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KYDA CLASS 20 YEARS OLD, (U)

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AUTHOR(S) AND/OR EDITOR(S): S. Breyer

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KYNDA CLASS 20 YEARS OLD

[Breyer, S., Marine Rundschau, May 1982, No. 5, pp. 252-255; German]

/252\*

Our standing expert on the Soviet Navy reports on the guided missile cruiser class and the first modernization of the lead ship now in service for over 20 years.

Exactly 20 years ago, in June 1962, a new Soviet surface combatant, about the size of a large destroyer, made her debut in the Baltic: The prototype of the new series - since designated KYNDA Class in NATO terminology - was displayed during the course of her sea trials and immediately became the object of lively interest within the profession. That interest was not accidental: this new type of warship represented a spectacular new development, whose varied weapons arsenal could not be matched in the West. Particularly important was the superior range of the ship's surface-to-surface missile system.

The KYNDA Class was designed within the framework of the anticarrier naval construction doctrines of 1956-59. Even today, in Soviet nomenclature its representatives are designated as "Raketnyye Kreyzera" (missile cruisers). To be sure, in size it remains at the bottom of this category, but that did not carry much weight at the time, since, because of its size, it was considered to be more of a "bloated" destroyer than a cruiser. This becomes clear by virtue of the fact that, up to the end of the '60s, several of the well-known fleet handbooks classified it as a destroyer and not a cruiser. This was further reflected in her NATO designation as a DDG - Destroyer, Guided Missile. In the 1960s she was reclassified as a CG - Cruiser, Guided Missile.

It is noteworthy that, in contrast to the Western navies, the Soviets, with the KYNDA Class, had developed a ship type equipped to handle all conceivable deployment modes, enabling her to operate independently and at long range.

The armament includes:

- two completely independent SS-N-3b (SHADDOCK) antiship missile systems;
- an S-A-N 1 (GOA) surface-to-air missile system;
- 76.2-mm guns;
- torpedoes; and
- ASROC rockets.

The SS-N-3b antiship missile system was developed as a mobile version of the Army's tactical SHADDOCK (NATO designation), which was somewhat "navalized" and became operational in 1962. It includes an aerodynamic missile equipped with a turbojet, with a weight of over 4 t, 10.9 m long, with an airframe diameter of .86 m, equipped with stubby folding wings which have a wing span of 2.58 m. Thus, for all practical purposes, it represents a remote\*controlled unmanned aircraft, with a payload consisting of either a nuclear or conventional warhead. It is remotely guided to the target. During flight it attains a speed of Mach 1.3.

\*Numbers in right margin indicate pagination in original text.

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Though it has a maximum range of 250 nm, its effective range is estimated to be from 18 to a maximum of 30 nm, depending upon the radar horizon to be attained by its carrier. However, the range can be increased to about 170 nm with the help of a "relay station", which includes specially equipped aircraft and helicopters. The missile can be programmed for a flight altitude profile of 300 to 4000 m. It is radar controlled, but for the final attack phase it is equipped with a radar homing head. It is launched with the assistance of two solid fuel, auxiliary boosters (automatically jettisoned immediately after burnout from large cylindrical containers, which can be raised about 30°. These containers are mounted in clusters of four, on a single variable pedestal with a 360° turning radius. Inside the containers, the stub wings of the missile are folded to fit into the inner diameter (estimated to be less than 2 m). To this very day there are discussions and differing opinions as to reloads for the SHADDOCK missile. It is safe to say that behind the cylinder groups there are spaces built into the superstructure and accessible from the outside, which serve as magazines. Without a doubt, missiles are stored there. But one opinion maintains that (these compartments) are to support the first load (whereby, in addition to improved stability by reducing the topside weight due to the missiles, more simplified control and maintenance are made possible). The other opinion holds that it has to do with additional missiles. As always, moving the missiles from their containers into the magazine and back again is, to be sure, quite complicated, requiring the use of chain hoists or line pulls, winches, and a great amount of time. Normally the containers are loaded with the aid of a loading platform from which the missile is loaded in from the front. Normally, this loading platform is attached to one of the two turning rings mounted on the upper deck on either side of each container cluster. Normally the loading platform is not carried on board, but belongs on one of the available special ships to resupply the KYNDA with missiles and other munitions.

The SA-N-1 surface-to-air missile system presents fewer problems. Again, this was first developed for the ground forces as a surface-to-air weapons system (SA-3), and a similarly "navalized" version became operational at the beginning of the '60s. This system consists of a below-decks magazine, directly above which is a 360°-rotating twin launcher. In order to reload, it must be rotated 90° to port, so that its launch rails are positioned exactly 90° perpendicular over the reload hatches. The magazine capacity is thought to be 24 missiles. The twin launcher is surrounded by a low, angled partition, which serves as an effective blast deflector during missile launch.

/253

Both gun turrets are mounted aft in a superimposed arrangement. The L/59 76.2-mm guns have an elevation ranging from -10° to +90° and thus are suitable for engaging aerial as well as surface and ground targets. Their maximum range is supposedly about 10,000 m, with an effective range between 6,000 and 7,000 m. It fires 16-kg fixed ammunition with an initial velocity ( $V^0$ ) of 900 m/sec; the theoretical rate of fire is 60 rounds per minute.

Triple-tube swivel-mounted torpedo tubes are located amidships on the side decks between the two funnels. These are 8.25-m-long M-57 launchers, in service since the late '50s, is for 5.33-m torpedoes launched with compressed air. Either standard antiship or special ASW torpedoes may be fired. In addition to the torpedoes already in the tubes, at least one reload of spare torpedoes might also be carried. An indication of this is the tracks on the upper deck, visible near the torpedo tubes. These extend out from the superstructure, so it might be assumed that additional torpedoes are stowed there. Furthermore, a curved segment of track extending clear across the upper deck permits the transfer of torpedoes from one cluster of tubes to another.

Mounted just forward of the SA-N-1, the RBU-6000 ASW mortars (formerly designated MBU-2500 A) were the latest available at the time. Each cluster includes 12 tubes on one rotating pedestal. Each tube is 1.6 m long with a 250-mm inner diameter and fire a 90-kg rocket-propellant projectile with its own 55-kg warhead for distances of up to 6000 m. Automatic reloading is accomplished from a below-decks magazine with vertical delivery from below into the launcher barrels, which are elevated to 90°. Firing always occurs in a paired sequence.

As the KYNDA Class became better known, it became apparent that this class possessed the most diverse electronic equipment of all the heretofore known ship classes of the Soviet Navy. For the first time, Soviet designers employed fully-protected, pyramid-shaped tower masts to support the heavy radar systems, especially the HEAD NET A radar antennas for air surveillance and the SCOOP PAIR twin control devices for the two SS-N-3 B weapon systems. In 1967, the GROZNY received six small radomes on the four stepped platforms of the aft mast--platforms which had previously been vacant. In the early '70s, these were replaced by the PLINTH NET. At the beginning of the '70s, the VARYAG's HEAD NET A was replaced by the more modern HEAT NET C; about the same time, two additional PLINTH NET radars were added (to VARYAG) on the same platforms as on the GROZNY.

/254

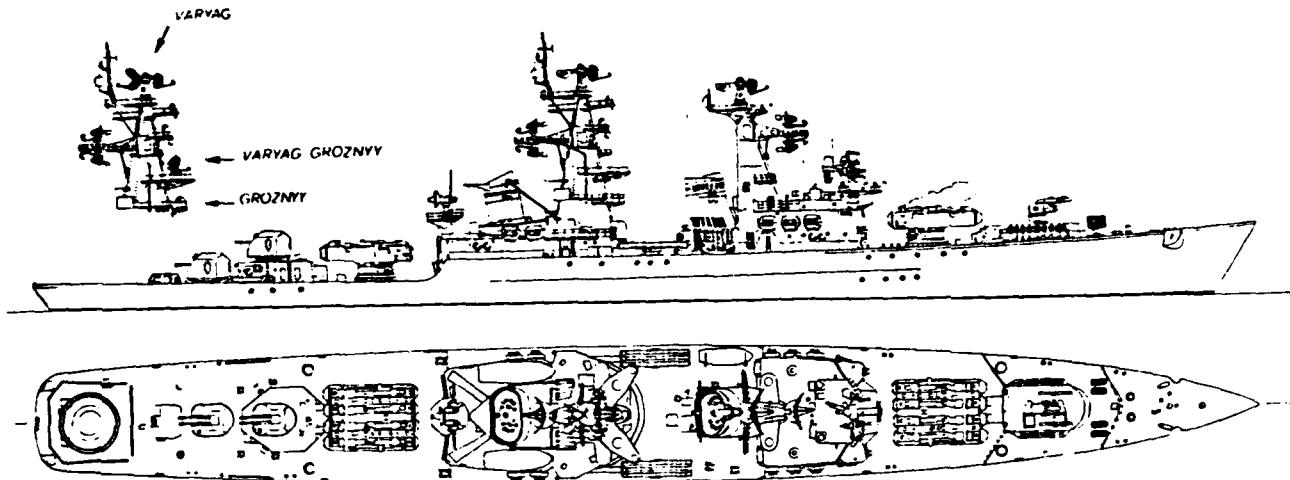
Even though the after body of the ship is equipped to accommodate helicopters--there is a 10 x 9 m area marked off for that purpose--the KYNDAs do not have their own helicopters. There is also no hangar, since the large number of weapons systems on the upper deck, along with the relatively limited ship size, left no space for that. However, there is a control tower for helicopter takeoff and landing. This latter is positioned behind the second 76.2-mm mount sunk halfway into the upper deck, which, at that point, is also the main deck.

Now, after almost 20 years of service, these ships are already in the second half of their "natural life expectancy," if this biological term may be permitted here. Measures which mitigate against the ongoing aging process cannot be avoided. Such a beginning was made with the VARYAG, which had not been seen at sea for several years, but was again sighted in October 1981. The recognizable external modifications are, of themselves, not so extensive, except that they suggest a layover of several years in the yards. It must be presumed, therefore, that considerable work was completed which naturally cannot be detected from the outside, but rather concerned the ship's interior construction, as well as the main and auxiliary engines. The outwardly recognizable modifications involve primarily the added superstructure. This consists of an extension of the bridge superstructure from the leading edge of the tower mast to just aft of the trailing edge of the forward funnel. In this area the side decks were built over. Thus sufficient room was gained to mount two six-barreled 30-mm automatic AA Gatling guns on each side to provide a defense against SEA SKIMMER missiles. An associated BRASS TILT control radar was mounted on the substructure of the mast tower. Another modification involves the space between the two funnels, where a two-story deck-house was placed. This could contain the data processing unit for some new command and control system. There are probably also additional electronics in the deck-houses on both sides of the aft tower mast. Also obvious was the replacement of the forward HEAD NET A radar with a HEAD NET C.

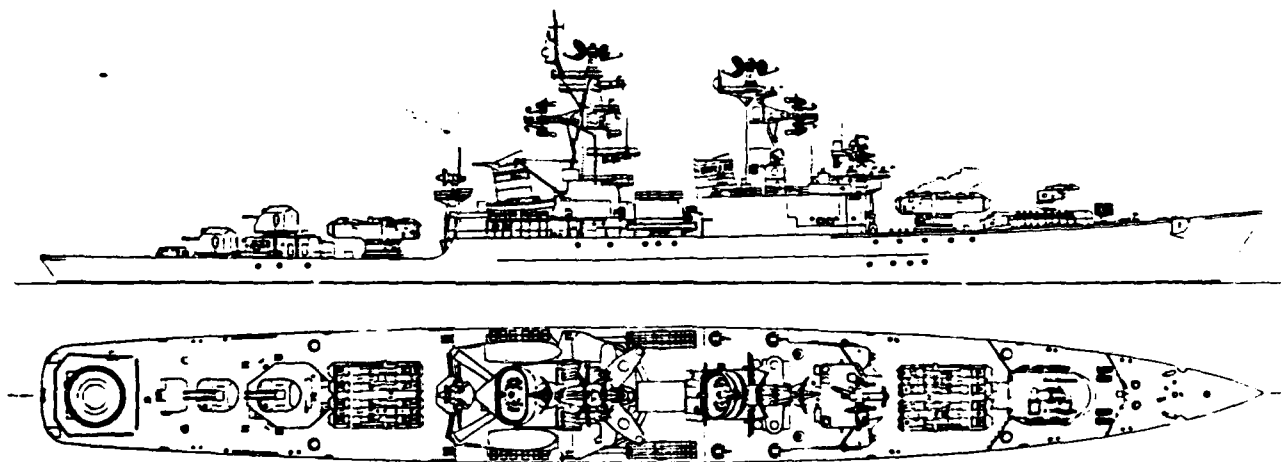
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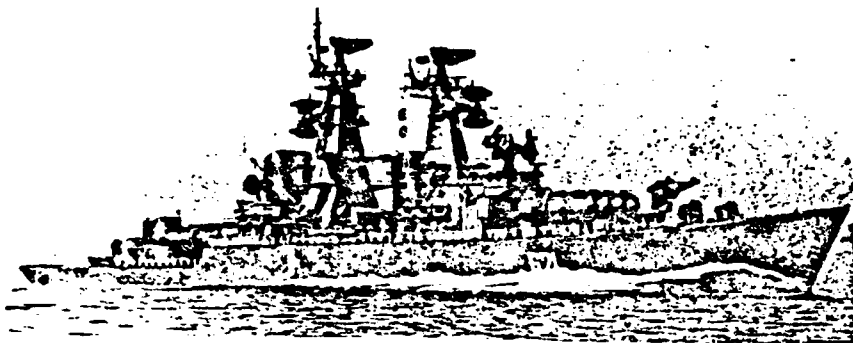
What was not modified--and this observation must be based solely on the obvious external indicators--is the armament--but above all not the missile systems, although they have not represented the state of the art for several years and

could truly be considered obsolete. Perhaps the expense is too great for the Soviets, particularly, since the oncoming SOVREMENNY and UDALOY destroyer classes are occupying yard space, and they appear to be under such severe pressure that perhaps they simply do not have any additional capacity.

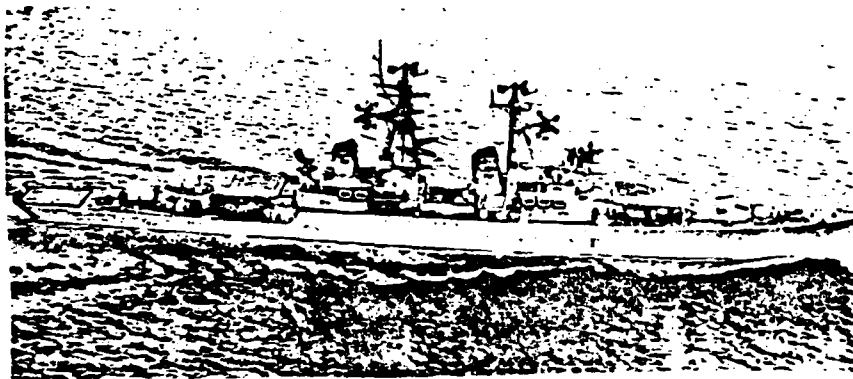


Original configuration with variations in individual ships as indicated in the accompanying drawings (above); configuration of the VARYAG after modernization (below).

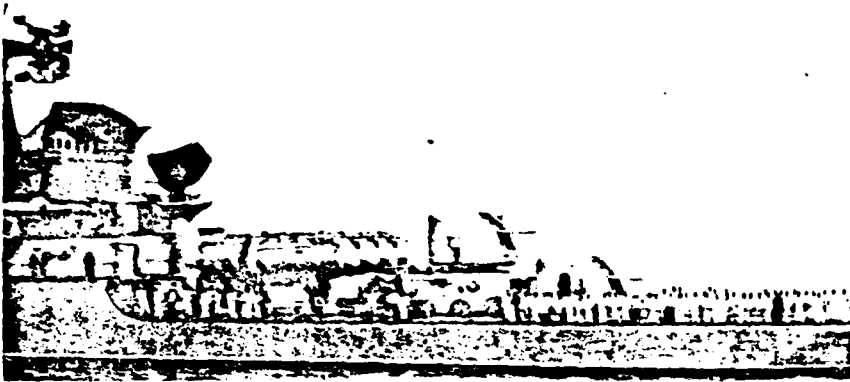




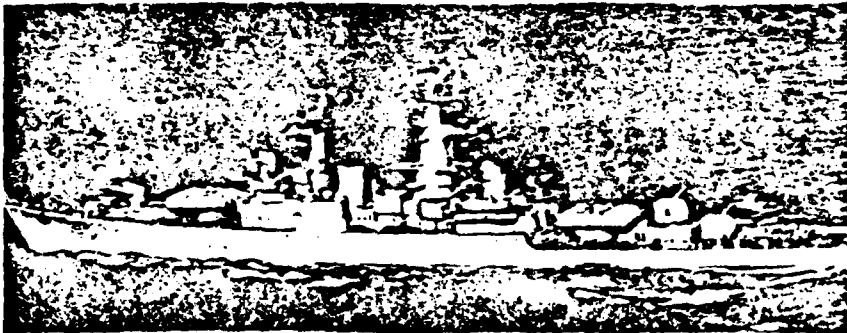
An early photo of the VARYAG, fourth ship of the KYNDA Class, during sea trials in the Baltic.



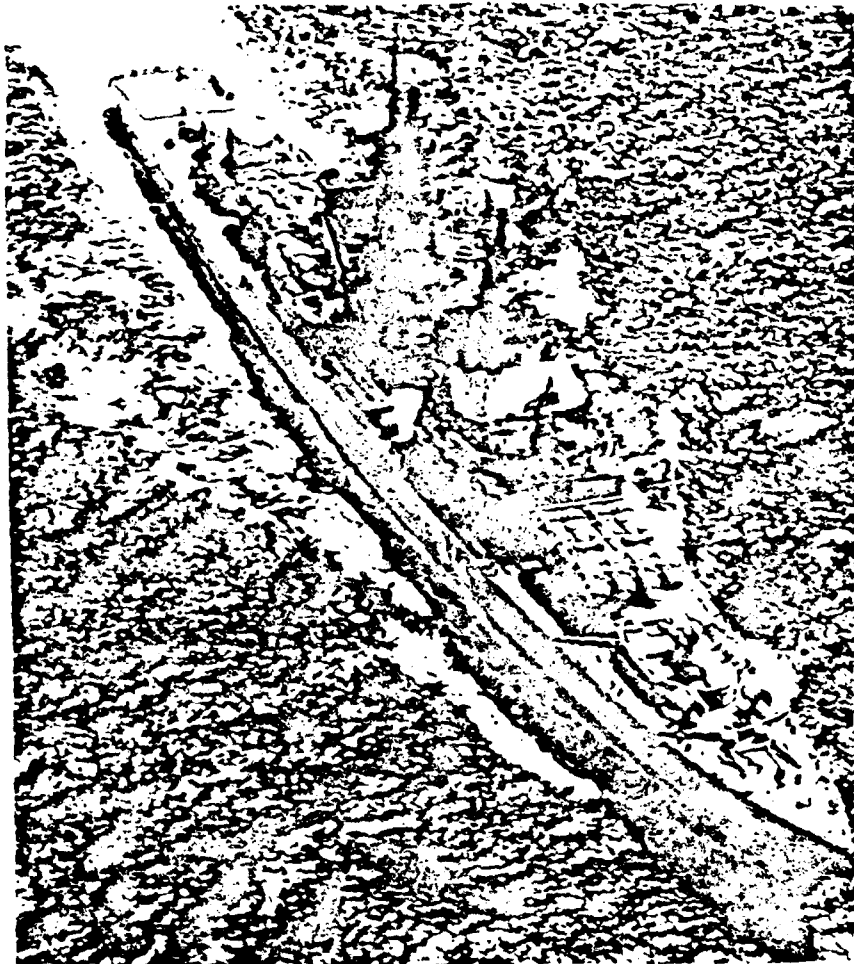
Photographed during the summer of 1962: the first KYNDA-Class ship (GROZNYI), shown here with the original funnels, which were modified soon thereafter.



After body of a KYNDA with the missile containers which resemble an oversized torpedo tube mount. This photo was taken during the '60s, likewise in the Baltic.



The VARYAG, after modernization, photographed in October 1981 in the Pacific.



The GROZNY in the Mediterranean, from ahead. The disposition of the various weapon systems is clearly discernible from the photo.

**Ships of the KYNDA Class**

Hull No.:	Name	Laid down	Launched	Commissioned	Shipyard	Deployment
1	GROZNY	6/59	4/61	6/62	Zhdanov Shipyard, Leningrad	Black Sea Fleet
2	ADMIRAL FOKIN	60	11/61	8/63	Zhdanov Shipyard, Leningrad	Pacific Fleet
3	ADMIRAL GOLOVKO	61	63	7/64	Zhdanov Shipyard, Leningrad	Black Sea Fleet
4	VARYAG	62	64	2/65	Zhdanov Shipyard, Leningrad	Pacific Fleet

Principal dimensions:

Standard displacement 4600 t  
 Full-load displacement 5600 t  
 Length at the CWL 134 m  
 Length overall 141.7 m  
 Beam at the CWL 15.4 m  
 Maximum beam 15.8 m  
 Maximum draft 6.1 m  
 Propulsion steam turbines  
 No. of boilers 4  
 Propulsive power 66,200 kW (90,000 hp)  
 No. of shafts 2  
 Speed 34 kn  
 Fuel supply 1000 t  
 Cruising range 6000/15 nm/kn  
 Complement 390

Armament:

2 quadruple SS-N-2B (8 missiles)  
 1 twin SA-N-1 (24 missiles)  
 2 twin 76.2 mm  
 4 30-mm 6-barrelled (only VARYAG)  
 2 533-mm triple-tube mounts (i2 torpedoes)  
 2 RBU-6000 groups

Electronics:

2 HEAT NET A (VARYAG: 2 HEAD NET C)  
 2 SCOOP PAIR  
 2 PLINTH NET  
 2 DON 2  
 1 PEEL GROUP  
 1 OWL SCREECH  
 2 BASS TILT (only VARYAG)  
 2 WATCH DOG  
 2 HIGH POLE  
 1 HERCULES sonar

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