



Steel and Ice: The U-Boat Battle in the Arctic and Black Sea, 1941–1945

by Lawrence Paterson.

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Review by Steven D. Mercatante, Brighton, MI (sdmercatante@yahoo.com).

Steel and Ice is a tidy, engaging summary of a mostly neglected aspect of the Second World War—submarine warfare outside the Atlantic and Pacific theaters. Author Lawrence Paterson has written ten previous books on naval warfare and has worked at the Royal Navy Submarine Museum at Gosport (UK). The present volume contains nine succinct chapters that move from the period of Germany's non-aggression pact with the Soviet Union through its use of U-boats in the Baltic during Operation Barbarossa, beginning in June 1941, and especially in the Arctic and Black Seas. The text is buttressed by many photographs, some of them rarely reproduced.

Chapters 1–2 concern Germany's strained prewar relations with the USSR during Hitler's rise to power and the alliance begun in August 1939. Paterson describes the initial deployments of submarines in the Baltic during the Third Reich's invasion of Poland beginning on 1 September 1939. He criticizes both sides' lack of imagination in the use of sea power later, in the opening months of Barbarossa. The Germans failed to conduct amphibious operations along the coast to expedite their drive through the Baltic States, and the Soviets acted with similar timidity. Thus, eight U-boats in the Baltic and four to six more in the Arctic achieved very little at a time when they were desperately needed in the Atlantic (26–27).

Steel and Ice gives particular and very welcome attention to Soviet naval operations throughout. Chapter 3 focuses on naval actions in the Arctic during Barbarossa: the Red Navy conducted amphibious operations behind German lines that stalled the Wehrmacht's drive on Murmansk in summer 1941. Again, the half-dozen German subs stationed off the Kola Peninsula were badly missed during the convoy battles in the Atlantic. Moreover, U-boat operations in the Arctic were hamstrung by a lack of naval and aerial assets and horrific weather:

The arctic night is unfavorable for submarines as it renders it difficult to locate targets. Winter weather, with blizzards, storms, and fog, has an adverse effect. Air reconnaissance is lacking. It is difficult to attack ships assembled in Iokanga Bay because of the powerful defenses and the prevailing currents. It is impossible to penetrate the west channel because of navigational difficulties, currents and depths, defenses, and the aerial mine situation. Coastal traffic is carried on with very small vessels, making attack more difficult. (53)

German submarines initially had little effect on Allied supply convoys to Murmansk. But, as Paterson shows in chapter 4, the Germans became much more adept at harrying Allied convoys. So much so as to force the Allies for a time to shut down the flow of war material into the USSR via this northern route. The most dramatic part of Paterson's narrative centers on the epic battle leading to the destruction of Allied convoy PQ17: only eleven of thirty-four vessels survived the Axis gauntlet to deliver their cargo in Murmansk. This pinnacle of Germany's success in the Arctic did not, however, come without costs. For the effort in the Arctic required the diversion of too many U-boats from the Atlantic, where they had been wreaking havoc off the US Eastern seaboard and in the Caribbean. In addition, the Luftwaffe had assembled a large air fleet to support submarine operations, while the Kriegsmarine had

moved most of its heavy surface units to Norway. Adm. Karl Dönitz astutely assessed the price of these miscalculations.

I had personally asked the C-in-C once more on December 8, 1942, to release the Arctic boats for operations in the Atlantic. Between January 1 and November 30, 1942, these boats had sunk 262,614 tons in their own operations area. An equal number of boats in the Atlantic, however, had sunk approximately 910,000 tons during the same period. By employing these boats in the Arctic we had, therefore, sunk something like 650,000 tons less than we might have done—a development that was foreseen, when in January 1942 U-boat Command had protested against the sending of boats to Norwegian waters. (118–19)

Chapters 5–6 shift to the U-boat war in the Black Sea in 1942–43. It required tremendous technical skill and logistical expertise to break down Type II submarines for transport by canals, roads, and the Danube to Romania, where they had to be rebuilt before joining offensive operations. Paterson clarifies the political and military considerations that prevented the Germans from simply sailing submarines through the Dardanelles and the Bosphorus from the Aegean Sea. In the end, the naval war in the Black Sea was a back and forth affair, in which the Soviet Navy again showed ingenuity in supporting the Red Army on land.

Chapter 7 covers the war in the Arctic Sea during 1943–1945, when the U-boats had little effect on the USSR's northern flank. The chapter is filled with interesting discussions of the difficulty of operating submarines in such a harsh climate. Ice, for instance, could damage their outer torpedo doors rendering the vessels combat-ineffective. We also learn the pros and cons of various torpedo types in the Arctic environment. Chapter 8 describes German submarine offensive measures and Allied counter-measures, as well as operations in the Polar Seas during 1944–45. Chapter 9 returns to the Baltic, highlighting the U-boats' final role in the war—shepherding German refugees to relative safety as the Red Army drove into East Prussia and Pomerania.

In *Steel and Ice*, Lawrence Paterson vividly conveys the sheer effort of conducting naval operations on the far-flung fringes of Europe, in part by enlivening his narrative and analyses with first-person quotations of the men who fought in such hostile venues. He also makes one wonder what the Germans might have accomplished by more judiciously concentrating their naval resources in the decisive theaters of battle in the critical years of 1941–43.