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Submarine Technology For The 21st Century



Synopsis

Today's combat submarine holds a crew of less than 200 men, equal to a company of infantry. Yet these few submariners can command a sea or destroy a civilization. Never has so much combat power been wielded by so few warriors. This concentration of power is made possible by innovative use of technologies, including rocketry, acoustics, hydrodynamics, nuclear power, advanced chemistry, unique materials and a host of others. Unlike other 20th century military innovations - the tank, the airplane and nuclear explosives - the submarine remains shrouded in secrecy, a truly "silent service." This book surveys the state of submarine technology worldwide, and examines research advances that will shape the second century of submarines.

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Customer Reviews

Stan Zimmerman served in the U.S. Army from 1970 to 1973, earning the basic parachute badge, German parachute wings and qualifying as a jumpmaster while serving in a special operations unit. He received a Bachelor of Arts degree in Political Science from Northern Illinois University, and a Master of Arts in Journalism and Public Affairs from the American University in Washington, D.C. He has reported for radio and television stations, newspapers and newsletters. His essays have appeared in the Almanac of Seapower, and the Naval Institute Proceedings. He was editor of Navy News & Undersea Technology between 1988 and 1994. During that period, he was elected chairman of the Washington Maritime and Naval Correspondents Circle, and secretary of the Congressional Periodical Press Gallery. He has won

awards for his writing and broadcasting from the Society of Professional Journalists, the National Press Club, and the U.S. Naval Institute. He is author of the first edition of this book, as well as Submarine Design for the 21st Century. He lives with his wife and son in Sarasota, Fla. An avid sailor, he also serves on the Southwest Florida Regional Harbor Board, and can be reached on Email at stan4sarasota@mindspring.com

Book Reviews Reviewed by Captain John P. Prisley, U.S. Navy (retired)

This small, but fact filled book should be required reading for everyone involved in submarine and antisubmarine warfare - both ashore and afloat, and makes an unusually good desk-top reference for day-to-day use. Stan Zimmerman was editor of Navy News & Undersea Technology from 1988 to 1994, covering current developments in the field, winning a number of awards as journalist, reporter, and correspondent, and has had a number of his articles published in Proceedings. This second edition (first edition 1990) stands by itself to bring submarine technology up to date. Zimmerman also has written a companion piece, Submarine Design for the 21st Century. It is clear from his coverage of all the subjects, and his obvious understanding and appreciation of them, that he is competent in this field.

This is a remarkably complete and well-researched handbook that details all aspects of submarine technology, with easy-to-understand explanations of the broad, esoteric, and complex technologies involved, making it relatively easy for laymen to follow. Zimmerman stresses the significance of submarines not only in today's world, but also in the 21st century. He explains the basics of nuclear propulsion: diesels and air-independent propulsion (AIP); batteries and fuel cells. There is comprehensive coverage of submarine torpedoes, and missiles, hydrodynamics, acoustics, and enough attention to non-acoustic phenomena to understand their significance in submarine warfare. Each relevant subject is covered in detail as is the importance of modern combat systems for submarines today-and in the future.

Extensive end notes for each chapter provide sources and references for all of Zimmerman's statements and discussion. He includes tables to show relevant statistics, and figures to clarify such complex systems as nuclear power, AIP systems, and submarine fire control techniques, while ample side bars emphasize and highlight various issues like non acoustic antisubmarine warfare.

Technical information is up-to-date, with details about Russian weapons and submarines, as well as U.S. navy developments of interest. Much of this information will be new to many readers who do not follow professional journals or technical intelligence matters. When Zimmerman was editing t

Content is very good and the book pretty much covers everything. One issue, however, the production of this copy was a bit sloppy with a number of repeat pages and a few pages that are

badly shifted to the right.

Excelent

The strength of this book is the breadth of coverage. Starting with chapters on propulsion, nuclear, air-independent combustion, and fuel cells, the author then covers hydrodynamics, acoustics, weapons, sensors and then tries to wrap up the overall outlook for the next few decades. The weakness of this book is that it reads like a collection of magazine articles dated about 12 years ago. Since the author was editor of Navy News & Undersea Technology from 1988 to 1994 this is not suprising. Although a lot of information is presented, much of it is in the form of extensive quotations from folk trying to sell one technology or another. This is not wholly bad, but there is little or no attempt to set up a framework for independent judgement about the technical alternatives being considered. No real mathematics is used in description and actual data is, perhaps unsurprisingly, sparse and sketchy. Each chapter reads a bit like a collection of articles rather than a structured essay, but if you read a lot of defence magazines it will seem familiar. A redeeming merit of the book is that the extensive attributed quotations are trackable and accessible and there is a useful appendix of related websites. To some extent I agree with another reviewer that more information can be found from current open web sources than in this book, but it is a fair introduction in one short volume. There are some small editing glitches typical of on-demand publishing but they do not get in the way of the content.

This book was wonderful, if a bit small. It has sections on Air Independent Propulsion, Nuclear Propulsion and it's problems, new hull designs, better sonar, additional quieting, better weapons, and a summary. Each section both reviewed things I already knew and offered new data. My only problem is that the book is a bit small. I wish it were larger and covered either more topics or more depth. As it is I finished the book in two easy days.

You could, I suppose, go to Groton and do a stint in sub school, or, failing that, attend a high-price seminar on the state of undersea warfare. And subscriptions to Janes Fighting Ships and the Submarine Review wouldn't hurt. Or you could sit down with this very managable, up-to-date account written by a non-tech journalist for the lay reader that will set you dreaming, each nigh as you lay it by your bedside, of air-independent diesel engines, accoustic cladding, and some trending information that sometimes seems to cross the line into science fiction. I've read 'em all, and this

one ranks alongside the Waller and Sontag & Drew sub books as best of the best.

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