BOOK REVIEWS

PRESTON, C. E.: *Power for the fleet—the history of British marine gas turbines.* Eton, Eton Publishing Co. 1982. 115pp. Price £13·95.
(reviewed by Commander Peter Ridley)

A coffee table volume about British marine gas turbines? 'Power for the Fleet' is an attractive book that would not look out of place in any drawing-room but, unlike a great many of its kind, it is no mere adornment.

Commander Preston is ideally qualified to chronicle the history of the marine gas turbine in the Royal Navy. His career included a period as Senior Officer of the Trials Squadron during the 1950s, when he was closely associated with all early marine gas turbine development, and he has only recently retired after over 20 years in industry, culminating in his position as Director of Marketing in the Industrial and Marine Division of Rolls-Royce. The book starts with the conception of the gas turbine by Barber in 1791, and leads us by way of the Metropolitan-Vickers Gatric and G2s, G4s and G6s, past diversions on hovercraft and hydrofoils, to the aero-derived machines that have become so much part of our lives today. Mr. Preston goes on to discuss the conception and development of the marine RB211 and Spey SM1A gas turbines, outlining the circumstances that surrounded the R.N's choice of the latter for full development in the 1970s. He concludes at the time that the Type 23 was announced, but with its design not yet defined. (In its innocence the Glossary does not comprehend the acronym CODLAG!).

Mr. Preston's informative narrative is peppered with fascinating reminiscence and anecdote and a smattering of well-argued homespun philosophy. Lavishly illustrated, his book keeps detailed academic argument to the essential minimum (I counted but five graphs, and not a mention of entropy). Any naval marine engineer with an ounce of nostalgia in his make-up would be delighted to receive a copy in his Christmas stocking.

PARKINS, R. N. (Editor) *Corrosion processes.* London and New York, Applied Science Publishers. 1982. 317pp. Price £30.
(reviewed by K. Hall, R.C.N.C.)

Should you need an authoritative and up-to-date statement on a particular complex corrosion topic, with enough detail to satisfy a fairly brief study, this book could save you spending a lot of time finding your way through volumes of learned society proceedings. It is a compilation of six chapters by different authors, each on a specialized aspect of corrosion, with a short foreword by the editor, Professor Parkins. Each chapter ends with a useful list of references.

Your reviewer found Chapter 1 on electrochemical techniques for atmospheric corrosion research rather specialized but it does emphasise the complex nature of atmospheric corrosion, the difficulties in characterizing test sites, and the need for much more research. Chapter 2 provides a useful summary of the behaviour of the common non-ferrous metals in industrial and marine atmospheres, and Chapter 3 is a comprehensive introduction to microbial corrosion which should provide valuable background to an engineer with a particular interest in this subject. Chapter 4 brings together in an instructive manner the various localized corrosion aspects of metals covering galvanic corrosion, de-alloying (e.g. dezincification), intergranular attack, erosion corrosion, pitting corrosion, and crevice corrosion. The emphasis is on the mechanism of corrosion rather than the performance of particular alloys, and there is an interesting discussion on the problem of denting corrosion which occurs at the crevice between tube and tube support plate in PWR steam generators. Chapter 5 reviews the state of the art on corrosion fatigue and Chapter 6 deals rather more briefly with the latest views on the mechanisms of stress corrosion. Both these chapters emphasize the growing importance of fracture mechanics concepts in the evaluation of the effects of corrosion on crack propagation behaviour.

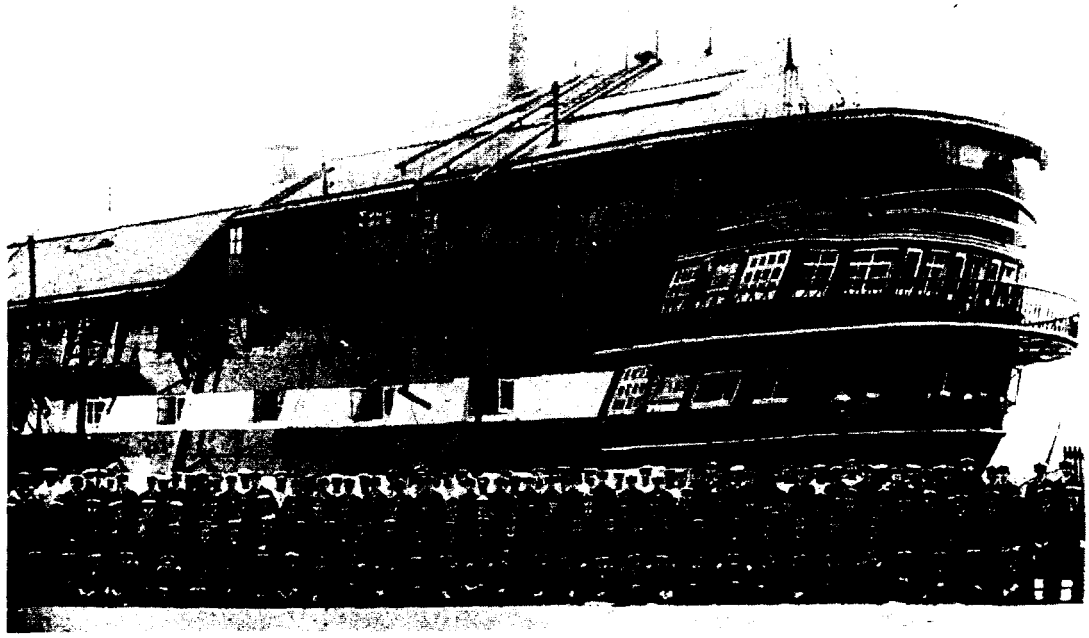
Certainly a valuable reference book for any engineer with a need to delve into particular aspects of corrosion but rather expensive for the individual to purchase unless he has a long-term specialised interest in corrosion.

PAYTON, P. J.: *The Story of H.M.S. Fisgard.* Trewirge, Truran Publications. 1983. 56pp. Price £1·20.
(reviewed by Captain A. A. C. Gentry, artificer apprentice from 18th August 1936 (Fisgard Block, Chatham) to 30th June 1940 (Stoke Damerel High School, H.M.S. *Drake,* Devenport))

On first receiving this story for review I considered the task would be straightforward and require little more than one reading. I was wrong. Lieutenant Payton has been able to pack so much into this small book that the story cannot be absorbed in a single reading if the full picture and appreciation of the artificer training era over 80 years is to be obtained. It is this era which is the main theme of the book.

The first chapter on the origins of H.M.S. *Fisgard* refers to the capture of the French frigate *La Resistance* following an abortive invasion attempt at Fishguard in 1797, its subsequent purchase by the Admiralty, and its renaming as H.M.S. *Fisgard.* The chapter gives some facts on the successful service of this frigate as an operational ship in the Royal Navy until 1814 and mentions the second (another frigate) and third ships of the same name, both of very much less spectacular service than the first. The third ship (a screw battleship, ex-*Audacious*) formed the first link between *Fisgard* and the artificer training era when in 1905 she was appropriated as training ship for Boy Artificers at Portsmouth. The last few paragraphs of this chapter give some background to the employment of artificers before the 19th century, to the introduction of the engineer into the Royal Navy in the early 19th century with the advent of steam power, and to the adoption of the Boy Artificer training programme in 1903.

Each of the remaining chapters covers a specific period of the artificer training era. As a whole they tell the story of the movements and changes which have taken place over the years from 1904 to the final decommissioning of H.M.S. *Fisgard* in February 1984. My interest in historical facts is limited, but I wish now that I knew more about the detailed reasons for the many moves and changes to which Lieutenant Payton gives some insights in his story. He refers to wartime changes, to replacements of worn-out hulks, to



A 'FISGARD' PREDECESSOR. ADMIRAL SIR SIDNEY FREW JOINED H.M.S. 'TENEDOS' AS AN APPRENTICE AT CHATHAM IN 1905

changes arising from manpower fluctuations and economic conditions and, last but not least, to changes made to keep pace with technical developments. To all of this is added information on the ways of life resulting from hulk and shore accommodation differences.

Throughout is interwoven the story of the ability of man, or perhaps I should say 'Boys' in this context, to live through and to cope with trials, tribulations and upheavals with humour, energy, and pride in their accomplishments.

I am sure that many of the past and present 'Boy Arts.' will find much to interest them in this story, will be able to recall nostalgic memories of their own particular four years or so in the establishment and, like me, will wonder why, with so many other ship names associated with the artificer training era, it was that of H.M.S. *Fisgard* which survived.

The book is liberally illustrated with plates of a number of the hulks, early workshop facilities, sports teams, etc. It can be obtained for £1·20 (+40p for postage and packing) from the publisher, Truran Publications, Trewolste, Trewirge, Redruth, Cornwall.

British warship design in World War II. London, Conway Maritime Press. 1983, 224 pp. Price £14·40.
(reviewed by D. K. Brown R.C.N.C.)

Very soon after the end of World War II the heads of sections in the Naval Construction Department of the Admiralty were instructed to write the history of the work of their section in that war. Some of the more interesting of these histories were adapted and read as papers to the Institution of Naval Architects in 1946 and 1947 and six of these have now been reprinted, complete with the discussion, by Conway.

The papers require no deep understanding of naval architecture and can be read by anyone with an interest in ships. Perhaps the two most interesting subjects are those by R. Baker (later Sir Rowland Baker)—'Ships of the

Invasion Fleet' and 'Notes on the development of Landing Craft'. His impersonal style conceals his personal responsibility for the design of almost all the ships and craft of both the R.N. and U.S.N. which made the great sea-borne landings possible. In particular, his use of the floating dock section for tank landing craft ensured that buoyancy and stability would be maintained with the vehicle deck flooded, a feature which would be welcome in modern car ferries.

Sims (later Sir Alfred) covers in some detail the design and performance of the S, T, U, and A Class submarines and the X Class midgets, bringing out the significance of systems such as air purification to the performance of submarines. Watson describes the happy partnership with industry which brought into being the FLOWER, RIVER, and LOCH Class escorts. In particular, the design of the LOCH Class involving DNC Department, John Brown's shipyard, and constructional steel works was a very successful example of design for production.

Holt tells of the development of the light coastal forces—MTB, MGB and ML. The increase in weight of armament carried is most impressive albeit at the expense of speed.

Lenagham from the Controller of Merchant Shipbuilding and Repair writes of the development of the Merchant Aircraft Carrier, cargo ships which could carry and operate a few naval aircraft as well. These ships were most valuable in the ASW role in World War II. It is interesting to note how small was the Swordfish in comparison with to-day's Sea King and how undemanding it was in maintenance.

Conway Press and the Royal Institution of Naval Architects are to be congratulated on making these classic papers available to a wider readership.

COMPTON-HALL, Commander P. R.: *Submarine boats.* London, Conway Maritime Press. 1983. Price £10·50.
(reviewed by Lieutenant-Commander John M. Maber)

Sub-titled 'The beginnings of underwater warfare', this fine book deals with just that—the prehistory of the submarine in the context of maritime warfare. Many books have been published dealing with submarines, but the majority of authors have been inclined to dismiss the period of intense activity spanning the second half of the nineteenth century in a few scant paragraphs serving only to link David Bushnell's *Turtle* of 1776 with the phase of development which preceded the outbreak of the First World War. The history of the submarine through these years of experiment was dealt with in detail by Commander Murray Sueter in 'The Evolution of the Submarine Boat, Mine and Torpedo' published in 1907, but this volume is now scarce and in any case much primary source material has since come to light, in part through the agency of the R.N. Submarine Museum of which Richard Compton-Hall is the Director.

It is appropriate that publication marks also the opening to public view of H.M. Submarine No. 1 which has been recovered from the sea-bed close by the Eddystone where she sank whilst in tow to be broken up in November 1913. The story of this salvage operation serves to introduce the subject matter to the reader, and the final chapter comprises a brief commentary on the submarine scene today.

The illustrations include many previously unpublished photographs while the book is liberally annotated by references to sources and is comprehensively indexed.
