Naval War College Review

Volume 33
Number 4 *July-August*

Article 16

1980

Ed Heinemann: Combat Aircraft Designer

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River" in the War between the States. Specialists in galley warfare will argue that there was more to that business than merely ramming other galleys. There are a number of other examples in which our understanding of specific problems has been altered, but it would be of little value here to make such points when they do not alter the overall contribution that the book makes. It remains valuable as a summary of a 20th-century Italian admiral's understanding of his profession, and it makes a major contribution in attempting to provide a conceptual basis for the history of naval tactics. This beginning bears study as a basis upon which new work could possibly be built and upon which concepts can be further refined.

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Frere-Cook, Gervis and Macksey, Kenneth. *The History of Sea Warfare*. Enfield, Middlesex, England: Guinness Superlatives (distributed by Sterling Publishing, New York) 1975. 245pp.

Not a carefully documented research source (and not intended as one), *The History of Sea Warfare* is a well-organized, well-illustrated (photographs, paintings, plans of action) memory jog for students of the subject and delightful reading for anyone. Its seven sections include Oars and Spears, Cannons and Culverins, Wooden Walls, Ironclads and Explosives, The Decade of the Dreadnought, The Aircraft Carrier Era, and The Age of Nuclear Power. The two appendixes cover sea warfare of the future and combat elements in the 17th and 18th centuries.

The book is one of the Guinness Superlatives series and the reader may thus expect, and find, all the "first," "largest," "oldest," "most effective," "most useless," "strangest," "worst disaster," etc. of any such book of records. He may be surprised, however, as I was, to find these superlatives not just listed but woven very carefully into short but accurate (and sufficiently complete for the purpose) battle narratives, technical descriptions, and strategic and tactical analyses. These are set in chronological order beginning with the earliest records of maritime history (2900 B.C.) and closing with events of the mid-seventies when the book was first published in England.

Whether read from front to back, dipped into randomly as recreational reading, or referred to for quick access to names, dates, circumstances, battle outcomes, and the like, this volume will please a variety of casual readers.

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Heinemann, Edward H. *Ed Heinemann: Combat Aircraft Designer*. Annapolis, Md.: Naval Institute Press, 1980. 277pp.

The successful and effective use of airpower depends largely on three vital factors: a well-designed weapon system, an ability to maintain the aircraft operationally ready, and a skillful employment of the aircraft in combat. Without any of these ingredients, the end result will be considerably less than desired, perhaps even failure. Having flown as an F-4 *Phantom* crewmember for 5 years, I found that this book brought to my attention once again the integral part played by those who design and build our aircraft.

This book is an autobiography of Heinemann, an aircrafr designer for over 30 years with Douglas Aircraft Corporation. During that time, Heinemann was largely responsible for the design and construction of such noted combat aircraft as the SBD *Dauntless* dive bomber, the A-20/A-

26, the A-1 *Skyraider*, the A-3 *Skywarrior* and the A-4 *Skyhawk*. He was also responsible for the D-558-1 *Skystreak* which vied with the Bell X-1 for honors as the first aircraft to break the sound barrier.

The operational successes of Heinemann's aircraft designs stand by themselves. He makes no effort to recount those exploits of war but instead looks at the engineering challenges that he met time after time. Besides the details behind those aircraft that succeeded, the author also examines some that didn't such as the DC-5, the D-558-3 space rocket and the A-2D *Skyshark*. As a result, the reader is able to trace both the maturation of combat aircraft design through the years and Ed Heinemann's abilities as a designer.

Throughout the book, Heinemann emphasizes that aircraft design must be accomplished with the mission and operator in mind. The prime example of this belief resulted in a brief trip throughout the Pacific in 1944. Chapter 10, "Pacific Journey," contains over 13 pages of Heinemann's observations from watching Navy air operations and talking with the pilots. He also flew on many occasions in several of the aircraft he had designed in order to get a firsthand look at his products. His observations and experiences are amazing and provide solid proof that aircraft designers and operators should never stop talking to each other.

While this is an interesting look at one man's career in combat aircraft design, its higher value is realized in the role it portrays for the aircraft industry in the continued development and success of airpower. It will provide excellent reading for anyone involved with the planning, support or employment of air operations today or in the future.

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Johnson, Robert Erwin. *Far China Station: The U.S. Navy in Asian Waters, 1800-1898*. Annapolis: Naval Institute Press, 1979. 307pp.

The early relations of the United States with Japan and China were confrontations based often in misperception and miscalculation. More often than not, the vastly different cultures that lay along the shores of the northern Pacific reacted to one another in a violent way, predicated by emotion and prejudice. The stress between them was evident long before World War II and Vietnam; it was evident from the very beginning. Yet in many ways, these tensions were understood by Americans, at the time, as a byproduct in the handling of affairs that related more directly to the relations between Western powers and in the context of European diplomacy and interests.

The U.S. Navy's role in the Far East during the 19th century expressed both the tension and the preoccupation with European affairs in a series of armed clashes that stretched from Quallah Battoo in 1832 to Manila Bay in 1898. Professor Johnson's book is a detailed narrative of the U.S. Navy's squadron on the East India and China Stations between those years.

Far China Station is Johnson's third major contribution to the history of the U.S. Navy in the Pacific in the 19th century. His first book, *Thence Round Cape Horn* (1963) detailed the story of U.S. naval forces in the eastern Pacific between 1818 and 1923. His second, *Rear Admiral John Rodgers 1812-1882* (1967) followed the career of an officer who carried Johnson from the Pacific Station on into Asian waters. His third, and his most important study, describes the Navy's direct contact with the nations of the Far East. *Far China Station* is a lucid narrative, clearly written in a quiet and reticent style. Soundly based in a wide range of manuscript sources, the book corrects a range of details in a number of other