Adler on Polmar and Mathers, 'Opening the Great Depths: The Bathyscaph Trieste and the Pioneers of Undersea Exploration'

Review published on Thursday, February 17, 2022


Reviewed by Antony Adler (Carleton College) Published on H-Environment (February, 2022) Commissioned by Daniella McCahey (Texas Tech University)

Printable Version: https://www.h-net.org/reviews/showpdf.php?id=56757

Opening the Great Depths is, first and foremost, the biography of a submarine—in this case, the submersible known as the bathyscaph Trieste. The strength of the authors’ approach—and indeed the value of this work to historians—is that their narrative reveals the ways in which a unique technological invention can engage the interests of engineers, scientists, and military planners. Furthermore, as the authors reveal, the capabilities of this vessel, which effectively made all regions of the deep sea accessible, played a crucial role in shaping US geopolitical strategic policy during the Cold War.

The authors, Norman Polmar and Lee J. Mathers, both have professional backgrounds with ties to the US Navy. Polmar served as a consultant on naval issues to various members of government, while Mathers has a background in naval intelligence. This familiarity with naval administration allows the authors to navigate the history of recently declassified naval intelligence awash in military acronyms with great dexterity (they provide a two-page list of abbreviations in the foreword).

The first three chapters of the book detail the role of inventor Auguste Piccard in the initial design and construction of the bathyscaph. A physicist interested in high-altitude meteorology, Piccard first made a name for himself as a high-altitude balloonist before switching to deep-sea exploration. Both Auguste and his son Jacques were adept at self-promotion and obtaining patronage from various sources. We learn that Auguste found an important source of financial backing through the Belgian Fonds National de la Recherché Scientifique (FNRS) and through the patronage of the king of Belgium, who honored him with a knighthood. His balloon flights garnered a great deal of press, the papers dubbing him a “Columbus of the stratosphere” (p. 10). Why Auguste switched from ballooning to submersibles is less clear. Citing Auguste’s own writing, the authors suggest that his dream of ocean exploration had come first. As they explain, “the idea of a bathyscaph did not originate with Piccard’s fascination with balloons and his ambition to reach the stratosphere, but rather the reverse: his concept of an airtight gondola for his stratospheric balloon came from an earlier idea of an underwater balloon taking men into the ocean depths in a sealed cabin” (p. 12).

Though the bathyscaph became an important tool for the US Navy, the story told here reveals that this development was not inevitable. An earlier collaboration with the French navy resulted in
Auguste’s abrupt sidelining from further French bathyscaph development and prompted him to search for patronage beyond Europe. However, Piccard’s initial offers of partnership to the Americans were not reciprocated; it was only when the American oceanographer Robert S. Dietz took an interest in the project that the Office of Naval Research backed the bathyscaph project. As the authors point out, subsequent dives and experiments demonstrated that “the Trieste was being considered as an operational research asset for solving naval problems, not for pure science” (p. 45). Eventually, the US Navy agreed to purchase rather than lease the submersible, as this provided more flexibility for undertaking classified operations.

The sustaining force behind the continued development of the bathyscaph was Auguste’s son Jacques Piccard. A skilled engineer and submersible pilot, one of the interesting details we learn is that Jacques was reluctant to train others in the use of the craft, even after ownership had been transferred to the US Navy. Lieutenant Don Walsh, with whom Jacques would eventually pilot the Trieste to the deepest part of the ocean at the bottom of the Challenger Deep, was surprised to discover on his first dives that none of the controls or instruments were labeled (p. 60). Jacques Piccard, though contractually obliged to train navy crew in the operation of the Trieste, was apparently hesitant to make his expertise redundant (p. 60). The authors suggest that Jacques’s reluctance to train pilots was a means of securing his place in the submersible when it made its record-setting deep dive (p. 73). From the broader history of science perspective, however, it is interesting to consider Jacques Piccard’s strategy as an example of an operator protecting expert knowledge as a way of controlling access to a specialized instrument.

Readers who have previously heard of the Trieste will know the vessel primarily because of its record-setting dive to the bottom of the Challenger Deep in the Mariana Trench on January 23, 1960. Yet, to the authors’ credit given the scope of their project, the book does not linger on this event. The Challenger Deep dive was as ultimately a sea trial—proof that the bathyscaph could serve as a “unique Navy resource” (p. 94). And by the following year, plans were made to deploy the bathyscaph for classified intelligence recovery operations. At the same time, the Trieste was also used for scientific studies of military import, primarily marine acoustics. And eventually, it was deployed to assist in the search for the lost US Navy submarines USS Thresher and nuclear-propelled USS Scorpion. These disasters were, as the authors and other historians of oceanography have argued, a watershed moment for deep-ocean exploration—proof again of the navy’s need to develop deep-submergence search and recovery capabilities. Subsequent iterations of the Trieste were deployed in the late 1960s as part of the navy’s covert Winterwind program to recover the nose cones of Soviet ballistic missiles in the Pacific. However, by the 1980s, budget constraints and the development of cabled and autonomous recovery vehicles had brought the era of the bathyscaph to a close.

What Polmar and Mathers’ book provides is a meticulous account of the deployment history of a specialized vessel used for oceanographic research and naval intelligence operations. Few details are omitted, from the depth reached on every dive to the names of the personnel involved to the logistical details of support infrastructure and budgeting. Those who were directly involved in the bathyscaph program will likely be pleased that such a detailed record now exists that documents the importance of the Trieste in the history of ocean exploration and as a strategic military vessel.

The authors’ explanation of the design specifications of the submersible is impressive in its level of detail, but this sort of information is likely to appeal more to naval engineering enthusiasts than to a
general audience. Readers with a bit less familiarity with the subject matter may find that the book does not do enough to try to understand the aspirations and fears of some of the important human figures involved in this story. We are given some tantalizing glimpses of possible threads worth following. For instance, what more might be said about the Italian mechanic Giuseppe Buono, who followed the *Trieste* from Europe to the United States and whose mechanical understanding of the *Trieste* was unrivaled? Of the motivations, hopes, and desires of the man, we are told nothing. And what of the lives of the women whose fates were tied to the careers of husbands and fathers who worked on the bathyscaph program and followed the instrument as it was relocated around the world? But the story told in this book is solely that of male scientists, engineers, and military officers; if their families had opinions about the dangers and secrecy necessitated by their work, we do not learn of them.

In sum, though the story told by Polmar and Mathers would have benefited from the inclusion of more human elements, this is a work of valuable historical scholarship which fills in an important missing chapter in the history of ocean science. As the story of how a submersible invented by “back yard Edisons” (p. 40) was co-opted for military science and naval operations, this is an important work for understanding the history of US naval patronage during the Cold War and is a useful addition to earlier scholarship by Chandra Mukerji, Gary Weir, Jacob Darwin Hamblin, Samuel A. Robinson, and most recently, Naomi Oreskes. *Opening the Great Depths* provides necessary contextualization for understanding what made the bathyscaph a revolutionary vessel, and how this craft facilitated exploration of the ocean depths and shaped Cold War strategy in the second half of the twentieth century.


This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 United States License.