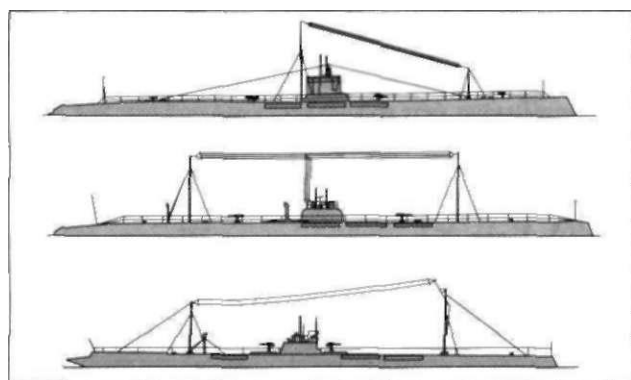
Проект линкора, разработанный под руководством И.Г.Бубнова — «линкор 1915 года».



Battleship project **VLKostenko**

Bubnov". Having missed the deadlines in the construction of the first series of battleships with 305-mm artillery, Russia sought to reduce the lag by stepping over the calibers of 343, 356 mm and moving straight to the caliber of 406 mm, ignoring even 381 mm, which England relied on for its latest battleships. If we do it, then do it. I.G. Bubnov's project provided for the installation of three large turrets, in which, in order to save weight, 4 406-mm guns were placed. With a displacement of 43,400 tons, the ship had a length of 235 m. This was already a "full-fledged" battleship with great prospects, more than one and a half times superior in fire power to English and American ships. Having a forecastle, it would have had significant seaworthiness. But here too there was a characteristic feature unique to Russia: the predominance of weapons over other elements.

In the Black Sea they went their own way. There V.P. Kostetsko unfolded in all the beauty of his talent. Thus, in the same 1916, he developed a number of projects for battleships armed with the same 406-mm guns,



*Submarines of the "B1" type ("Fiat San Giorgio"),
"B1" (I.G.Vubnov) and "G1" ("Holland").*

from 8 to 12 on each. The most balanced design was with 9 406-mm guns, the arrangement of which was already akin to the battleships of the Second World War. The same applies to the auxiliary artillery. The ship was ahead of its time.

The Bars-type submarines did not fully satisfy the sailors, so large-displacement squadron submarines were developed on a competitive basis, taking into account the shortcomings of previous projects. The new submarines had bulkheads between the compartments and double hulls. Of all the projects, three were selected for further work: the Fiat-San Giorgio company, the Holland company, and the project of Major General I.G. Bubnov.

At the beginning of 1916, the projects were adjusted based on the comments of the Main Directorate of Shipbuilding, and in May, contracts were signed with factories for the construction of 28 submarines of the first stage of all three types.

During 1916, orders were placed for 14 more submarines of the same designs. Their design elements differed somewhat: displacement 920-971/1140-1264 tons, main dimensions 80x7x4 m, speed 16-17/9 knots, cruising range 1200/22.5 miles. Armament included 16 TA, 10 minefields, 2 75-mm guns and 2 machine guns. The submarines were designed for a diving depth of 46 m. Watertight bulkheads divided the hull into 7-8 compartments.

The last order of the Naval Ministry was four small underwater minelayers with a displacement of 230/368 tons, which were supposed to take on board 20 minefields.

But it was never possible to begin building the ships designed in 1916. By this time, in February 1917, a bourgeois revolution had already taken place in Russia. The completely discredited tsarist regime fell.

The Provisional Government came to power. Having declared that the war would continue until the "victorious end," it nevertheless completely stopped building large ships. Only those ships were built that were urgently needed by the fleet at the given moment—patrol ships, minesweepers, and destroyer boats. Everything else, with the exception of destroyers, especially in the Baltic, turned out to be simply unnecessary. The fleet in the Baltic found itself trapped in the Gulf of Finland. And in the Black Sea Fleet there was simply no one to keep up with the German cruisers. In addition, the Germans did not undertake any active actions in the Baltic until the summer of 1917, and entered the Gulf of Riga only when the Russian army was disorganized by agitation and was retreating chaotically, leaving the Baltics. The same fate befell the fleet. Either the sailors refused to lay minefields in the path of the Germans, or the batteries at Cape Tserel refused to fire, and the crews ran away at the first salvos of the German battleships.

The Bolsheviks, with their slogans of "rob the loot" and "take and divide", had only to complete their "dirty deed". The slogans fell on fertile ground. Having carried out a coup d'etat, they seized power in October 1917. Without fulfilling a single promise, they unleashed terror in the country. And then a civil war. The army was demoralized to such an extent that the soldiers threw down their weapons and ran home. The Germans captured the western part of the country, advancing literally in marching order, practically without firing a shot.

The Bolsheviks had to make peace. According to the Brest Treaty, the fleet was to remain in its bases. That is, at the beginning of 1918, in Helsingfors and Sevastopol. The Germans were to be in charge of both bases.

In the Baltic, there was Admiral Shchastny, who disobeyed the Bolsheviks and took all the ships capable of moving to Kronstadt, which aroused the wrath of V.I. Lenin and he was shot. In the Black Sea, Admiral Sablin did the same, taking the fleet to Novorossiysk. F.F. Raskolnikov was urgently sent there. As a result of his vigorous activity, a split occurred among the freebooters of the fleet. Half of the ships, not wanting to surrender to the Germans, were sunk, and the other half returned to Sevastopol. After the capitulation and departure of the Germans from Ukraine and Crimea, after the end of the Civil War, the White Army was evacuated from Crimea on the remaining ships of the fleet. Ultimately, the ships ended up in Bizerte, where they rotted. The Black Sea Fleet practically ceased to exist.

The Bolsheviks dealt another blow to the fleet at the beginning of 1921. Kronstadt rebelled under the slogan "Soviets without Bolsheviks." The rebellion was suppressed by the future Marshal M.N. Tukhachevsky. Of those who were unable to escape across the ice to Finland, every second was shot, and the rest were sent to camps. Most of the ships were left without crews. Some were sold to Germany to be scrapped for scrap metal, and the rest were mothballed.

Summing up the results of the Civil War in the part concerning the fleet, M.V. Frunze wrote: "The navy suffered particularly heavy blows. As a result, we lost the greater and better part of the material staff, the vast majority of experienced and knowledgeable commanders, who played an even greater role in the life and work of the fleet than

in all types of weapons, lost a number of bases and, finally, lost the core of the Red Navy. In total, all this meant that we had no fleet."

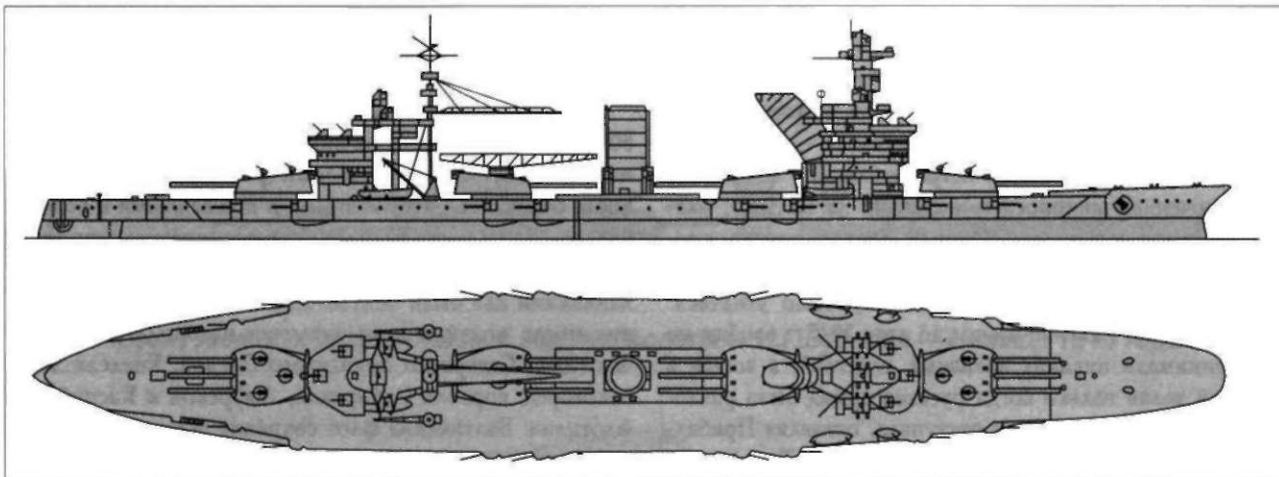
The interventionists and White Guards took away about 800 ships and vessels, of which Wrangel alone took 130 from Crimea. The military ports and shipbuilding industry were destroyed and fell into complete disrepair. The Black Sea Fleet was completely destroyed, individual surviving ships stood with blown-up machinery or were half-submerged. The ships of the Arctic Ocean Flotilla were in the same condition after the British had taken over. Only a few ships of the Siberian, Amur and Caspian Flotillas survived. The Baltic Fleet retained almost all of its ships, but after intense combat operations and the Ice Campaign they needed repairs.

A special commission of the Revolutionary Military Council of the Republic, which examined the state of the fleet, came to the conclusion that "the fleet needed not partial corrections, but a complete reform."

Much has been said about the first shipbuilding programs. Almost all of them were not destined to come true. The economy was still quite weak, as 1927 showed. There was nothing to fight with. There was no modern army. All that remained from the Tsarist fleet were the magnificent guns of 102, 130 and 305 mm caliber, and a huge number of 47 mm shells.

Having curtailed the New Economic Policy, the country placed its bets on industrialization. Much has also been said about the ships that were commissioned and completed, including those based on modified designs. I would like to note the restored and modernized battleships Marat (former Petropavlovsk), Oktyabrskaya Revolyutsiya (former Gangut), and Parizhskaya Kommuna (former Sevastopol). Having moved to the Black Sea, it subsequently became Sevastopol again.

The voyage from Kronstadt to Sevastopol (December 1929 - January 1930) was a test of the quality of this project. It became clear that the icebreaker formation of the bow and the absence of a forecastle did not meet the requirements of seaworthiness and made the ship completely unsuitable for sailing in the ocean in stormy conditions. The short cruising range, the inconvenience of operating coal-fired boilers during pitching and loading fuel at sea, and poor habitability were revealed. Before the voyage, to improve seaworthiness, a high false side without a flooring on top was made in the bow. In practice, it turned out to be a huge scoop, which collected tens of tons of water during pitching, deforming the upper deck in the bow. After the storm, it was necessary to go to France and make a flooring on the false side. Something like a float turned out. The Parizhskaya Kommuna underwent modernization in two stages: in 1934-38 and in 1934-40. The power plant was modernized, the firing range of the guns was increased, new anti-aircraft artillery was installed, and bulges were installed to increase stability. Only on the Parizhskaya Kommuna by 1941 was it possible to realize the original plans for the "major modernization". True, this greatly increased the displacement and decreased the speed.



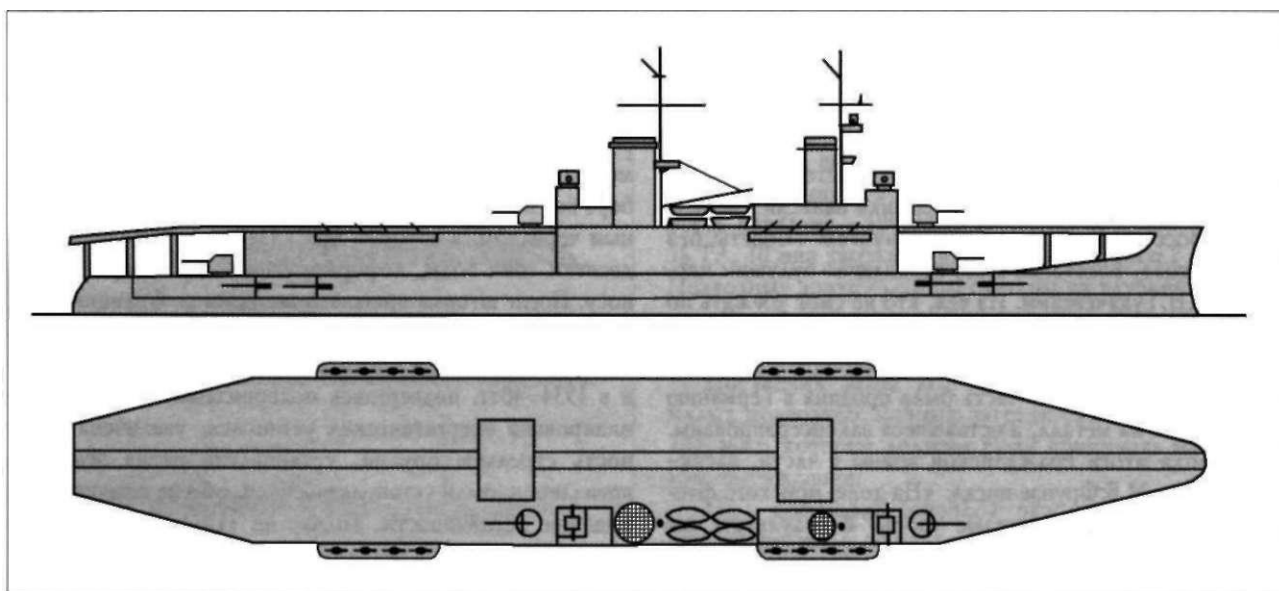
Модернизация линкоров типа «Севастополь».

Knowing the Mahan Doctrine, I.V. Stalin understood perfectly well that to implement his strategic plans, not only a powerful land army was needed, but also a large and strong Navy. "Who controls the sea, controls the world." It was not for nothing that he watched the chronicle of the Battle of Jutland in his personal cinema; he understood perfectly well that England would stand in the way of world domination. Therefore, focusing on the long-term perspective, he tried to create the USSR Navy. And this even taking into account the fact that for now priority should have been given to land forces, since Europe was in first place. Large allocations were constantly allocated for the construction of the fleet.

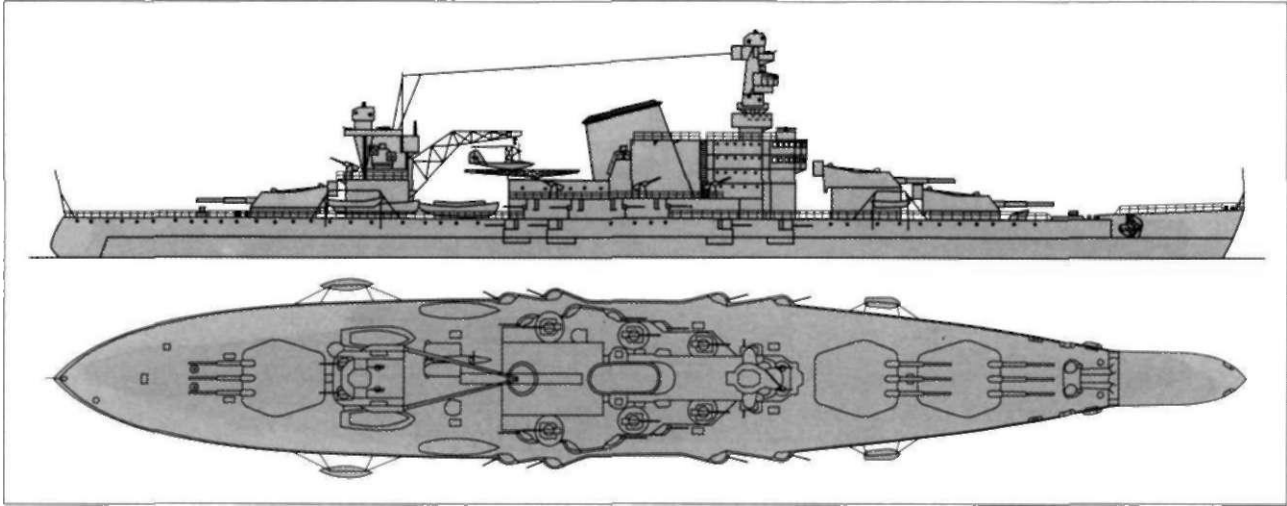
In the Baltic, the fourth battleship, *Poltava*, later renamed *Mikhail Frunze*, was moored at the Admiralty Shipyard in Petrograd in the winter of 1919-1920. Its heat was supplied by its own boiler. Due to an oversight by the machinists, a fire broke out on it that lasted 15 hours. The commission that inspected the ship declared it unfit for further use, and it was decided to use the surviving equipment to repair the remaining ships. But then they tried to restore it for two years.

to become. Considering the condition of the ship (the absence of artillery on it), the operational department of the Red Navy headquarters proposed, following the example of other countries, to refit the *Mikhail Frunze* into an aircraft carrier. The Scientific and Technical Committee carried out studies that showed that the refitted *Mikhail Frunze* would be able to provide basing for 50 aircraft. However, despite the fact that the state of the country's economy and industry did not allow this progressive idea to be realized, it was not sent to the scrap yard - the modernization was postponed until a later time, using it for "spare parts" for other battleships, which were gradually being put into service.

In 1932, a project was developed to convert the *Frunze* into a battlecruiser. The essence of the project was to eliminate one of the 305 mm turrets and install a second turret linearly elevated in the bow. It was proposed to install additional boilers and guns at the expense of the freed up weight and some areas, which would give a total power of 88,000 hp and a speed of 25 knots with an insignificant increase in displacement to 26,000 tons. The 120 mm guns were replaced by 130 mm ones, and their location was changed. Anti-aircraft 100 mm and 37 mm guns were introduced.



Project for converting the battleship *Mikhail Frunze* into an aircraft carrier. 1925.



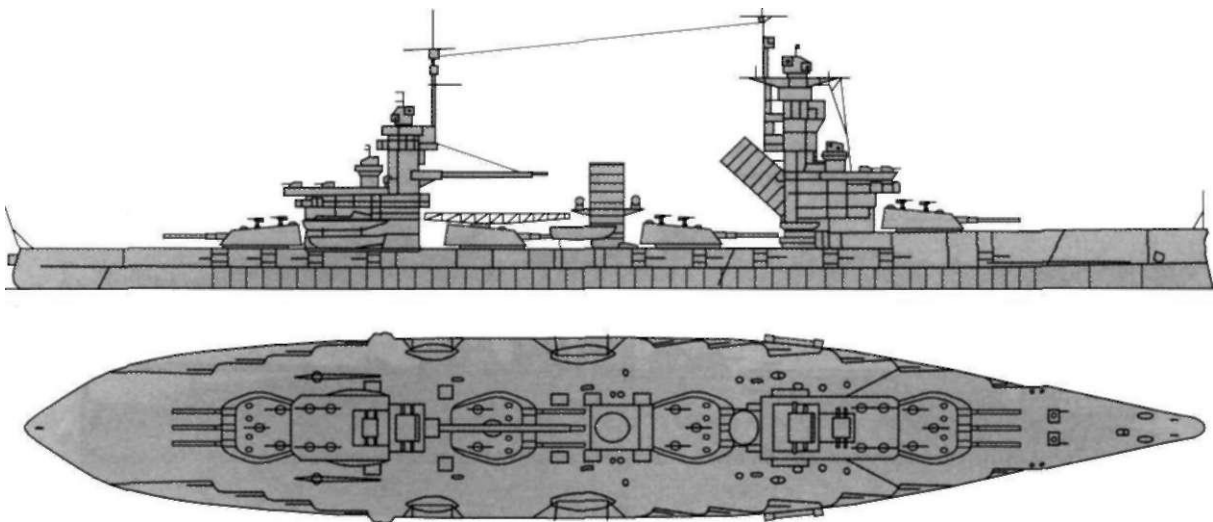
Project for the conversion of the battleship Mikhail Frunze into a battlecruiser. Option A. 1933.

a hangar for three seaplanes was added. The project was of considerable tactical interest. It would have taken a worthy place in the squadron of "Stalin's dream". Funds for re-equipment were allocated by the 1933 program, but further implementation of the project was disrupted due to the concentration of industry efforts on ships of new designs. The hull of the "Mikhail Frunze" rusted afloat until the war. In 1941, it was taken out to the Sea Canal, where it was sunk so that it would protect passing ships from artillery fire.

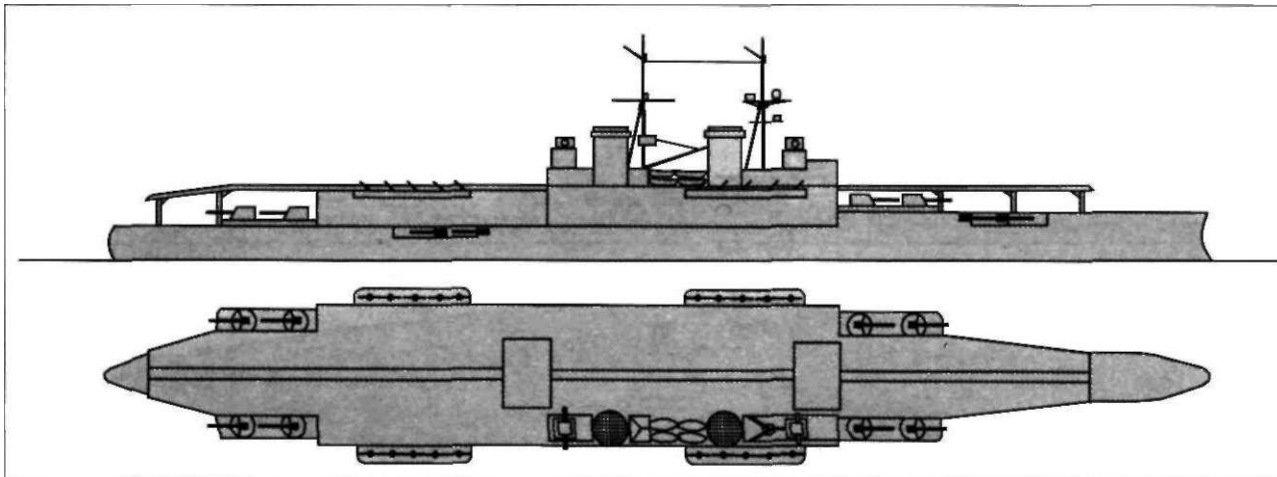
The other two Baltic battleships were also unlucky. During an air raid, one bomb hit the Marat between the forward superstructure and the second turret, and so "successfully" that the ship split in two. The forward part sank immediately. The remaining part was somehow restored and was used as a floating battery. In the same year of 1941, a bomb hit the bow of the battleship Oktyabrskaya Revolyutsiya. It remained afloat, but was under repair at the Admiralty Shipyard until 1944.

In the Black Sea, the battleship Empress Ma, which was raised back in 1918 but never put on an even keel,

ria", was scrapped in 1926. The haste of the EPRON specialists in 1930 led to the explosion of ammunition on the sunken Svobodnaya Rossiya, the hull of which was destroyed and became unsuitable for use. As a result, only part of the armament of these two battleships could be raised and installed on the shore. In Nikolaev, the unfinished largest of the Black Sea battleships, the Democracy (formerly the Emperor Nikolai I), remained intact and safe. The leadership of the Navy and the Soviet government made a clear mistake by missing the opportunity to complete the construction of this ship. The hull of the Democracy was also scrapped in 1927. It is not difficult to imagine what the battleship Democracy would have looked like if it had been completed, given the architectural trends of that time and the technical requirements for armament. It could have been armed with 356 mm main caliber artillery, since it was originally designed for such guns, or it could have been equipped with turrets with 305 mm guns. Add anti-aircraft artillery and a catapult with a seaplane - and you would have got a combat ship quite acceptable for the Black Sea.



This is what the battleship Democracy might have looked like after completion and modernization.



Project for converting the battlecruiser Izmail into an aircraft carrier.

1925

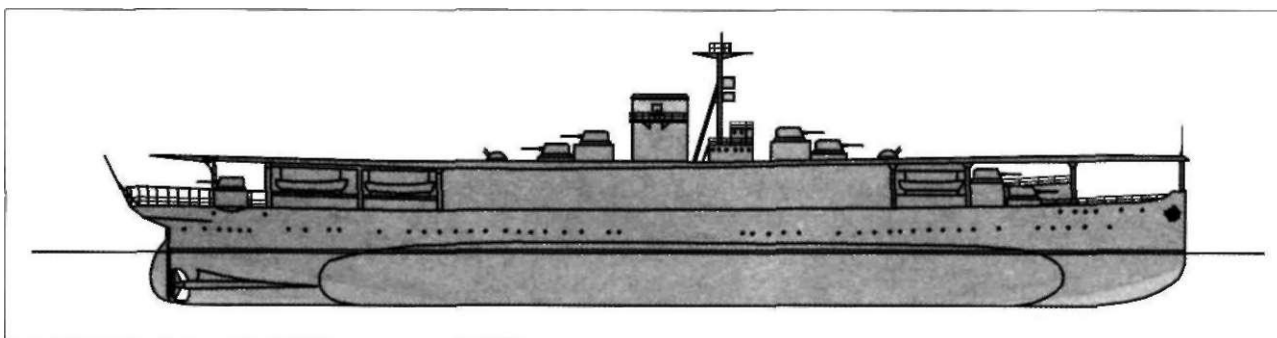
In 1943, only the Paris Commune participated in battles, until I.V. Stalin, after the death of the leader and two destroyers off the coast of Crimea, practically in one day forbade all large ships to go to sea. At that time, there was little use for this battleship, since it had managed to "shoot out" its guns.

In the Baltic, the Council of Labor and Defense excluded the unfinished battlecruisers Borodino, Navarin, and Kinburn from the fleet lists by its resolution of July 19, 1922, and authorized their sale abroad "in their entirety." They were purchased by a German firm for scrap metal. Izmail remained, which turned out to be in the greatest state of readiness. They were going to complete it at the first opportunity, but arm it with 406-mm artillery with two barrels in a turret. The most interesting thing was that its standard 356-mm guns, and especially 406-mm, had not yet been mastered by industry. Even in tsarist times, only equipment purchased in England was mastered. All the guns were ordered from the Vickers firm. Some of the guns were delivered to Russia, and 24 remained in England. There were also 2 406 mm guns left there, apparently ordered for testing with subsequent installation on prospective battleships. This idea was abandoned.

It was decided to complete Izmail, and one of the options under consideration for restoration was an aircraft carrier. Thus, in March 1925, guided by foreign experience in re-equipping battle and light cruisers, the Operational Directorate of the Red Navy headquarters developed the "Tactical elements of an aircraft carrier to be converted from the battle cruiser Izmail". According to the assignment, the speed

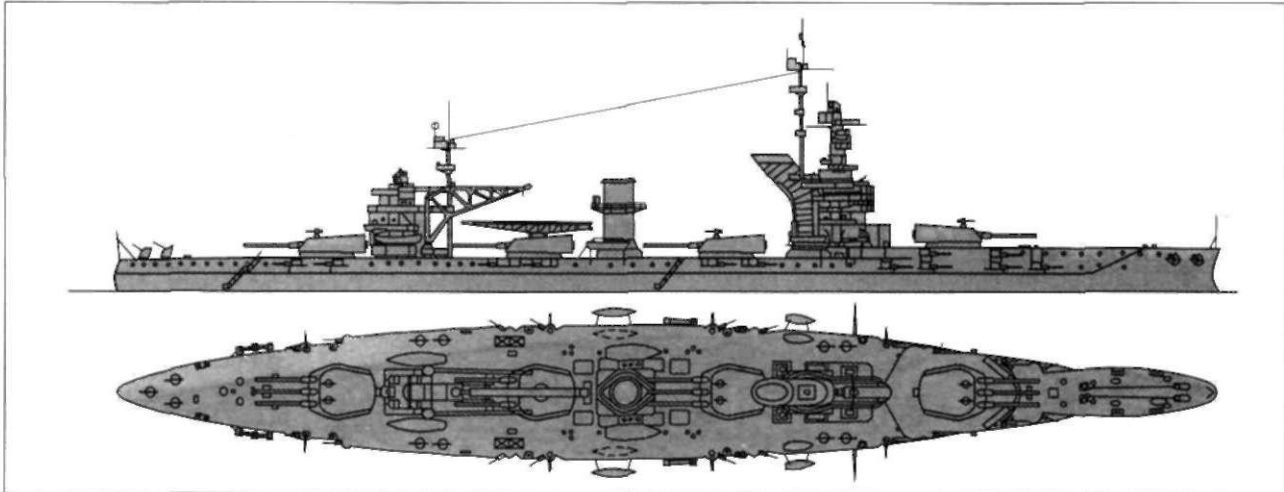
was considered the most important of the tactical elements and was to significantly exceed the full speed of the battleships, "since in order to carry out its special tasks, the aircraft mother ship will be separated from the battleships and it is required to join them in the shortest possible time." The assignment provided for powerful artillery armament and an air group consisting of 12 torpedo-bomber carriers, 12 fighters, 6 reconnaissance aircraft and 5 special-purpose aircraft (artillery markers). Two armor options assumed either preserving the existing hull protection or replacing the 237 mm armor plates of the main belt with 76 mm. Interestingly, 51-64 mm armor was also provided for the flight deck in order to protect "the hangars located underneath from air attacks." The estimated displacement of the future aircraft carrier was 20,000-22,000 tons, the maximum length was 224 m, the speed was about 27 knots, and the total number of aircraft was 50. The artillery armament consisted of 8 180 mm, 8 102 mm guns and several anti-aircraft rapid-fire guns. The conversion of Izmail into an aircraft carrier was approved on July 6, 1925. The preliminary design was carried out by the NTK UMVS. However, on March 16, 1926, all work was suspended and the fate of Izmail was finally decided - the ship was to be scrapped.

In 1927, a relatively cheap aircraft carrier was designed, which was supposed to be converted from the training ship Komsomolets (formerly Okean). The preliminary design envisaged an aircraft armament of 16 bombers and 26 fighters with a flight deck size of 137 x 22 m, a displacement of about 12,000 tons, a speed of 15 knots,



Project for the conversion of the training ship "Komsomolets" into an aircraft carrier.

1927



A possible upgrade option for the battlecruisers of the type

"Izmail"

artillery of 16 102-mm guns and several anti-aircraft guns. The island with the smokestack and bridge was located on the left side, and bulges were designed to increase stability. The disadvantage of the future aircraft carrier was its low speed, which was a consequence of retaining the same main engines. The working project did not take place, since the re-equipment of the Komsomolets was not financed.

V. Zof, who was in charge of the fleet, responded to all those who advocated the construction of aircraft carriers: "You talk about aircraft carriers and the construction of new types of ships, while at the same time completely ignoring the economic situation in the country and the corresponding economic opportunities."

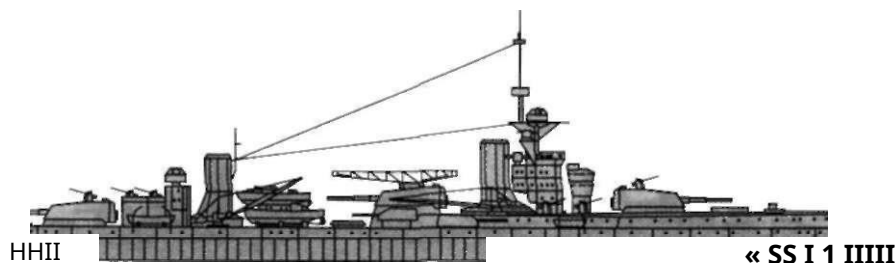
If these four battlecruisers had remained in the country, if they had been modernized and brought up to date, our fleet would have looked pretty good by the mid-1930s. But some of the boilers from Izmail were used to modernize the battleship *Oktyabrskaya Revolyutsiya*, 3 356-mm guns were mounted on railway platforms and included in the coastal defense artillery of the Baltic Fleet. By analogy with *Demokratiya*, one can imagine what these battlecruisers would have looked like. They would have been a bit cramped in the Baltic, of course. When they were being built, the problem of Danish ships passing through was already being raised.

livami. Apparently, they were already intended for the Pacific Ocean. Such ships with their enormous power in the situation that developed during the Second World War could have been successfully used in the North, since the question of supplying the Soviet Union with everything it needed arose again, and there would have been someone to guard the convoys.

Well, if we imagine for a moment that things would have turned out a little differently for Russia. And in 1916 the battleships of I.G.Bubnov and V.P.Kostenko would have been laid down and then, already in the Soviet Union, completed, then by the end of the 1930s I.V.Stalin's dream of a "forest of masts to the horizon" could well have come true. The linear forces of the fleet could already then have competed with the leading naval powers.

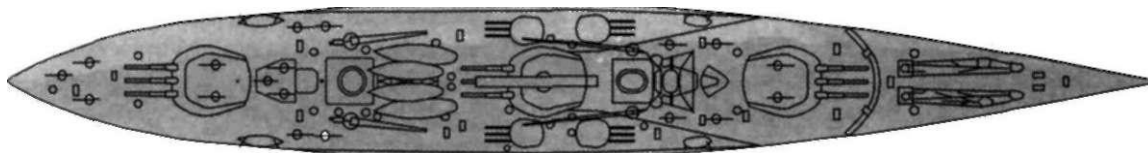
A few more aircraft carriers... But that's what they didn't want to build. Even if they turned out bad at first, like Project 71, but gaining experience is a great thing. At least they designed this one, but it didn't go any further.

Of the tsarist legacy, eight light cruisers remained unfinished. The first two were commissioned in 1927 using a virtually unchanged design. In the Black Sea, the *Chervona Ukraina* (former Admiral Nakhimov), and in the Baltic, the *Profintern* (former *Svetlana*).



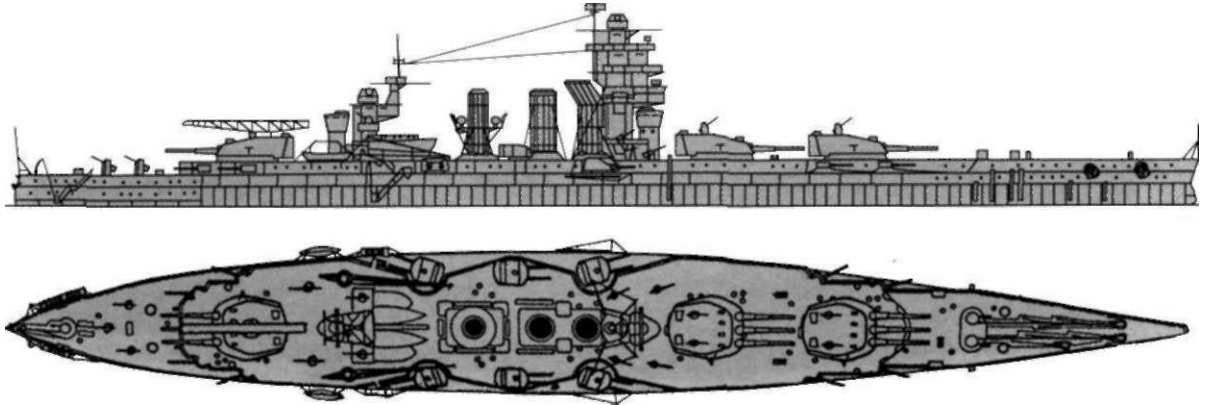
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Possible upgrade option for the project's battleship

I.G.Bubnova



Possible upgrade option for the project's battleship

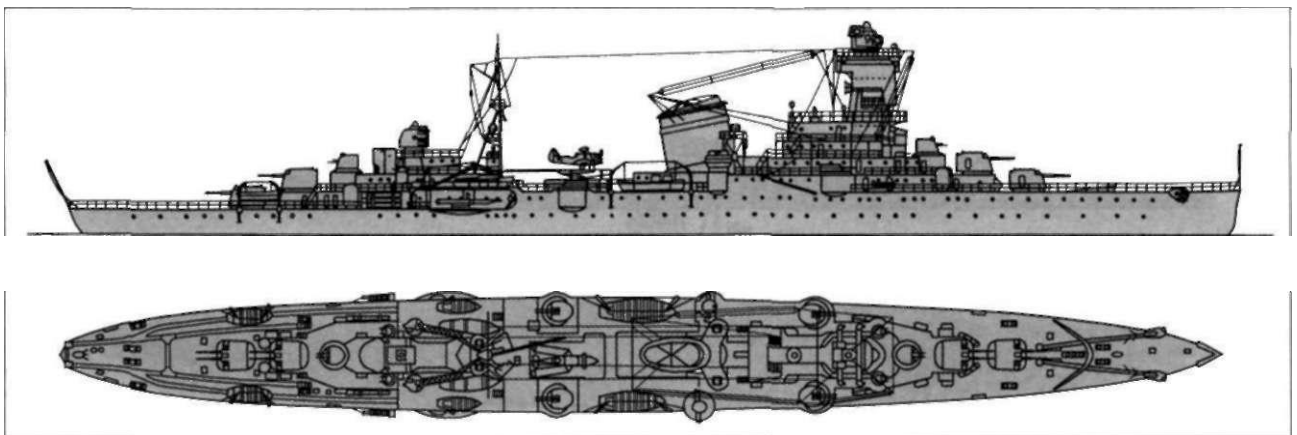
VL Kostenko

the other two were simply barbaric, converting the Azneft and Grozneft (formerly Admiral Greig and Admiral Spiridov) into oil tankers. Well, what kind of tankers were they, with their narrow and long hulls? And the fleet lost two cruisers, which simply did not exist at that time.

Two Black Sea cruisers, Admiral Istomin and Admiral Kornilov, which were in a low state of readiness, were dismantled for scrap metal. Krasny Kavkaz (former Admiral Lazarev) was completed to a modified design and entered service in 1932. It was armed with four 180 mm guns, one in each turret. This caliber was a purely Soviet invention. An attempt to create something more powerful than on light cruisers with a small displacement. Then it was transferred to more modern Project 26 cruisers, but then quickly abandoned in favor of 152 mm artillery on Project 68. Here the main rule of naval combat comes into force - the amount of metal ejected per minute, and with an increase in caliber, the rate of fire decreases. In addition, at extreme firing ranges, accuracy decreases sharply. But few people knew about this, and those who knew, kept quiet. All sorts of "military experts" who were "class aliens". The 180-mm MK-1-180 guns turned out to be very powerful, with a firing range of up to 203 cables. A projectile weighing 97.5 kg had an initial velocity of 920 m/s. But the survivability

The barrel had only 55 shots. The rate of fire was 6 shots/min. The ship also received 4 twin 100-mm anti-aircraft guns of the Italian Minisini system and 4 45-mm semiautomatic guns. It also had powerful torpedo armament. The ship, although it could not be considered modern, was the first approximation to what was very much desired. Unfortunately, by the beginning of the war the ship was already considered not fully combat-ready due to the unsatisfactory condition of the artillery.

The last Baltic cruiser, Admiral Butakov, stood by the wall for a long time awaiting its fate. It was supposed to be completed, but for some reason it was constantly postponed. At first, it was renamed Voroshilov and in the early 1930s they were going to complete it according to a modified project. There was also an option with 180-mm guns. But then Project 78 appeared for its completion as a training ship. The project was sufficiently developed and included all the weapons systems with control devices adopted for cruisers. It was approved, the cruiser received a new name "Aurora". The hull was put in order and prepared for completion. The ship was supposed to be equipped with 4 130-mm twin-gun turret mounts, 76- and 37-mm anti-aircraft guns and 12.7-mm tridents - 8 barrels of each caliber. It had torpedo tubes and one seaplane. But in early 1941, construction was stopped due to the high cost of the work. So



Project 78 training cruiser. 1940.

the fleet received less more
one good ship.

About destroyers type
"Novik", also delivered
from the tsarist fleet, it can
be said that everything that
was possible save
after Civil
wars, was restored
lazy, completed and
actively participated in
life of the fleet. In the
1930s they were still
coping with possible tasks
for this type of ship

lei. During the Great Patriotic War, almost all of them died
honorably fulfilling their duty.

I would especially like to mention the armored cruiser
Rurik.

The ship, which had not been in service for even 10
years, was also sent for disposal. But there were plenty of
opportunities to use it. It was enough to turn the ship over,
at least to install two turrets similar to those on the
Sevastopol-class battleships. The displacement was quite
sufficient, and in size it was almost the same as the British
Dreadnought. It would have been a fully combat-ready
ship that could have been used as a skerry monitor or used
as a training ship for the initial training of crews for
battleships.

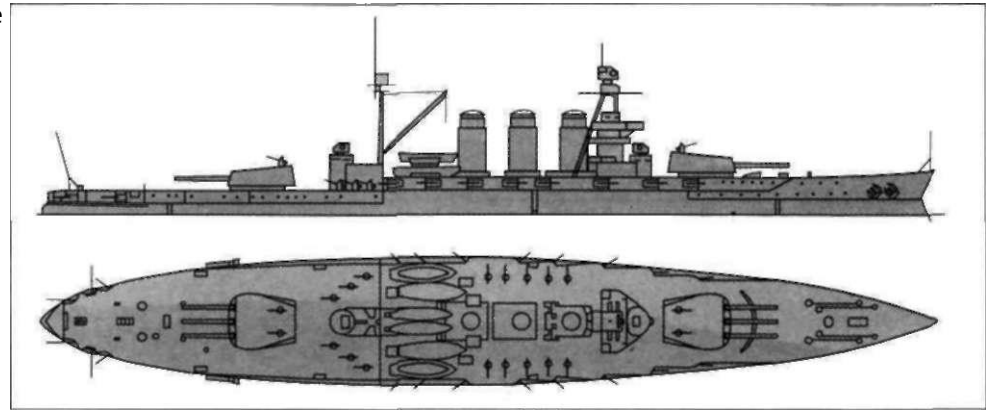
An important achievement of Soviet shipbuilding in the
pre-war years was the creation of combat hovercraft, later
called KVP. Their author was Professor V.N. Levkov of the
Novocherkassk Polytechnic Institute. From 1934 to 1941,
boats from L-1 to L-13 were created, constantly increasing
in size and differing in the composition of their armament.

Wanting to participate in the creation of aircraft
carriers, V.N. Levkov proposed his version of an air-cushion
aircraft carrier in 1935. Considering the problems and
shortcomings of his developments, this project should be
considered only as a concept, but very innovative for those
years. Similar developments abroad appeared only after
World War II, and projects for large ships have not been
implemented to this day.

Shipbuilding programs were also developed to suit the
country's capabilities - the 1925-1930 program, the "light
forces" program, the 1933-1937 program, 1937, 1938. Both
the developers of the programs and their critics were shot
with enviable consistency. The command staff of the fleet
was constantly changing.

With the arrival of N. G. Kuznetsov to the leadership of
the fleet, at least some stabilization occurred. A ship
construction program was developed, calculated for 10
years with reference to the five-year plans for 1938-1942
and for 1943-1947 - the so-called "large fleet" program.

Design bureaus, including those in the NKVD system,
the so-called "sharashki", worked under extreme stress.
Unfortunately, all types of ships and the composition of
their armament were determined by only one person,

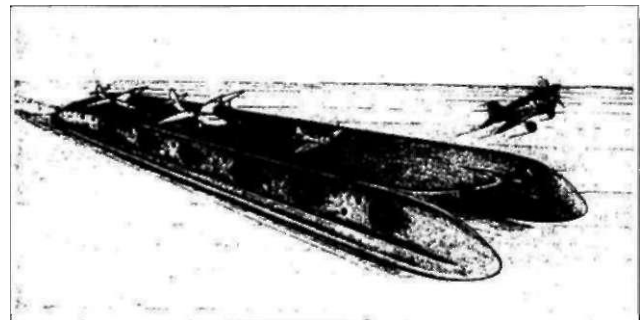


Possible option modernization armoured cruisers "Rurik"

specialist in all matters - the great Leader. There was simply no
one to determine the proposed theater of war, the types of
ships, their distribution among the fleets, or even to object to
the leader. Some projects were considered "sabotage", others
died, having proven technically untenable. And most
importantly, the experience of the First World War at sea was
not taken into account - as this or that type of ship showed in
battle.

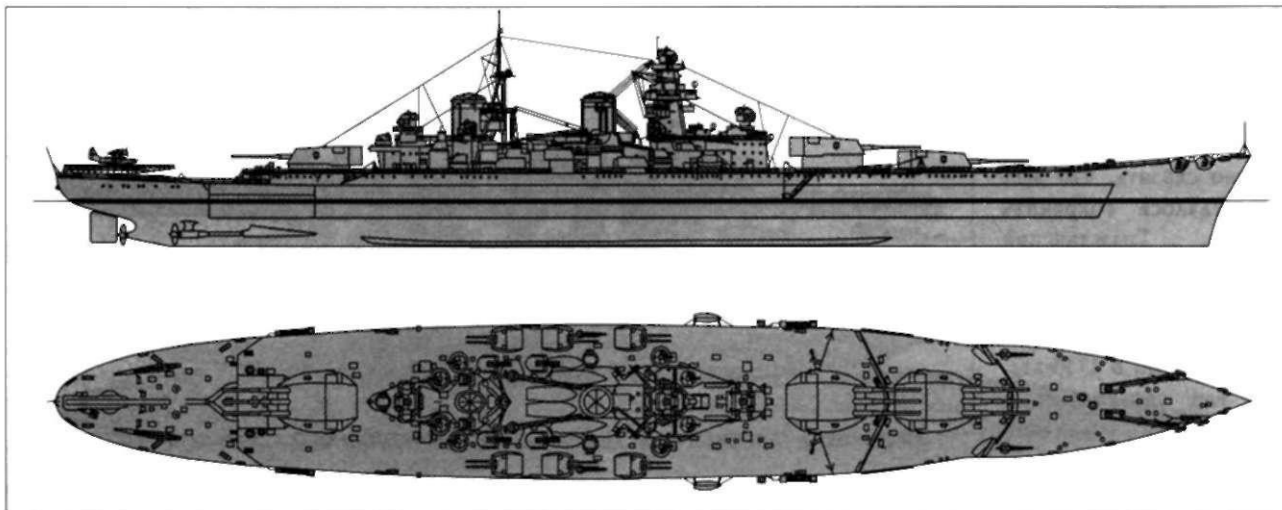
The Italian experience was taken as a basis for the
development of domestic ships. The Italians prioritized
speed, naturally, to the detriment of everything else. The
"Brzezinski mission" to Italy is well known, as a result of
which we were sold the drawings of almost all types of
ships developed at that time. Including the battleship
VP-41, which served as the basis for the development of
battleships in the Soviet Union. As a sign of special respect,
we were sold two patrol ships, which we named "Kirov"
and "Dzerzhinsky". They lived a long life in the Far East as
border ships.

Project 26 cruisers were built using Italian equipment.
Especially the cruiser Kirov. And the architecture of our
ships was very similar to the Italian ones. The design of
battleships was greatly delayed. Then a project for a heavy
(battleship) cruiser appeared - a type of ship that did not
fully justify itself in the First World War. With the battleship,
they settled on Project 23, and the heavy cruiser - Project
69. The displacement of the battleship was to be 60,000
tons, dimensions 270 x 39 x 10.4 m, the power of the
mechanisms 231,000 hp, the speed of 29 knots, and this
was already too little for that time. But the armament was
powerful



Sketch of an air cushion aircraft carrier

V.N. Levkova



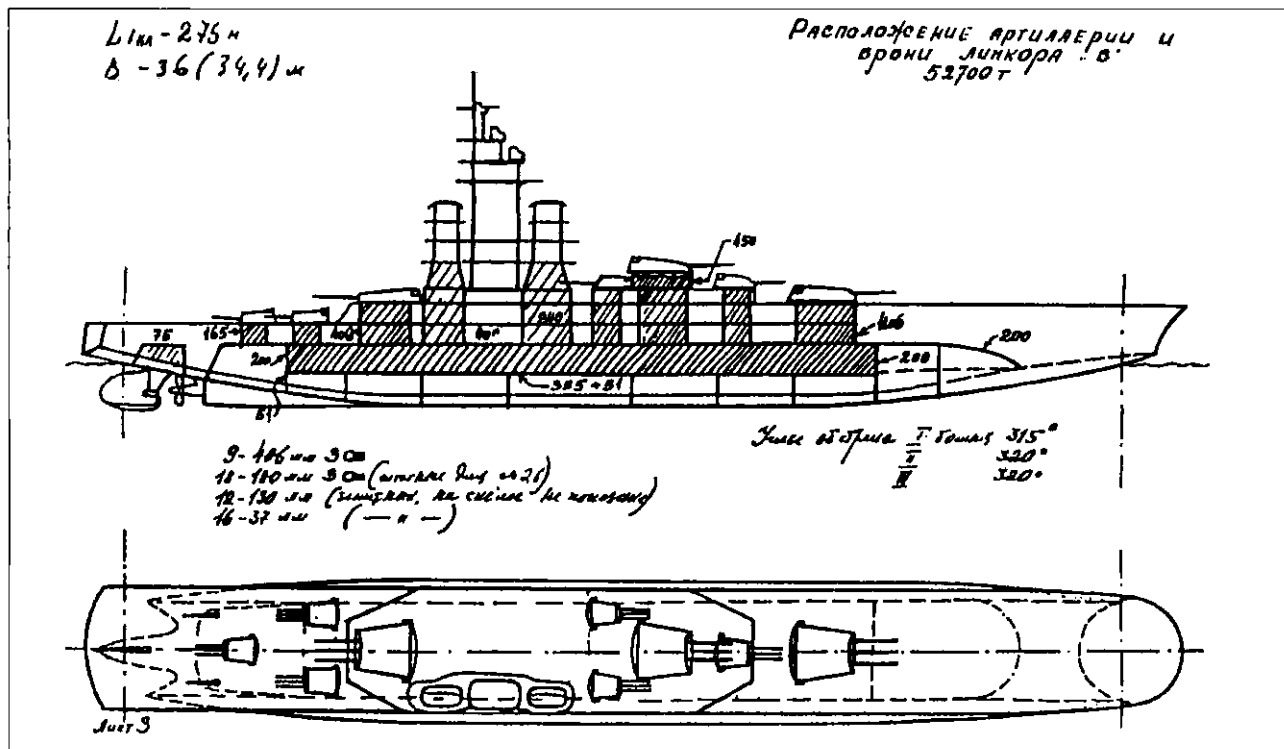
Project 23 battleship

nym: 3x3-406-mm guns. The keel of the lead battleship of Project 23, named "Soviet Union", was laid at the Baltic Shipyard in Leningrad on June 15, 1938. The second battleship, "Soviet Ukraine", was laid down on October 31, 1938 in Nikolaev. The other two were laid down much later, in Molotovsk, "Soviet Belorussia" on December 21, 1939, and "Soviet Russia" on June 22, 1940.

The battleship project by V.P. Kostenko stands apart. The fact is that one of the best shipbuilding engineers was deprived of the right to design ships due to his revolutionary past (he was a prominent Socialist Revolutionary). But he could design shipbuilding plants: the plants in Severodvinsk and Komsomolsk-on-Amur were his projects. Having learned about the start of work on the "large fleet" program, V. Kostenko took the initiative to design

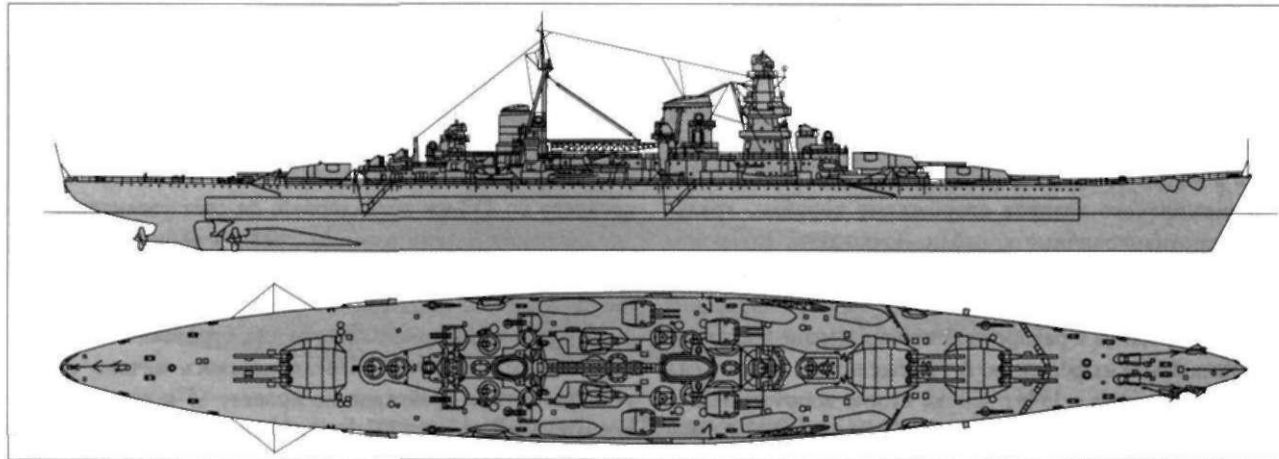
to build a battleship. His "Explanatory note to the draft drawings of a 52,700-ton battleship" dated September 15, 1936, has survived. The battleship had very unique waters. There was an attempt to create a cavity at a speed of 35 knots, which gave a speed increase of 3-4 knots. Two smoke stacks with a bridge were shifted to the starboard side, like on aircraft carriers. This allowed turret No. 3 to fire at the bow, and turret No. 2 - at the stern. All the turrets could fire almost all around. In addition, having significant free space on the deck, it was easy to place catapults and a fairly large number of aircraft. There was so much new that the shipbuilding department, naturally, did not risk implementing it. The note remained unanswered.

The heavy cruisers of Project 69 were impressive, with a standard displacement of 35,240 tons and dimensions



Linear project

ship V.P. Kostenko



Heavy cruiser project 69

250.5x31.6x8.3 m, speed 32 knots, with armament of 3x3 — 305 mm guns. The lead ship — "Kronshtadt" was laid down on November 30, 1939 in Leningrad, the second — "Sevastopol" — on November 5, 1939 in Nikolaev.

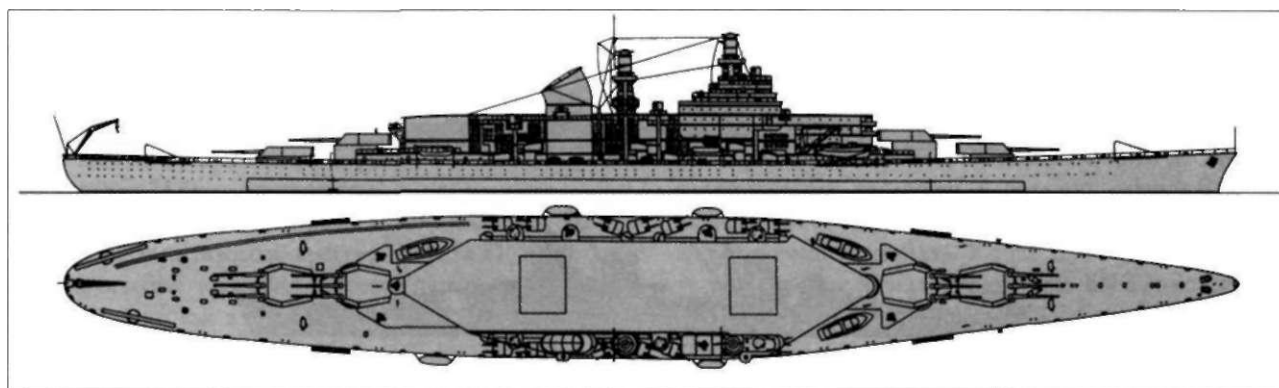
In 1938, the so-called "Isakov mission" took place in the United States. A number of agreements were concluded on the design of both classical and hybrid battleships for us, i.e. battleship-aircraft carriers. A number of variants were designed, differing in both displacement and armament. A design for a destroyer was also completed. It was also planned to purchase a whole range of equipment for the ships, including propulsion systems for destroyers. After the start of the war between the Soviet Union and Finland in December 1939, the Soviet Union was excluded from the League of Nations, our representatives and negotiators were expelled from the United States with the interruption of all negotiations, although only a "moral embargo" was declared.

By concluding an agreement on the division of spheres of influence with Germany in August 1939, the Soviet Union thereby opened the floodgates of World War II.

Under the trade agreement, the Germans were inundated with raw materials and food to such an extent that it lasted for the entire six years of the war. Moreover, deliveries were made six months ahead of payment, which later came back to haunt them in 1941. In return, they received equipment and samples of technology from Germany. Moreover, they took the most necessary for all branches of industry and the most modern. They even bought the unfinished heavy cruiser "Lützow". The Germans offered to rearm our heavy cruisers.

Project 69, replacing their 305-mm main caliber artillery with their own turrets with 380-mm guns, similar to those installed on the battleships Bismarck and Tirpitz. The drawings of these battleships were purchased. They began to urgently rework the project, which received the index 69I. They also began to urgently rework the light cruisers of Project 68, a series of which was laid down in the fall of 1939. The project received the number 68I. It provided for 150-mm turret mounts of German manufacture. Stabilized 105-mm twin turret mounts of auxiliary artillery were also installed. These two projects assumed major changes in the drawings and significant modifications to the ships already under construction. But due to disruptions in deliveries from Germany and the outbreak of war, nothing was done.

Just before the war, work on the battleships had to be stopped. And although Stalin said that "we'll collect it penny by penny, but we'll build it," the construction of such a large number of ships was a heavy burden on the country's economy. In addition, a huge amount of metal was being taken away, which was so necessary for land equipment, which was supposed to bear the brunt of the war in the proposed theater of military operations. Ultimately, according to Stalin's plans, the fleet was supposed to be for a completely different war — with the "Mistress of the Seas" for supremacy at sea. And the industry was not yet quite ready for such a shipbuilding program. There were not even rolling mills to produce armor steel of the required thickness — a maximum of 220 mm, as in



Preliminary design of a battleship-aircraft carrier. Project 10581 (developed in the USA).

World War I. Turbines and almost all equipment were ordered abroad. With the outbreak of war in Europe, deliveries were naturally disrupted.

Because of the great attention to large ships, as in the First World War, patrol ships, minesweepers, and anti-submarine ships needed for the Baltic and Black Sea theaters were not built at all or were built in small quantities. There were many, even very many, torpedo boats and submarines. But all of them were inferior in quality to modern models.

So we were left in a war-ravaged country with the loss of huge human resources. And then there was a new one, this time a "cold" war since 1946. We need to arm ourselves again.

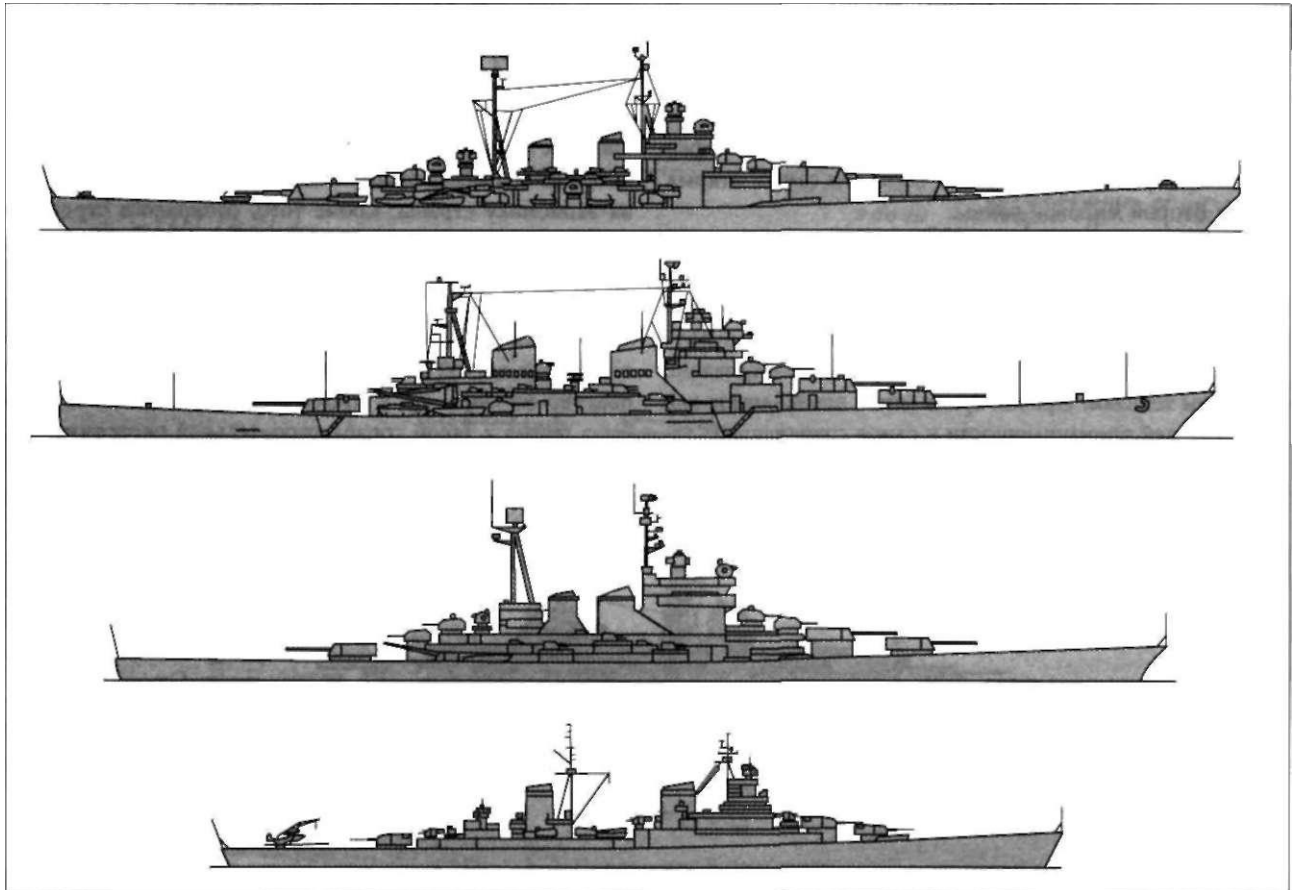
As for the fleet, everything that was left was no good. A full analysis was conducted following the war. The greatest damage to surface ships was caused by aviation. Ships of all classes were not able to provide reliable protection from air strikes on their own and therefore needed air cover. Aircraft carriers became the main striking force. Battleships as a class were a thing of the past. The second most effective class of ships were submarines. The enormous role of patrol and escort forces was noted. These were destroyers, patrol ships, and submarine hunters. Another lesson of the war was the enormous role of mine-sweeping and landing forces. Another lesson of the war was that in wartime it is impossible to compensate for losses in large and medium-sized ships in our country.

Were any conclusions drawn from this analysis? Absolutely none! Quite the contrary,

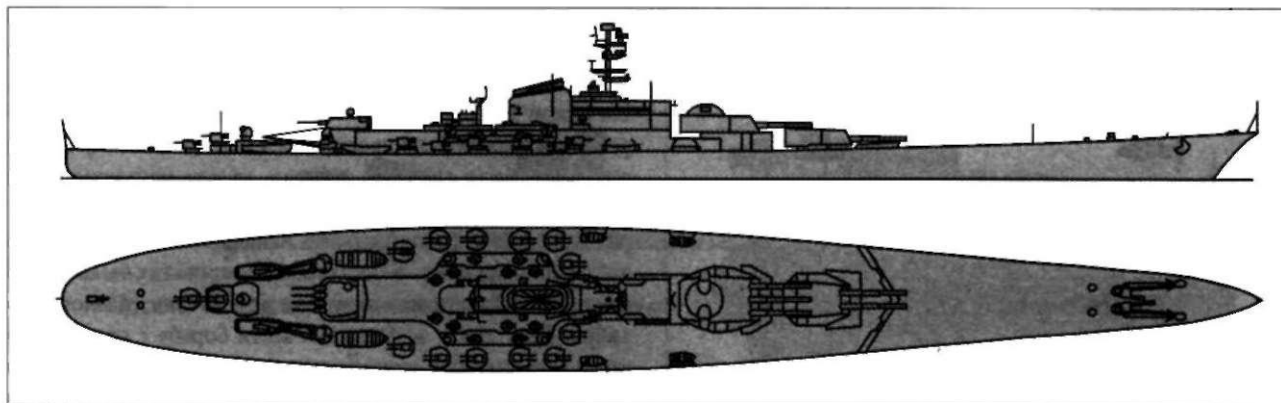
The German raider doctrine was adopted, but it never proved itself. In the military shipbuilding plan for 1946-1955, priority was given to cruisers. Initially, it was planned to complete 5 cruisers of the pre-war laying according to the modified Project 68K. Then - 7 cruisers according to the improved Project 68bis. These were light cruisers with 152-mm artillery. Due to the increase in displacement, the light cruiser of Project 68bis became more seaworthy, the cruising range increased. But it was no longer a sufficiently modern ship.

Since 1948, a program for the construction of more modern ships began. It was supposed to begin building light cruisers according to Project 65 and heavy (battle) cruisers with 305-mm artillery of Project 82. It was supposed to build 4 units. In 1953, it was planned to lay down 3 heavy cruisers of Project 66 with 220-mm artillery, and in 1955, two battleships of Project 24. Project 65 was the first to drop out of this program. It turned out that with 152-mm artillery, reinforced anti-aircraft artillery and protection, a speed of 35 knots and a specified displacement of 8000-8500 tons, the ship was not possible. Therefore, in 1947, I.V. Stalin decided to stop all work on Project 65, increasing the number of Project 68bis light cruisers under construction to 25 units.

It was followed by the heavy cruiser of Project 66. At first, everything was going well. In 1952, the government approved the technical specifications, and in September of the same year, the draft design was approved. At the same time, the creation of a 220-mm gun and a three-gun turret SM-6 for this purpose began.



***Ships of the 1948 program
Project 24 battleship, Project 82 and 66 heavy cruisers, Project 65 light cruiser.***



"Small" battleship. Project TsNII-45 (version II+III-3).

cruisers. The ship with a full displacement of 30,750 tons had 3x3 220-mm main caliber gun mounts, as well as 130-, 45- and 25-mm artillery. The lead ship was supposed to be laid down in 1953 in Leningrad, and the serial ones - in Nikolaev, Sovetskaya Gavan and Molotovsk. But the leadership of heavy and transport engineering was not delighted with the planned work. The shipbuilding base was already overloaded with an abundance of other projects. Citing the prospects for the emergence of anti-ship missiles and the vulnerability of large ships to them, it was recommended to stop work on Project 66, although the navy insisted on continuing it. The fate of the Project 66 cruiser was finally determined by the results of a study conducted at the Naval Academy in 1954. The conclusions were negative. The Project 24 battleship then ceased to exist. Work on it began in 1949 with the issuance of the technical specifications. By that time, they were going to complete at least one pre-war Project 23 battleship. No matter how much they worked on it, it was clear to everyone that it was completely obsolete. Fourteen variants were considered for Project 24 with a main caliber of 406 and 457 mm and a displacement of 80,000-100,000 tons, with various compositions of universal artillery and armor systems and a speed of 28-29 knots. They settled on a variant with a displacement of 70,000 tons, 9 406 mm, 16 130 mm, 32 45 mm, 32 25 mm guns, and a speed of 30 knots.

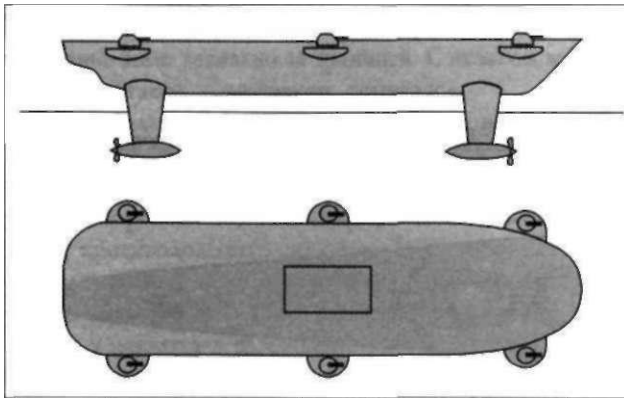
The Ministry of Shipbuilding Industry refused to accept this project for construction, proposing to conduct additional research in order to reduce the displacement and, based on their results, to make a proposal on the procedure and timing of further work. The work was carried out in 1951-1952 and resulted in a truncated, so-called "small" battleship. It did not meet any requirements. But the main reason was the same as why they did not agree to build Project 66. Missile weapons were already being developed and battleships were being scrapped all over the world. In 1953, all work on Project 24 was stopped.

The most important ship of the post-war decade was considered to be the heavy cruiser of Project 82. The development of the preliminary design, approved back in March 1941, was underway during the war. At that time, the ship was designed for 203-mm artillery. When reviewing the progress of the design, I.V. Stalin in 1947 insisted on the version with 305-mm artillery. He wanted, in his words, "to have a

"Ser-bandit", which has the ability to catch up with the weaker one, and always get away from the stronger one—a fast and fairly strong ship.

In March 1949, TsKB-17 began the technical design of the Project 82 ship. However, in the autumn, I.V. Stalin raised the issue of increasing the ship's speed to 35 knots. It should be noted that increasing the speed by 3 knots (at maximum speeds) leads to an increase in the power of the propulsion system by 30%. There is no escape from the laws of hydrodynamics. Hence the sharp increase in displacement. Feverish work began again. It was necessary to reduce the thickness of the main armor belt to 180 mm. With such armor, protection was provided only from 203-mm armor-piercing shells, starting from a distance of 12-14 km, and the horizontal armor protected from a distance of 32.4 km. The ship's displacement increased to 36,560 tons, its dimensions were like those of a good battleship - 273.5 x 32 x 8.7 m, armament: 3 x 3 305 mm, 6 x 2 130 mm, 6 x 4 45 mm, 10 x 4 25 mm guns, crew - 1,710 people. The lead ship of the series "Stalingrad" was laid down in Nikolaev on December 31, 1951. In the fall of 1952, construction of serial ships began in Leningrad and Molotovsk. Due to disruptions in the supply of equipment and weapons, construction was behind schedule. In April 1953, a month after the death of I.V. Stalin, all work on Project 82 ceased, since the navy immediately rejected these ships. Cutting up the hulls on the slipways began. In 1954, the middle section of the hull of the cruiser Stalingrad was launched to be used as a test section for full-scale testing of the resistance of the structural protection against the impact of new types of naval weapons and the treatment of their warheads. Based on the results of these tests, it was concluded that with the advent of anti-ship missiles, the creation of such large ships with such protection was futile.

The initial plan for the post-war decade was to build 6 large aircraft carriers. During the final editing of the plan, I.V. Stalin suggested waiting with them. During a long discussion, after persistent requests from the Navy leadership and objections from industry workers, I.V. Stalin promised to build 2 small aircraft carriers for the Northern Fleet. But, despite the promise, the Politburo commission, which was preparing the final text of the resolution on the ten-year plan,

*Sketch of the aircraft carrier R.**E. Alekseeva*

plan, did not include aircraft carriers in it. The leadership of the People's Commissariat of the Shipbuilding Industry insisted on this, believing that the industry was not yet ready to build these fundamentally new ships.

In 1949, the Gorky SPK Design Bureau decided to contribute to the creation of aircraft carriers in our country. The chief designer of this design bureau, R.E. Alekseev, developed a technical proposal in the form of an analytical note. It proposed creating a small-sized hydrofoil aircraft carrier, only 80 m long, but with a high speed of about 55-60 knots, which, in the author's opinion, could ensure the takeoff and landing of piston aircraft. Presumably, the La-11 was taken as a basis. The anti-aircraft armament consisted of 6 twin 25-mm machine guns. The small dimensions, in the author's opinion, allowed for the mass construction of these ships. Since it was necessary to solve a number of problems - the propulsion system, ensuring seaworthiness, flights and navigation, habitability and basing of the aircraft themselves, this proposal could only be considered as a concept, nothing more.

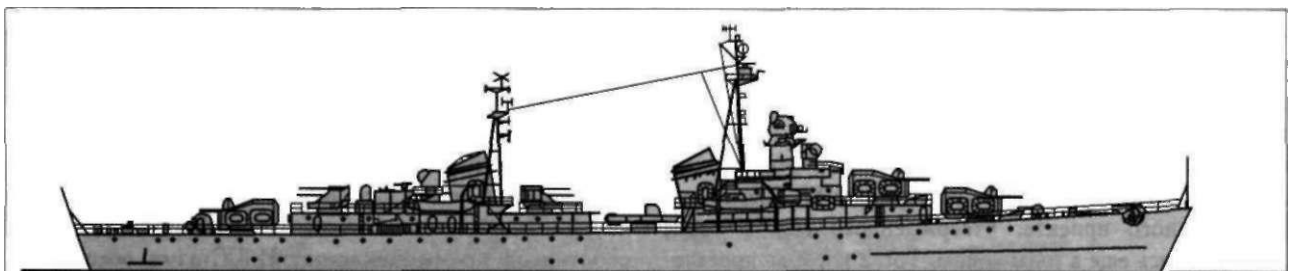
It should be noted that the post-war program took into account the country's economic and production capabilities to a greater extent, especially in relation to large ships, but in some areas the capabilities were overestimated by 1.5-2 times. The only thing N.G. Kuznetsov achieved was the inclusion in the 1956-1960 plan of the design of a light aircraft carrier, which later received the index Project 85. After N.G. Kuznetsov was dismissed from his post in December 1955, work on this project was stopped.

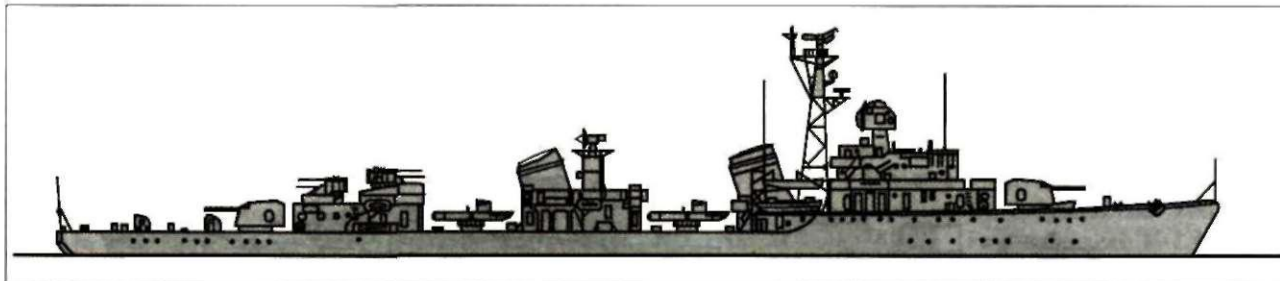
The Second World War showed that destroyers had become universal ships. They were used for

anti-aircraft and anti-submarine warfare, protected convoys, fought submarines, acted against coastal targets, and laid mines. As for their intended purpose—torpedo strikes against enemy ships and transports—there were only two episodes in the domestic fleet during the entire war, and they were unsuccessful. Even during the war, it was proposed to remove one torpedo tube and install anti-aircraft artillery in its place. But this was prohibited. In the post-war projects, 2x5 TA were left, and the main caliber artillery was not replaced. After all, in order to effectively combat enemy aircraft, universal 130-mm artillery mounts are needed. The Navy insisted on the construction of "large destroyers", i.e. three-turreted with universal artillery, with a displacement of about 4,000 tons. The best project was developed in 1949. in TsKB-53, a version of the Project 41 destroyer, a model of which stood for a long time in the Severnaya Verf museum. But since I.V. Stalin was against three-turret destroyers, the plan for 1946-1955 provided for the construction of only 188 "regular" destroyers.

In the first years, the destroyers of the 30K project, laid down before the war, were actively built, then the destroyers of the ZOBIS project, which were not much different from them. In a short period of 5 years, 70 ships were delivered to the fleet. Even before the end of development, the destroyers were already morally obsolete ships, their technical level corresponded to the end of the 1930s. Their main shortcomings were: the lack of universality of 130-mm artillery, the weakness of anti-aircraft weapons, the absence of radar control systems for 37-mm automatic guns, and the imperfection of anti-submarine weapons. N.G. Kuznetsov considered the construction of such a large series of destroyers of the ZOBIS project one of the biggest mistakes in post-war shipbuilding. The question of their modernization immediately arose. The first studies of the rearmament of these ships appeared already in 1954. TsKB-53, on the assignment of the Navy Shipbuilding Directorate, developed a draft design for replacing the existing anti-aircraft weapons with 2 x 4 45-mm automatic AU ZIF-68 with the Fut-B radar system and 4 x 4 25-mm 4M-120P mounts with autonomous guidance. All new anti-aircraft artillery was located on each side on the lower bridge wings and near the aft boiler casing. TsKB-53 proposed to develop a technical design according to the adjusted assignment, ensuring a linear arrangement of 45-mm anti-aircraft mounts, and also replacing the Rif and Guys-1M-4 RAS with the new Fut-N station.

The revised design was reviewed in 1955 by the Navy's central administration and was not recommended for

*Project 41 destroyer. TsKB-53 variant.*



Проект модернизации зенитного вооружения эсминцев проекта 30. Вариант ЦКБ-53.

further design. The main reason given was the half-hearted nature of the modernization, i.e. it did not concern the replacement of the main caliber artillery with universal artillery, which had appeared by that time and was installed on ships of projects 41 and 56. The maximum overload of the ZOBIS project should not have exceeded 270 tons. Otherwise, due to the decrease in the reserve of buoyancy, the unsinkability of the ship in the event of flooding of any two adjacent compartments would no longer be ensured. In addition, with an overload of more than 300 tons, serious reinforcement of the hull was required in terms of overall strength. Therefore, universal artillery could not be installed on the ZOBIS project. And one more doubt expressed by the commission - the successes achieved by this time in the creation of rocket technology gave rise to confidence in the futility of barrel artillery. A fundamentally correct decision in the direction of modernizing these ships turned out to be only a waste of time. The ships of the ZOBIS project served for quite a long time in their original form.

None of the projects developed during this period to modernize the anti-aircraft armament of most cruisers and destroyers of the domestic fleet (projects 26, 26bis, 68bis, 7) by replacing the 37-mm AU fi II with the 45-mm AU ZIF-68 were implemented. The ships of the ZOBIS project were to be replaced by more advanced ships of the 41 project - it was planned to build 110 units. Of the eight options, the twin-turret one was naturally chosen. In December 1949, they began building the lead destroyer Neustrashimy. In December 1950, they began building four more ships of the installation series. The destroyer had many new features, including armament. But the main caliber was not quite turret-type. The 130-mm SM-2-1 artillery mounts were deck-turret-type, i.e. open at the rear. This was done to reduce the weight of the installations. They were very heavy. The ship's displacement was 3830 tons, which the leadership of the Ministry of Shipbuilding Industry considered unacceptably large and proposed to reduce it by 30%. By decision of the Politburo in April 1951, it was decided to limit the construction of only one ship and switch to a smaller version while maintaining the same armament. At the same time, they agreed to reduce the cruising range. But this was a magnificent ship with great modernization potential.

The Project 56 destroyer, which followed Project 41, was made smaller, as planned, with a full displacement of 3,230 tons. The lead ship was laid down in March

1953. A total of 27 units were built. These were the last "classic" destroyers of the domestic fleet. Their appearance was about 10 years late. In terms of artillery and anti-submarine armament, they were significantly inferior to the American destroyers of that time.

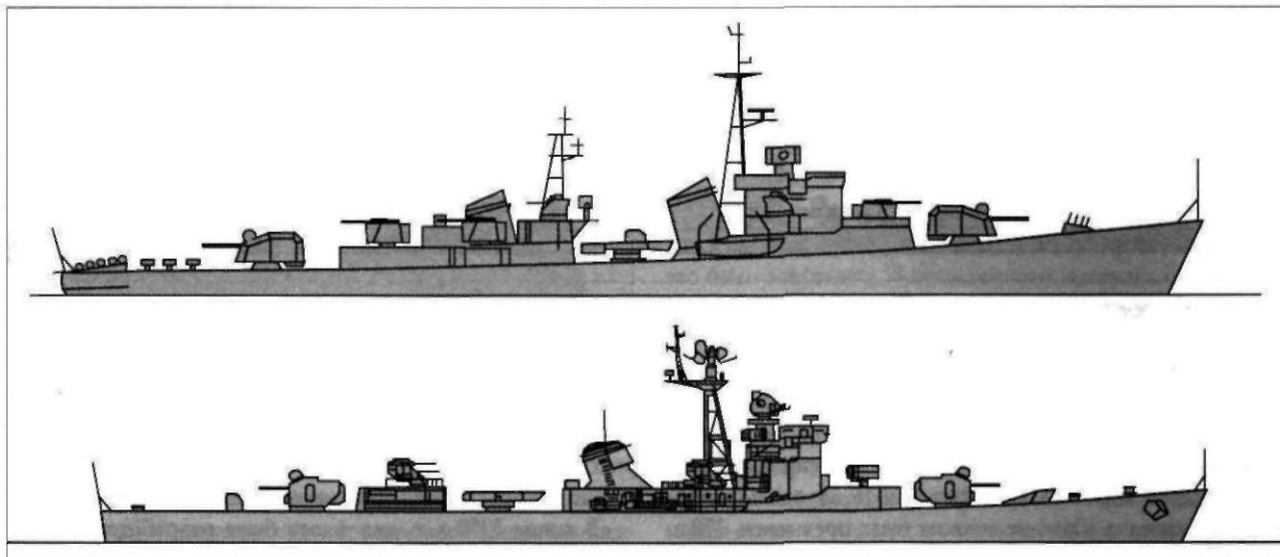
In the late 1950s, a whole range of artillery guns was developed for the navy. All of them were turret-type, universal, automatic. Later, 23-, 57- and 76-mm AU were used in subsequent projects. But the magnificent 100-mm SM-52, intended for patrol ships and as a universal caliber for cruisers, and the 130-mm SM-62, intended for destroyers, were never in demand. True, the SM-62 was going to be installed on Project 56 from the 31st ship, but the series ended much earlier.

Project 61 destroyers were included in the 1956-1965 program with construction in 1960-1965 at Plant No. 190. The estimated number was 31 units. Unlike the Project 56 destroyer, in addition to the universal turrets for the 130-mm SM-62 guns, they had enhanced anti-submarine weapons.

Due to a change in naval strategy, design work was suspended. The ship underwent a radical redesign, later turning (under the same index Project 61) into a full-fledged missile destroyer with the M-1 ZURS.

The only thing I would like to say about the patrol ships is that they never worked out. Stalin's constant demand that patrol ships should have a displacement of no more than 1,000 tons meant that practically everything had to be sacrificed to bring the project into line with these parameters. Including armament. All this led to the fact that Project 42 and the subsequent Project 50 were equipped with 100 mm shield guns, which did not meet any requirements for modern combat. The only acceptable Project 44, developed at that time and carrying two 100 mm SM-5 turrets, was not approved because its displacement exceeded 1,500 tons. The ship had a speed of 28 knots, a range of 4,000 miles at a speed of 16 knots, armament: 2x2 100-mm SM-5, 4x2 45-mm SM-16, 4x2 25-mm AU, 1x3 533-mm TA, 1x24 mortar, 6x1 mortar. This was the first attempt at unification. The ship of Project 44 was to be built in the same hull as the squadron minesweeper of Project 259. The idea was good, but it did not happen. Minesweepers of Project 259 were also not built and were not even planned for construction.

The 1956-1965 program included the development and subsequent construction of patrol ships immediately



Patrol ships of projects 44 and 49

two projects. The first was Project 47 with a 100-mm AU based on Project 50. It was planned to build 26 units in 1958-1962 at Plant No. 820. The second was Project 49 with 100-mm SM-39 automatic guns, developed specifically for patrol ships. They were going to build 35 units in 1960-1965 at the same Plant No. 820. The SM-39 automatic gun was made of metal and underwent factory testing. But the entire patrol ship program was, unfortunately, curtailed.

All work on the Project 309, planned under the same program—a base air defense ship in the hull of the Project 188 landing ship—was also stopped. Another attempt at least some kind of unification.

In 1954, TsKB-57 received the design specifications for the modernization of Project 7U destroyers—a kind of attempt to extend their service life at a more modern level. The 130-mm AU and 37-mm anti-aircraft guns were completely dismantled, and the radar was completely replaced. According to the results of the study, the destroyers were to have 3 100-mm AU B-34, 2x4 45-mm ZIF-68 automatic guns and 2 RBU-1200. Then, 2x2 25-mm automatic guns were additionally placed. Ultimately, having assessed the cost of the re-equipment work, it was decided to abandon the re-equipment and reorient all funds to work on new projects.

Of the entire cruising program, the construction of the Project 68bis series was intensively carried out. They differed from Project 68K in their slightly larger displacement and had an extended forecastle. They switched to a full

welded hull. The cruisers had new means of location and communication. Italian experience was clearly used in their design, and in appearance they were very similar to the Italian heavy cruiser Bolzano. True, the latter had 8 203-mm guns. But ours, due to the reduction of the caliber to 152 mm, had improved seaworthiness, unsinkability, habitability and increased cruising range. Having a reserve of areas, it had great modernization potential.

The construction of Project 68bis light cruisers was resumed at nine slipways at four plants in Leningrad, Nikolayev and Molotovsk. The first ship, Dzerzhinsky, was laid down in Nikolayev on December 21, 1948. This was the largest series of cruisers in the history of domestic shipbuilding. Beginning with the 15th ship in the series, Shcherbakov, construction was carried out according to the improved Project 68bis-ZIF. On it, the 37-mm machine guns were replaced by quadruple 45-mm machine guns with power guidance and firing radars.

N.S. Khrushchev, who came to power in 1953 after the death of I.V. Stalin, halved the five-million-strong army, transferring all resources to the restoration of the national economy. Despite his "voluntarism," N.S. Khrushchev (we must give him his due) immediately understood the importance of missiles, immediately assessing them as the main restraining factor in the confrontation with the capitalist world. He adopted a policy of decisive rearmament of the army and navy, although he was mistaken in believing that missiles could do everything. The development of artillery was practically stopped; it was relegated to



Proposal of TsKB-57 for the modernization of the destroyers of the project

7U

only a supporting role. The full-scale destruction of the fleet, the most expensive component in the arms production system, began. The era of missile weapons was approaching and the construction of a number of artillery ships was, as N.S. Khrushchev believed, inappropriate. But scrapping almost completed ships was also an economic crime. The unfinished cruisers of Project 68bis had to be treated with particular care. These cruisers had hulls made of excellent steel and were equipped with reliable power plants, which allowed them to serve until the early 1990s. Of course, the raider concept was absolutely unrealistic in the 1950s—the development of location, coastal and naval aviation excluded the operation of cruisers. With few exceptions, the Project 68bis cruisers served out their days in their original artillery version and were intended primarily to support landings and other actions against enemy coastal forces.

A total of 14 Project 68bis cruisers were built. Another 7 Project 68bis-ZIF cruisers were in various stages of completion, mostly already afloat. If we had preserved all the cruisers, including the unfinished ones, modernizing them in accordance with the demands of the time, there would have been no need to build new missile carriers and helicopter carriers, and all our shipbuilding programs of the 1960s-80s would have developed completely differently.

Two Project 68bis cruisers were converted for testing missile weapons. The M-2 anti-aircraft system, a slightly modified version of the conventional S-75 land-based system, was tested on the Dzerzhinsky. The Strela anti-ship missile system, created by modifying the Kometa missile system previously designed for the Tu-4 aircraft, was tested on the Admiral Nakhimov. Both approaches proved unpromising. They tried to return the Admiral Nakhimov to its “primitive” state, but then it was scrapped. The Dzerzhinsky served as a missile carrier until it was removed from service in the 1980s. It could only be called a missile carrier conditionally, since the M-2 system used missiles that were enormous by ship standards, over 10 m long. Before launch, they had to be filled with toxic and aggressive fuel, and the entire ammunition complement included only 10 such missiles.

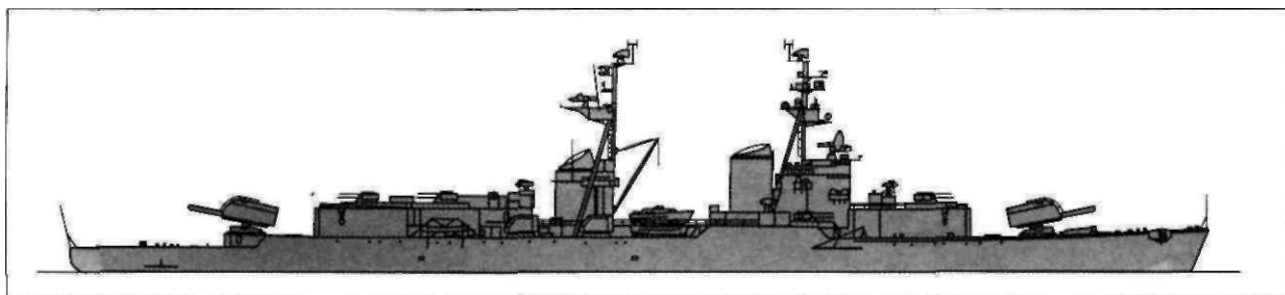
In 1954-1956, design and engineering work began on equipping cruisers and destroyers under construction with anti-ship missiles and air defense systems. The unsuccessful KSS (Strela naval projectile) system was followed by the KSSH (Shchuka naval projectile) system, which was more suitable in its parameters. Its disadvantage was that it could only be launched from a stabilized mount.

innovations. It was followed by the more advanced P-35 complex for large ships and the P-15 for small ones. The advantage of these complexes was that the missiles could be launched in pitching conditions from unstabilized launchers, which made it possible to place them in compact tubular launchers. Both complexes plexa had a great future.

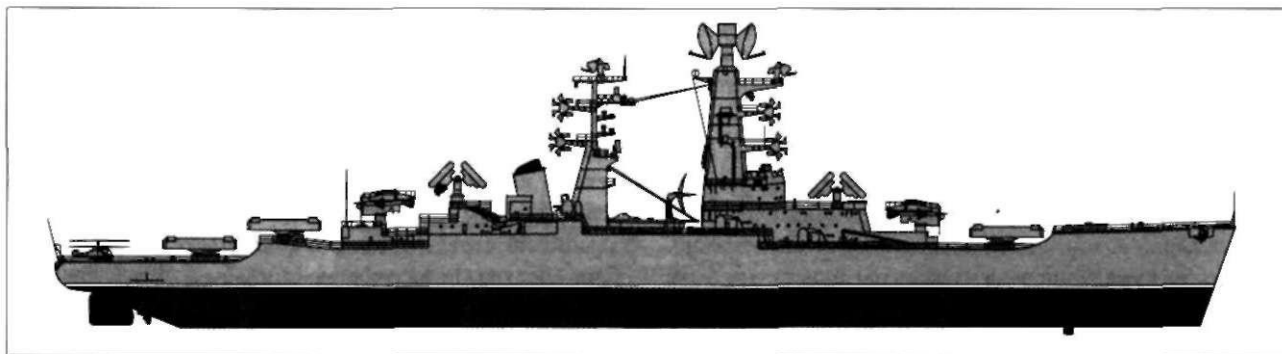
Developed Several air defense systems. The M-1 complex (later Volna) with a firing range of up to 15 km, the M-2 complex (later Volkhov) with a firing range of up to 30 km, which was recognized as unsuitable after testing and was abandoned, the M-3 complex (later M-31) with a firing range of up to 60 km and the M-4 complex (later Osa-M) for self-defense. The M-4 complex was implemented only by the end of the 1960s. The long-range Fort complex was successfully implemented only in the 1980s, although with a greater firing range. Only the M-1 Volna complex was quickly and successfully developed and introduced into production, and it began to be installed on all newly built and modernized ships. At the same time, a number of artillery and anti-submarine systems were developed. It was decided to equip the unfinished light cruisers of Project 68bis-ZIF and the completed cruisers of Project 68bis with all these systems and missile weapons, and later on, cruisers of new projects.

In 1954-1957, a number of government decrees were adopted on the development of new ship projects. Several versions of missile cruisers, a helicopter carrier, an aircraft carrier, a ship for testing weapons, a training ship, a floating warehouse, a floating barracks, a floating submarine base, a rescue ship, and a tanker were developed. In general, there were many options for using this project with great benefit.

The first to be implemented was Project 67, which was supposed to be armed with KSS missiles. But since they did not satisfy the fleet, it was possible to install the KSSH missile system, which was structurally little different from its predecessor. In addition to 2 launchers and fairly large magazines for KSSH missiles, this project was supposed to accommodate 4x2 100-mm SM-52 AU and 6x4 57-mm ZIF-75 AU. At first, it was supposed to complete 3 ships according to this project, the lead of which was to be the Black Sea Admiral Kornilov with a delivery date of 1954, but then they limited themselves to 2 ships, which would have been optimal. The KSSH system turned out to be not very reliable, which was shown by its operation. But in this project, this fact could have been determined much earlier. Then there would be no need to build destroyers of projects 56E, 56M, 57bis, from which the KSSH system had to be quickly removed and



Light cruiser project 67



Light cruiser of project 64

to add a more modern P-15 to projects 56E and 56M, and to completely convert project 57bis into an air defense ship, installing the M-1 system on it.

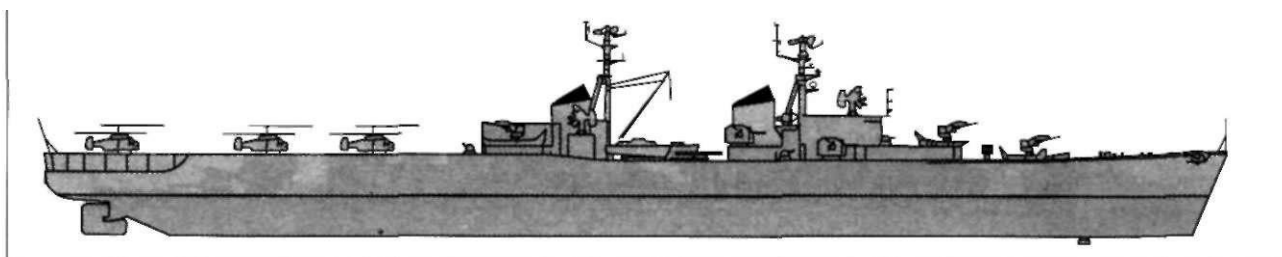
The Project 67 ship, with its large areas and hence great modernization potential, could have been used for many years to test new weapons systems. Then it would not have been necessary to remake the older Project 26 Voroshilov cruiser into a Project ZZM test ship. In particular, the M-11 Shtorm and M-4 Osa-M SAM systems were tested on it. Having two Project 67 test ships would have closed the issue for about thirty years.

After successful testing of the P-5 missile for submarines, work began on the P-6 missile for operations against submarines against naval formations. It was decided to arm the unfinished cruisers with this missile as well. By a Government decree of July 1957, the delivery of the lead ship of Project 64, Kronshtadt, was scheduled for 1960, and the remaining 6 for 1961-1962. These cruisers were assigned many tasks. They were intended to destroy large ships, destroy important coastal facilities, and also to participate in the air defense of naval formations. Their armament included 3 quadruple mounts of the P-6 (later P-35) complex, 2 twin M-3 SAM launchers, 2x2 M-1 SAM launchers and 4x2 76-mm ZIF-67 AU with the corresponding fire control systems. Since the development of a long-range system of the M-3 type SAM was significantly delayed, to get out of the situation, it would be possible to install the M-1 system in its place in addition to the two already on the ship. One type of SAM would only improve the operational component of the project. Characteristic is the appearance of 76-mm AU, which is conceptual for the air defense of ships. They were intended to finish off air targets after anti-aircraft missiles hit them. The bow launcher had the ability to reload, since

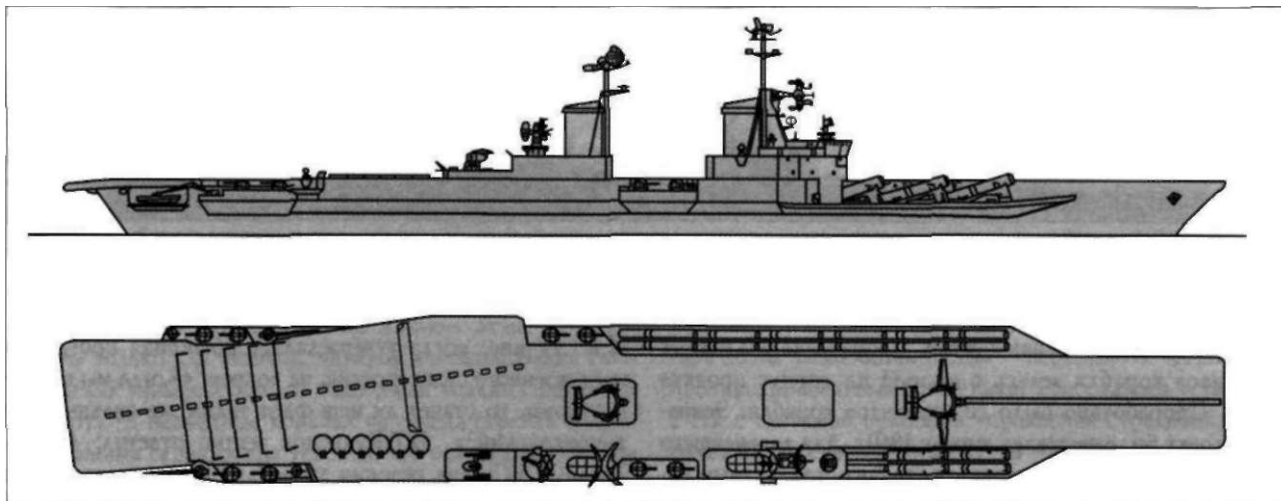
In front of it there was a hangar with spare missiles. The Project 64 cruisers represented a fairly significant striking force. There were no obstacles to their introduction into service. It was possible to refit some of the already built Project 68bis cruisers in order to have two such ships in each of the four fleets. Then there would be no need to build the weaker Project 58 and Project 1134 ships, which entered service at a later time.

A project was developed to convert a Project 68bis cruiser into a helicopter carrier for 14 Ka-25 helicopters — a long-range anti-submarine defense ship. In addition to helicopters, the armament consisted of 4 twin M-1 SAM launchers, 4x2 76-mm ZIF-67 AU and 2x5 TA for anti-submarine torpedoes. It was also assumed that 2 RBUs would be installed. It would have been possible to limit ourselves to one ship for trial operation, to work out the concept. Commissioned in 1960-1963, it would have been 5-7 years ahead of Project 1123, which would never have taken place. The fact is that already during the operation process it would have become clear that the 14 existing helicopters could not provide round-the-clock patrolling of the search zone, which became clear much later on project 1123. It was not for nothing that the third project 1123.3 was supposed to be built in larger dimensions and with a larger number of helicopters.

In 1961, TsKB-17 developed a technical design for a strike ship for the Northern and Pacific Fleets. The ships were planned for construction in 1965. According to the technical specifications, the ship was to be equipped with 20 long-range cruise missiles (1,000-1,500 km). As a result of the study, it turned out to be 18 P-7 cruise missiles (firing range of 900-1,000 km) and 6 P-100 missiles (firing range of 2,000 km) - there were simply no others. The ship's displacement was 11,000 tons, speed of 34 knots, autonomy of 30 days, cruising range of 6,000 miles at a speed of 18 knots. In addition to the cruise missiles, the



Project for converting a Project 68bis cruiser into a helicopter carrier



Attack ship for the Pacific Fleet and Northern Fleet. Developed by TsKB-17.

The missiles had 1 M-1 SAM launcher (ZIF-102), 8x2 57-mm ZIF-72 AU and 4-6 aircraft for additional reconnaissance of targets.

Another ship converted from the Project 68bis cruiser could have been a light aircraft carrier, the design of which was also developed and the appearance of which is easy to guess. Of course, it would not have been exactly the same ship that was previously designed under Project 85, as a ship intended to provide air defense for surface ship formations at sea and in combat. Most likely, it would have been an experimental ship with all its specifics. And it would have carried only 20-25 aircraft. But this would have been the first attempt in practice to try, as they say, "touch with your own hands", all the systems, primarily the catapult. Nothing would have given more experience for the subsequent development of aircraft carrier ships than the experimental operation of this project. And it is unlikely that ships like Project 1143 would have appeared then, and after accumulating "strength", they would certainly have started building real aircraft carriers, of course not like Project 1160, but certainly soon (by the end of the 1960s) the AVL project would have appeared.

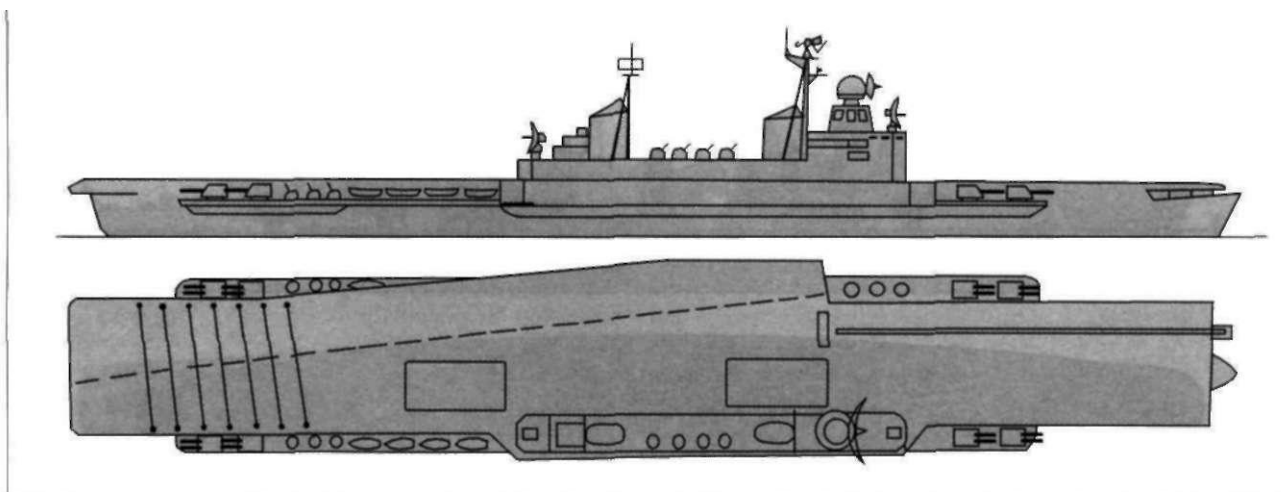
2-4 training ships would not hurt at all. Their value is hard to overestimate.
What was the end result?

There would be about 21 ships in operation, built on the same hull, with identical propulsion and other installations, which would greatly simplify operation and repair. Especially since personnel training would take place on ships of the same design.

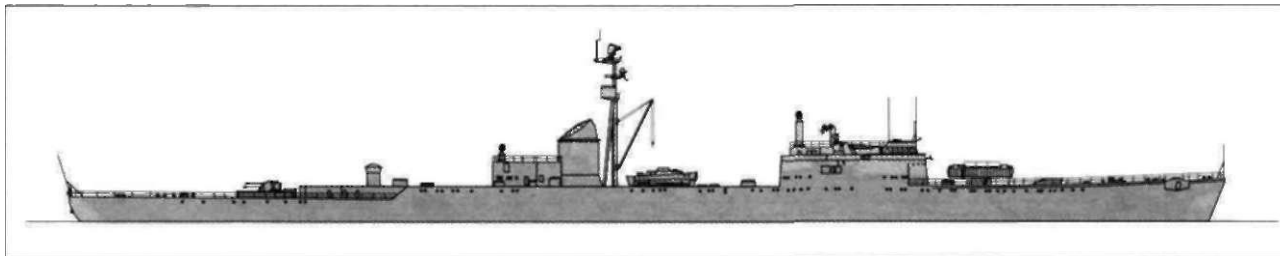
The fleet was reaching a more modern technical level, 5-7 years ahead of what actually happened. And most importantly, the concept for the development of ship types would have already been developed.

If we had already begun to slowly build aircraft carriers, like other naval powers, there would have been no need to look for "inadequate responses," and a whole series of submarines with cruise missiles would not have appeared, aimed primarily at aircraft carrier formations of potential enemies, whose combat stability without air cover was also problematic.

The Project 1126 missile ship was included in the military shipbuilding program for 1960-1965. It was assumed that this would be a flagship providing centralized control of air defense assets as part of search and strike groups intended to combat enemy nuclear submarine missile carriers. Thus, another attempt was made to provide air defense for the ship formations.



Option for converting the Project 68bis ZIF cruiser into an aircraft carrier



Training ship based on the Project 68bis cruiser

in the ocean without creating aircraft carriers. The development of various ship options was carried out based on the Project 68bis hull. 20 ship options were developed. The draft design was approved in July 1960. For further design, a version with a standard displacement of 9,000 tons with boiler-turbine units with a capacity of 2x45,000 hp was recommended, with a speed of 33-34 knots, and a cruising range at a speed of 24 knots of 3,500 miles. The ship was to be equipped with 2 M-31 long-range SAM systems, 2 M-11 universal medium-range SAM systems, 4x2 57-mm AU, 2x3 TA for anti-submarine torpedoes, 2 RBU-1000, and appropriate electronic weapons, including a fighter aircraft guidance system. A later version of the development already had the M-1 SAM, as the most appropriate to the realities of that time, the Grom guidance station for the M-1 SAM and the Voskhod RAS. By a Government decree of June 1961, the development of the technical project was stopped, as it was said, "in order to concentrate efforts on the creation of more promising ships."

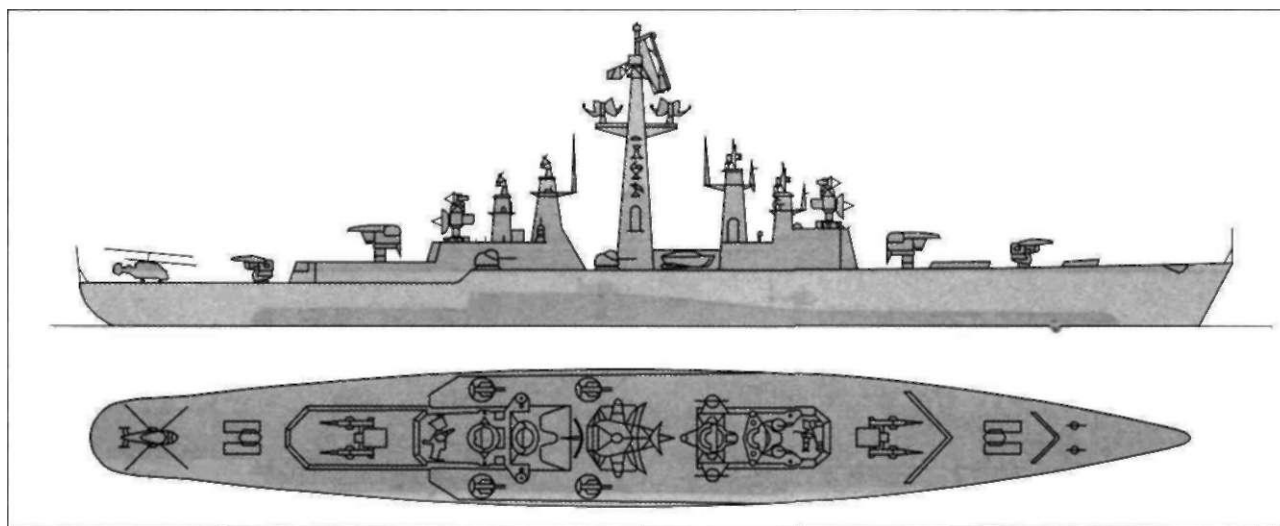
Project 1126 was created without the participation of N.G. Kuznetsov, who was removed from his post at the end of 1955 after a rather dark story with the explosion and death of the battleship *Novorossiysk* in Sevastopol Bay. At that time, the Minister of Defense was G.K. Zhukov, who had not had a good relationship with N.G. Kuznetsov since Stalin's time, and the explosion of the battleship was a good reason to settle scores. On the one hand, when the first post-war shipbuilding program began to be curtailed under N.S. Khrushchev, N.G. Kuznetsov harshly declared that he "would not allow HIS fleet to be robbed." On the other hand, even under

When I.V. Stalin was approving the extensive post-war shipbuilding program, N.G. Kuznetsov answered the question: "When we build all this, will our fleet be as strong as the American one?" honestly: "No." Then I.V. Stalin reasonably noted: "Then why are such enormous efforts needed? Wouldn't it be better to spend the money on something more useful!"

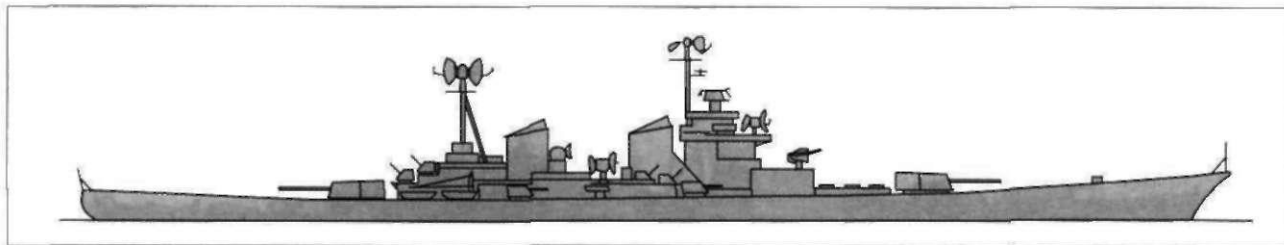
I.V. Stalin, rightly reasoned that in the first post-war decade the fleet would be coastal, and personnel for the future fleet could be trained on any ships, not so ambitious. So N.S. Khrushchev and G.K. Zhukov were "right" in removing N.G. Kuznetsov from the Navy command. New leaders were needed for the new era. But this had to be done in a different form, which G.K. Zhukov - a man of the "Stalin" school, for whom people were simply expendable material - unfortunately, never knew how to do. After the end of the war, when the stormy praise of G.K. Zhukov began, I.V. Stalin said that "for this commander, a population of six hundred million people is needed." And he knew what he was talking about.

The last thing N.G. Kuznetsov managed to do before his resignation was to push through the development of a cruiser with 180-mm artillery (again 180 mm!). He understood perfectly well that missile weapons, which were just beginning their triumphant march, were still weak and insufficiently effective, and a ship was needed to duplicate them. This is how Project 84 with universal 180-mm twin-gun turrets appeared.

After N.G. Kuznetsov was removed, work on this project was stopped, as was the project for the light aircraft carrier Project 85.



Project 1126 missile ship. Late version.



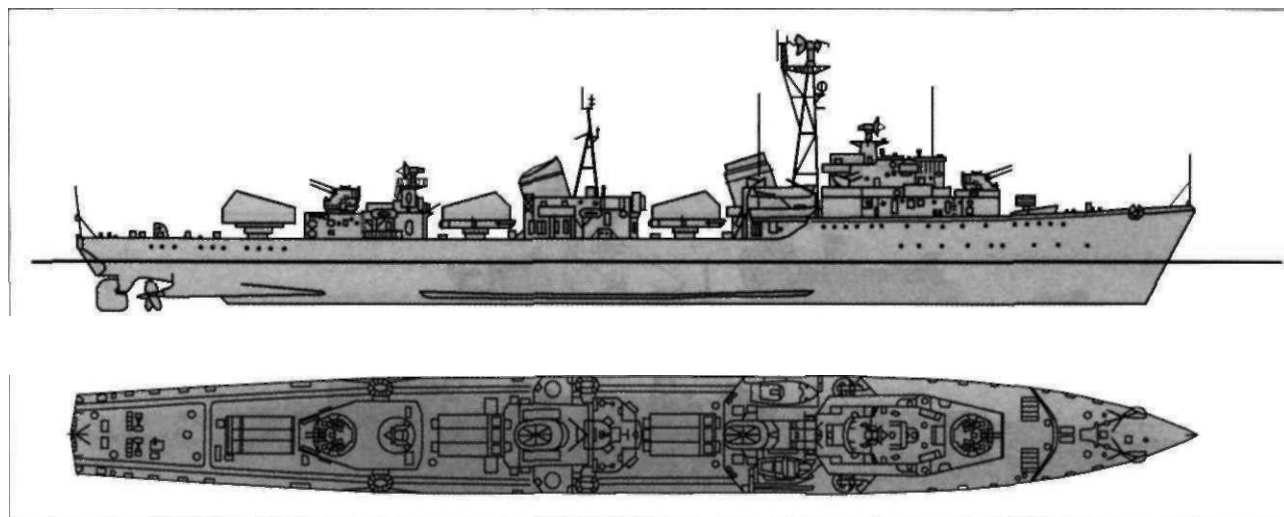
Possible upgrade option for Project 82 cruiser

N.S. Khrushchev believed that at this stage ships were needed only for visits, parades and flag demonstrations, paying attention only to submarines with missiles on board. And he allowed surface ships to be built only in small series, provided that they were "small". The citadel of the Project 82 heavy cruiser "Stalingrad" was launched and later used for missile testing as a target. The identical "Moskva" was dismantled on the slipway. If we take into account that we were designing missile and artillery ships until the mid-1990s, designing artillery guns with a caliber of up to and including 406 mm, then these ships could have waited for their time. They could have stood mothballed for a long time. And we had enormous opportunities for modernization with partial rearmament, given their dimensions. It is appropriate to recall here the Italian cruiser Giuseppe Garibaldi, which was converted into a missile attack ship with the installation of Polaris missiles. Something similar, but with greater capabilities, could have been done with the Project 82 cruiser. As an option, one could propose a partial modernization with the removal of the second turret, in place of which silos with 15-18 R-21 missiles (later R-29K), 3x2 M-1 SAM mounts are installed, while only the bow 130-mm AU are removed. Naturally, control systems and radar are added. Constantly modernized, the ships could serve, like Project 68bis, until the early 1990s, without losing their striking power.

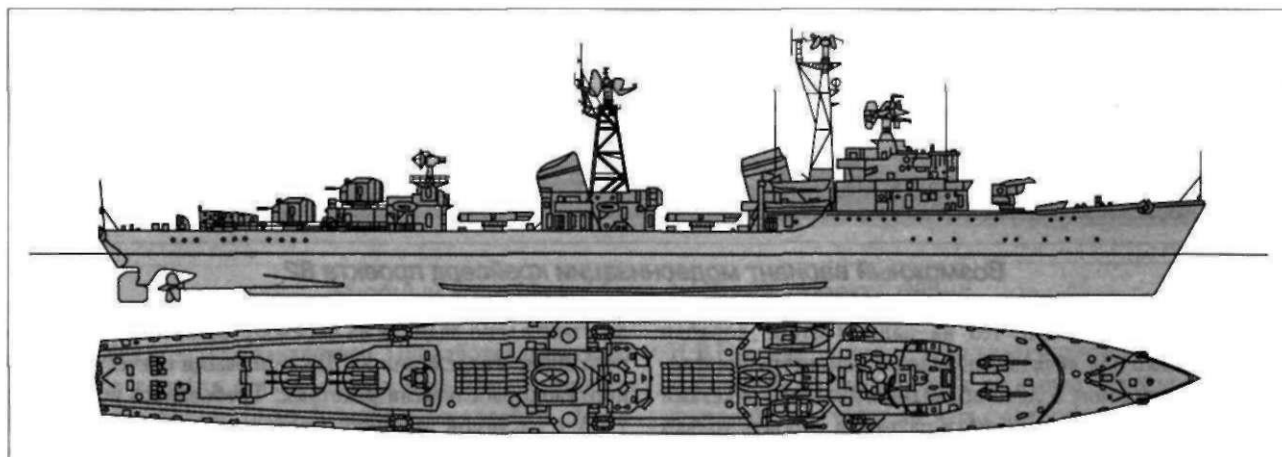
Even before the completion of the work on replacing the anti-aircraft artillery on the ZOBIS project, a second program was undertaken to rearm these ships, but this time with missile technology. In December 1954, N.G. Kuznetsov

The task of rearming the destroyers of the ZOBIS project with "KSSh products" - the first domestic anti-ship missiles - was approved. It was necessary to install 2 launchers with a fire control system, 12-14 KSSh missiles, and quadruple 45-mm ZIF-68 AU. Even the first calculations showed that the overload was approaching 500 tons, which was prohibitive. In this situation, as an alternative, options for arming the destroyers with P-15 missiles were considered, for the launch of which small-sized and significantly lighter launchers were required. On August 25, 1955, the USSR Government issued a decree "On the creation of a Project 60 ship armed with P-15 short-range homing aircraft-missiles in the hull of a ship of the ZOBIS project." Several options were developed, differing in the number of missiles, storage and supply systems. The rest of the armament was the same and included 2x4 45-mm AU ZIF-68 with one Fut-B fire control station, RAS Rif-Shch, Zalp-Shch and Parus-M, navigation RAS Neptun and search station Mast-P. All variants also had torpedo armament and RBU-2500. The development was carried out by TsKB-53. After reviewing the preliminary studies, the Navy leadership decided to increase the caliber of the anti-aircraft artillery. It was recommended to install 57-mm AU ZIF-57. The development of Project 60 was transferred to TsKB-57.

One of the options involved placing the missiles not in hangars, but directly on the built-in launchers, fully fueled and ready for launch. A full salvo could be fired in 2 minutes, which significantly increased the probability of hitting the target. The launchers of the installation were placed in place of the TA and the aft turret of the main cannon.



Option for equipping Project ZOBIS destroyers with missile weapons



Option to enhance anti-aircraft armament of ZOBIS destroyers

Libra, with two of them each having two torpedo tubes suspended for anti-submarine torpedoes.

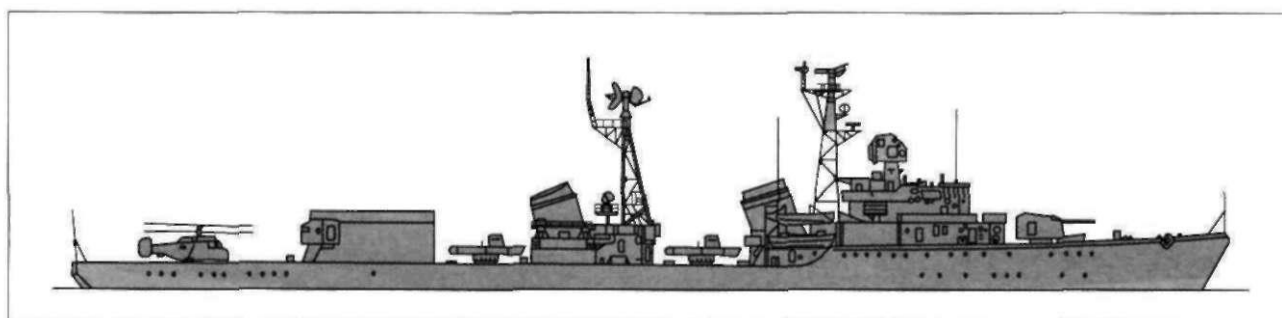
Unfortunately, a year later (in 1957), the Commander-in-Chief of the Navy refused to continue work on this project "due to the lack of prospects for the P-15 complex." Apparently, the range of the P-15 missiles (40 km), developed mainly for boats, was considered insufficient for destroyers. Thus, another opportunity to significantly modernize a fairly significant number of Project 30bis destroyers was missed. One can only regret the premature refusal to install the P-15 complex. The complex, having been developed, was even supplied for export, and its improved modification P-15M with folding wings, launched from a container launcher, was installed on large ships of Projects 56M and 61 during their modernization in the 1970s. Nevertheless, there was a decision by the commission that "with the existing anti-aircraft armament, the destroyers of the ZOBIS project cannot go to sea to carry out combat operations." The most radical solution would have been to install the M-1 SAM system on the ship. This was accomplished by issuing an assignment on April 3, 1958, to develop such a conversion. According to the technical specifications, it was supposed to install the M-1 launcher with an ammunition load of 20-24 missiles. The Yatagan control system, 2x2 76-mm ZIF-67 artillery mounts with the Turret control system, the Angara early warning radar and other electronic warfare systems were installed.

The technical committee recommended rearming 20-30 ships. Such an event would significantly strengthen the fleet's air defense at minimal cost. Despite the positive feedback from a number of organizations,

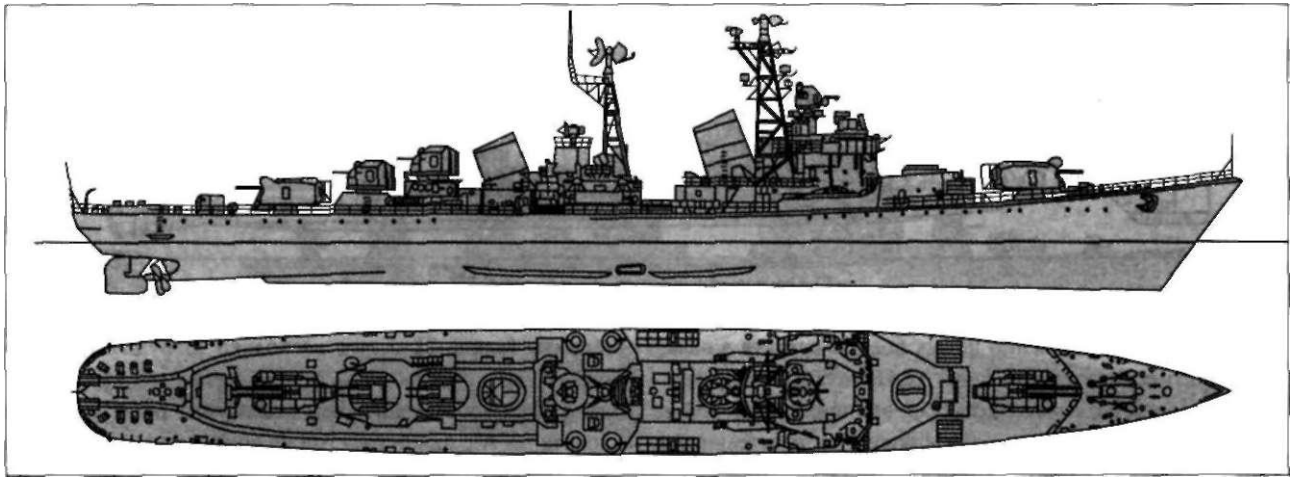
The Navy leadership has given priority to the construction of new ships.

The last attempt to at least partially solve the problem of strengthening the anti-aircraft and anti-submarine armament of the main part of the Project 30BIS ships with minimal costs was Project 1127. It was developed in 1959-1963 at TsKB-202 at the Dalzavod in Vladivostok. Instead of 85-mm and 37-mm anti-aircraft artillery, it was planned to install 4 30-mm AK-230 AU with the Rys control system, as well as place 2 RBU-6000 and a Ka-15 or Ka-25 helicopter by removing the aft main caliber turret. But they did not go for it, since everyone already understood perfectly well that the Project 30BIS ships were approaching such a degree of wear and tear and that the remaining equipment was already so outdated that there was no longer any point in carrying out any work. All this should have been done much earlier.

The destroyers of Project 56 were much luckier. The ships were designed and built after the war at a new technical level. And although they had the same shortcomings traditional for our destroyers, they were nevertheless subsequently modernized to carry modern systems, including missile systems. And they were a kind of experimental base for testing the concept. Of all the re-equipments for the remaining "untouched" ships, only Project 56U was not implemented. It was developed in 1969 and proposed removing all 57-mm guns and installing 2x2 76-mm ZIF-67 AU and 4 30-mm AK-630 with the Turret and Vypel control systems in their place. The Angara and Platina RAS were supposed to be installed. The Osa-M SAM system was in the bow.



Project ZOBIS destroyer, modernized according to Project 1127



Project 56U destroyer

In order to ensure testing of new models of naval missile weapons, in 1963, TsKB-17 developed two projects for modernizing the Project 26 Voroshilov and Project 26bis Maxim Gorky cruisers into experimental ships.

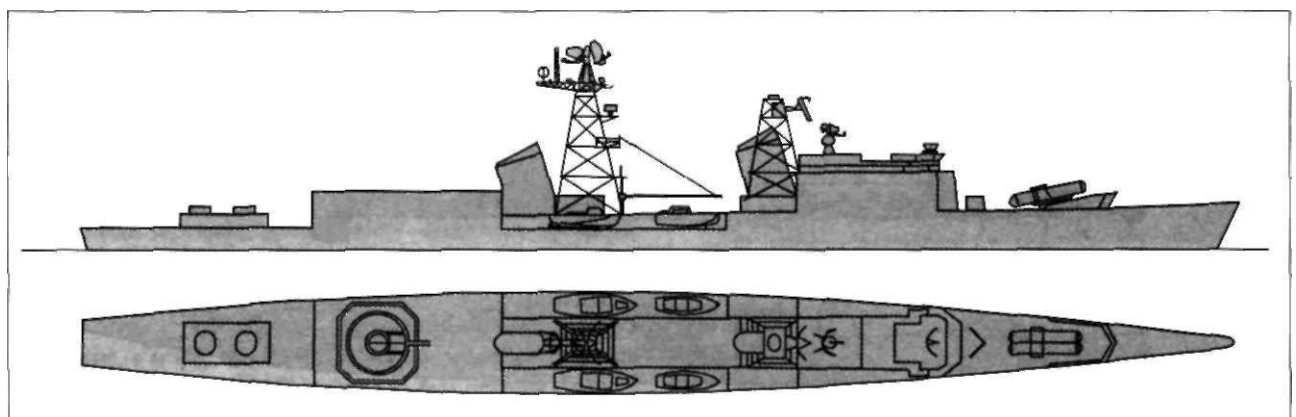
According to the ZZM project, the cruiser Voroshilov was refitted in Sevastopol in 1964-1965, with all its artillery removed. The ship, which received the name OS-24, tested the M-11 Shtorm and Osa-M air defense systems. It was also supposed to test cruise missiles, in particular the P-100. Why was Project 33 not implemented to modernize the Maxim Gorky into a ship for combat training and testing new types of weapons and equipment? This remains a mystery. It was supposed to test ballistic and cruise missiles. It remains a pity that nothing similar was created in the future, and the initial tests were carried out only on test benches.

The states opposing the USSR had a huge surface fleet, including numerous aircraft carriers, and a powerful shipbuilding industry. Therefore, achieving parity in this area was very problematic and would have required many years and enormous financial and material costs. At that time, the USSR lagged slightly behind the USA in the creation of nuclear submarines, and in the introduction of ballistic and cruise missiles, our fleet in the mid-1950s was even ahead of all foreign ones. In these conditions, a real opportunity arose to relatively quickly achieve parity with the US Navy in

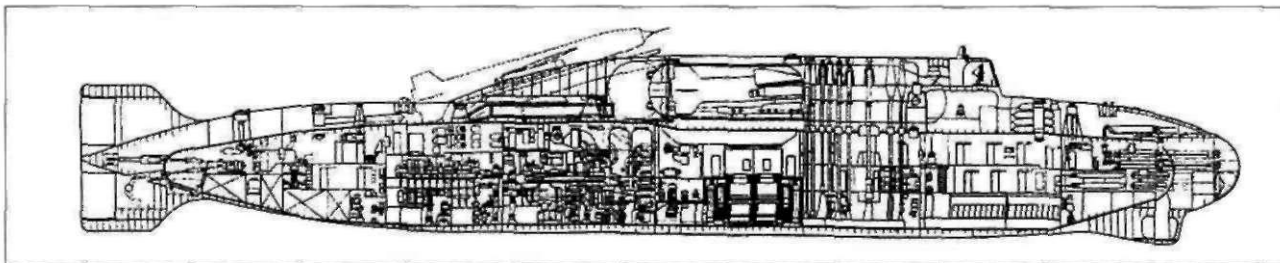
striking power of submarines, which began to be considered by the military-political leadership of the USSR as a decisive factor in a possible confrontation at sea. A decision was made to prioritize the development of nuclear submarines, including those with missile weapons. But they did not take into account that combat stability for submarines is provided by aviation (and therefore aircraft carriers) and surface ships of all classes - a balanced fleet.

Since the industry was unable to quickly begin building new types of ships, serial construction of previously designed destroyers, patrol ships, torpedo boats, minesweepers and submarines continued until the end of the 1950s and was carried out in parallel with the creation of nuclear submarines and other underwater and surface ships with new weapons. Simultaneously with the development of new weapons systems, intensive design work began aimed at finding optimal types of submarines and surface ships with missile weapons and other new combat and technical means. More than 50 submarine projects and over 70 surface ship and boat projects were developed. Intensive research and development work was carried out.

The cessation of construction of artillery cruisers made it possible to free up large slipways and begin mass construction of civilian ships for various purposes in order to renew the transport fleet, which was urgently needed. New production capacities were put into operation.



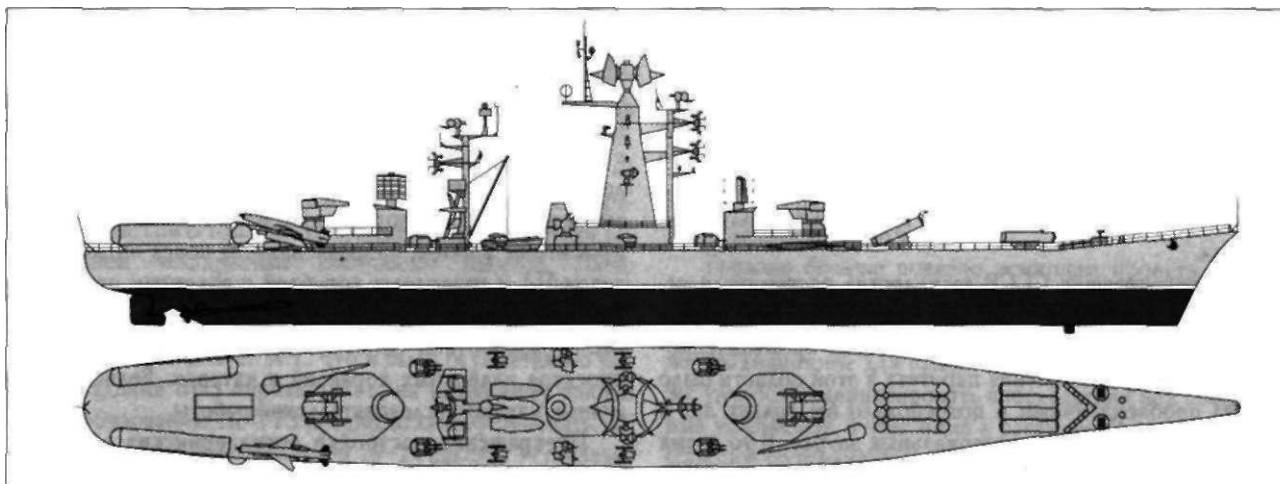
Project 33 modernization of the Project 26bis cruiser into a test ship



Project 653 submarine

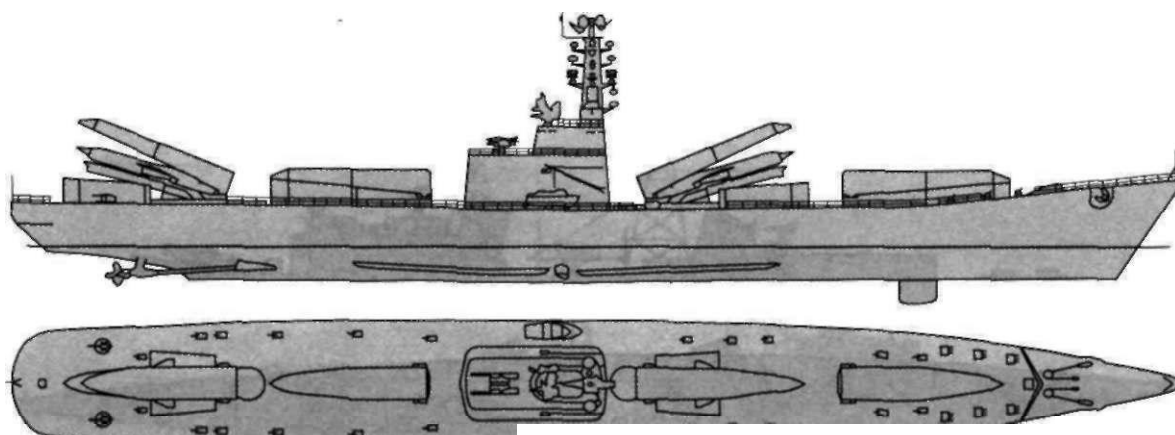
The emergence of qualitatively new combat weapons at the beginning of the second post-war decade opened up prospects for the creation of surface ships of fundamentally new types and classes with sharply increased offensive and defensive capabilities. And here I would like to mention one more missed opportunity - the arming of the fleet with long-range cruise missiles P-20. Since submarine ballistic missiles did not have a significant range (R-21 - only 1400 km), it was supposed to use cruise missiles at a greater range. For the Navy, it was supposed to adopt the P-20 missile, developed in the S.V. Ilyushin Design Bureau. The range of the missile is 3000 km at a cruising speed of 3M, flight altitude of 30 km (i.e. outside the range of air defense systems). The missile had impressive

dimensions (length 21 m), which somewhat complicated its placement on ships, but, nevertheless, it was going to be accepted into service. An experimental submarine of Project 627A with one missile on board was laid down, on which the complex was supposed to be tested. Following it, it was planned to build four serial submarines of Project 653 with 2 missiles on board, which were placed above the strong hull in 2 containers located parallel to the centerline. The containers were closed with one fairing, turning into the enclosure of the conning tower. The lead boat was planned to be delivered to the fleet in 1962. In parallel, surface carriers of the P-20 missile were also being developed, including on the hull of the destroyer of Project 56. There were many different options, but the "crown of creation" was the missile cruiser of Project 63. This was a combined



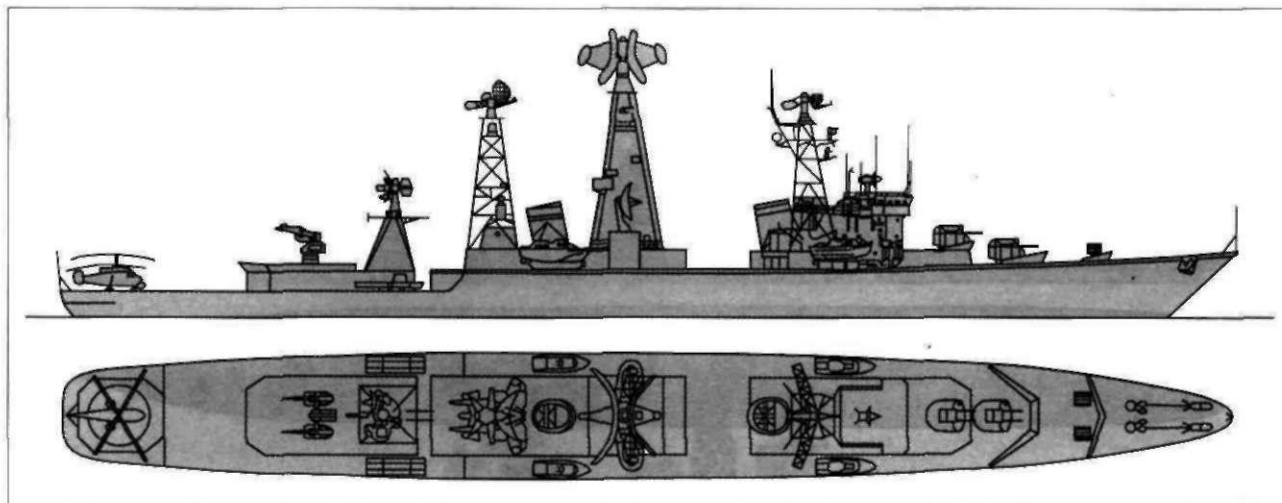
Final version

Project 63 missile cruiser



Impact Project

long-range ship



Project 62 radar patrol ship

variant. It carried not only P-20 missiles, but also P-6 missiles. It was a nuclear-powered cruiser with a displacement of 20,540 tons, having impressive dimensions of 225 x 22.8 x 8 m, with significant (up to 80 mm) armor. The total power of the propulsion system of 132,000 horsepower ensured a speed of 30 knots. The armament consisted of 2 P-20 cruise missiles, 3x2 launchers for P-6 missiles, 2x2 launchers for M-3 SAMs, 4x2 launchers for M-1 SAMs, 4x2 76-mm AU, 2 RBU-2500. It was planned to build 7 units with a commissioning date of 1960-1964. The keel of the lead ship was scheduled for 1958. But in the first half of 1960, N.S. Khrushchev decided to stop all work on the P-20 cruise missile and all its carriers. The finished hull of the P-627A submarine was dismantled. The stake was placed on ballistic missiles, the flight range of which, with the later appearance of the R-27 missile by the Makeyev Design Bureau, increased to 2,500 km. And, as it turned out, completely in vain, since the fleet lost another strike commando even before there was no limit to the improvement of the roof of armored missiles, as time has shown.

In fairness, it should be said that in the first half of the 1960s, another attempt was made to install a long-range cruise missile developed by the Beriev Design Bureau. This was the P-100 Burevestnik with a range of 2,400 km and also impressive dimensions. The so-called long-range strike ship (UDD) was developed for it. And few people know that Project 667 submarines began as a carrier of these very cruise missiles.

From the beginning of 1956, the thirty-year era of Admiral S.G. Gorshkov began, who determined the development of the fleet.

Of the large surface ships, only two projects were under construction in the early 1960s: projects 58 and 61. The lead missile destroyer of project 58, *Grozny*, entered service on December 30, 1962. A total of four ships were built. Later, to give them a higher status, the ships were reclassified as missile cruisers, although with a length of only 142 m, they were far from cruisers. The ship carried two quadruple launchers for P-35 missiles. There were also two hangars for one reload. But in practice, at sea, this was impossible to do. The Project 61 air defense-anti-submarine patrol ship was assigned to the class of large anti-submarine ships (BPK). The lead ship, *Komsomolets Ukrainy*, was delivered to the fleet on December 31.

1962. A total of 20 ships of this project were built. A radar patrol ship, Project 62, was designed and laid down in the Project 58 hull, but construction was quickly stopped. And the ship turned out to be quite good, because the experience of ships of Projects 58 and 61 was taken into account.

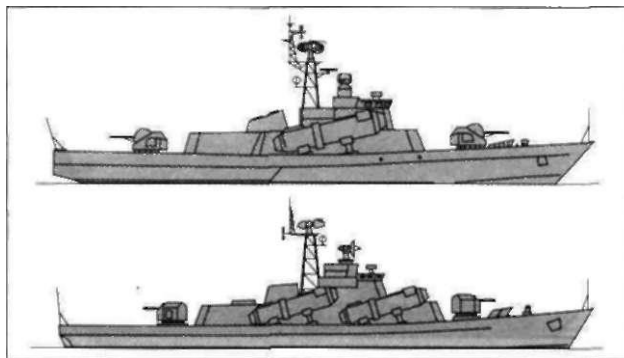
Subsequently, over the course of several decades, attempts were made to build radio-location picket ships with command functions, but a specialized ship was never built.

In 1958, TsKB-5 received the design specifications for the development of a small missile ship of Project 901 with two P-35 or P-6 missiles.

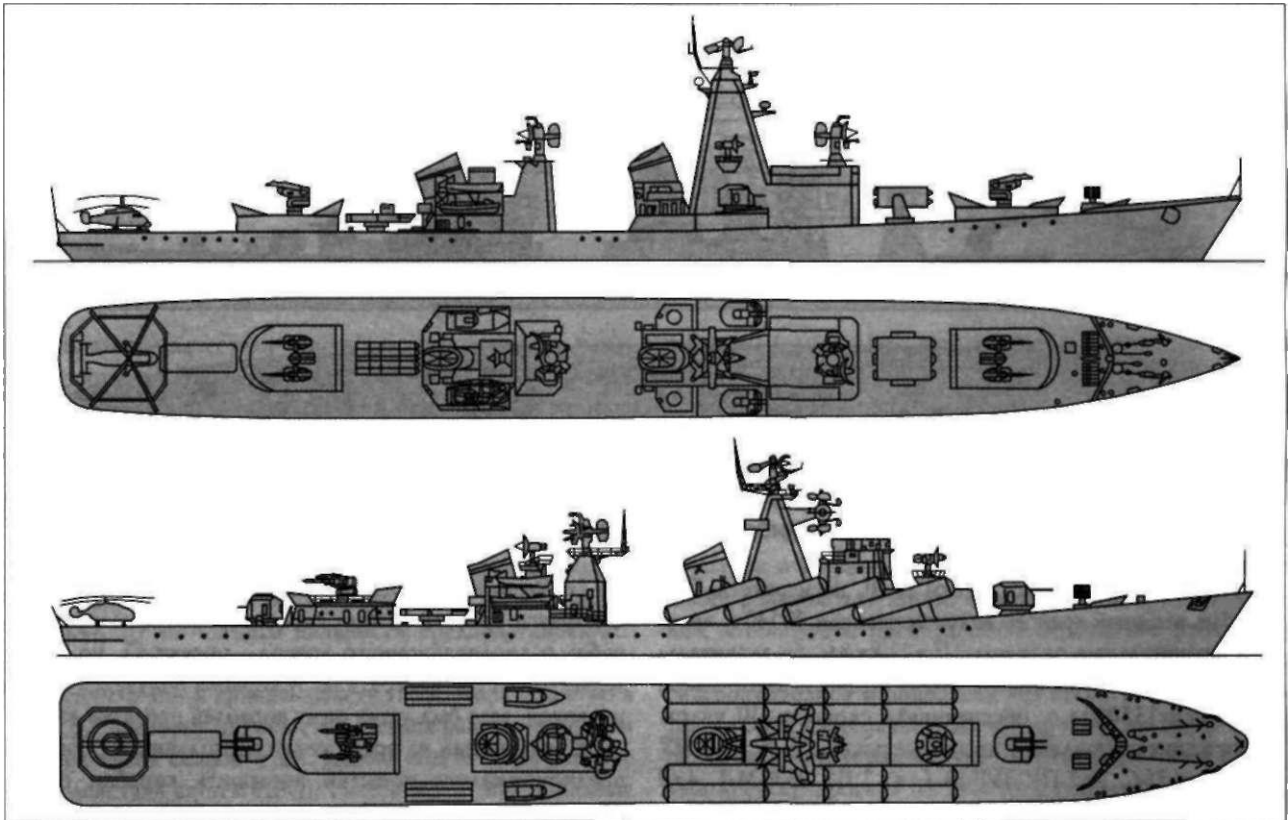
At the same time, TsKB-53 received the technical specifications for the development of a small missile ship of Project 902 with four missiles.

Based on the results of the studies, the displacement of the ships varied in the range from 400 to 1400 tons. The seriousness of the intentions is confirmed by the fact that Project 901 was trusted the technical design stage. According to the ponents. After all, As a result of the studies, significant research was conducted in a number of institutes, which, unfortunately, showed that such missiles were too big for small ships. There were quite a few well-reasoned reasons, so both projects were not implemented.

Project 61 was not entirely satisfactory in its anti-submarine functions and Project 1125 was developed "in pursuit" of it, the technical specifications for which were issued in 1958. Its main difference was that it carried on board the RBU-24000, a six-barrel launcher for the Vikhr anti-submarine missiles with a nuclear warhead, and had a permanent base for an anti-submarine helicopter (or two).



Small missile ships of projects 901 and 902



Large anti-submarine ship of Project 1125 and missile cruiser of Project 900

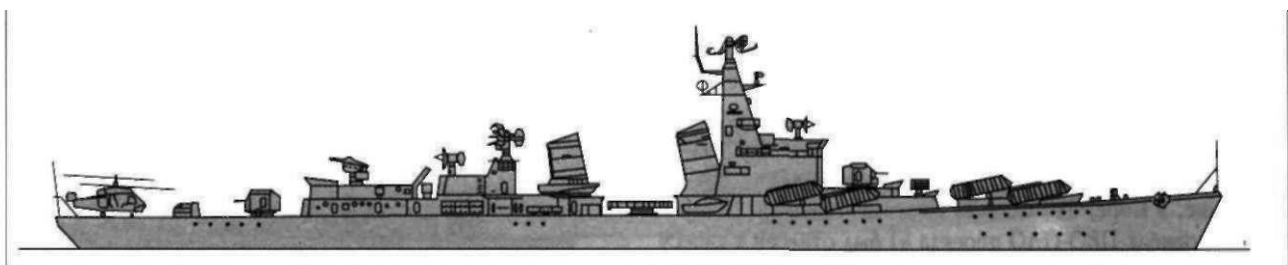
The displacement was 5,900/6,650/7,400 t, **running speed** 40 knots, cruising range of 4000 miles (at a speed of 24 knots), dimensions 160x16x6m, armament: 2x2 76-mm AU ZIF-67, 2 RBU-6000, 3 PU SAM M-1, 1x5-533-mm TA. The project was abandoned in favor of the Project 61 series and the PARK "Vikhr" remained in service only on our aircraft carriers.

Since Project 58 was also not entirely to the liking of the Navy command, since it was originally intended as a destroyer, it was also followed by Project 900 with P-6 missiles. Later, it was proposed to replace the P-35 missiles on Project 58 with P-6s for greater unification with submarines. The specifications for Project 900 were also issued in 1958. Displacement 6,000/6,750/7,500 tons, speed 40 knots, cruising range 4,000 miles (at a speed of 24 knots), dimensions 160x16x6.1 m, armament: 16 P-6 missile launchers, 2x2 76-mm ZIF-67 AU, 2x3 533-mm TA, 2 RBU-6000, M-1 SAM system. It was planned to base 1-2 helicopters in the below-deck hangar.

The last in a series of combat ships developed under the 1959-1965 program was the Project 1127 destroyer. **Not**

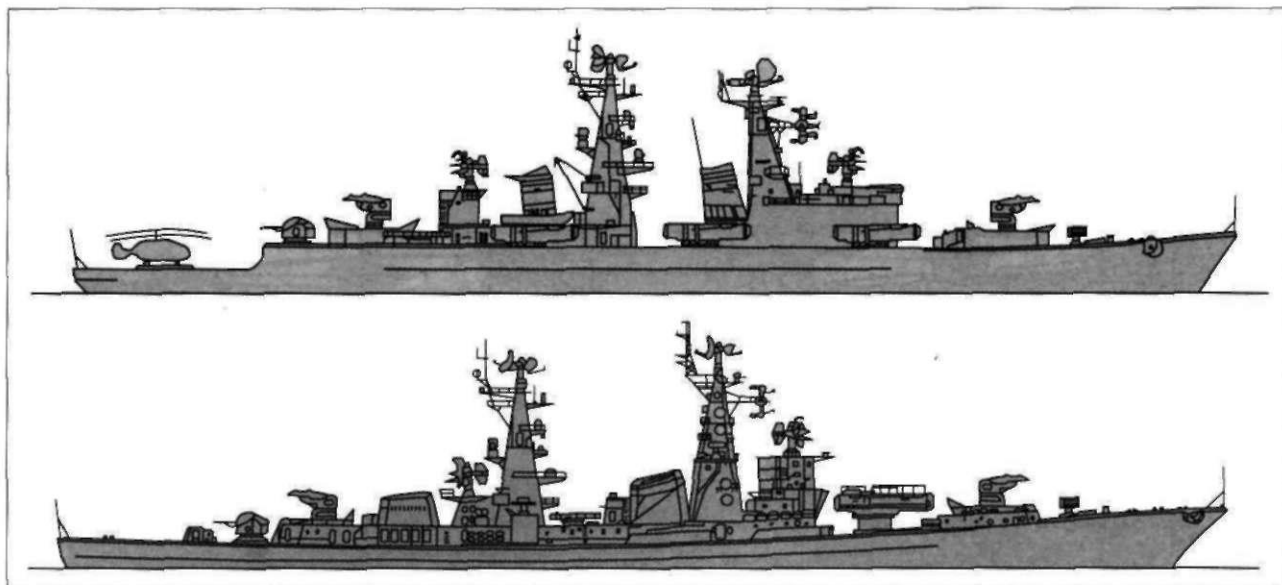
How many surprises him **missile weapons—missiles** P-15, developed for arming missile boats and having an insignificant firing range compared to the P-5 and P-6 missiles. In total, the destroyer was supposed to be armed with (in one of the versions) 12 such missiles: 2 packages of 4 missiles in the bow and 2 single missiles on the sides. The displacement was to be 3,500 tons, dimensions 145 x 16 x 4.6 m, speed 34 knots, range 3,500 miles, armament: M-1 SAM, 2x2 76-mm AU ZIF-67, 2x3 533-mm TA for anti-submarine torpedoes, 2 RBU-6000.

The simplest solution to the problem of improving projects 58 and 61 was to create a universal ship capable of solving the problems of both projects. Back in 1961, TsKB-53 completed a design study of such a ship, which received the index project 61K. Several variants were developed. All in the hull of project 58 with weapons in various combinations. Option "A" shown in the diagram looks the most structurally suitable, although it is not without a number of shortcomings. The main one is the location of single launchers for P-35 missiles.



Project destroyer

1127



Large anti-submarine ship of projects 61K and 1939

Decreased **And** The artillery caliber - 2 76-mm AU were replaced by 2 57-mm AU ZIF-72.

Variants in the Project 61 (Project 1939) hull were also worked out, but these variants turned out even worse. The selected variant 2 (designed by Perkov and Kupensky) resulted in an increase in the hull length by 22 m. They tried to install a quadruple SM-70 launcher for P-35 missiles on it, first in front of the conning tower, then between the pipes. In addition to the existing ones, two more Osa-M SAM systems were added. True, there were no two RBU-1000. At the same time, the Yatagan SAM control station was replaced with the Grom.

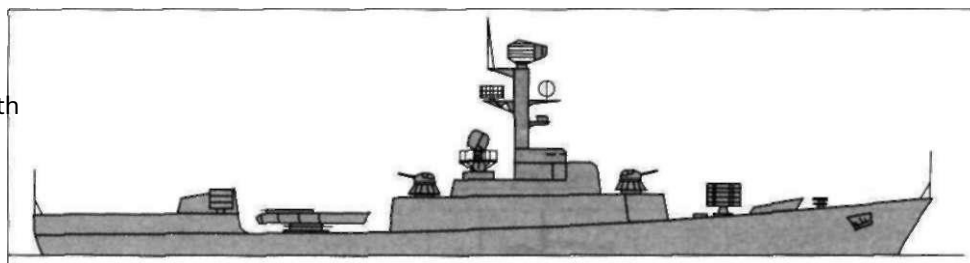
All the work was considered unsuccessful and ended in nothing. True, all the developments were useful later in the creation of Project 1134. And in the large series (20 units) only Project 61 remained, although with somewhat enhanced armament on the last models - they added 4 P-15 missiles and 4 30-mm machine guns with Rys control stations. This made the ship somewhat heavier and worsened its performance.

At the same time, the first attempt was made anti-submarine warfare creation tortureship group basing helicopters. Joint work of the naval institutes and the Air Force in January 1959 prepared a draft of the technical specifications creation of such a ship

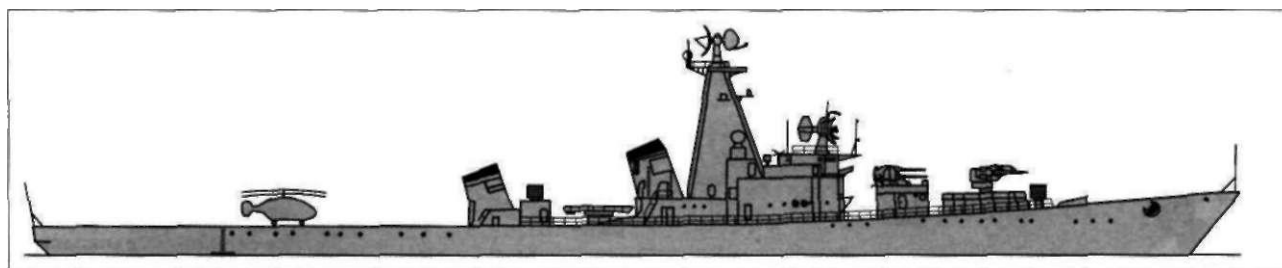
(later Project 1123) with a minimum displacement of 4,500 tons, carrying Ka-25 helicopters and having a minimum set of weapons. Work on Project 1123 was carried out by TsKB-17. The displacement was 4,060/4,450/4,850 tons, dimensions were 140x14x5.5 m, speed was 38 knots, range was 3,000 miles (at a speed of 24 knots), armament: 6 Ka-25 helicopters in 3 hangars, 2x4 57-mm machine guns, 1 M-1 SAM launcher (12 missiles), 1x5 533-mm TA (or 2x3 TA on the sides), 2 RBU-6000 and 2 RBU-1000. But this was only the beginning. The work dragged on for a long time, until the next ten-year program, until the project began to satisfy everyone.

Small anti-submarine ships were also developed under the 1956-1965 program. Of these, only Project 159 went into production. Very good for that time.

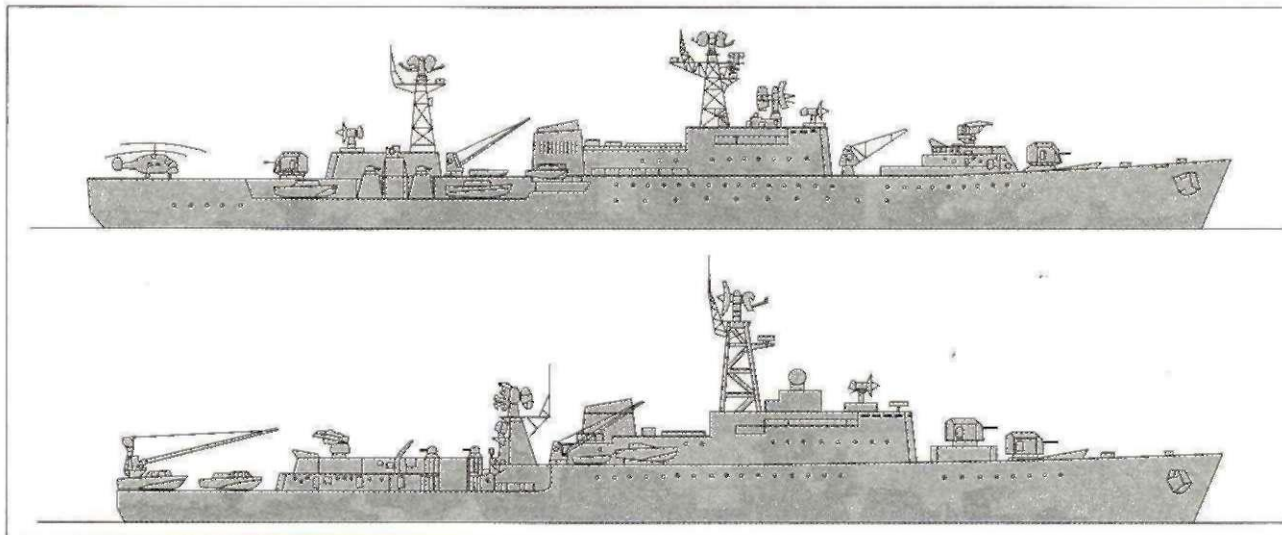
At the same time, work was underway on a ship of somewhat smaller dimensions. This was Project 1122. The work was carried out by TsKB-340 in Zelenodolsk. The so-called small ASW ship was designed. The displacement was 650 tons, the speed was 45-50 knots, the cruising range was 1000



Small anti-submarine project ship 1122



Anti-submarine ship of the project 1123



Разработанные ЦКБ-53 проекты плавбазы подводных лодок и плавбазы гидросамолетов

miles, endurance 10 days, armament: 2 RBU-6000, 2 RBU-1200, 1x3 533-mm TA, 2 or 3 30-mm machine guns. The technical design was approved in 1962.

In 1958, TsKB-53 received the technical specifications for the development of a submarine floating base project. The technical design was to be completed in 1960. Construction was planned at Plant No. 196 since 1962. After significant work at the pre-draft and draft design stages, the following parameters were settled on: displacement of 8,500 tons, cruising range of 4,000 miles, armament: M-1 SAM (16 missiles), 2 76-mm AU ZIF-67, 4x2 30-mm AU with Yatagan, Turret and Rys guidance stations, respectively. Work was stopped at the technical design stage.

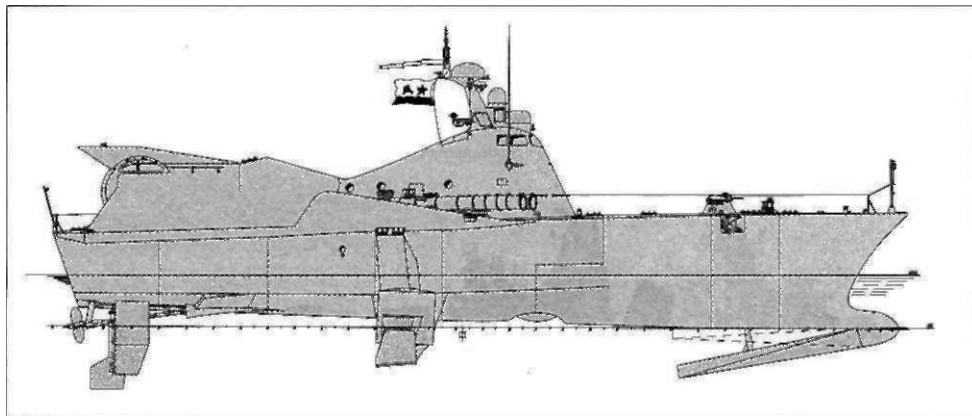
At the same time, in 1958, TsKB-53 received the technical specifications for the development of a project for a floating base for seaplanes. The deadline for the technical design was the fourth quarter of 1959. Construction was also planned at Plant No. 196 since 1962. As a result of all stages of development, the following parameters were reached: displacement of 7,200 tons, cruising range of 3,000 miles, autonomy of 30 days, speed of 17 knots, armament: M-1 SAM (16 missiles), 2 76-mm AU ZIF-67, 4x2 30-mm AU. The development of the project was also stopped.

In 1960-1963, Zelenodolsk TsKB-340 was designing a high-speed (conceptual) small anti-submarine ship on hydrofoils with a displacement of about 300 tons and a speed of 100-110 knots. The main

The main designer of Project 1121 was A.V. Kunakhovich. The following data were obtained during the development process: displacement of 180/231/283t (345t in overload), dimensions 38x16.3x4.75m, hull width 7m, cruising range 1250 miles (at a speed of 11 knots), autonomy 4 days, crew 19 people. Armament in various versions: PARK "Vikhr" or 533-mm TA and 2 RBU-6000, lowered by GAS "Shelon". In addition to diesel engines providing a speed of 11-12 knots, there were jet engines to ensure maximum speed. To test the design, an experimental ship was created in the hull of Project 122bis (according to other sources in the hull of Project 201) under the name "Smerch". Things didn't go further than that, since the ship could maintain maximum speed for no more than 2 hours, and the search for submarines was carried out only at short stops (in leaps, in the developers' terminology). At maximum speed, the ship "heard" nothing. Despite the uncertainty of using such a design, the idea was later implemented in a slightly different form on projects 1141 and 1145.

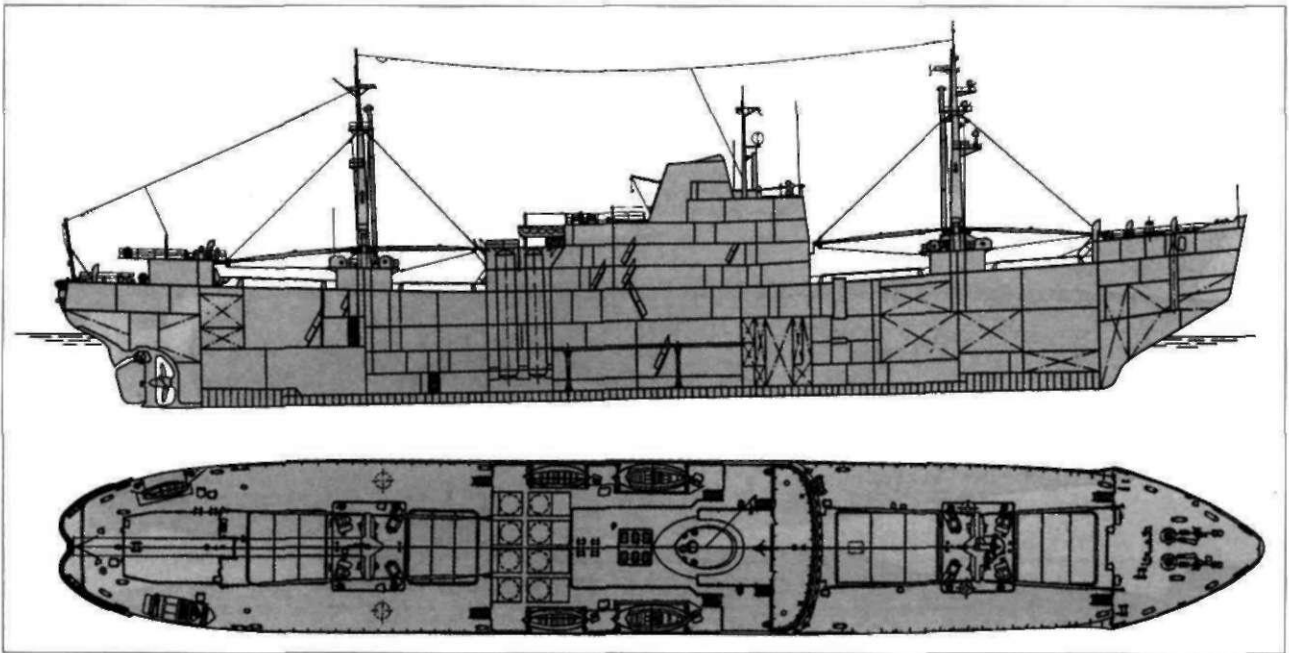
In 1963-1964, our country conducted research into the possibility of deploying various types of UR-100 and D-9 intercontinental ballistic missiles on surface ships and vessels. The official argument was that they were camouflaged as civilian vessels, modern-day raiders, like the German auxiliary vessels.

cruisers of the Second World War. The Second argument—relative the cheapness of the project. A the main thing was that by that time no missiles had been created that were suitable for underwater use boats in dimensions. In the process of development, it is considered appropriate place 8 D-9 missiles on serial icebreaking transport vessels of Project 550, and on vessels



Small anti-submarine ship of the project

1121

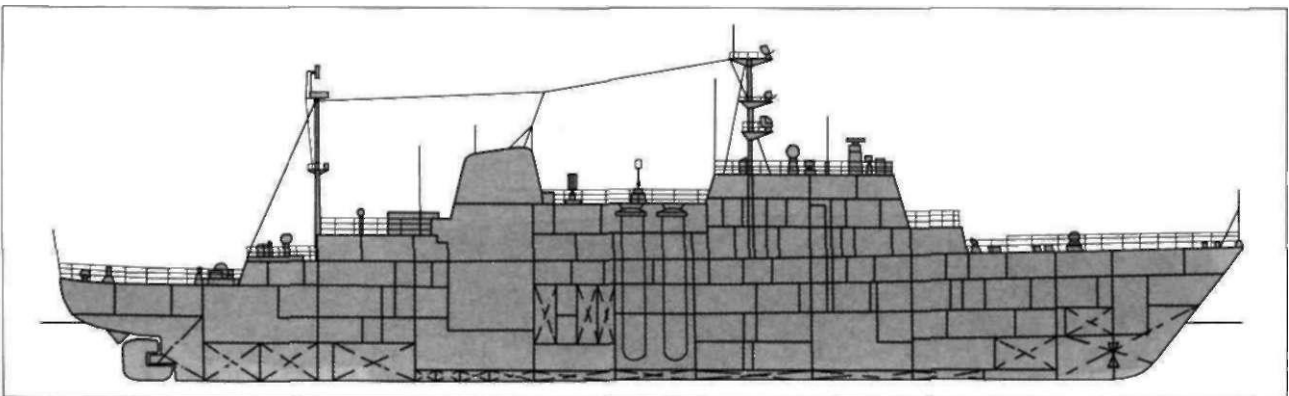


Корабль проекта 909

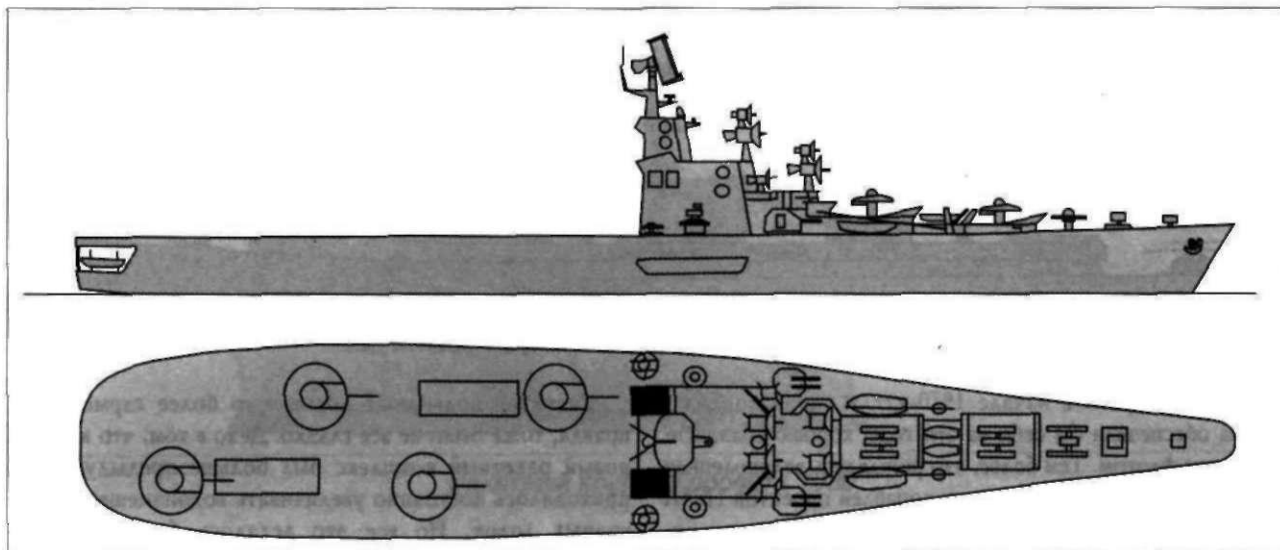
disguised as hydrographic ships patrolling in Arctic waters. In 1964-1965, TsKB-17 developed draft designs 909 and 1111 (chief designer Yu.A. Makedon) of such ships. Under pressure from the United States, it was necessary to urgently conclude an international treaty on the inadmissibility of such work.

With the advent of the American George Washington class submarines with 16 Polaris missiles with a firing range of 2,500 km, our submarines with 3 R-21 missiles (at best) were clearly inferior to the American ones. The search for an alternative began. The first attempt was to install R-21 missiles on the planned Project 667 submarine. Since it was impossible to install them vertically, as the Americans did, due to their dimensions, an option was developed to place the missiles on each side in pairs in sections that could be rotated before launch by 90° located in a light hull. In this way, it was supposed to place 8 R-21 missiles horizontally along the submarine's hull. Then they tried to adapt the developed sea version of the land-based solid-fuel missile RT-15M. But its development was very late. And then, as time showed, everything was far from all right with solid-fuel missiles for the fleet.

In 1963, a decision was made that, in theory, would allow the US to catch up and overtake the US in submarine armament in one leap. Since 1963, TsKB-18 began work on arming submarines with the first "encapsulated" small-sized strategic missiles UR-100, developed in the USSR, which were accepted into service with the ground forces in 1966. Work on the submarines was carried out in several versions, with a different number of missiles, both nuclear and diesel-electric. The most promising version was the A-6 with a nuclear power plant and 12 missiles with a firing range of 1000 km. The project received the number 702. The boat had two hulls, since the P-100 missile was of significant dimensions (weight 50 tons, length 17 m, diameter 2 m). The option of lowered shafts was chosen, when the lower part of the shaft comes out of the strong hull into special strong caps. The submarine had the following data: normal displacement 7700t, length 118m, width 22.4m, draft 8.65m, diving depth 300m, speed 22 knots, autonomy 60 days, crew - 63 people, armament: 12 UR-100 missiles, 4 bow 533-mm TA. Unfortunately, they did not dare to build such submarines. The dimensions and technical problems were frightening.



Project 1111 ship



The Shtorm SAM and the Vikhr PARK. With a standard displacement of 11,300 tons, the ship carried 14 Ka-25 helicopters and a powerful Vega sonar. The series was limited, since Project 1123 did not fully satisfy the fleet either in terms of its technical capabilities or in terms of the ability to conduct a round-the-clock search for PA due to the small number of helicopters.

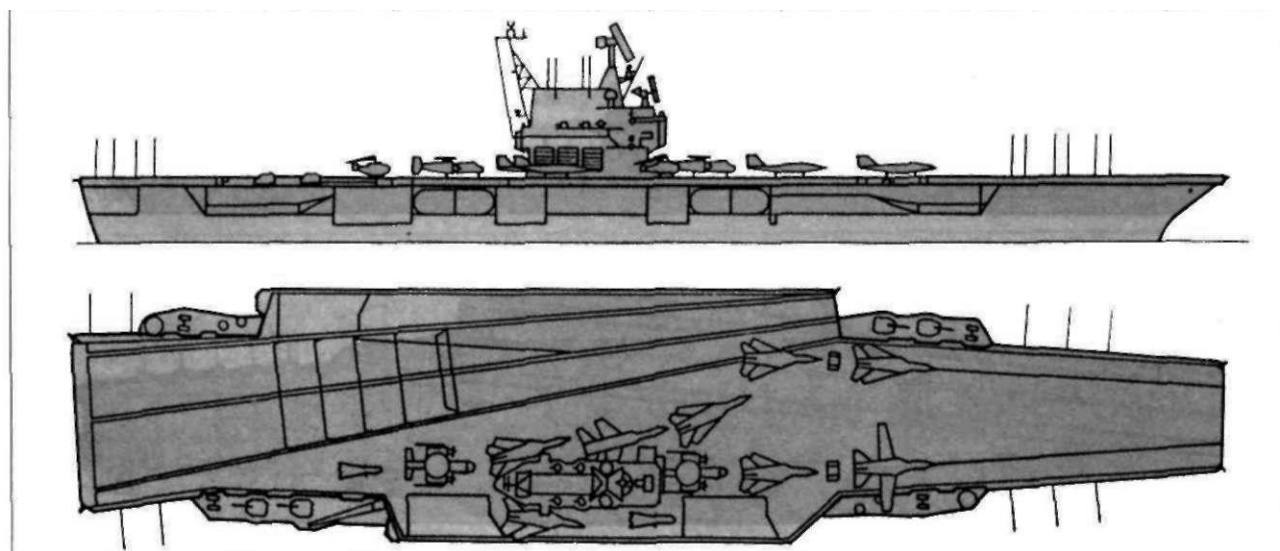
A preliminary assessment of Project 1123 showed that in order to conduct a round-the-clock search for PA, it was necessary to increase the number of helicopters on board and improve the habitability. In 1966, TsKB-17 developed a pre-draft design for a Project 1123M ship with a displacement of 18,000–20,000 tons and a mixed nuclear-gas turbine plant. The ratio between the length and width of the hull, which was clearly insufficient on Project 1123 ships, was leveled out, additional areas appeared, and autonomy was significantly increased. Preliminary dimensions are 220 x 40 x 8 m. Armament: 2x2 130-mm SM-62 AU, 2 Grom SAM systems, 2 Osa SAM systems, Metel PARK, 2 RBU-6000 and 21 Ka-X Chaika helicopters.

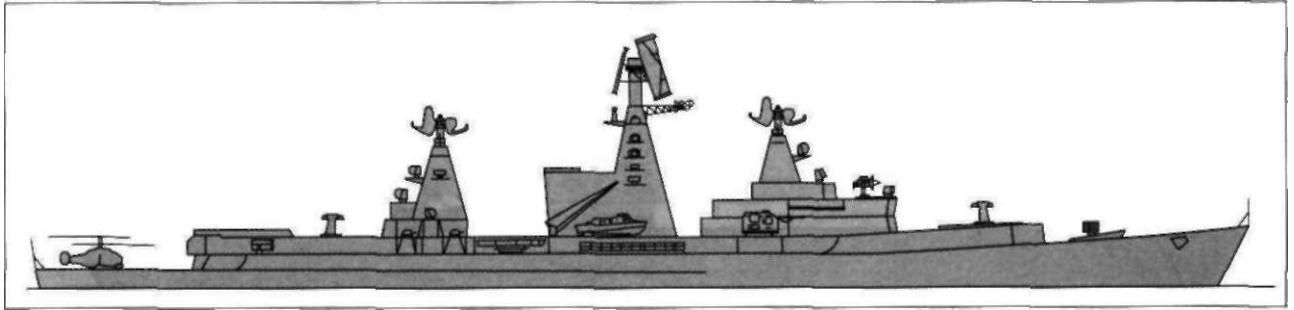
The characteristics of the project aroused considerable interest on the part of the Navy, and the question was resolved

talked about its construction. However, due to problems that arose during the creation of the propulsion system, work on the project was curtailed.

Upon completion of the construction of the lead ship of Project 123, by the Navy's decision on the SPM of June 7, 1967, Nevskoye PKB was assigned the development of a technical design for a ship of Project 1123.3 for the construction of the third improved anti-ship missile with enhanced anti-aircraft armament, increased autonomy, improved habitability and unsinkability. The composition of the aircraft armament did not change, the ship's hull was lengthened by 12 m and the width was increased by 1 m. • the displacement increased by 2000 tons. In addition to the remaining missile armament, 2 short-range SAM "Osa" mounts, 2x2 76-mm AU AK-26, TA and RBU remained the same. The ship was named "Kyiv". The keel of the ship, scheduled for February 20, 1968, did not take place due to the creation of the domestic aviation industry experimental vertical takeoff and landing (VTOL) aircraft Yak-36.

It was necessary to immediately launch into production light viano carriers (the so-called AVL) with a displacement of





Project 962 radar patrol ship

50,000 tons. By building 4 such ships in the early 1970s, the country would have provided itself with a well-balanced fleet for these years. Especially since a magnificent series of large anti-submarine ships of projects 1134A and 1134B were being born, which could have become escort ships in an order with aircraft carriers. In this case, the aircraft carrier-cruisers of project 1143, which puzzled the whole world and which slowed down the construction of real aircraft carriers in our country for 20 years, making our fleet somehow one-sided, could never have appeared.

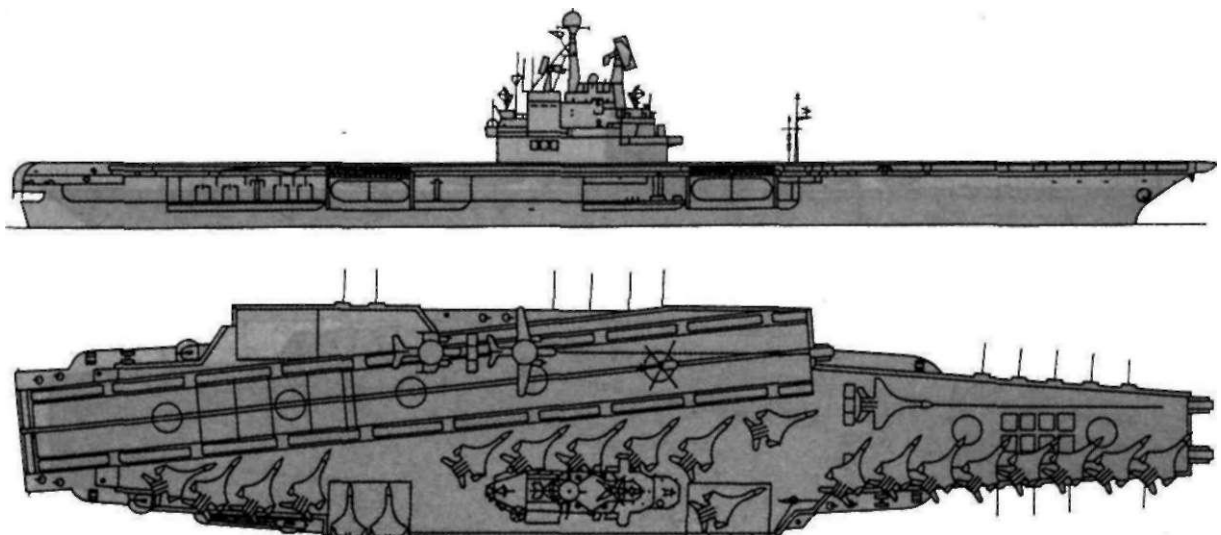
At the same time, the issue of using Project 1134 ships was acute. Initially created to escort Project 1123 helicopter carriers, for a number of reasons they did not receive the full range of weapons intended for them and clearly did not meet the tasks assigned to them. By the mid-1970s, a proposal was received to convert all four ships into radar picket ships performing the functions of a command ship. The Severnoye Design Bureau was issued a specification for the conversion of these ships according to Project 962. With the exception of the RBU-1000 and RBU-6000, their armament was completely replaced and more powerful radar was installed. According to one version, two M-22 SAM launchers, two 100-mm AK-100 AU, four 30-mm AK-630 AU with the corresponding control systems were installed. One ship for each fleet was supposed. Again, the high costs of this work were disconcerting, so the matter ended with only the developments. The ships in their original form (with minor modernizations) ended their service.

The development of submarines was more harmonious, although not everything was smooth either. The fact is that each new missile system was larger than the previous one and it was necessary to constantly increase the displacement of submarines. But all this was done more consistently. Following the submarines of Project 667A, there followed submarines of Projects 667B and 667BDR with RSM-50 missiles, which had separating warheads of individual guidance.

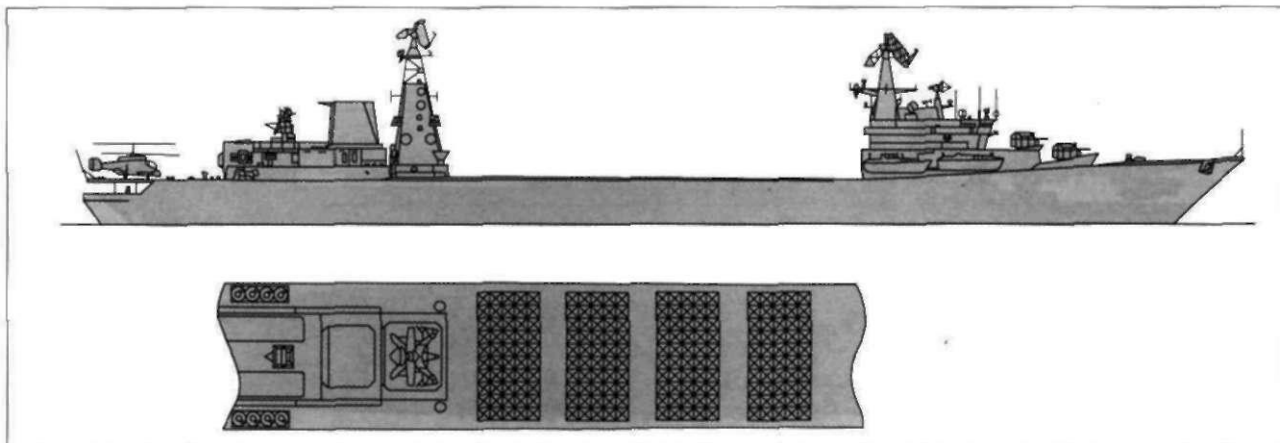
The anti-submarine boats of Project 671 developed in the same way, improving their armament and equipment from series to series. These were ships of Projects 671RT and 671RTN. A total of 48 boats of these projects were built.

In the 1970s, three times more nuclear submarines were launched at domestic shipyards than in the USA. And with the start of construction of real nuclear aircraft carriers of Project 1160 in 1980 (according to our capabilities - 4 units per decade), the USSR by 2000 would certainly have achieved parity in naval armaments, but only in this case, and not as it actually turned out, to our general regret.

In the early 1970s, MIT (Moscow Institute of Thermal Engineering) was developing the Elbrus operational-tactical complex, which was to replace the Temp-S complex by the time its warranty period expired. As of 1974, the launch weight of the missile was 7.6 tons, the length was 9.7 m, the diameter was 1.1 m, and the firing range was 1000 km. In addition to the complex for the Ground Forces, there was



Sketch of aircraft carrier project 1160



Project 1080 missile cruiser

A naval version was also developed to arm the Project 1080 ship designed by Nevskoye Design Bureau, equipped with Elbrus-M missiles, mainly with non-nuclear warheads. This was an attempt to create a kind of analogue of American aircraft carriers, as a means of forcefully solving political problems in local conflict zones.

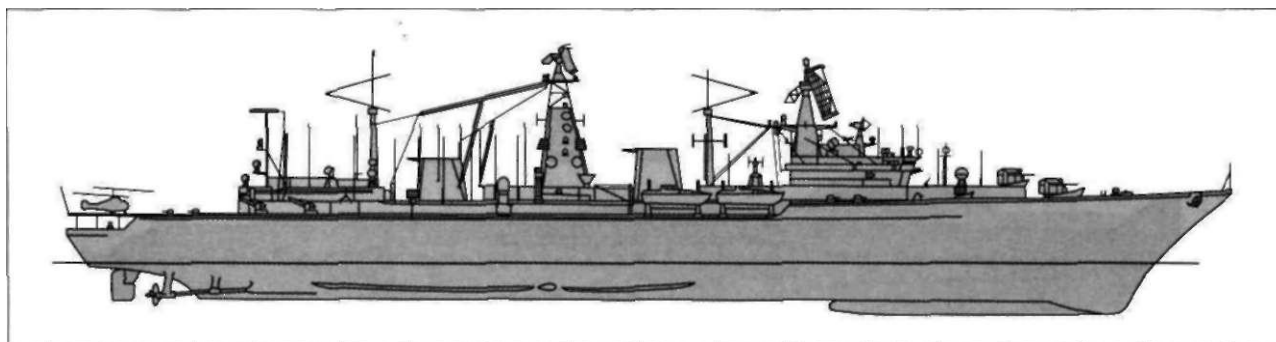
The Project 1080 ship was quite thoroughly developed. In one of the latest versions, the missile cruiser's armament consisted of 200 Elbrus missiles, located in the middle of the hull in 4 packages of 50 pieces. In addition, the ship was equipped with 2 ZIF-67 (76 mm) twin-gun mounts with a Turret control station and a Kinzhal self-defense SAM system. There were also 2 helicopters. Unfortunately, MIT switched to what was then considered more urgent work - the creation of the Pioneer ICBM, and work on the Elbrus was stopped. Thus, a project that was very much needed by the fleet was lost.

It had long been clear to everyone that the Project 68bis cruisers, adapted after a minor modernization, did not quite meet the requirements for command ships, and their age was approaching the critical point. Starting from 1971 to 1980, the Project 968 command ship (codename "Borey") was being developed, constantly changing. The most developed project was the 1974 project, brought to the stage of the technical project. And this already assumed a quick laying of the keel. The displacement of the ship was about 14,000 tons, dimensions 200 x 24 x 7 m. This was the first ship on which the installation of two 100-mm AK-100 artillery mounts and the Lev-214 RAS was being developed, but then they were reoriented to

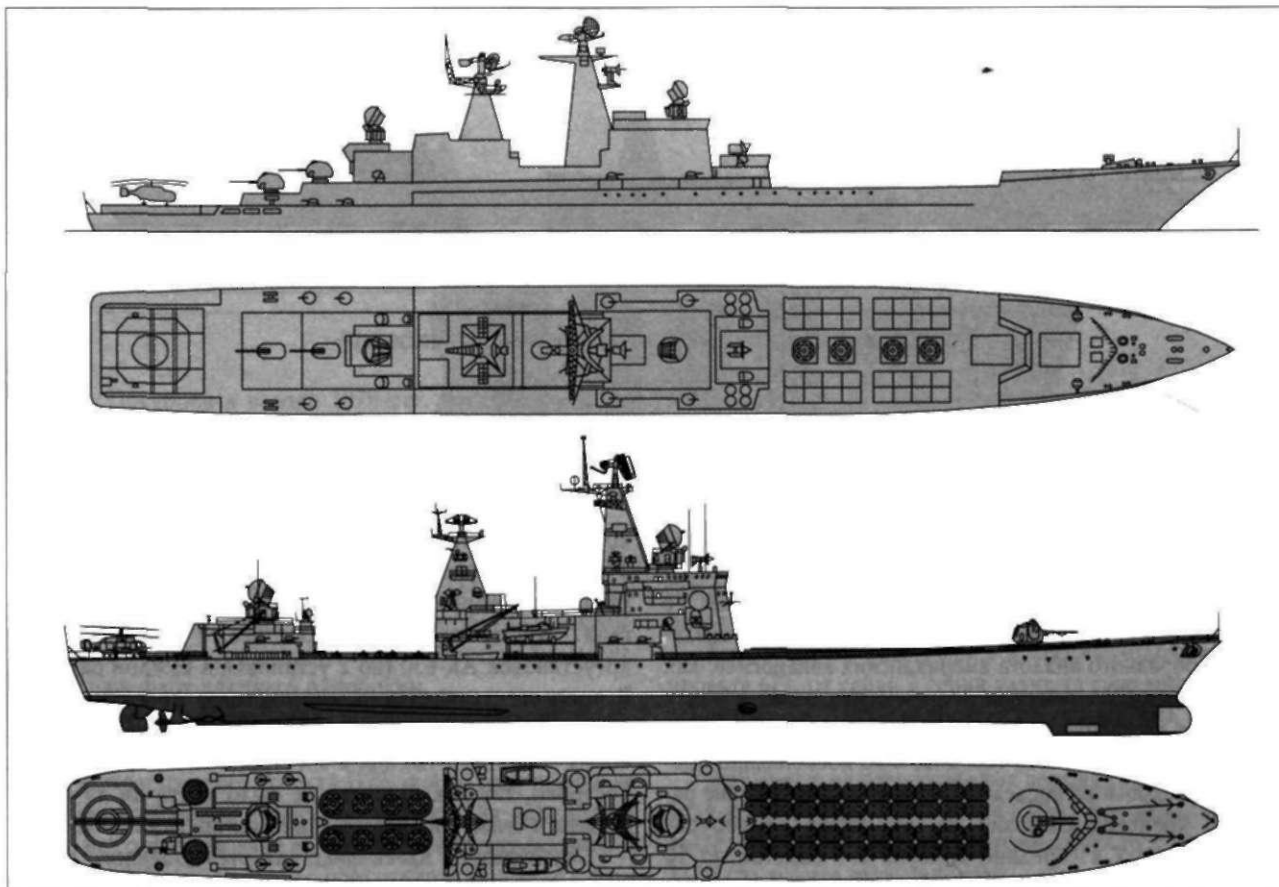
Project 1135M ships. In the 1974 version, the ship had 2 76-mm AK-726 artillery mounts. This was the only ship a vehicle on which 4 M-22 "Ura" SAM launchers were installed gun". In addition, the ship carried 4 batteries of 30-mm AK-630 artillery mounts (2 mounts in each battery). During the further multi-year design process, Project 968 was constantly changing as new types of weapons and electronics were received, but was never built, since there was no room for it on any slipway due to their workload with other projects.

A kind of obsession for domestic shipbuilding was the development of a nuclear missile cruiser. The highest achievement can be called the project 1165 "fugas". Constantly increasing, at the last stages of design it reached a displacement of about 25,000 tons. In one of the versions, the cruiser carried 32 anti-ship missiles "Granit", the PARK "Metel" launcher, 4x8 launchers of the SAM "Fort", two batteries of the SAM "Kinzhal", 2x1 130-mm AU A-217, 4x6 30-mm AU AK-630 and 2 helicopters. Approximately in this form, it merged into one project 1144 with an almost similar ship being developed in parallel.

The eighties of the 20th century are characterized by the rapid development of the Navy. Ships of all classes were built in huge quantities. The striking force of the submarine fleet consisted of submarines of Project 941 with solid-fuel missiles and Project 687BDRM with liquid-fuel missiles. Submarines with cruise missiles of Project 949 and multipurpose submarines of Project 971 were built specifically for combating formations of ships (aircraft carriers). In parallel, diesel-electric multipurpose submarines of Project



Project 968 command ship (Borey)

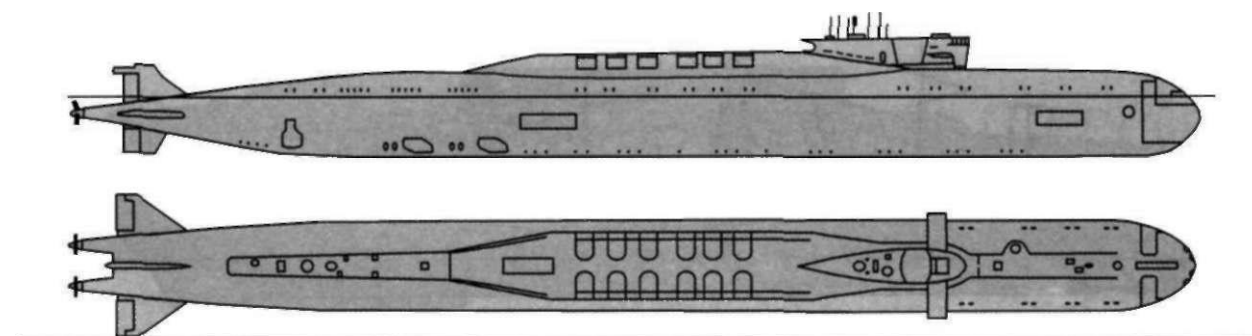
**Variants of the missile cruiser project****1165 ("Landmine")**

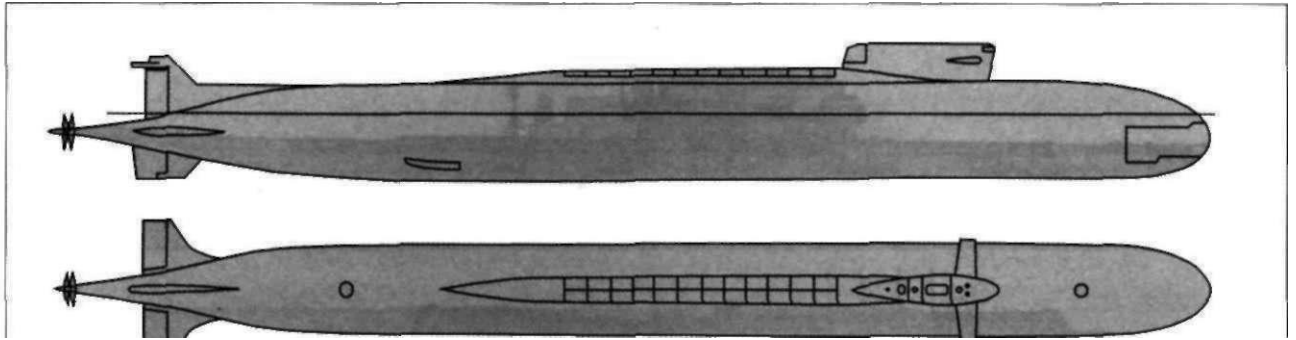
877, as well as many different special-purpose boats. A number of surface ships were headed by Project 1144 nuclear cruisers, armed with the same cruise missiles as the Project 949 boats. Alongside them were Project 1164 missile cruisers with gas-turbine propulsion systems.

The construction of aircraft carriers was carried out by the method of gradually approaching a real aircraft carrier, smoothly moving away from a vertical takeoff aircraft. The last of them was Project 1143.4 "Baku". At the threshold of the 1990s, the construction of Project 1143.5 "Tbilisi" was completed, which had larger dimensions, a ski-jump and normal takeoff aircraft. Among the multi-purpose ships, I would like to note Projects 956 and 1155, which were supposed to be used together: the first - as a guard ship, the second - as an anti-submarine ship. On the basis of Project 1135, the construction of border ships was launched.

Project 1135.1. The construction of small anti-submarine ships under Project 1124M continued. Project 1131M anti-submarine ships, designed and built in the German Democratic Republic, also entered service with the fleet. Project 1241P anti-submarine boats were also built. Of the small missile ships, Project 1234.1 and Project 1241 missile boats of various modifications continued to be built. I would especially like to note the Project 903 Lun missile ekranoplan, apparently created as an experimental one, in a single copy.

The construction of almost all landing ships was transferred to Poland. They built ships of Project 775. In the USSR, only large landing ships of Project 1174 and landing ships on air cushion of Projects 1232, 1232.3, 1206, 12061 were built. Two landing ekranoplans of Project 904 were built. Minesweepers of all classes and auxiliary vessels were built.

**Project 995 submarine**



Project 881 submarine

The West German magazine "Marine Rundschau", which still existed at the time, called all this diversity "a parade of Soviet military shipbuilding".

The construction of Project 941 submarines was abandoned because they turned out to be too large due to the 95-ton solid-fuel missiles placed on them. They chose the path of further development of Project 667, which was well-developed and had proven itself in operation. After the construction of the Project 667BDRM series was completed on November 2, 1996, the first Project 995 PA (Borey) was laid down for the improved D-9RMU liquid-fuel missiles of the Makeyevka Design Bureau, and then for the Bulava solid-fuel missiles developed at MIT. The submarine's displacement was 14,720/24,000 tons, dimensions 170x13.5x9 m, diving depth 450/380 m, armament: 12 launchers of D-9RMU ballistic missiles with underwater launch from a depth of 55 m at sea state VI-VII points and speed up to 6 knots, with the release of all ammunition in one salvo, 4 533-mm missile and torpedo launchers (RTPU), 8 Igla self-defense anti-aircraft missiles, 2 nuclear reactors, speed 15/29 knots, autonomy 100 days, crew of 107 people (including 55 officers).

Upon completion of the construction of the PA series with Project 949A cruise missiles, it was planned to lay down the Project 881 submarines with Onyx missiles of shorter range, but more compact (initially the Bolid anti-ship missiles). The characteristics of the Project 881 submarines are comparable to the Project 955 submarines. Due to the small size of the P-800 Onyx cruise missiles, it became possible to place them on submarines in a fairly

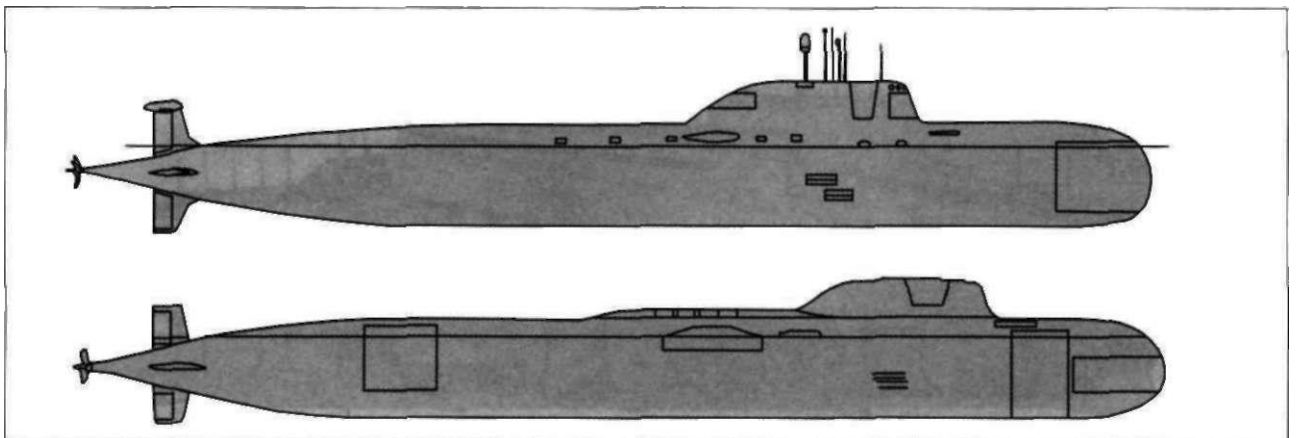
in large quantities. Several versions of the submarine were developed, but its construction never took place.

The construction of modernized multipurpose nuclear submarines of Project 971M continued. Much has been written about these submarines. They are the quietest submarines of domestic construction and the most successful submarines of those developed recently. Further development of the construction of submarines of Project 957 was planned.

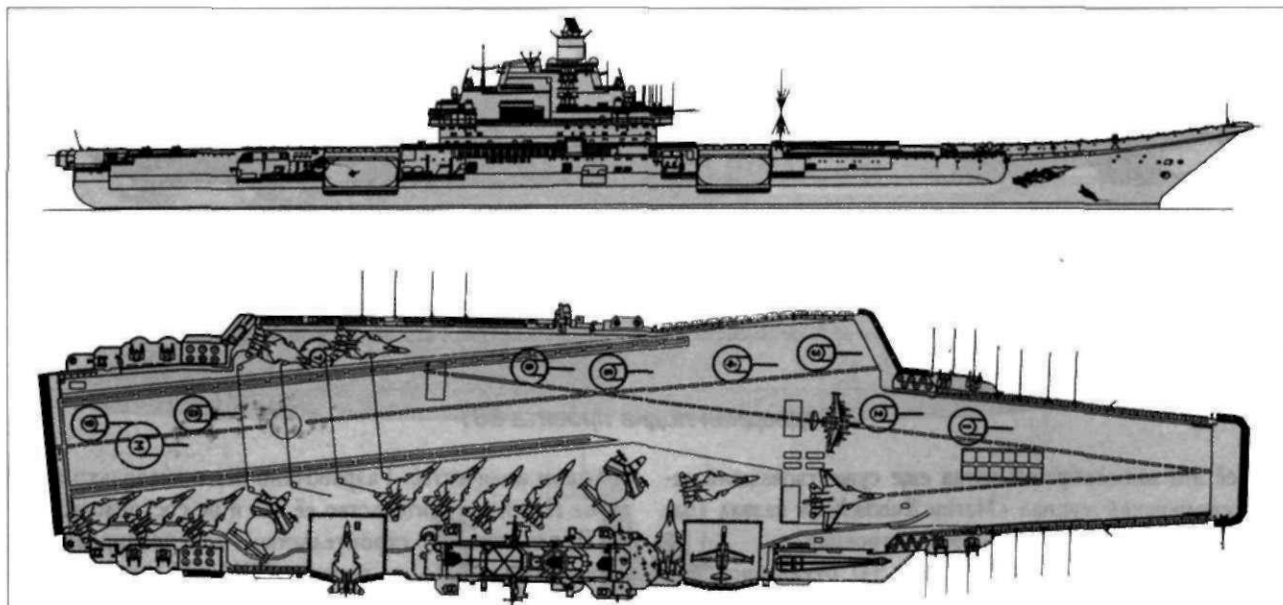
Later, an idea emerged to combine Projects 881 and 957 into a single universal multipurpose nuclear submarine, which is how Project 885 (Yasen) came into being. The first Project 885 nuclear submarine was laid down on December 21, 1993. The displacement was 8,600/13,800 tons, dimensions were 119x13.5x9.4 m, diving depth was 600/520 m, armament: 8x3 launchers for P-800 Onyx cruise missiles, 4 533 mm RTPU, 1 nuclear reactor, speed 16/31 knots, endurance 100 days, crew of 90 people (including 32 officers).

The construction of diesel-electric submarines of Project 877 continued. It was planned to lay down further improved submarines of Project 677 "Lada" and Project 1605 "Amur" and many other specialized submarines.

The first aircraft carrier, the closest in design to real aircraft carriers, was the "Tbi Lisi" (since October 10, 1990 - "Admiral of the Fleet of the Soviet Union Kuznetsov"), delivered to the Navy on December 25, 1990. Project 1143 is surprising in that the project is the same, but the ships are different from hull to hull. The second aircraft carrier of this project is the "Riga" (since June 9, 1990 "Varyag"), laid down on December 4, 1985 and launched



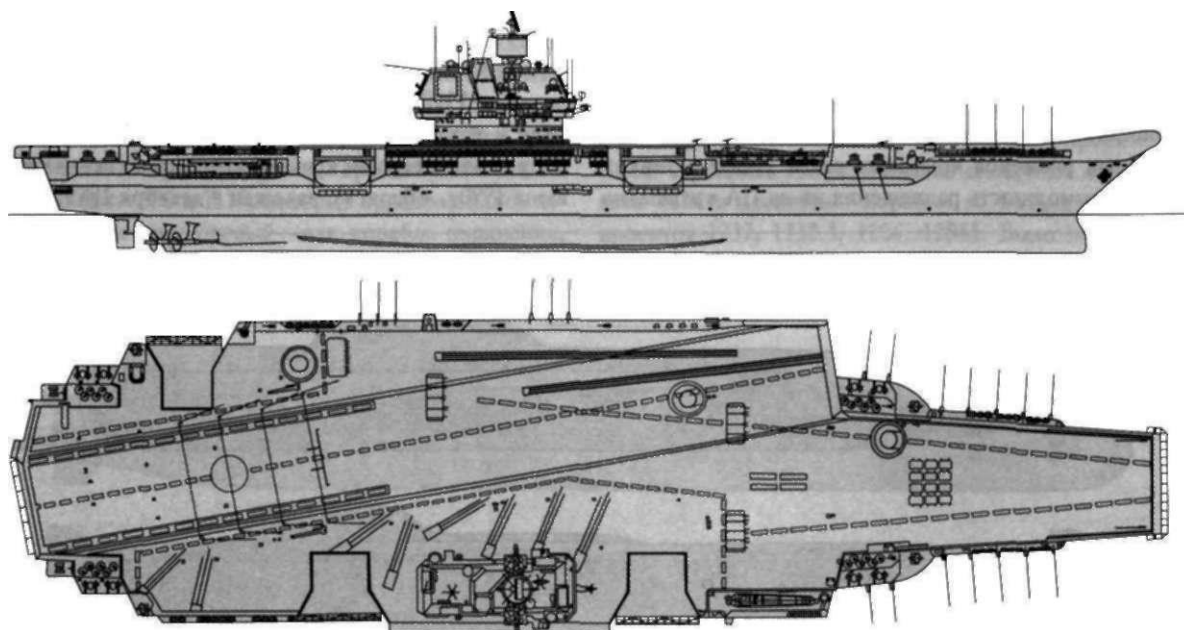
Project 971M and 885 submarines



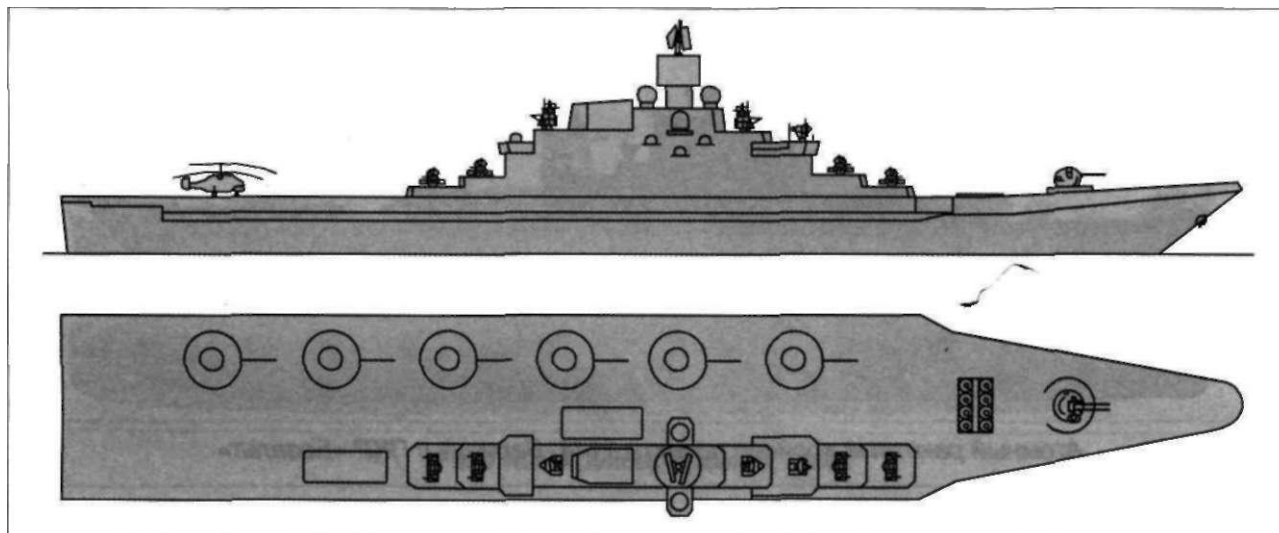
Heavy aircraft-carrying cruiser of the project 1143.6

The ships were launched on November 25, 1988. Both ships were flush-decked from bow to stern, typical aircraft carriers. The Project 1143.6 cruiser differed slightly from the Project 1143.5 cruisers in that it had a modified location (no phased arrays), a slightly modified armament layout, and a number of other improvements. The armament composition on both projects was similar. The displacement was 45,900/58,000 tons, the dimensions were 305 (270) x 72 (35) x 10 m, the turbine power was 200,000 hp, the speed was 29 knots, and the cruising range was 8,000 miles (at a speed of 18 knots). The ship could carry 52 aircraft in various combinations: Su-33, MiG-29K, Su-25K, Ka-27, Ka-29, Ka-31. Armament: 12 Granit anti-ship missile launchers, 4 Kin Zhal air defense missile systems batteries with 6 UVPs each, 2 PTZ-1 Udav missile launchers, 6x6 30-mm AK-630M AU, 8 Kortik air defense missile systems.

According to the armament program for 1986-1995, in December 1984, Nevskoye Design Bureau was issued a specification for the development of the seventh heavy aircraft-carrying cruiser—a nuclear-powered ship with increased displacement. In 1987, the technical design was approved. The lead ship of Project 1143.7, named Ulyanovsk, was laid down at the Black Sea Shipyard on November 25, 1988. With its construction, the country reached the world technical level in the creation of large aircraft-carrying ships. In addition to the bow ski-jump, for the first time in Soviet shipbuilding, 2 catapults for takeoff of heavy-class aircraft were installed on the sponson. The total number of aircraft is 70 units. These are the Su-33, Su-25, MiG-29K, Yak-44 (AEW&C), Ka-27, Ka-29, Ka-31. Displacement 65,800/74,900t, dimensions 321.2(274) x 83.9(40) x 10.6 m,



Nuclear-powered heavy aircraft-carrying cruiser of the project 1143.7



Universal helicopter-carrying ship-dock of the project

11780

4 nuclear reactors and 4 steam turbines with a total capacity of 200,000 hp, speed of 29.5 knots, unlimited cruising range. Armament: 12 Granit anti-ship missile launchers, 4 Kinzhal air defense missile systems batteries with 6 UVPs each, 8 Kortik air defense missile systems, 2 RKPTZ-1 Uday launchers. Crew: 2,300 officers and sailors, 1,500 flight and technical personnel. Construction of a second such ship was begun, which no longer had Granit anti-ship missiles. Due to this, the number of based aircraft increased.

With the appearance of several such aircraft carriers, the Soviet fleet moved to a new qualitative level. The ships' aviation became all-weather. Its duplication by long-range anti-ship missiles P-500 "Bazalt", P-700 "Granit" and P-1000 "Vulkan" ceased. The construction of carriers of these missiles, both surface and underwater, ceased.

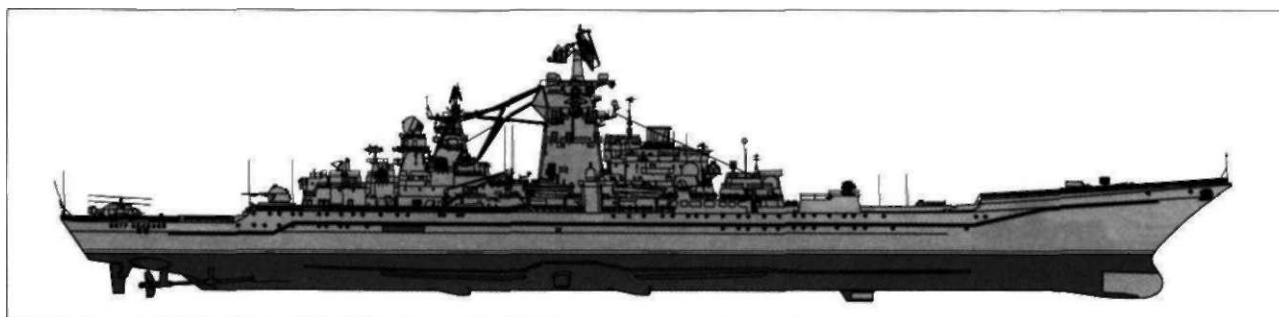
The range of ship types was reduced.

Of the aircraft carriers, I would like to especially note the finally appeared universal helicopter-carrying ship-dock of Project 11780. In the anti-submarine version, the ship carried 25 Ka-27 helicopters. In the landing version, the ship could carry 12 Ka-29 transport and combat helicopters and 4 Project 1176 landing craft or 2 Project 1206 landing hovercraft. Construction of two ships has begun - "Kherson" and "Kremenchug". Standard displacement is 25,000 tons, dimensions are 196 (180) x 35 (25) x 8 m, boiler-turbine power is 180,000 hp, speed is 30 knots, cruising range is 8,000 miles (at a speed of 18 knots), armament: 1x2 130-mm AK-130 AU, 2 batteries (6 UVP each) of the Kinzhal SAM system and 2 (4 depending on the version) of the Kortik SAM system.

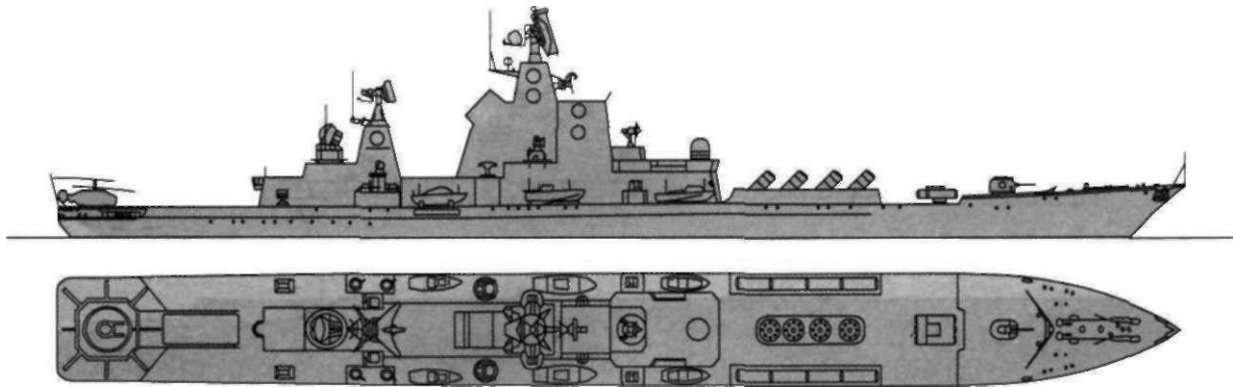
The construction of the series of nuclear missile cruisers of Project 1144 continued. The fourth in the series, "Pyotr Velikiy" (formerly "Yuri Andropov"), was being completed. The fifth (last in the series), "Admiral of the Fleet of the Soviet Union Kuznetsov" (formerly "Maxim Gorky"), was on the slipway. The armament of the ships was improved from model to model. They embodied all the latest achievements of domestic science and technology.

It was clear from the very beginning that due to the excessive cost it was simply not economically possible to build many such ships. Therefore, the issue of reducing the cost of a ship to solve the same problems arose acutely. A condition was set - to develop a ship for the same purpose, but at a cost of at least 20% lower. A technical specification was issued, according to which the Northern Design Bureau developed Project 1293. The ship's displacement was 14,190 tons, dimensions 210 x 20.8 m, armament: 16 Granit anti-ship missiles, S-300 Fort SAM (32 missiles), 2 Kinzhal SAMs, Vodopad ASW system, 1 130-mm AK-130 AU, 4 30-mm AK-630 AU, 2 Ka-27 helicopters, More RAS. But the project was somewhat late. The first nuclear aircraft carrier was already under construction, and their serial construction was planned. Therefore, the construction of nuclear missile cruisers according to the criterion of "cost-effectiveness" became inexpedient.

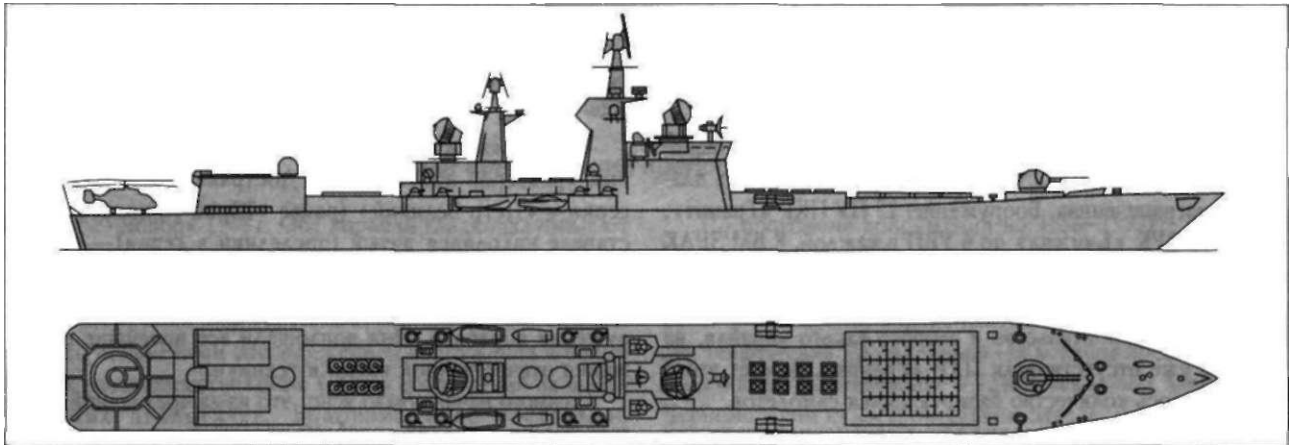
Even when he was Deputy Chief of the General Staff of the USSR Armed Forces, Admiral Nikolai Nikolaevich Amelko categorically objected to the construction of such bulky and expensive ships. Moreover, there was a cheaper one with practically the same



Nuclear-powered missile cruiser of project 1144



Nuclear missile cruiser of the project 1144. Variant with anti-ship missile "Basalt"



Nuclear-powered missile cruiser of project 1293

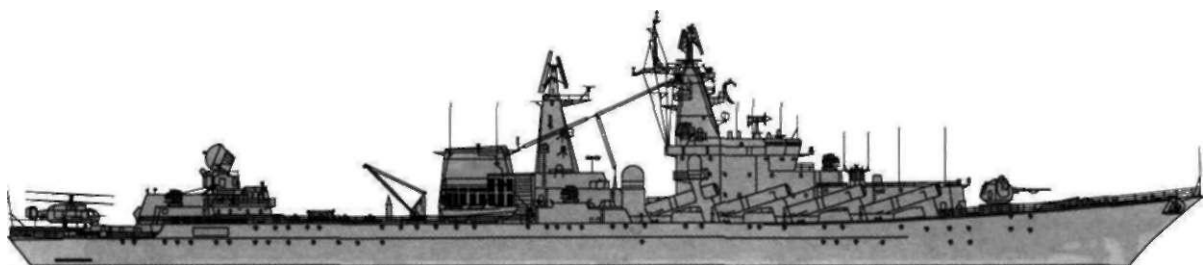
the number of strike missiles of the gas turbine project 1164 "Atlant" with 16 P-500 "Basalt" anti-ship missiles against 20 P-700 "Granit" missiles on the project 1144.

The fourth in the series, Admiral of the Fleet Lobov, was being completed. The fifth, Rossiya (later Oktyabrskaya Revolyutsiya), and the sixth, Admiral of the Fleet of the Soviet Union Gorshkov, were in varying degrees of readiness on the slipways.

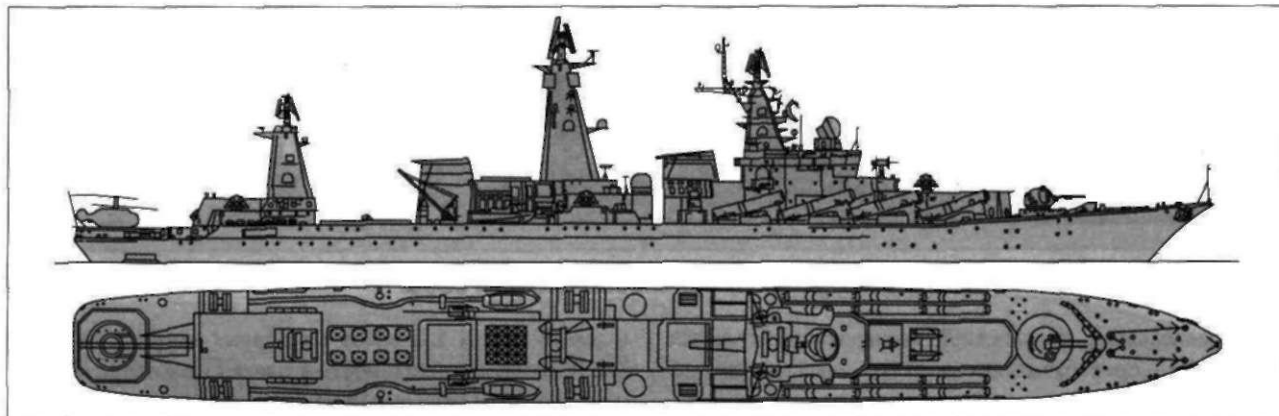
Starting with the fifth ship, some changes were made to the project. The hull was lengthened by 6 m, instead of the P-500 Bazalt anti-ship missiles, the P-1000 Vulcan were installed, instead of the 30-mm AK-630 AU and the Osa SAM system, 5 Kortik SAM systems were installed. Accordingly, the radar armament was also changed. Instead of 1 helicopter, 2 were now based. Following them, the construction of more modern missile cruisers of Project 11960 was to begin. The ship turned out to have a slightly larger displacement, but was

significantly more powerful in terms of strike weapons. This project was the first to have two cruise missile strike complexes: 16 Vulcan P-1000 anti-ship missiles and 16 Onyx P-800 anti-ship missiles. Fort SAM batteries (48-64 missiles) were located in the stern. There were 5 Kortik SAM systems. The cruiser was also armed with a 130 mm AK-130 AU, 2 Uday anti-submarine systems, 2x2 533 mm TA and 1 Ka-27 helicopter. The radar equipment was also significantly updated. Gas turbines provided a speed of about 32 nodes. There was a variant of the project 11960 with the Uragan air defense missile system with vertical launch.

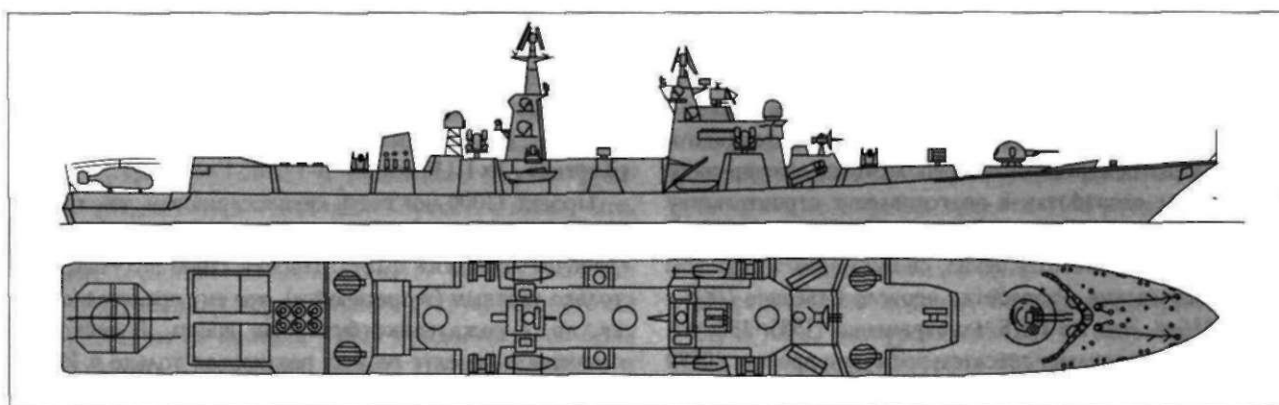
To provide protection for nuclear aircraft carriers, the Anchar anti-aircraft defense ship of Project 11990 was developed. There were several versions of the ship, differing in the composition of the armament, the amount of protection and the type of power plant. Along with a purely nuclear plant, lighter weight variations were also developed.



Project 11641 missile cruiser



Ракетный крейсер проекта 1160

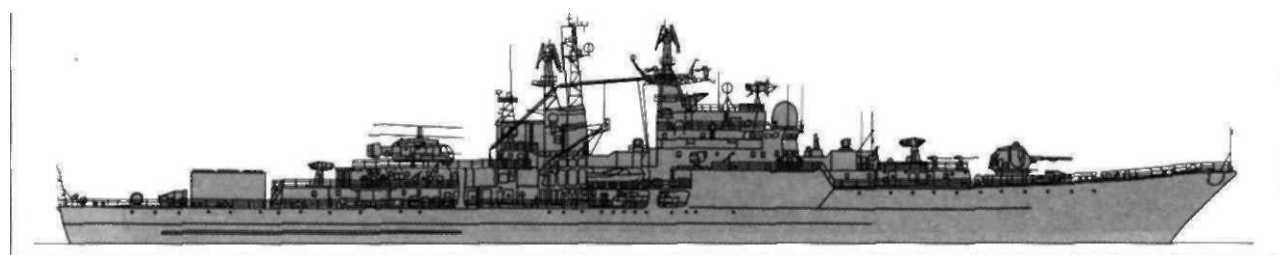


Project 11990 Air Defense/PLO Ship ("Anchar")

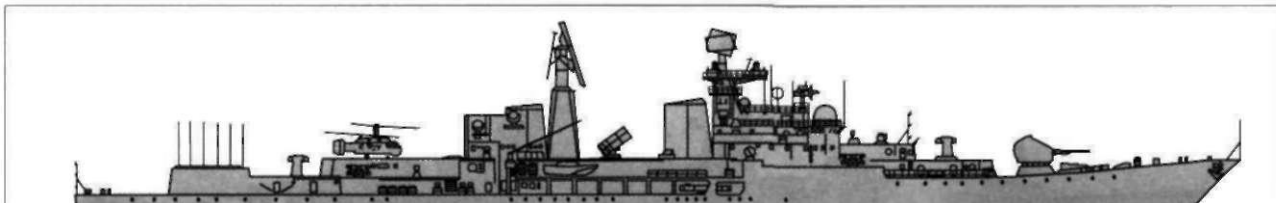
combined nuclear-gas turbine plant with a backup-afterburning gas turbine section. The proposed version had a mixed plant. Standard displacement is 10,500 tons, dimensions (approximately) are 188 x 19 m, speed is about 32 knots, armament: 4 Uragan-Tornado complexes, 1 battery of 6 UVP SAM Kinzhal, 3 SAM "Kortik", 1x2 130-mm AU AK-130, 2 ASW complexes "Vodopad". 1 PKPTZ-1 "Udav" launcher.

Construction of Project 956 destroyers, though for export, continues. The 18th unit is being completed. The next one, the nineteenth, is under construction.

According to the modified project 956M: instead of the Moskit cruise missiles, the P-800 Onyx missiles in the UPU SM-403 launchers are installed, instead of the Uragan SAM system, the Uragan-Tor Nado SAM system has an almost threefold increased firing range, instead of the 30-mm AK-630 AU, there are 2 Kortik SAM systems. This is a kind of transition period to a more advanced ship. It is followed by the twentieth hull, which is even more different from the prototype - project 956U. It retains only 1 bow 130-mm AK-130 AU. Instead of the stern, a vertical launch launcher for the P-800 Onyx missiles, the UVPU ZS-14, is installed. The ship is equipped with 4 Kortik SAM systems.



Destroyers of projects 956M and 956U



Project 9562 destroyer

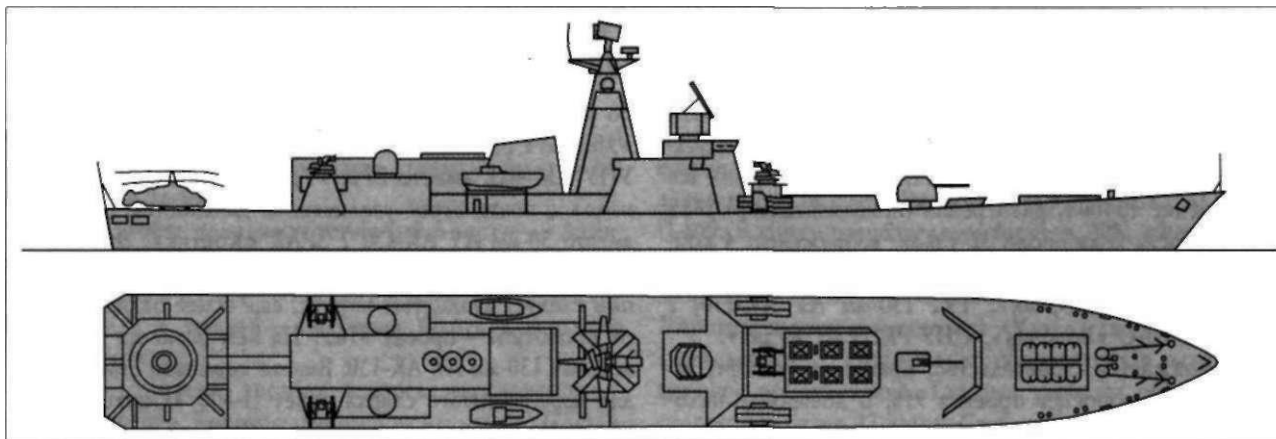
In parallel with the development of modifications of projects 956M and 956U, a gas turbine version of the destroyer of project 956.2 was being developed in several versions with a displacement of 6600-8450 tons, with an increase in the length of the ship by 12 m. It housed a new 130-mm single-barrel AU A-192 "Armata", 24 anti-ship missiles "Onyx", 2x4 launchers of anti-ship missiles "Uran". Since the gas turbine units were manufactured in the city of Nikolaev in Ukraine, then in connection with the collapse of the USSR, the question of further work on this project disappeared by itself.

In order to test the entire variety of new equipment and train cadets on it and retrain officers, an experimental and training ship of Project 13040 with a displacement of 6,000 tons was developed and prepared for construction. What is most valuable is that it had almost the entire range of weapons. The development was carried out by the Northern Design Bureau in 1985-1986. The same Design Bureau simultaneously (1985-1986) developed a patrol and rescue vessel of Project 10590

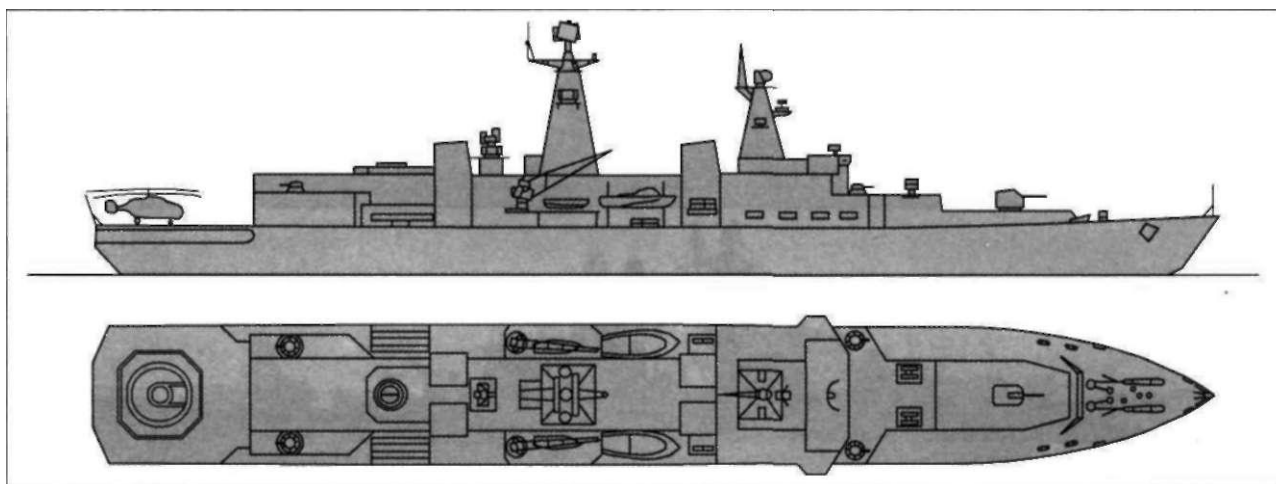
ice class for operations in the northern seas and the Far East. The need for such a vessel was acutely felt. Ships of this class had not been built for a very long time, practically since 1952, with the exception of small "border guards" of Project 745.

Upon completion of the Project 956 series, construction of a Project 11000 destroyer with a gas turbine plant is planned, practically in the same hull. Armament: 2 Uragan-Tornado SAM launchers, a universal launcher for all types of missiles, both strike and anti-submarine, 2 Kortik SAM systems, 1x1 130-mm A-192M AU, 1 helicopter.

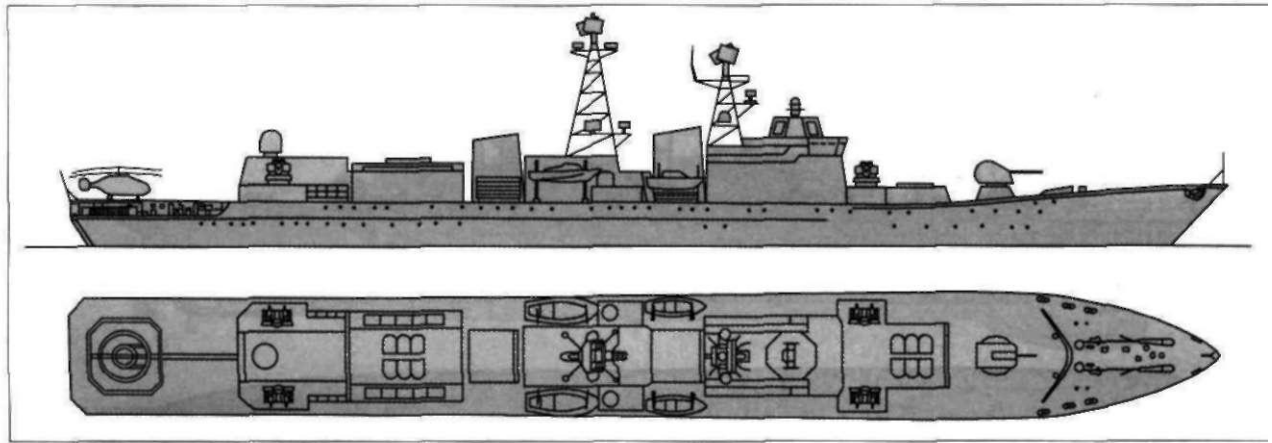
Project 11000 could have become a large-scale project, as it had all the characteristics of a multi-purpose ship, a kind of "workhorse" of the fleet. Project 11000 turned out to be so successful (theoretically) that it had a long, but, unfortunately, paper life ahead of it. In a slightly modified project, it was implemented only in India



Experimental and training ship of the project 13040



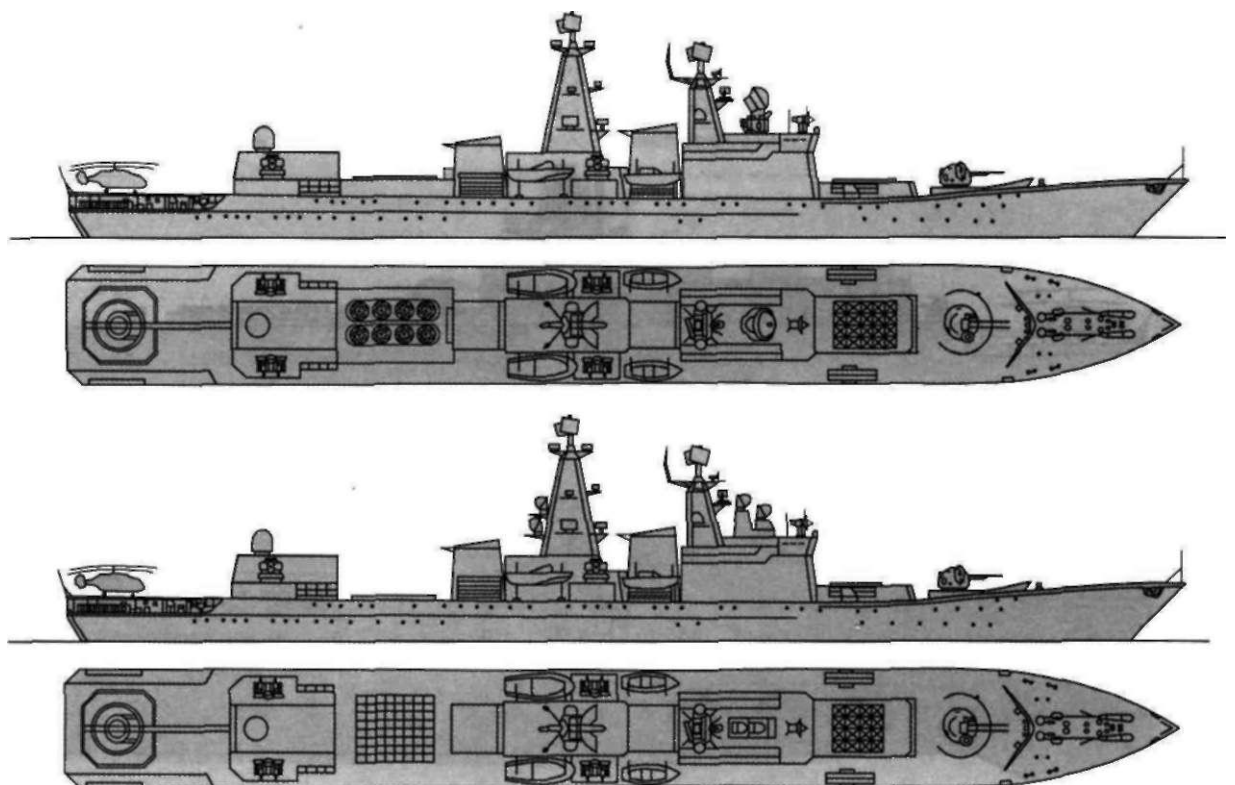
Patrol and rescue vessel of the project 10590

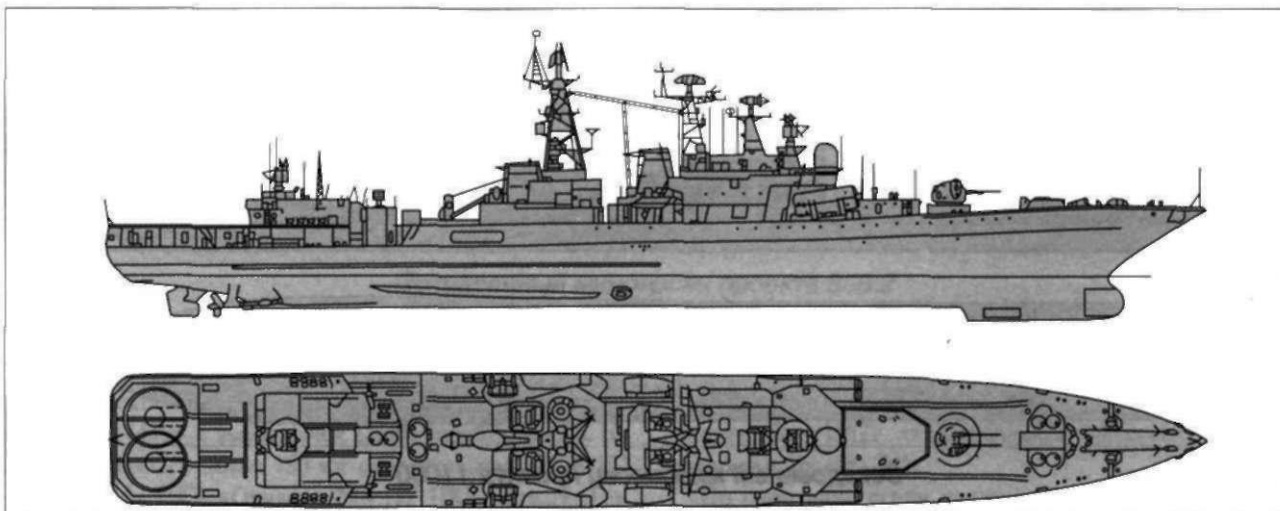
*Project destroyer***11000**

(Project 15). In our country, after a short time, with the advent of new types of weapons, it was somewhat modernized (again on paper), receiving instead of the Uragan SAM system a new Poliment-Redut SAM system with a phased control array and a vertical launch PU. The number of Kortik SAM systems also doubled, and perhaps already Palash SAM systems, most likely. The number of Oniks anti-ship missiles changed with a change in launcher to a silo type instead of a vertical launch drum. The process of improving Project 11000 continued and there was hope, albeit small, to see it "live".

Time does not stand still. New weapons appear constantly. The strategy changes, the concept changes. New requirements for ships appear. And ships die out, never born, although very good at the time.

From the very beginning, it was assumed that the ships of Projects 956 and 1155 would operate together. Naturally, the question arose of creating a kind of universal ship that would be able to perform all tasks on its own. Therefore, almost in pursuit, they began developing a multi-purpose ship of Project 1156 - a gas turbine hybrid of Projects 956 and 1155, but with a slightly reduced sonar. Work was carried out since the late 1970s. The ship turned out to be quite powerful. The displacement was 9400/11500 tons, dimensions 184x21 m, speed of 30 knots with a turbine power of 90,000 hp, armament: 16 Onyx anti-ship missiles, 64 Uragan air defense missile systems with vertical launch, 4 Kortik air defense missile systems, Vodopad anti-submarine system, 1 Ka-27 helicopter, Forum radar, Zvezda sonar. Almost simultaneously, an even more powerful version of Project 11560 was developed, in which the Uragan air defense missile system was replaced

*Multipurpose ships of projects 1156 and 11560*



Large anti-submarine ship of the project

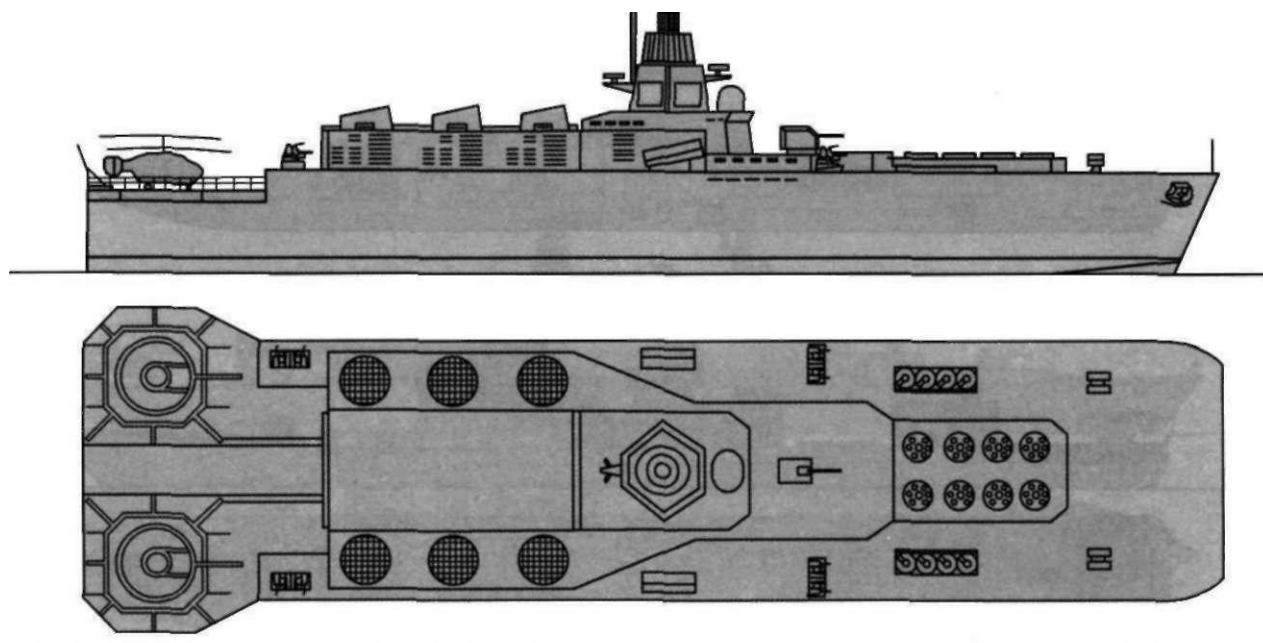
1155.1

was installed on the Fort SAM system and 24 Onyx anti-ship missiles were already installed. The displacement increased to 12,000/14,500 tons. Accordingly, the length of the ship also increased to 200 m. The speed decreased to 28 knots. It was supposed to install the Mars radar. But these were ships for the future.

The construction of a series of large anti-submarine ships of Project 1155 was nearing completion. The last, twelfth ship, Admiral Panteleyev, was delivered in 1991. But in the early 1990s, Project 11000 already existed, a ship more advanced for this class. Since preparations for the construction of a new project required quite a lot of time, it was decided to build (so as not to interrupt the process) a ship on the hull of Project 1155, close to the universal ship of Project 1155.1, but (unfortunately) without a long-range air defense system. The first of these was Admiral Chabanenko. On it, unlike Project 1155, the Metel PARK was replaced by the Moskit SCRK with 8 missiles. A new complex was introduced

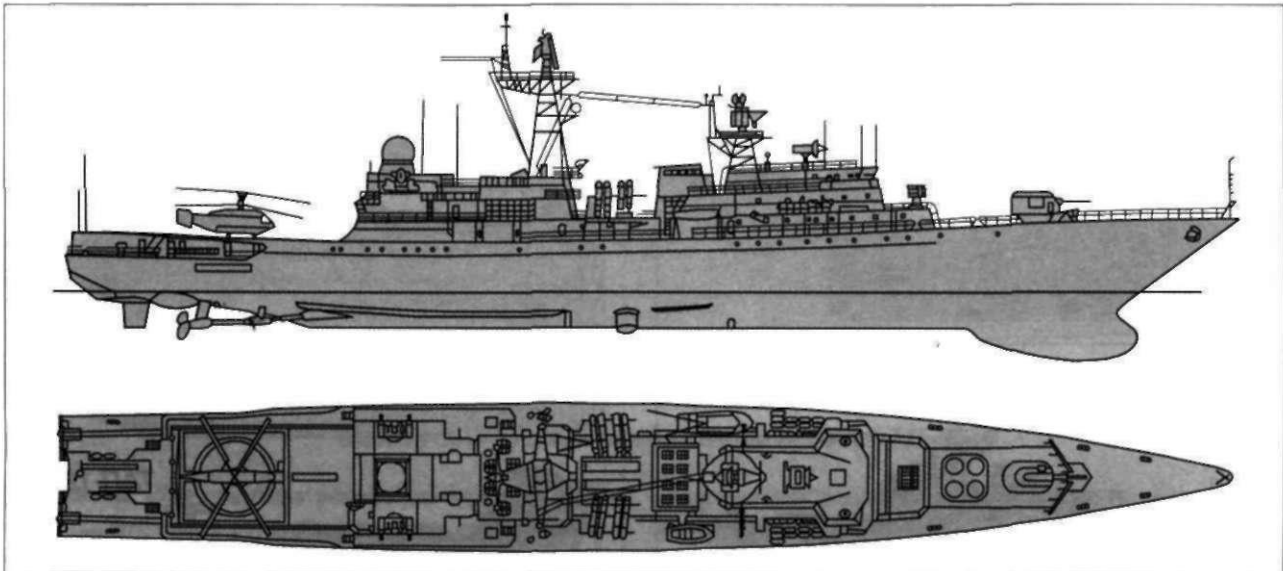
The Vodopad anti-submarine ship, two 100 mm AK-100 AUs were replaced by one twin 130 mm AK-130, the RBU-6000 was replaced by the Uday-1 anti-tank missile system, and the 30 mm AK-630 AU was replaced by two Kortik anti-submarine missile systems. The radio and sonar armament was significantly updated. By the early 1990s, the ship could successfully perform the tasks assigned to it. In addition, work was underway on a high-speed large anti-submarine ship of Project 10210 Bison on an air cushion with skegs, a standard displacement of 5,000 tons and a speed of 50 knots. We can only talk about armament conditionally, since there were, again, several options. No one had ever built such a large hovercraft. The ship carried a Ka-27 anti-submarine helicopter, anti-submarine missiles and bomb throwers.

In 1972, the Zelenodolsk Design Bureau was issued a technical specification for the development of a small anti-submarine ship of Project 1154 Pomornik with a full displacement of about 800 tons and a speed of 35 knots, which was a further development of the Project 1124 small anti-submarine ship that was being built in series. During the design process,



Large anti-submarine ship of the project

10210 ("Bison")

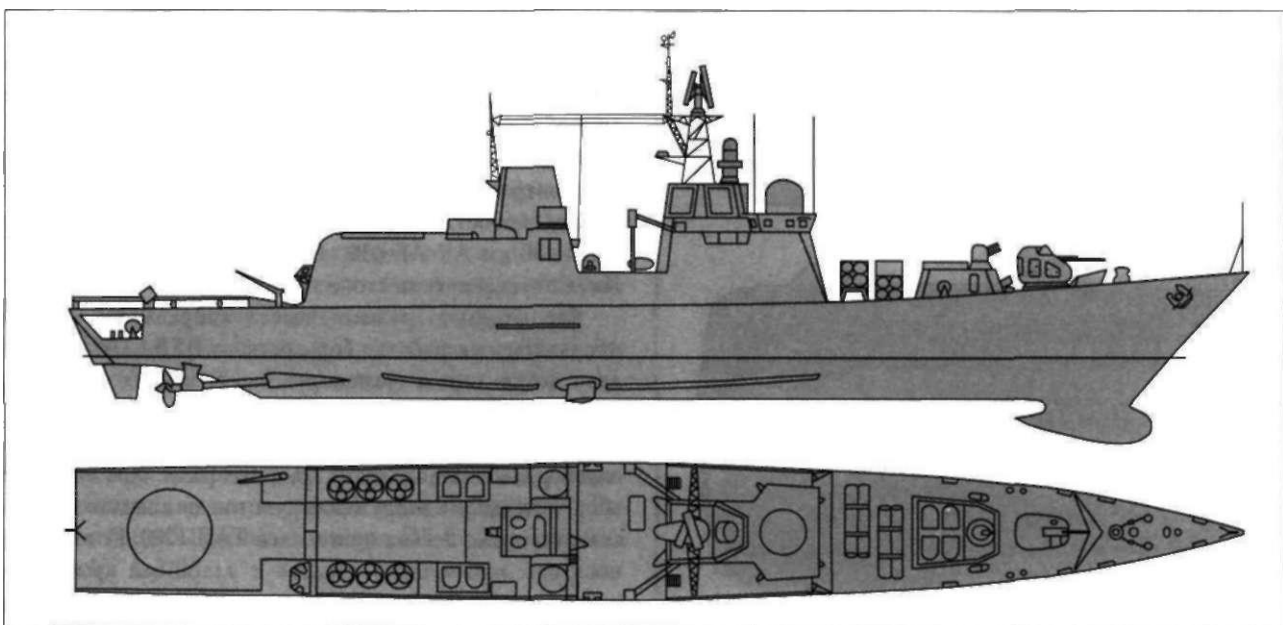
*Small anti-submarine ship**project 1154 (Skua)*

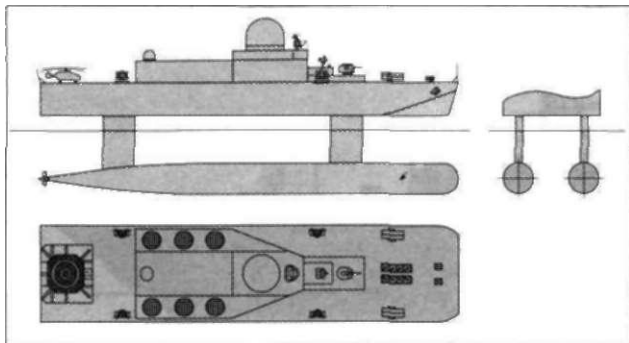
In an effort to increase combat effectiveness, the range of tasks assigned to the ship was consistently expanded, and the armament was strengthened by adopting increasingly advanced models and increasing the range of weapons.

In 1975, the ship had a displacement of 1,500 tons, in 1976 - 1,800 tons, in 1979 - 2,000 tons, in 1980 - 2,500 tons, in 1983 - 3,800 tons and, finally, in 1984, at the stage of working design - 4,250 tons. The result was a full-fledged patrol ship, which replaced Project 1135. The lead ship of Project 11540, Neustrashimy, was built in 1990. Full displacement 4250t, dimensions 129.9x15.6x4.6m, GTU power 2x28500hp, speed 32 knots, cruising range 3000 miles (at speed 18 knots), autonomy 30 days, crew 200 people. Armament: 4x4 anti-submarine missile system "Uragan", 6 launchers of the anti-submarine complex "Vodopad", 100-mm AU AK-100, RBU-6000, 2 SAM "Kortik", helicopter Ka-27, 4 launchers of the SAM "Kinzhal". A large series of these ships was assumed. Starting with the third, the ship was to carry enhanced

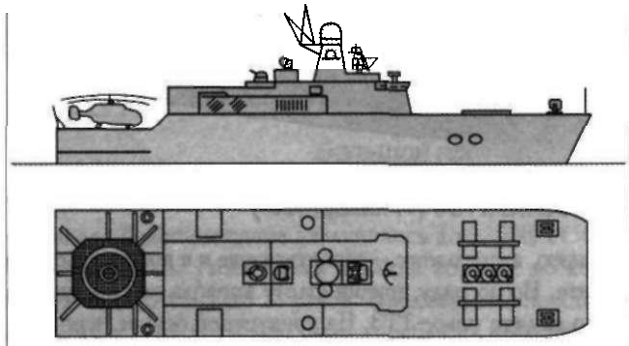
location, and from the seventh, it will also be built in a border variant. But for a number of reasons, the navy did not like the ship. A new technical specification was issued. On a competitive basis, as the winner, the order went to the Almaz Central Marine Design Bureau, which had previously only worked on boats.

The patrol ship they developed received project number 1244.1 ("Thunder"). The first ship of this project, "Novik", was laid down on July 27, 1997. Displacement 560/2,900 tons, dimensions 121 x 14.1 x 9.3 m, gas turbine capacity (2 cruise and 2 afterburners) 49,000 hp, speed 32 knots, endurance 30 days, crew 165 people (including 21 officers). Armament: 6x3 Onyx missile launchers, 4x8 Poliment SAM launchers, 2x4 Vo Dopad anti-submarine warfare system launchers, 100-mm A-190 AU, 1x12 30-mm AK-630-2 Roy AU. It was planned to build a large series of this project in Kaliningrad, Komsomolsk-on-Amur and in St. Petersburg at the Severnaya Verf. But due to the lack of funding, and, most importantly, due to the unpreparedness of a number of

*Project 1244.1 patrol ship (Thunder)*



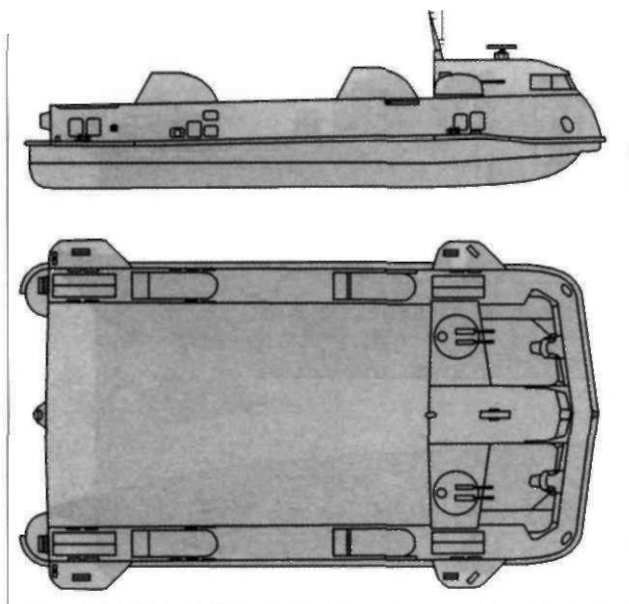
Patrol ship based on Project 12000



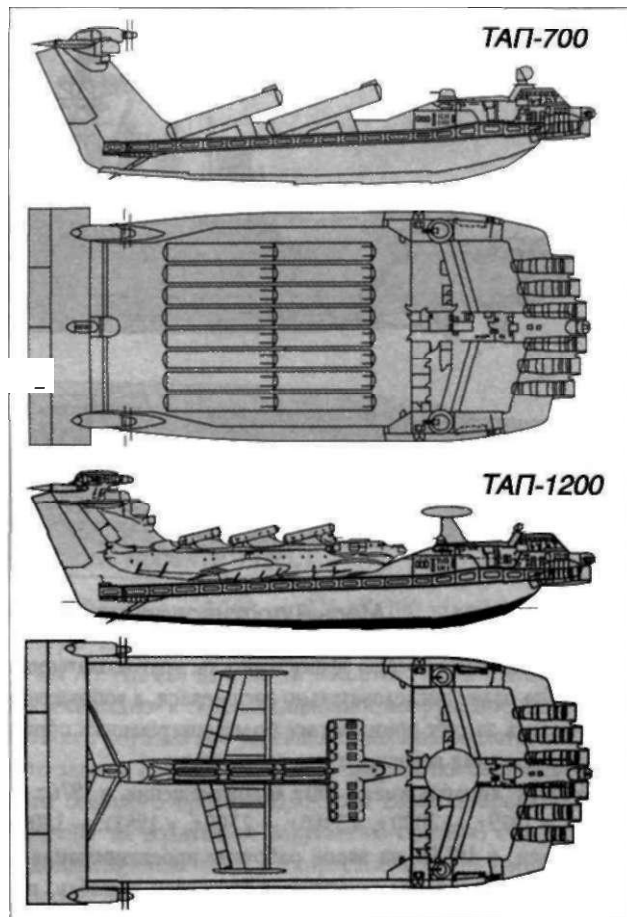
Patrol ship of project 10230 (Tour)

weapons systems intended for installation, the construction of the lead ship was suspended. In other **goroAah such ships** were not even laid down. In order to save the almost finished hull, after lengthy discussions, it was decided to reclassify it as a training ship and a ship for testing new weapons systems. It received a new name - "Borodino". The deadline for revision of the documentation is the end of 2008.

In the late 1980s, after Shpyrov developed a small waterline area catamaran (SWACA) of Project 12000 in 1986, the Severnoye Design Bureau also began developing a patrol ship of similar design.



Small landing ship TAP-30



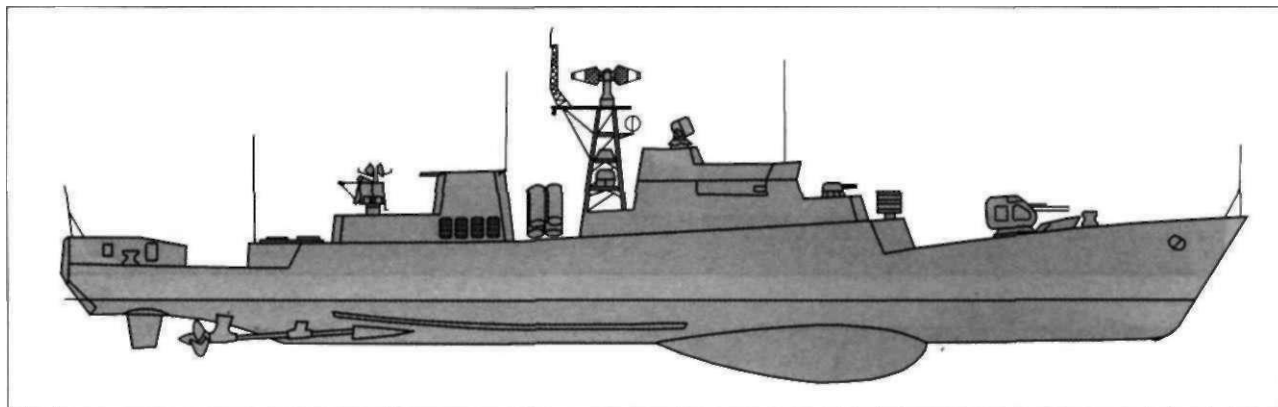
Amphibious transport vehicles

platforms

structures, but with larger dimensions. There is another name for this design - a semi-submerged catamaran. The dimensions were impressive - 130 x 30 m. The armament of one of the options: 100-mm AK-100, RAK "Kortik", 8 PU SAM "Kinzhal", 8 PU complex "Vodopad" and 2 helicopters Ka-27. Due to the lack of further funding, not even a mock-up ship was made to test the concept, and without this there was no point in continuing further work.

Among the unrealized developments of patrol ships, it is worth mentioning the project 10230 "Tur" of a guard hovercraft with skegs, brought to the technical design stage by the Zelenodolsk Design Bureau. The chief designer was V.V. Kontrakevich. The ship's displacement was 1600 tons, speed 55 knots. Armament: SAM "Kin zhal", 30-mm AU AK-630, 4 533-mm TA, helicopter Ka-27. Had a hydroacoustic station lowered on the foot.

The developments of the Gorky Central Design Bureau of the SPK began to appear as a separately developing direction. It produced a whole series of transport-amphibious platforms, KVP with skegs, and the small landing TAP-30. Of these developments, the TAP-700, a platform-carrier of attack cruise missiles, was of particular interest. With a minimum of defensive armament, they had quite significant power. The TAP-1200 is quite original. A platform-carrier of the Lun ekranoplan with Moskit attack cruise missiles. It was clearly created to increase the radius of action of ekranoplans. Developments were underway on a TAP for the transportation and launch of Topol ICBMs.



Small anti-submarine ship of project 1154

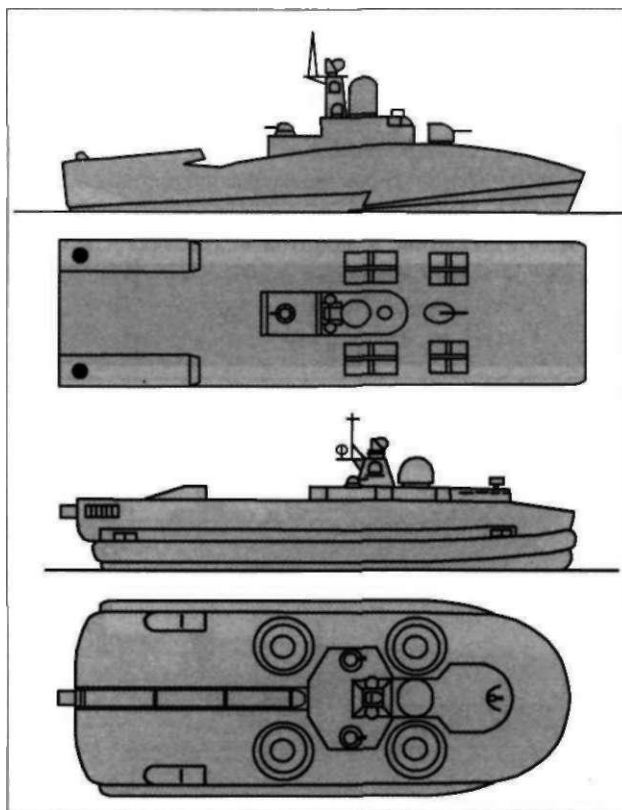
WITHendIn the 1980s, a series of small Project 1239 skeg-carrying air-cushion missile ships was deployed. The lead ship, Bora, was delivered to the fleet in 1989, the second, Samum, in the early 1990s. The ships were intended for closed seas—the Black and Baltic—and had limited endurance. Although significantly inferior to Project 956 in displacement, they had significant striking power. The power plant is quite complex—a diesel-gas turbine with a total capacity of 6000 kW. It includes a gas turbine engine, which, via an angular reduction gear, drives two propellers mounted on columns and rising out of the water when moving under the diesels. Each of the two diesels drives its own propeller. Two autonomous diesel-supercharger units are used to form an air cushion. The ship's full displacement is about 1,000 tons, dimensions are 64x17.2x3.3 m, speed is 45 knots, cruising range is 2,000 miles (at a speed of 12 knots), crew is 60 people. Armament: 2x4 anti-ship missile systems "Moskit", SAM "Osa-MA1", 76-mm AU AK-176 and 30-mm AU AK-630.

Logically, a small anti-submarine ship should have been designed to replace Project 1124. The development of Project 1154 as of 1979 could have been taken as a basis. In the proposed form, the displacement is 2000 tons, dimensions are 96x12x3 m, speed is 30 knots. Armament: 2x4 launchers of anti-submarine missiles "Medvedka", 3 launchers of the SAM "Kinzhal", 100-mm AU A-190, 1x6 30 mm AU AK-630. This type of ship could also be used by border guards.

The construction of missile boats continued, based on Project 1241R. They were first commissioned in 1979. They were a sort of universal base, on which only the missile armament changed. The last series was Project 1242.1 with a gas turbine power plant. Full displacement 550 tons, dimensions 56.1 x 10.2 x 2.3 m, speed 42 knots, endurance 10 days, crew 40 people. Armament: 2x2 Moskit anti-ship missile systems, 76-mm AK-176 AU, 2 30-mm AK-630 AU, Igla MANPADS (12 missiles). The next modification of this project with the Onyx anti-ship missile system was already on the way. The ship was supposed to have 2 launcher packages with 4 missiles each and 1 100-mm A-190 AU.

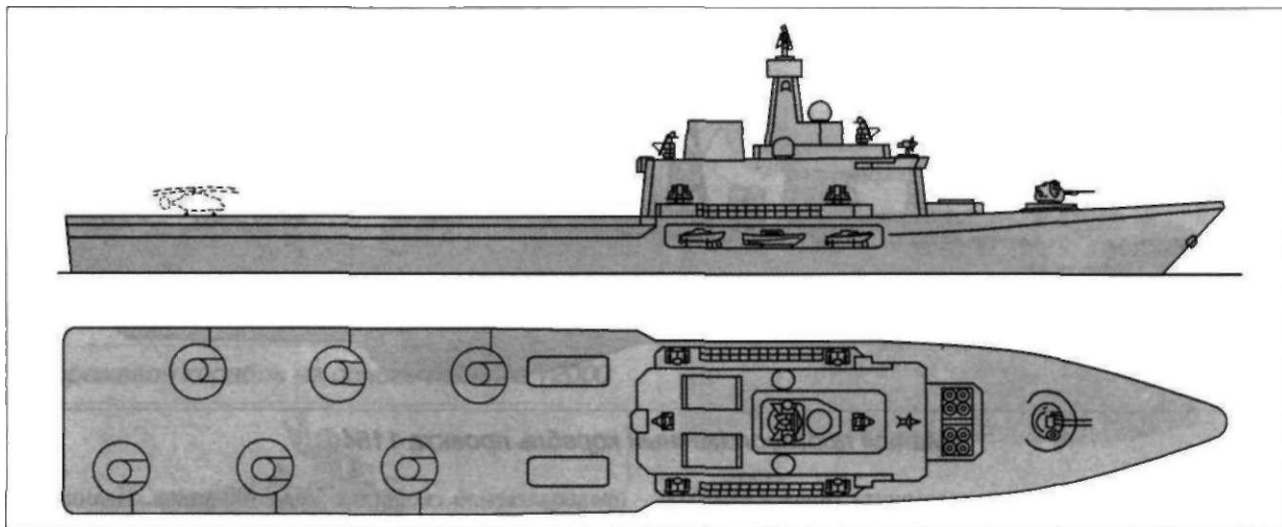
As a further development and improvement of snow ships, a rocket ship on narrow skegs, "Strepet", with a displacement of 1000 tons and with

with an expected speed of 100 knots. It was clearly a new qualitative leap in this direction. Before this, only the experimental hydrofoil ship Smerch could develop such a speed. The ship was developed in several armament options, including with 16 Onyx anti-ship missiles. A mock-up ship SM-0305 already existed for testing the new propulsion principles. It underwent tests in 1982-1989 and developed a speed of 69 knots. With the adoption of the land-based mobile missile complex Topol in 1986, a sea-based mobile ICBM carrier complex Topol was also developed based on Project 12321 Dzheyran. The problem of stabilizing the ship during missile launch was solved. Possible launch sites and basing sites were determined. A number of other problems associated with the originality of the project were solved. Ultimately, this project was abandoned. As stated in the decision: "with sufficient land mo-



Missile ship "Strepet" and the sea mobile complex of the project

12321

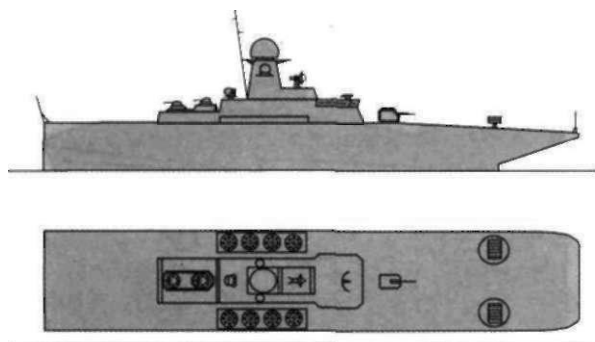
**Landing ship-dock project****1609**

"bilnyh complexes", which is generally true, since the area of application of Project 12321 was very limited. But a mock-up ship was made for testing.

Construction of patrol ships of project 10410, developed specifically for the border troops of the FSB of Russia, continues. The use of weapons is ensured in sea conditions of up to five points at a speed of up to 22 knots. In less severe conditions, there is no speed limit.

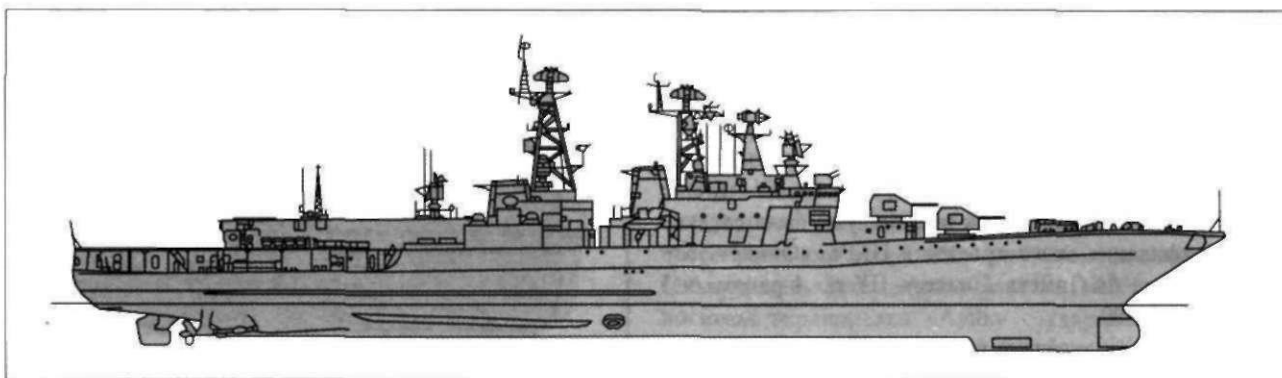
Most of the landing ships for the Soviet Union were built at Polish shipyards. They were also developed there. Since 1980, the second series of Project 775 has been under construction.

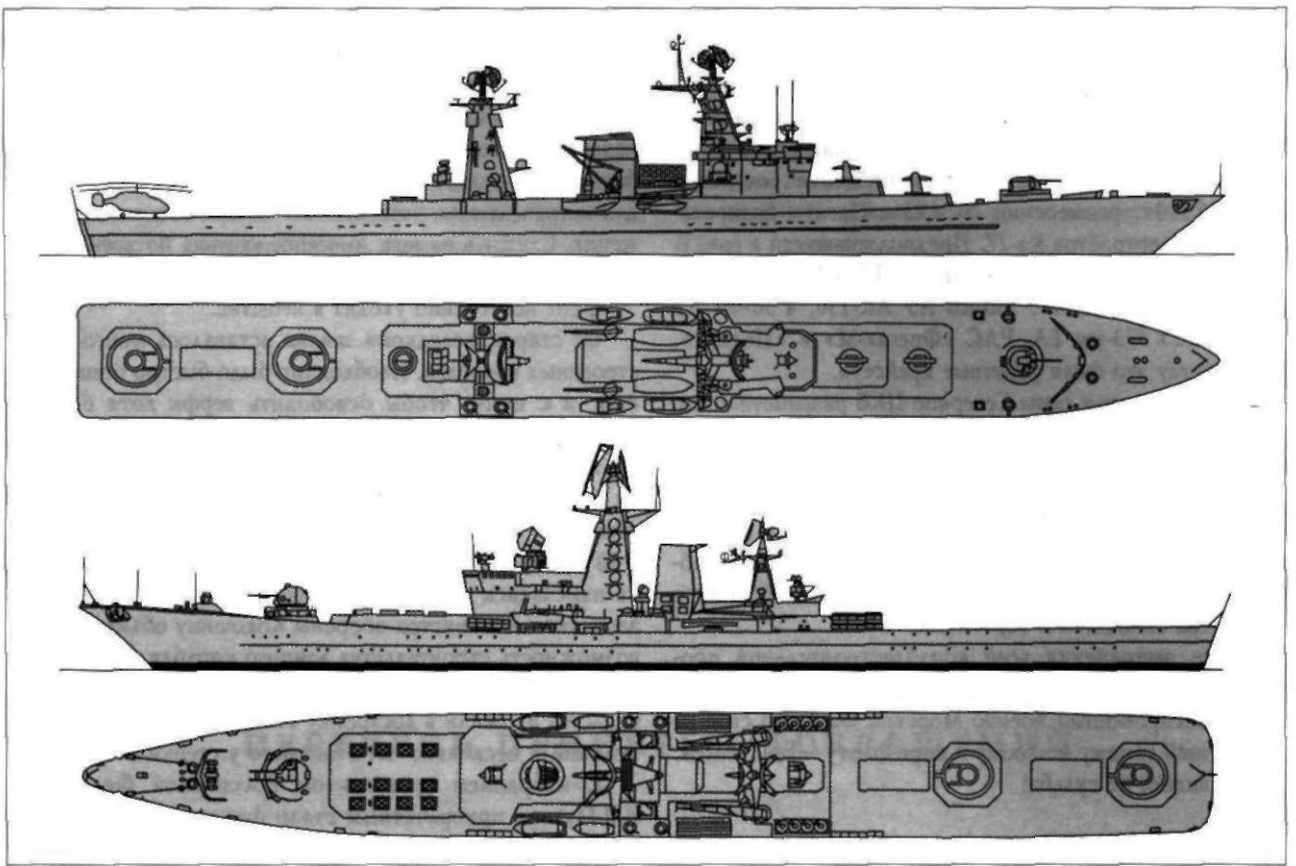
In 1985, the design specifications for the development of a landing ship-dock were issued. Based on the results of the study, Nevsky Design Bureau presented three variants, differing in displacement.

**Landing KVP project 1263**

displacement (from 19,500 to 24,800 tons), length (from 204 to 214 m) and dimensions of the dock chamber (from 75 to 80 m). After discussion, the option was selected for further development, which received the project number 1609. Displacement 24,800/31,800 tons, dimensions 214 x 41 m, dimensions of the dock chamber 80 x 15 x 6 m. Armament: 130-mm AK-130 AU, 2 Kinzhal SAM systems, 4 Kortik SAM systems, 12 Ka-29 helicopters (could take 24 helicopters in overload), transportable landing force - 750 people. The dock chamber housed three Project 1206 landing ships or ten Project 11770 landing ships. The work never got beyond the preliminary design stage due to a number of problems, one of which was the question of where to build it. And in the early 1990s, there was no time to build landing ships.

In our country, in addition to small landing ships, priority was given to the development of landing hovercraft. The series included large landing hovercraft of Project 12322. The lead ship was built in 1988. Long range and speed, all-weather capability, and the ability to land troops directly on the shore were the main advantages of this project. In addition, the ship could be used as a minelayer, taking on board up to 80 mines. The series also included landing hovercraft of smaller displacement—Project 12061 Murena. Displacement 132/149 t, dimensions 31.6 x 14.8 m, total capacity of 4 GTU 40,000 hp, speed 55 knots, cruising range 200 miles at a speed of 50 knots with a cargo of 26 t, endurance 1 day, crew of 12 people. Armament: 2x6 30mm AK-630 AU, 2

**Squadron minesweeper of project 923 ("Granat")**



Variants of the Project 1077 command ship

"Plamya" grenade launcher. The ship could take on board 1 tank or 2 infantry fighting vehicles.

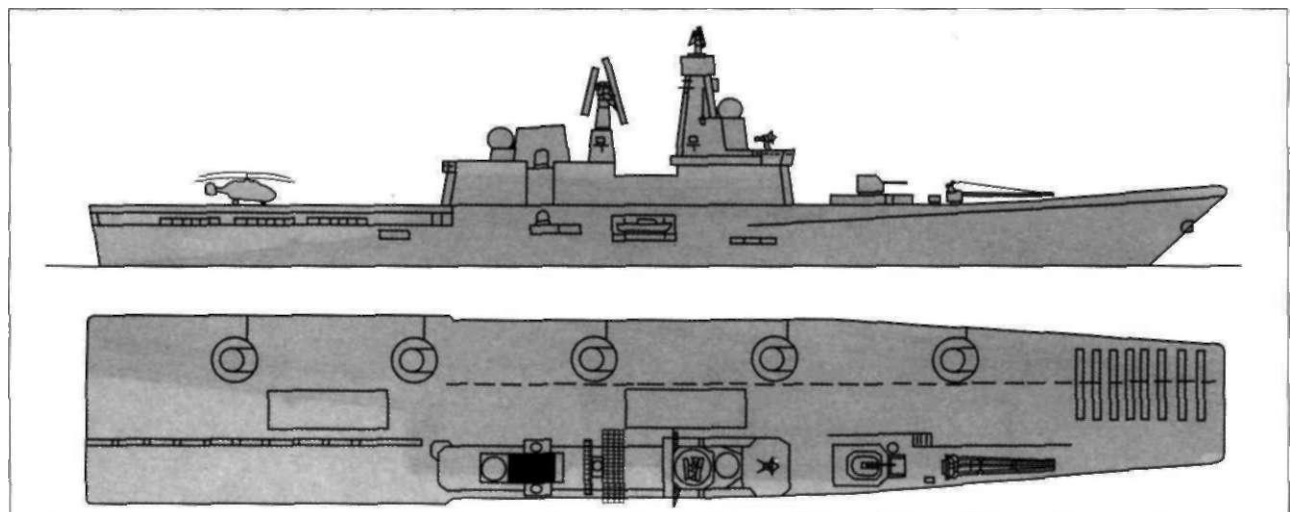
In parallel with the creation of fully detachable amphibious landing hovercraft, development was underway on a larger landing hovercraft with skegs of Project 1263 with a displacement of 2,500 tons.

Of the small landing ships in the series, the Project 1176 had proven itself well.

The construction of all types of minesweepers for the needs of the fleet continued. These are sea minesweepers of project 12660, harbor minesweepers of project 10750, base minesweepers of project 1265 and small minesweepers of project 12255. On the hull of the project

Project 1155 was used to develop a Project 923 Granat minesweeper, a carrier of five Ka-25PMO helicopters. Displacement 7,200/7,800 t, dimensions 163 x 19 x 5.4 m, GTU power 53,000 hp, speed 30/18 knots, range 5,600 miles (at a speed of 14 knots), endurance 30 days, crew 231 people. Armament: 2 Kinzhal SAM systems (64 missiles), 2x1 100-mm AK-100 AU, 4x6 30-mm AK-630 AU, 1x2 25-mm AU, Udav-1 ARPK.

To control the emerging huge fleet, balanced and powerful, special ships were required, the development of which was carried out by the Northern Design Bureau. Since 1972, a squadron ship of the



Squadron headquarters ship with air cover

Project 1077 radiolocation patrol helicopter carrier, also known as a command ship. Standard displacement is 10,000 tons, dimensions are 186 x 20 m, speed is 30 knots, 4 Ka-27 helicopters, 2 M-22 Uragan launchers, 100-mm AK-100 AU, 4 30-mm AK-630 AU, Osa-M SAM system. In 1977, a more advanced project appeared 1077. The displacement was 10,800/12,910 t, dimensions 202 x 22 m. Six Ka-27 helicopters were already based on it. The six Kinzhal air defense missile systems that were initially planned were replaced by the Fort air defense missile system. Armament: Kinzhal air defense missile system, 130 mm AK-130 AU, 4 30 mm AK-630 AU, 2x5 533 mm TA, Fregat-M and Podkat missile launchers. In essence, these were missile cruisers.

In development of this theme, the Northern Design Bureau developed a new conceptual ship—a squadron command ship with powerful air cover. The development was carried out in 1981-1983. Then further development was transferred to the Nevskoye Design Bureau, as the most specialized in this subject. The result was a flush-deck ship—both a command ship, a radar patrol ship, and a carrier of a large number of aircraft and helicopters.

After completing the entire shipbuilding program by 2005, the Soviet Union would have a powerful, well-balanced Navy, equal in strength to the most powerful fleet in the world—the US Navy.

But apparently it wasn't meant to be!

After the collapse of the Soviet Union, the Navy suffered the most painful blow, as it was the most expensive component of the country's defense. Funding was so low that there was not enough money even for salaries, let alone to maintain ships in combat readiness.

The mass withdrawal of ships into storage began, their sale began. Mostly for next to nothing. This is what could be sold. More than a hundred nuclear submarines, most of them with unloaded reactors, are rotting in storage to this day. There is nowhere and nothing to dismantle such an armada.

And most importantly, we are losing personnel.

In the current situation, there is no time for the World Ocean. The surviving ships are simply standing by the wall. In order to somehow maintain the protection of the sea borders, the border guards "scooped up" from the fleet almost all the small-tonnage ships suitable for their service. Even fishing trawlers and seiners were used, which were adapted for the border service, installing some weapons on them. It is, of course, more comfortable to serve on them, but it is almost impossible to catch up with the violators at their speeds.

The fleet is gradually fading into oblivion.

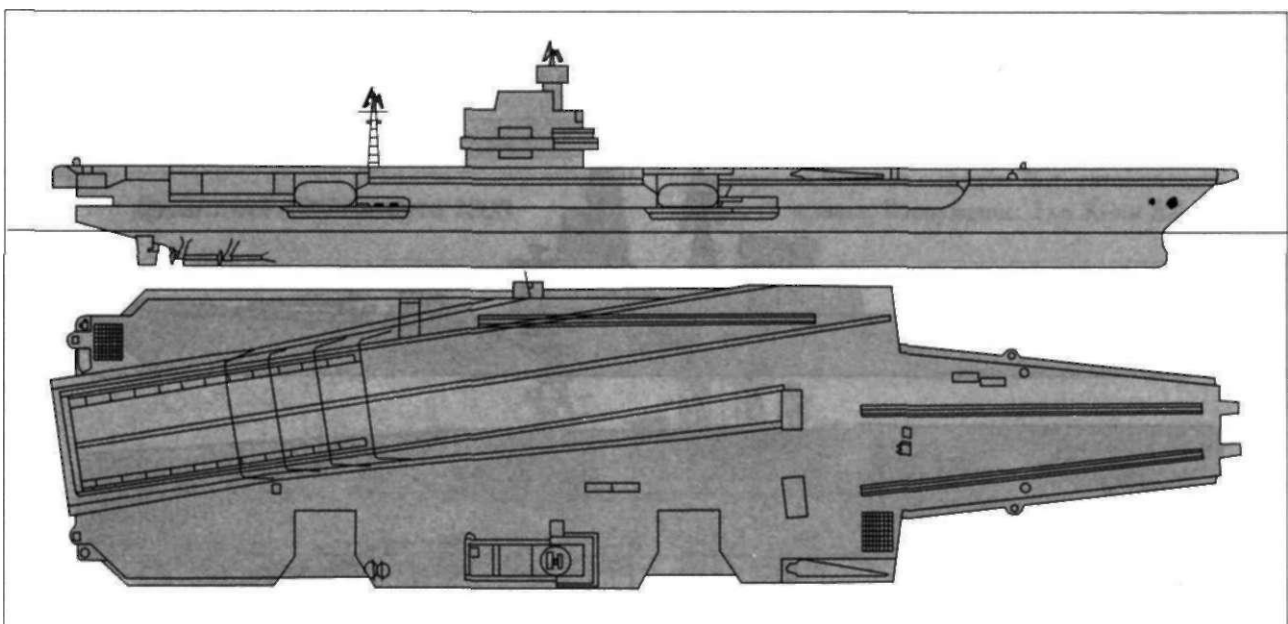
Many unfinished ships remained from the old "sweet" life. It was necessary to quickly resolve the issue with them, in order to free up the shipyards at least for the construction of much-needed civilian ships.

And then the question spontaneously arose about building a small aircraft carrier at the Baltic Shipyard in St. Petersburg with a displacement of 50,000 tons and a speed of 30 knots with 60 aircraft and 3 catapults. The keel was planned for 1995. When Deputy Defense Minister Kokoshin arrived at the shipyard in 1994, they explained the impossibility of building this ship without significant modernization of the shipyard. And then all available funds were invested in completing the nuclear cruiser Pyotr Velikiy, which had been moored at the shipyard for several years.

With the election of V.V. Putin as President of the Russian Federation, funding of security forces, including the navy, became a priority.

What should we do now, since we have practically no fleet? The Navy leadership needs to abandon the "high seas fleet", demonstrating for clarity "heterogeneous flotillas" (what a term they came up with). And what tasks can be set before this rabble of different types of ships from 20-30 years ago?

We must finally understand that at the present time there is no greater enemy than terrorism, and to fight it we need a completely different army, people who think completely differently.



Aircraft carrier

displacement

50000t

As painful as it is to talk about, at the present time all large ships should be put into reserve, or even better, sold (if, of course, someone buys them). And all the funds should be invested in the creation of border guard ships, of which hundreds are needed - corvettes to guard the 200-mile economic zone and small ships to guard the 12-mile border zone.

And what about us? At the present time, apart from the creation of individual samples, things are not moving forward. And time does not wait.

As the border guards have fewer and fewer ships, robbery in our waters continues with no less intensity.

And most importantly. The protection of our sea borders must be given to the Navy. In this way we will preserve personnel that will be needed in the future. I would like to hope so.

LIST		ACCEPTED		ABRENCIONS	
AP	antenna post			PCRK	anti-ship missile system submarine
AVL	light aircraft carrier			PA	
EPL	nuclear submarine gun mount large			CSS	ship projectile "Strela" anti-ship
AU	anti-submarine ship Air Force			KSSH	projectile "Shchuka" boiler-turbine
Military-industrial complex				KTU	plant
BBC				ICBM	intercontinental ballistic missile Moscow
Navy	Navy			MIT	Institute of Thermal Engineering anti-
VS	Armed forces			PLO	submarine defense
GAK	hydroacoustic complex			PARK	anti-submarine missile system launcher
GAS	hydroacoustic station gas			PU	
GTU	turbine unit			RBU	rocket launcher radar station
AWACS	early warning anti-aircraft missile			RAS	
ZR				RTPU	missile and torpedo launcher electronic
ZRAK	anti-aircraft missile and artillery system anti-			Electronic warfare	
SAM	aircraft missile system			VTOL aircraft	
ZURS	anti-aircraft guided missile design bureau			SPK	vertical takeoff and landing aircraft
KB				TA	hydrofoil
KVP	hovercraft air defense design			TTZ	torpedo tube
Air Defense				YES	tactical and technical assignment long-range
PCB	bureau anti-ship missile			Central Clinical Hospital	
PKR				Central Medical Clinical Hospital	
					strike ship central design bureau central
					marine design bureau

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