

BOOK REVIEWS

LE BAILLY, Vice-Admiral Sir Louis. *From Fisher to the Falklands*. London, Marine Management Holdings, 1991. 227 pp, illus. ISBN 0 907206 40 9. Price £17.50 (£12.25 for members of the Institute of Marine Engineers) (reviewed by Rear-Admiral J. R. Shiffner)

This book follows, but is not the sequel of Admiral Le Bailly's more anecdotal *The Man Around the Engine*, and both should be compulsory reading for naval engineers. *From Fisher to the Falklands* is a serious historical work which describes very graphically the fluctuating fortunes of the engineering branch of the Royal Navy since the turn of the century. The author explains how Lord Fisher's extraordinary efforts to wrench a technologically backward Service out of its smug complacency all came to naught in the early 1920s. This was caused by a reactionary succession of Boards of Admiralty who firmly relegated engineers to an inferior status, professionally and socially. Not only did this 'Great Betrayal' leave a legacy of deep bitterness amongst the naval engineering fraternity, which is difficult for today's generation of naval officers to appreciate, but it also led to a 'technologically illiterate' naval hierarchy who were responsible for the significant material shortcomings of our warships, particularly in terms of mobility and sustained operability, at the outbreak of World War II. But for the emergence of some 'brilliant engineering revolutionaries' in the late 1930s, and the dedication of the engineering branch (described so well in *Man Around the Engine*) this technological inadequacy might well have proved fatal.

After the war the author was closely associated with many highly important developments. On the technical side he describes, as a member of the Geddes committee, the 'Navy's hesitant advance into the new world of petroleum fuels', and while in the Controller's office he watched and influenced the introduction of nuclear propulsion and the initial stages of gas turbines, which revolutionized the mobility and sustainability of the Fleet; in fact they made possible the successful Falklands campaign in 1982. At the same time he makes some acute and none too flattering observations of the workings and personalities in the Ship Department during that exciting period.

But perhaps most significantly of all the author was directly involved with both the Mansergh and Murray Committees in the 1950s which shaped the General List (AFO 1/56) and re-organized the initial training and education of all naval officers, and engineers in particular. The fruits of their work and far-sighted decisions have undoubtedly been to the benefit of the present generation of engineer officers for whom there are demonstrably greater opportunities for a broader career than the author's contemporaries could ever have hoped for.

From Fisher to the Falklands is an important and well-written record of a fascinating era in naval engineering. At times the author talks in what seems extravagantly derogatory terms about reactionary seamen officers (and indeed some engineer officers); in stark contrast, he describes in extraordinarily glowing terms about the 'brilliance of certain engineering officers' who helped bring about such remarkable changes. However this is all understandable from anyone who served through this frustrating yet so fruitful period; it is surely a great tribute to the author and his contemporaries that Fisher's ambition that all naval officers should have 'some community of knowledge and a lifelong community of sentiment' is, after nearly a century, almost a reality.

FRIEDMAN N. *The Naval Institute guide to world naval weapon systems, 1991/92*. Annapolis. Naval Institute Press (UK distributors, Airlife Publishing Ltd.). 1991. 928 pp., 1300 illustrations. ISBN 0 87021 288 5 Price £80. (reviewed by D. K. Brown, RCNC)

One would not normally review the second edition of a biennial publication when the first edition was reviewed, enthusiastically, as recently as December 1990. (*JNE* vol. 32, no. 3) However, even though that review commented on the sheer size of the book, the new edition has nearly twice as many pages. A few systems, no longer in service or not developed, have been removed.

The book is organized in the same way with some most useful introductory material followed by six main headings—Surveillance and Control, Strategic Systems, Strike/Surface Weapons, Anti-Aircraft Warfare, Anti-Submarine Warfare and Mine Warfare. Each of these main sections has a lengthy and interesting introduction, followed by detailed notes arranged first under category, such as surface-to-air missiles, and then by country of manufacture. Experience with the first edition has shown that, thanks to a good index, it is easy to find specific information but much less easy to obtain an overall view of an integrated system such as AEGIS or FAMS where available information is split between sensors, missiles, etc.

In this new edition, most sections are 50% longer than previously and most of the illustrations are new. The author has made excellent use of his own photographs taken at naval exhibitions, particularly at the 1991 US Navy League show, which fills much of the long addendum. This also contains a valuable section on SOSUS, based on recently declassified material.

The first section, Surveillance and Control, has almost tripled in length thanks to some 21 new pages on computers and Command and Control Systems, such as ADAWS and SSCS. The need for such systems is clearly presented as are the difficulties in achieving a good result. Dr Friedman suggests that major navies will be disposing of older ships, lacking such systems, and lesser navies will have to weigh the low asking price against the limited capability of such ships. He also discusses the extent to which standard commercial computers can be used instead of the very expensive, purpose-built hardware.

In his introduction, the author himself raises a point touched on in the earlier review, that he is largely dependent on manufacturers for information and hence some of the systems mentioned may have no existence outside the glossy brochure. This book is so authoritative and comprehensive that many smaller navies will use it as the basis for their shopping list and may receive a shock when they find their chosen system has yet to be developed and that the cost will fall on the customer. A similar difficulty is that few of the 'Advanced' weapons displayed by Iraq before the war were used and most were probably dummies.

As usual, Dr Friedman's views expressed in both the general introduction and in the introduction to sections are stimulating. The main introduction was written during Desert Storm and makes several interesting points. The success of US clever weapons such as Tomahawk and SLAM is rightly praised but one may see a US slant in that Sea Skua, with which three Lynx disabled about half the Iraqi navy, is dismissed because its warhead was too small to sink its targets. He also points out the need for a deep penetration bomb against bunkers and the fallibility of mathematical simulation of weapon performance.

This introduction must have been written before the mining of *Tripoli* and *Princeton* which would have encouraged greater attention to mine warfare.

The first edition has proved a valuable and accurate reference book and the new book is even more comprehensive. The price is not unreasonable for a book of this size and content but the publishers will have to avoid any further escalation at a time when budgets in the defence world are being cut.

Carrier-21 future aircraft carrier technology, Volume 1: overview. Washington, D.C., National Academy Press, 1991. 129 pp. Price not given. (reviewed by D. K. Brown, RCNC)

This is a most interesting book, with implications far beyond the future of the USN's enormous fleet carriers. In 1990, Congress required the Department of Defense to obtain an outside study of future carrier development and a contract for this work was given to the US National Academy of Science (National Research Council). It became a major task with 106 engineers and scientists involved, groups meeting for a combined total of 112 days, and 70 of the team went to sea for a day.

The working party saw the need for large fleet carriers as self-evident, the Gulf War having clearly shown the value of world wide power projection. Consideration of 'small' carriers (40–50,000 tonnes) is dismissed as the unit cost per plane is higher. For the big ship, they saw no alternative to nuclear power though new reactors with a higher power density should be developed. Budgets and the number of ships were outside their terms of reference though they did quote costs for the proposed options.

Their individual recommendations seem well founded and properly thought through, e.g. the cost of new dry docks is considered for the bigger options. The main design drivers were seen as:

- Increasing size and weight of aircraft.
- The need for increased survivability.
- Technical developments which, to some extent, offset the effects of the first two drivers.

Existing USN aircraft will all end their service life early in the 21st century and their successors are likely to be heavier, requiring new arrester gear, and with greater external dimensions, requiring a bigger flight deck and hangar. The need for improved survivability derives from the increasing threat from improved weapons. There is little attempt to justify any particular level of survivability but it is implied that a 15% rise in first cost is reasonable. They suggest a blend of active and passive defence using very advanced weapons (lasers, particle beams and electromagnetic guns), hard kill anti-torpedo measures, much attention to emission control and signature reduction, together with many measures to resist damage when hit.

The non-contact torpedo exploding under the keel is seen as by far the most important and difficult threat to counter. Defence using hard structure may be possible but a compliant structure, partially water-filled and projecting 40 ft below the keel is preferred. This is described in a classified volume 2, not available.

There are many detailed technical recommendations, mostly sensible, and some intriguing suggestions such as that a SWATH makes less wake than a monohull, and is hence less vulnerable to homing torpedoes. To give a flavour, a few other points are listed below.

- Some 350 tonnes of paper and 10,000 cu. ft. could be saved by putting records on computer.
- The overall space/man is 500 cu. ft. and a 20% saving in crew numbers is realistic.
- C³I should be adaptable to accept new allies and to exclude old friends.

All this leads to a number of preferred options. The first is a NIMITZ hull and machinery incorporating as much new technology, particularly in survivability, as possible. This option would add about 10–15% to the cost of a NIMITZ but is not favoured, as its capability to operate new aircraft would be limited by its size.

A large new monohull from 105,000 tonnes to 215,000 (1500 ft.) costing 10% to 100% more than NIMITZ seems the preferred option. A third option is a SWATH which would ballast at sea to bring the propellers down to 125 feet draught but, without ballast, would enter harbour at 40 feet. Displacement at sea would be 660,000 tons and 325,000 light. It is thought that there might be problems in extrapolating from existing designs. Cost would be up to four times that of NIMITZ.

These options make the DoD proposals seem modest: perhaps that was the intention. The conclusions also show that a good design is not the straightforward sum of all desirable features but a compromise. An advisory Committee, however well informed, is ill-adapted to produce a detailed technical solution.

FRIEDMAN, N. *Desert Victory, The War for Kuwait*. Annapolis, Naval Institute Press, 1991. (Distributed in UK by Airline Publications, Shrewsbury.) 443 pp., 82 photographs, maps, ISBN 1 55750 254 4. Price £16.95. (Paperback ISBN 1 55750 255 2, price £12.95) (reviewed by D. K. Brown, RCNC)

It has taken roughly a year for a comprehensive history of the Gulf War to reach this country and this book is worth waiting for. It begins with some 70 pages of introduction to Iraqi society, the conflict between Shi'ites, Sunnis and Kurds, the rise of the Ba'ath party and of Saddam Hussein, together with the effects of the war with Iran.

The fighting starts with the invasion of Kuwait and it is clear that Kuwaiti forces put up a longer and more determined resistance than is usually realized. The author then gives considerable attention to the build-up of the coalition force which generally worked very well, though there were some disturbing pointers to the future. The US Ready Reserve Fleet of supply ships contains few RO-RO or LASH ships, is mainly steam driven and lacks sailors, while the UK relied on chartered foreign ships.

During the build-up phase, estimates of Iraqi forces were generally much too high, mainly because individual units, correctly identified from signals traffic, were much under strength. There were also worrying over-estimates of likely allied casualties.

The war itself is described in about 120 pages, mainly service by service. The USA provided by far the largest part of the fighting force and rightly receives most attention. The British contribution is recognized with the exception of the work of the MCMVs. Though they are mentioned, it is implied that the USN battleship bombardments relied more on US mine avoidance sonars than on RN minehunting as was the case. In discussing the HUNT Class, there is an interesting point of detail: all those going to the Gulf received extra light AA guns but the use of such weapons was generally prohibited to avoid shooting at our own planes. Mine clearance demands air supremacy when unarmed ships can be used.

The Tornado low level attacks on runways using JP233 are described and seen as too dangerous. Challenger is said to be inferior in gunnery to US and German tanks but Dr Friedman mentions one case in which a Challenger hit an Iraqi tank with its first shot at 5100 metres. The British used more assault Engineers than the US army and this is praised.

The last chapter is perhaps the most interesting: Lessons learned and mis-learned. The author suggests that the over-estimates of Iraqi strength, by Hussein as well, was due to counting weapons and neglecting command and control in the widest sense. Iraq was initially weak in air defence control and when this was destroyed on the first night it was not restored, perhaps for lack of spares. Dictatorship is not the best form of command as the leader is never criticized while the nature of Iraqi society was unsuitable for controlling and

using advanced technology—something which may apply to other third world dictatorships.

This war was a special case, flat desert where the only hazard had been getting lost, a problem solved by GPS. The US troops and air force had trained in American deserts and were at home there. It is suggested that USAF tasking was too rigid, particularly in the light of lack of tactical reconnaissance. Both the main text and the lengthy annexes give details of many weapons. One such note refers to Patriot with 158 rounds fired against 47 Scuds (out of 91 fired), scoring 45 kills.

Instant history is a dangerous game but it is unlikely that many more facts will come to light, except for the role of special forces (SAS). The lessons drawn will be debated for a long while but it will be surprising if any drawn by Dr Friedman are changed significantly.

The illustrations, many in colour, are interesting and well selected. The book is most readable—I couldn't put it down—and is thoroughly recommended.

GROVE, Eric. *Battle for the fjords NATO's forward maritime strategy in action*. London, Ian Allan. 1991. 128 pp., maps, photographs. ISBN 0 7110 1922 3. Price £15.95.

(reviewed by Captain K. J. Tullett)

In his book, Eric Grove provides a narrative of Exercise Teamwork 88 to exemplify the NATO Forward Strategy in action. If I had to encapsulate a review within a single sentence, I would write 'This is a short history book for 13 year olds'.

That would however be desperately unfair to the author who cannot possibly have foreseen the international climate within which his book would hit the streets. A review written two years ago could have been kinder, but now one is faced with an exercise in oldspeak which is not in keeping with the tenor of the moment and can make little contribution to forward-looking maritime force development.

The biggest problem for the book is its relevance. I do have a lot of sympathy with the author. It must have been a wonderful idea at the time—hitch a ride with the RN for Teamwork 88, and then write it up as a NATO Norwegian Sea campaign—the practical application of a strategy in action. Orange and Blue forces battle for control of the seas, leading to an amphibious landing in North Norway in support of that beleaguered country. A valiant attempt is made in the Preface and Foreword to proclaim continuing relevance in changing circumstances, but this is unconvincing and does not work out.

On the value for money side, it is certainly a short book; there are 120 effective pages, but of these, there can be barely 50 pages of text. There are a few simplistic maps, but an extremely large number of ship photographs (over 160) in true Ian Allan boys'-own style. Lovely photographs too, of ships of NATO countries for 25 years past, largely sailing in silver untroubled seas with gleaming paintwork, and evidently millions of miles away from a Norwegian sea battle area. Other than to 13 year olds, they are not a selling point. Whilst a few well-balanced photographs would have been appropriate, much more could have been made of sketches and maps to allow us to follow the descriptions of the naval actions, such as they were.

The history lesson in the first chapter is worth reading and gives a good overview of the development of the NATO Forward Strategy from the early fifties to recent times. However the most valuable section of the book is the final chapter entitled 'lessons learned', although even here the lessons are mainly those derived from the author's observations of the conduct of the exercise. His subjective views on the capability requirements for individual units are stated in the context of that particular setting and cannot generally be

extrapolated into a completely new strategic setting. What we now need, but of course what is totally missing, is consideration of the sort of capability required by a navy in a much more diffuse and uncertain world. Wider lessons, such as those which might be derived from the contribution of the forward maritime strategy to the successful military posture of NATO over the years and its role in the facing down of the former Soviet Union, would have been valuable but are somewhat thin.

From our standpoint as Engineers, I was pleased to see that the value of forward repair capability can be seen, even if not directly identified. Even on exercises, there is the possibility of collision or grounding, and both occurred during Teamwork. All in all though, I would be surprised if this book had figured highly in many Xmas stockings last year, even for 13 year olds.

GARDINER, R. (ed) *Warship 1991*. London, Conway Maritime Press, 1991. 256 pp., c. 270 photographs, plans, etc. ISBN 0 85177 582 9. Price £24. (reviewed by D. K. Brown, RCNC)

Conway's annual takes its usual form with 12 very interesting articles, some shorter notes, book reviews and a review of the year's naval news, The article on USS *Albacore* describes her concept, performance and career. Her true performance remains classified and it would be interesting to see how close the author has got from accounts in open literature and gossip. The article clearly brings out the importance of *Albacore* to the US and RN submarine programmes. It might have been noted that her shape is remarkably similar to that of the original HOLLANDS, the R Class and many later airships.

There are three articles on different aspects of Japanese technology before and during World War II—air power at sea, oxygen torpedoes, and anti aircraft gunnery and control. Like almost every other navy, the Japanese had developed an effective tachymetric system and it seems likely that the Board's decision to cancel the RN system about 1928 was the biggest technical error between the wars. Were Admirals too dedicated to eye shooting at pheasants and ducks?

The World War I M Class destroyers, which bore the brunt of the fighting, are described in a well-illustrated article. There is a good review of inter-war French submarine design but, as so often in such articles, there is no mention of diving depth. Other articles deal with the operational history of the Soviet LENINGRAD Class and of Romanian minelaying, the Swedish *Tre Konor*, the US armoured cruiser *Brooklyn*, the last Manila galleon and some early aircraft carrier concepts.

The book is well produced, very well illustrated and interesting to read, even if occasionally weak in technology.

POLMAR, N. and NOOT, J. *Submarines of the Russian and Soviet Navies, 1718–1990*. Annapolis, U.S. Naval Institute Press (distributed in the UK by Airline Publications, Shrewsbury). 1990. 384 pp., 194 illustrations, 75 maps and profiles. ISBN 0 87021 570 1. Price £37.95. (reviewed by D. K. Brown, RCNC)

The first 220 pages of this fascinating book describe the technical development and the operations of Russian submarines from mythical beginnings to 1990. One may see 1906 as the end of the experimental period when 13 boats were deployed in the Pacific at the end of the Russo-Japanese war. At the start of the first World War the Russians had a force which was numerous but largely obsolescent. The main theatre of operations was in the Baltic where the RN submarines were much more effective, the E Class entering the Baltic directly while the smaller C Class boats were transported on barges down the canal from Archangel. (There is a photo of C32 on her barge).

The revolution interrupted building and largely removed the officer force but recovery was quite rapid and by the time that the Soviet Union was forced into World War II they had many submarines whose capability was judged to be only somewhat less than those of other navies. Their operations were mainly in land-locked seas dominated by Nazi forces, which made success difficult.

However, there were problems, mainly due to the lack of training and poor morale of commanding officers. In the Arctic, the few RN submarines achieved much better results than Soviet boats even though one Soviet officer described the British boats as being dirty with ill-disciplined crews!

As soon as the war was over, Stalin initiated an enormous building programme of submarines and surface ships. The authors try hard to distinguish between Soviet aspirations, US intelligence estimates and what was actually built. There were frightening estimates of 1200 modern submarines available by the mid 1960s and such figures do seem credible given Soviet shipyard capacity and there are Soviet publications suggesting a similar target.

Production peaked in 1955 when 81 boats were completed and was then cut back. After a maximum of around 500, the force level dropped to about 350–380 through from 1965 to the 1980s. Recent widely publicised cuts in submarine numbers are in obsolete craft and the ex-Soviet force, with very uncertain control, is still a major potential threat.

Nuclear submarines entered the fleet only four years after USS *Nautilus* with 13 of the NOVEMBER Class followed by 8 HOTEL Class SSBN. These early boats were accident-prone and some were lost. Later developments are fully covered and the authors even offer a diagram showing broad band noise levels for Soviet and US submarines from 1960, when the Americans had a big lead, to the present day when their advantage is much reduced.

The main text is followed by a lengthy tabular section listing the particulars of every submarine, including its fate. There are sections on foreign submarines used by the Soviet navy, on Soviet shipyards and on missiles. The authors are to be commended for including the diving depth of most classes and for defining it.

The value of a book like this depends entirely on its accuracy. The authors have used a very large number of sources including recently declassified USN and Soviet material—the bibliography runs to over 8 pages—but as many are hard to find it has not been possible to make many direct checks. However, the text makes technical sense and is consistent, the authors are well qualified and this gives good ground for confidence.

There are two topics in which the authors are muddled; they confuse the Walther HTP turbine with re-cycle diesel propulsion and, indeed, credit *Explorer* with the latter. They also confuse contra-rotating propellers and co-rotating (tandem) with two propellers on the same shaft. Both words are used in the same sentence describing the *Victor III*.

The book is very readable and well illustrated, using unfamiliar photographs where possible. One can only wonder what the next edition has to say.

WEIR, G. H. *Building American submarines 1914–1940*. Washington, U.S. Naval Historical Center. 1991. 181 pp. 44 photographs. ISBN 0 945274 04 1, Price \$8–50.

(reviewed by D. K. Brown, RCNC)

Since 1988 the USN Historical Centre has been producing a series of valuable paperbacks as 'Contributions to Naval History'. This is the third volume in the series and discusses US submarine procurement policy from 1914–1940. The theme is well summarized in the foreword by Dean Allard. 'After being completely dependent on private industry in 1914, the Navy—not industry—controlled the design and production policy by the eve of the Second World

War. As a result, the Navy was able to acquire high-quality submarines to fulfil the nation's strategic requirements'.

In the early days, technical development was satisfied if the submarine was able to dive and, more important, re-surface. The role was ill defined and limited to coastal defence. Design was almost entirely in the hands of industry, mainly Electric Boat (EB). British readers will be amused to read that the author thinks the pre-1914 British organization was better. The first shock came during World War I when US submarines in European waters had difficulty in maintaining short patrols whilst German boats were operating off US coasts.

After the war, several U boats were tried, the result being a severe shock. Their diesels were more powerful, lighter and far more reliable than US (or British) engines. The U boats were easy to handle and, in almost every respect, their auxiliary machinery was far superior to US equipment. The RN was seen as behind German technology but well ahead of all other navies.

The next two decades were devoted to the development of efficient and reliable equipment from US industry and in establishing a proper partnership with that industry. The worst problem lay in diesel engines, as the new S class of the USN had severe crankshaft vibration problems making much of the rev range unusable.

Industry was interested only in the letter of the contract and not in either innovative solutions nor in through-life reliability. On the other hand, the Navy was forced, eventually, to recognize its dependence on industry when Lake, the only rival to EB, was forced out of business largely as a result of the Navy's development of Norfolk Navy Yard as a submarine building facility.

The diesel problem was solved, largely through direct intervention by BuEng, using direct contact with German manufacturers. There was a similar problem with periscopes, again resolved by Navy Department intervention.

It is a fascinating book whose central theme, the interaction between the Navy and industry, is still a key issue. It should be read by all concerned with defence procurement.

Also available in the same series are:

Palmer, M. A. *Origins of the maritime strategy, American strategy in the first post war decade.*
Hone, C. T. *Power and change: the administrative history of the office of Chief of Naval Operations.*

MELIA, T. M. *'Damn the Torpedoes' A Short History of US Naval Mine Countermeasures, 1777-1991.* Washington DC, US Naval Historical Center, 1991. 229 pp., 58 illustrations. ISBN 0 945274 07 6. Price \$10. (Distributed by US Government Printing Office.

(reviewed by D. K. Brown, RCNC)

This is another in the excellent series, 'Contributions to Naval History', covering USN mine counter measures from 1777 to 1991. It begins with Bushnell's attack on HMS *Cerberus*, but mine warfare in American waters began during their Civil War (1861-65), little known to most British readers.

The USN seem even more prone than the RN to forget mines between wars and, despite some activity during the Spanish-American war (also little known) there were few developments until the USA entered World War I. Their MCM capability was largely adapted from RN methods and equipment until they laid the Northern Barrage with antenna mines—and almost immediately had to clear it as the war ended. The antenna would activate the mine on contact with a steel hull but, for sweeping with steel ships, the USN devised a most ingenious 'impressed current' protection system.

Attention lapsed again until the US entered World War II. Their equipment was again largely based on that of the RN though the USN produced some excellent ships in the big RAVEN Class and the small YMS, many of which

served in the RN. The US also built some ingenious pressure mine sweeps—‘egg-crates’—some of which were used, unsuccessfully, by both navies. Later chapters deal, with the Wonsan landing and other operations up to ‘Desert Storm’.

The author suggests, and few would disagree with her, that the USN’s greatest problem has been the lack of a career stream of MCM specialist officers who can lead both training and material development. Though the RN is better, one may wonder if the MCM world has sufficient influence in Whitehall.

The author frequently mentions and praises RN work (not always accurately) to which she is, perhaps, too kind. Overall, the book is commendably free of error, easy to read and describes several operations unfamiliar to British readers. It should be read by all concerned with MCM work as it offers a different viewpoint, and particularly by anyone involved with liaison on MCM with the USN.

CRONIN, R. C. *Royal Navy Shipboard Aircraft Development 1912–31*. Tonbridge. Air Britain, 1990. 383 pp. and copiously illustrated with photographs. ISBN 0 85130 165 7. Price £19.

(reviewed by Graham Mottram, Curator, Fleet Air Arm Museum)

Dick Cronin’s work on the operation of aircraft from ships other than the fully-fledged aircraft carrier was long overdue and the wait has been worthwhile. Years of detailed research in every corner the author could find have yielded the definitive book on the topic, illustrated with a remarkable collection of photographs. The book is divided into two parts, the first dealing with the use of landplanes from ships, and the second with seaplane operations in the many parts of the world where the RNAS was called to operate during the First World War.

The symbiosis of the Royal Navy and its aviators has rarely been comfortable but there were some remarkably foresighted attempts to develop the close cooperation of ships and aircraft even before the outbreak of war in 1914. The early proposals for ‘aircraft carrying ships’ submitted in 1914 are touched upon by Dick Cronin but, in the event, the RNAS had to make do with a variety of platforms attached precariously to gun turrets and foredecks for most of the war. This multiplicity of slightly Heath-Robinson contraptions is covered comprehensively, even down to lists of the different forms of ramp/turret fitted to capital ships. The reviewer was surprised to see how late the practice continued postwar, nearly all the major capital ships carrying a turret fighter until 1931, when catapults began to be fitted instead. Early catapult trials also receive some attention, including the use of radio-controlled guided missiles from the catapults.

The second, and much longer part, provides probably the only single source record of the dangerous (probably due more to the unreliability of their aircraft than enemy activity) operations of frail seaplanes in far-flung corners of the world. Home waters are included (such as the use of paddle steamers carrying Sopwith Schneider/Baby seaplanes to intercept Zeppelins over the North Sea) but the majority of the second part covers operations in the Eastern Mediterranean by the East Indies and Egypt Seaplane Squadron, where two captured German ships were turned into seaplane tenders.

Two other important areas where RNAS seaplanes were used were the destruction of the German cruiser *Königsberg* in East Africa in 1915, following which a seaplane presence was maintained to assist the Allied army against German forces in the area, and in the Caspian Sea in 1919 as the Allies sought vainly to support the White Russians against the Bolsheviks. Cronin describes these backwaters as well. (The *Königsberg* operation is often overlooked, but it was the first time that a major warship had been destroyed by naval gunfire

controlled from aeroplanes. By a strange quirk of fate the eponymous warship of the Second War was the first one to be destroyed by aerial dive-bombing, also by Royal Navy airmen).

Although it contains an enormous amount of detail the narrative is by no means dry, and is supported by copious indices for those who like their facts neat. The photographs and maps serve their subject well and some publishers might have been content with just a photographic essay, such is the wealth of images used here.

This is no coffee-table book, but one which deals well with a multi-faceted subject, is readable but factual, and on a subject which is fundamentally so unfashionable that other publishers are unlikely to tackle it. Even if they do, there is unlikely to be much new material which has not surfaced in this work.

WOODHOUSE, H. *Woodhouse's Textbook of Naval Aeronautics*. Annapolis, Maryland, USA, Naval Institute Press (distributed in the UK by Airlife Publishing, Shrewsbury). 1991 reprint of 1917 original. 281 pp. ISBN 1 55750 931 X. Price £28.95.

(reviewed by Graham Mottram, Curator, Fleet Air Arm Museum)

This reviewer has always tended to treat reprints of early aviation reference books as something of a curiosity. The original is usually available either through libraries or specialist book dealers, albeit sometimes at highly inflated prices and, once acquired, the reader often finds that the research value is limited by commercial or security restrictions of the time. One must also be wary of propaganda in all its forms.

Woodhouse's Textbook of Naval Aeronautics is indeed a curiosity, and full of propaganda, and not only for the US Navy's aviation ambitions of 1917. The book is almost worth its purchase price for the modern introduction by Clark G. Reynolds, which deals with Henry Woodhouse himself, who is described, with justification it seems as 'writer, self promoter and con man'. At the time of this book's original publication by The Century Company of New York in June 1917, Woodhouse was a renowned aviation author and editor, and a governor of the Aero Club of America. His route to such an exalted position in the American aviation community had not been routine. Woodhouse was born Enrico Casalegno in Turin and he had entered America as a poor immigrant. He had even served a prison sentence for manslaughter after he had stabbed the head chef of the diner where Casalegno was employed as a cook.

Within a very few years this remarkable background had been buried under the front of aviation journalism and, despite setbacks when real aviators returned from the war and eroded Woodhouse's power base, the man still retained a voice in aviation circles until the early 1940s. When viewed against the 'smooth operator' background of its editor, one can easily explain the structure of this book as a compilation of other people's work with just the odd chapter of original writing by Woodhouse. Surprisingly it is no less interesting for that.

Despite my earlier comments about the research value of early books there is some potentially useful material within this one. Much of the value is in the chapters which reproduce documents which may long have disappeared or be difficult to unearth today. You may not want to know the details of 'Construction and operation of Kite Balloons', or 'Government and Civilian Organizations developing Naval Aeronautics in the United States' but you will find them here, with some British documents included also. Indeed, Woodhouse appears to have caused a few raised British eyebrows by publishing photographs which were not officially released. He may have been a fixer and a charlatan but he certainly had his contacts!

This is certainly not a book to curl up with in front of the fire for a rattling good read but, if you have some interest in early naval aviation and would like to see a little of how our colonial cousins intended to set about supporting us in 1917–18, then this might be worth having around for the occasional excavation into the past.

VAT, Dan van der. *The Pacific campaign . . . the U.S.-Japanese naval war 1941–1945*. London, Hodder & Stoughton, 1992. 421 pp., 51 photographs, 8 maps. ISBN 0 340 49661 4. Price £25.

(reviewed by D. K. Brown, RCNC)

The Pacific War covered such a vast area, involved so many men and ships and there were so many commands on both sides, sometimes almost at war between themselves, that there have been few attempts at a short history. In consequence, this campaign is not as well known in Britain as it should be.

The author is a serious journalist and his book is best seen as of that style, with both its virtues and its faults. It is an exciting account, with many eyewitness accounts of specific incidents to give reality. The main part of the book starts with a lengthy and fascinating account of Japanese ethics and politics which, with some Western arrogance, made war inevitable.

The overall pattern of the war is clear but repeated snap judgements on decisions, technology and personalities tend to jar, particularly as the constraints under which the decisions were made is not always made clear. For ease of reading, there are no references but there is a comprehensive bibliography. One of the few organizations which, deservedly, wins praise is the Australian Army whose feats are often ignored. There are a number of detailed errors and the book should be read with care.

The production is strange; two readers have been reminded of wartime economy standards by the paper used. The photographs are too well known and poorly reproduced while the maps are excellent.

One can hope that this book, aimed at the general reader, will attract a few to study the campaign seriously.

PRICE, W. G. (ed) *The dynamics of ships*. London. The Royal Society, 1991. 397 pp., many diagrams. ISBN 0 85403 434 X. Price £37.50.

(reviewed by D. K. Brown, RCNC)

This book contains 14 papers, with discussion, given to a Royal Society symposium in 1990. The first day dealt with the ship as a rigid body, acted on by wind and waves; on the second day the flexibility of the hull was introduced with all its effects on stress in a seaway.

The authors were almost all world experts in their subjects and presented their views clearly, with a minimum of mathematics, and admitting those aspects in which theory, as yet, does not give a satisfactory solution, e.g. rolling. Most papers succeed in making the reader wish for more.

Traditional quasi-static or steady state methods are adequate when design is evolutionary in both size and configuration. The introduction of very large ships or novel forms such as SWATH needs a more rigorous approach and the organizers argue that losses of merchant ships could be reduced if dynamic theory were used more often.

SCHENK, P. *Invasion of England 1940*. London, Conway Maritime Press, 1990. 380 pp., many photos, maps and diagrams. ISBN 0 85177 548 9. Price £20.

(reviewed by D. K. Brown, RCNC)

This is a fascinating account of the German plans for an invasion of England in 1940. It covers the strategy of the operation but most of the book is devoted

to describing the amazing variety of conversions of coasters and barges into landing craft. Many of these improvisations were most ingenious and well thought out, and some were available in considerable numbers.

The speed with which these craft were improvised is most impressive. Given calm seas and not too much opposition they could have succeeded in landing an army but many appear unseaworthy. The book is well worth reading but I am glad I was not a German soldier relying on the safety of these craft. I do not think DNA(SS) would issue a safety certificate.

LAMBERT, A. *The last sailing battle fleet*. London, Conway Maritime Press, 1991. 224 pp., 145 illustrations. ISBN 0 85177 591 8. Price £35.
(reviewed by D. K. Brown, RCNC)

The story of the last years of the sailing battlefleet can almost be described as 'engineering without engines'. Two major technical advances made these ships far more powerful than *Victory*. Sir Robert Seppings set out clearly, for the first time, the nature of the loading on a ship in a seaway and then devised a structure to resist these loads. Stronger ships could carry more and heavier guns, themselves made possible by advances in foundry technology.

Lambert also shows in a carefully researched section how much the UK foreign policy was dependent on the battle fleet. For far too long the 19th century navy has been denigrated as reactionary and inefficient: Lambert and a few others are showing almost the opposite to be true—and he has a large number of references to support his case.
