

Being *Sine Qua Non*: Maritime Archeology and the Archaeology of the Cold War

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Sine qua non translates as “without which, not” to describe the indispensable, absolutely necessary, or essential nature of one thing to another. In my mind, no phrase better characterizes the relationship of maritime archeology to the archaeology of the Cold War. While mushroom clouds, ballistic missiles, and fallout shelters have long tended to dominate our Cold War memory, the reality is that it was a conflict fought in the air and on land, as well as at sea. This fact makes maritime archeology a constituent of the archaeological study of the Cold War. And although maritime archeology can and does function quite well without ever contributing to the archaeology of the Cold War, the reverse is not true. Without maritime archeology, the archaeology of the Cold War is incomplete.

When *JMA* editor Annalies Corbin asked me to contribute this editorial, it was a task I accepted with particular purpose. Having recently authored a textbook entitled *The Archaeology of the Cold War* (2016), I am generally more familiar with that subject than most, and logically more able than most to discuss aspects of the cross-disciplinary synergy exemplified by the papers in this issue. Admittedly, I have a vested interest in championing the archaeology of Cold War among maritime researchers whose interests are geographically broad and whose focus of study can date back to the moment that humankind first set to sea, so an opportunity to advocate for expanded cooperative archaeological research between the two fields was simply too propitious to pass up.

The papers in this issue represent some of the best Cold War maritime archaeology being practiced today. For example, the paper by Delgado, Elliott, Cantelas, and Schwemmer in this volume turns out to be both a survey report of a deep water Cold War wreck off the California coast and news of a Cooperative Research and Development Agreement (CRADA) that was signed between NOAA’s Office of Oceanic and Atmospheric Research and the Boeing Company. The CRADA gives NOAA researchers greater access to advanced marine remote sensing technologies while helping Boeing understand

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NOAA missions in order to offer better undersea technology research solutions. Yet another paper in this issue by Delgado discusses the fate of the target ships used in the Crossroads atomic tests after the tests were complete. Theirs is perhaps not the fate one might have expected for such historically significant ships. Ultimately, all of the articles, photos, and original source documents in this issue are illustrative of a *sine qua non* relationship between the archaeology of the Cold War and maritime archeology; a relationship that is enabled by a notable past, challenging present, and promising future.

A Notable Past

The archaeological study of the Cold War past examines what was undoubtedly one of the most advanced and extensive military uses of the sea. The Cold War was, above all else, a highly technological conflict. Cold War maritime technologies included devices like Sound Surveillance System (SOSUS), a technology deployed in 1952 by Britain and the United States which used underwater arrays of hydrophones, principles of triangulation, and the physics of the ocean's deep sound channel to detect over distances of hundreds of miles the acoustic signals created by Soviet submarines en route to and from the Atlantic and their Barents Sea ports of call. The Cold War also led to the development of the world's first nuclear powered submarine, the USS Nautilus in 1955, which changed the very character of submarine service. Reaching unexpectedly even into contemporary life, the Cold War revolutionized terrestrial and nautical navigation with creation of GPS, a global positioning system originally devised to provide the precise navigation necessary for the launch of American submarine-based intercontinental ballistic nuclear missiles at sea. While not all of these technologies left behind archaeological sites to study, their development, deployment, and use occasionally created some very extensive and complex sites, such as those associated with nuclear weapons testing.

The foundational maritime archaeology research behind the papers in this issue actually began in the summer of 1989, only months before the Cold War's end, when the National Park Service's Submerged Cultural Resource Unit research team began their study of one of the Cold War's most famous underwater archaeological sites: Bikini Atoll. Invited by the governing Bikini Council to assess the historical significance of the "ghost fleet," a collection of American, German, and Japanese ships sunk in the atoll's lagoon in July 1946 as part of the Operation Crossroads atomic weapons tests, NPS researchers conducted two fieldwork sessions, one in the summer of 1989 and another in the spring of 1990, during which they surveyed 11 of the 21 ships sunk at Bikini. Making fifty deep dives over the course of the cumulative 4-week fieldwork season, the team documented the wrecks using still and video imaging to produce an extensive collection of technical sketches and site descriptions (Delgado et al. 1991). Even though an array of 95 target vessels had originally been positioned around the detonation points for the Able surface and Baker subsurface atomic blasts, the only vessel completely destroyed by the tests was the USS *LSM-60*, an amphibious assault landing ship from which the Baker atomic device had been suspended (Delgado 1996). And although all of the target vessels used for the Crossroads tests were damaged to various extents, few sank. Of those ships that survived, including some only slightly damaged but irreversibly irradiated by the atomic blasts, 13 were towed to ports at Hawaii and on the United States West Coast. The USS *Independence* was one such surviving ship.

A Challenging Present

In many ways, the discovery and survey of the *USS Independence* wreck is a quintessential example of Cold War maritime archaeology. From the high visibility, high-value pre-wreck status of the *Independence* to the radioactive legacy of the atomic bomb and secrecy that enveloped her scuttling, the report in this volume is very much the story of how challenging Cold War archaeology is in practice. It is a story that begins with the accidental discovery during a US Geological Survey mapping of the Gulf of Farallones National Marine Sanctuary of the Cold War wreck once considered lost to history. In the Cold War context, “lost” is a slippery concept as its meaning may range from something whose location is genuinely unknown to a location that is known, but closely guarded by national security secrecy. In the case of the *USS Independence*, it was the latter.

The “lost” status of the *Independence* was perhaps not surprising when one considers how regularly Cold War secrecy poses challenges to the archaeological study of that conflict. Gaining access to once-secret information is often difficult when soldiers and sailors were sworn under penalty of death to keep secret the workings of nuclear weapons, submarines, and other advanced military technologies. Secrets hidden away in national security archives are equally inaccessible until officially declassified by their keepers. Confounding matters further is the fact that the reasons for a Cold War military activity being classified as secret are often not immediately self-evident. For example, Delgado et al. note in their paper (this volume) that the deep-six scuttling of the *Independence* in 1951 was an event as much reflective of the Cold War fear of losing the secrets of the atomic bomb as it was a means by which a radiological waste problem was quickly and secretly solved.

Equally challenging to the maritime archaeology of the Cold War is the conflict’s enduring radiation legacy. While the potential for exposure to latent ionizing radiation is a legitimate, if occasionally overestimated, hazard at some Cold War archaeological sites, maritime sites often have an advantage in that water is a moderator of radiation. Yet nowhere is this radiation legacy more manifest than at Bikini Atoll, where contamination myths endure despite extensive environmental research showing that in marine locations the residual radiation from bygone nuclear weapons testing does not present significant radiological hazards. Only under abnormal contact conditions, which means ingesting, inhaling, or otherwise interacting extensively with the residual radioactive fallout from nuclear tests, would divers to Bikini wreck sites be exposed to radiation levels any higher than elsewhere on Earth. And while presenting no small challenge to the field, even these issues of secrecy and radiation cannot dim the field’s promising future.

A Promising Future

In many ways, the papers in this volume are only the tip of the proverbial iceberg when it comes to demonstrating the promise that maritime archeology holds for the archaeology of the Cold War. Remotely-operated and autonomous underwater vehicles like that provided by Boeing for the *Independence* study are quickly becoming a standard tool for underwater surveys, opening up the potential for studying other Cold War maritime sites that lie at extreme depths. Sonar and lidar scanning technologies, hyper-and multispectral imaging, and high-resolution photography are all potential elements of high-definition digital documentation (H3D), a systematic, technology-based approach to the acquisition, processing,

and visualization of 3-D spatial data for archaeological study. Indeed, H3D holds particular promise for comprehensively recording Cold War marine sites that are difficult to document due to issues of radiation safety or accessibility.

The Cold War produced artifacts, sites, and landscapes that are often unlike anything else in history. Archaeologies of the Cold War are proving themselves useful in clarifying, depoliticizing, and humanizing a conflict that was deeply shrouded in secrecy, implausibly nationalistic, and perversely apocalyptic. Maritime archaeology's role in the archaeological study of the Cold War is critical and should be encouraged. With a notable past, challenging present, and promising future, the relationship of maritime archaeology to the archaeology of the Cold War is simply *sine qua non*.

Compliance with Ethical Standards

Conflict of interest The author declares that he has no conflict of interest.

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