

The History of American Deep Submersible Operations

Will Forman

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Review by Hal Palmer

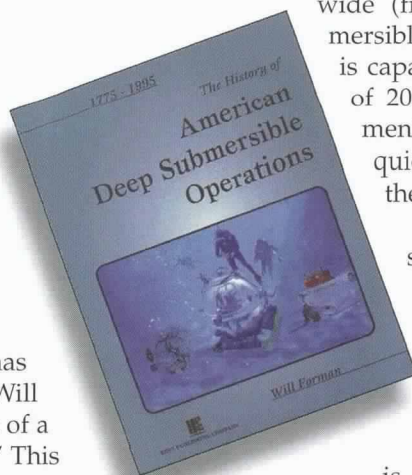
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Dr. Don Walsh of Trieste and Marianas Trench fame opens his Foreword to Will Forman's book stating . . . "I cannot think of a more qualified person to write this book." This reviewer certainly concurs in Don's endorsement. I had the privilege of a casual but enlightening association with Will when I too worked at the U.S. Naval Ordnance Test Station (NOTS). I was at the Pasadena Annex and on San Clemente Island while Will was toiling to build the "Deep Jeep" in the middle of the Mojave desert! One of his colleagues, a renowned marine geologist then at NOTS, constantly referred to submersibles as "those backyard death-traps" although he did bump me from a dive in the Cousteau "Soucoupe" when Westinghouse and the Navy contracted it for dives off San Clemente in the early 60s.

Many of us whose careers have spanned the heyday of manned submersibles (1960s and 70s) will be familiar with the people and craft Will presents in his well-researched book. He begins with a fascinating account of the "turtle," a Revolutionary War vintage one-man submarine built to deliver ordnance designed to sink British ships in Boston Harbor. Forman takes the reader on an historic tour of subsequent "submarine" developments, all related to military operations until the initiation of deep diving for science launched by William Beebe and Otis Barton employing their tethered diving spheres, the "Bathysphere" and "Benthoscope".

U.S. Navy interest in deep submergence prompted the purchase of the Swiss-designed, Italian-built "Trieste" in 1958. The Office of Naval Research paid \$200,000 for Trieste and had her shipped to the Naval Electronics Lab in San Diego. From the success and scientific excitement generated by Trieste's exploits U.S. industry, primarily aerospace firms, Westinghouse Electric and several private companies, foresaw enormous promise in deep submergence vehicles and literally plunged into fabrication, testing and research programs employing scores of manned submersibles. According to "Tex" Treadwell (1977), at the beginning of the 1960s there were only 4 deep-sea research vehicles in operation. By 1970 there were 43 and from Don Walsh's count, by the end of 1970 there were 200 world-



wide (from Forman's preface, "a deep submersible shall refer to a manned vehicle which is capable of sustained operations to a depth of 200 meters"). In anticipation of government funding, the concept of a "wet NASA" quickly became a buzz-word throughout the U.S. oceanographic community.

For a variety of reasons, the U.S. submersible fleet dwindled rapidly, and today only a few remain active in industry and marine research. Will Forman's book provides an engaging, first-hand account of the trials, tribulations and lessons learned in taking man to the ocean's depths. It is a stimulating account of American marine engineering and science in the fast-paced world of underwater exploration. Companion books such as Frank Busby's exhaustive and thorough compendium of manned submersibles (Busby, 1976) and Richard Geyer's analysis of applications to science and engineering (Geyer, 1977) can augment Forman's account of U.S. involvement in deep submergence. A recent paper by Peter Rona (2000) will bring interested readers current with the world-wide status of deep-diving manned submersibles.

Numerous photographs, drawings and tables enhance this narrative of the evolution of American undersea activities. The inclusion of a bibliography citing sources, both published materials and personal interviews, provides a valuable resource in itself. A thorough index, sometimes an afterthought in many publications, permits direct access to information on people, events and vehicles. Will has done a masterful job in summarizing an enormous amount of information in a readable, informative and sometimes humorous dialog—often in the first person. He was there, and thank goodness he took the time to capture history that could easily have slipped away.

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