

David D. Bruhn, Cdr USN (Ret'd) & Rob Hoole, LCdr RN(ret'd). *Enemy Waters; Royal Navy, Royal Canadian Navy, Royal Norwegian Navy, U.S. Navy, and Other Allied Mine Forces Battling the German and Italians in World War II*. Berwyn Heights, MD: Heritage Books Inc., <http://www.HeritageBooks.com>. 2019. 385 pp., illustrations, maps, diagrams, appendices, bibliography, notes, index. US \$40.50, paper; ISBN 978-0-7884-5872-9.

Mine warfare receives all too scant attention by North American navies—in peacetime. It is considered secondary to fighting a real maritime war. At present, the RCN has no mine warfare vessels, although their MCDVs (Maritime Coastal Defence Vessels) were designed, in part, for such duties. They can be so fitted easily, and have done some mine-searching trials. Yet in wartime, by necessity, mine warfare involves a major portion of naval forces, efforts and personnel, largely from the Reserves. This volume is a carefully balanced *operational* study by two well experienced ex-mine war officers. It is a rare and valuable addition to the corpus of Second War naval history, covering mining and minesweeping on 'both sides of the hill,' in considerable detail. Although listed as a paperback, its quality is superior. The hundreds of photographs, maps and diagrams are, unusually, very clearly reproduced and suitable. They alone cover the whole subject of that Second World War's mine warfare. Apart from its operational history of ships, laying and sweeping flotillas, ship classes and crews, there is a useful review of equipment, sweeping methodology, mining aircraft, by both allied and opposing forces. The book extends from supporting background, post-war memorials, to even minor connections like ships' badges and a Toron-

to Victory parade! A most comprehensive and carefully researched coverage.

There is a detailed description, an illustrative selection, of many of the major named Allied mining operations throughout the war. This includes descriptions of Allied mining that took place everywhere in the wider European and Mediterranean areas, plus enemy mining there, and on the North American coast. There is no more than a mention of German submarine mining around South Africa, nor of Far East mine warfare. This is another subject on its own, almost exclusively American (air-dropped and submarine-laid), as was Japanese defensive minelaying. These have been partly covered in another book by authors Bruhn and Hoole.

The use of bold face paragraph and subject titles throughout indicates the breadth of coverage of the author's research, as well as making it useful for casual reading of items of particular interest: 'Mining of Norwegian Waters,' 'Loss of HMS Cachalot,' 'Seven U.S. Navy Deep-Water Minelayers,' 'Awards For Valour,' 'Camp Norway In Canada,' 'YMS Minesweeping - Operation Commence' (in opening Cherbourg harbour), as examples.

The overarching problem, which was given minimal attention before the war, the *threat* of enemy mining, is assessed briefly. It is the day-to-day wartime coping with mine warfare—planting them in one way or another in enemy waters, establishing defensive 'own' mine arrays off harbours and in channels around the U.K., New York, Halifax and elsewhere, that occupies most of this history, with appropriate headings to make it easy to follow. For almost every minefield laid by the enemy, there had to be a reaction—detection, then sweeping or simply isolation and marking. This in itself, as the authors initially describe (one might say

'even warn'), required the acquisition of make-do civilian fishing vessels and such; for example, the use of fast civilian small liners as minelayers off North Sea coasts. For the Falklands war, these ships were known as 'STUFT'—'ships taken up from trade'—an all-too-clear example of lack of preparedness. Then came the development of specialized 'sweepers for magnetic and acoustic mines of ever-increasing complexity. The authors cover problems associated with discovering how the enemy mines worked without becoming tediously technical. Valuable tables are included of the predominantly used mines, by both enemies and the allies. Diagrams of sweeping methods and close-up photographs of equipment are helpful for those not technically *au fait* with the minesweeping world.

Off enemy ports or sea routes, from the north of Norway to the Adriatic, the book covers a multitude of operations to offensively mine enemy routes and ports by air, submarines and large, fast minelayers. Also addressed are Allied sweeping efforts to combat German and Italian counter-efforts. Where possible from accessible records, results are noted. Here the authors use a multitude of short tables: ships involved, with their C.O.s, casualties from ships lost due to mining or enemy attack during these operations. For enemy mining off Trobruk and for the massive sweeping plans and actual efforts for the Normandy invasion, several pages, even whole chapters, are included.

Any gaps in the story would require a massive series of volumes to fill. For instance, in the mid-1960s, this reviewer was in touch with Air Chief Marshall Philip Joubert de la Ferte, who in late 1940 flew the first trials of aerial magnetic minesweeping by Wellingtons, trying to cope with the newly discovered German magnetic ground

mines in U.K. estuaries, which were sinking too many vessels. The technique involved an aircraft carrying a diesel generator and a 50-foot circular ring of cable through which passed an electric pulse designed to trigger shallow-laid mines. Typical of the type of problem, trials and errors, and eventual successes of a large segment of the Allied and enemy navies. In most cases, as the authors show, it was a matter of discovering what the enemy were doing through unacceptable sinkings, recovering a mine, swiftly developing a counter, then getting it into use by the minesweeping fleet. The German use of combined and pressure mines was a major late-war problem, never fully solved.

For an assessment of the political and strategic assessment of mine warfare in general, the review of Captain Chris O'Flaherty's book 'Naval Minewarfare – Politics To Practicalities' is the essential and valuable addition to the topic.

Authors Bruhn and Hoole are well versed in their subject, only marginally venturing into fields of assessing the over-all national strategic war results of either operational or defensive minelaying. The tables of forces and ships involved alone will prove valuable for anyone interested in further research into the various historical aspects and threats of minewarfare. The very detailed and useful index, bibliography and chapter index notes run to some 32 pages each.

A declaration of personal association: I was one of those asked to write one of the book's three forewords. Highly recommended, despite that!

Fraser McKee
Toronto, Ontario