National Ceremonies Will Commemorate Ironclad Battle

A national commemoration of the 150th anniversary of the Battle of the Ironclads, which occurred March 9, 1862, will be held March 6-9, 1987, in the Hampton Roads, Virginia area. The famous battle, which lasted only four hours, assured a place in history for both the USS Monitor and her adversary, the CSS Virginia.

Events being planned include:

- Formal designation of the Monitor as a National Historic Landmark by the Department of Interior's National Park Service
- Formal designation of the Principal Museum to manage and curate the National Collection
- Dedication of the National Collection of Monitor Artifacts and Papers
- Announcement of the planned 1987 Monitor scientific and documentary filming expedition.

In national ceremonies to be held in Hampton Roads, Virginia, March 6-9, 1987, the battle between the USS Monitor and the CSS Virginia will be commemorated.

CAMM Report Delivered to NOAA; Recommends Museum Selection Criteria

On September 4, 1986, the Federal Register carried notice that the National Oceanic and Atmospheric Administration (NOAA) intends to select, early in 1987, the principal museum to manage the Monitor Collection of Artifacts and Papers. The notice also contained guidelines for submission of proposals by interested museums.

The notice itself was a milestone in a sequence of events set in motion in 1984, when NOAA requested the Council of American Maritime Museums (CAMM) to delineate recommended criteria to guide NOAA in the selection process. The final report was presented to NOAA at the CAMM annual meeting in Beaufort, North Carolina, on April 26, 1986.

Understanding the significance of NOAA's intended selection requires an appreciation of the background of the Monitor National Marine Sanctuary. Most of the contents of this article have been liberally borrowed from the CAMM report, entitled, "Recommended Criteria for the Selection of the Principal Museum for the Monitor Collection of Artifacts and Papers," authored on CAMM's behalf by Dr. Ralph Eshelman, Director, Calvert Marine Museum, Solomons, Maryland.

Background

On January 30, 1975, the Monitor National Marine Sanctuary (MMNS) was designated by the Commerce Secretary under Title III of the Marine Protection, Research and Sanctuaries Act of 1972. NOAA's Sanctuary Programs Division, now
Marine and Estuarine Management Division, was dedicated to authentic development and administration of research and management programs in marine and estuarine resources as a component of the National Marine Sanctuary Program (NMSP). The purpose of the NMSP was to extend resource protection through a structured program of management, research and public education. The overall goals of the NMSP are to:

- Enhance resource protection through implementation of a comprehensive, long-term plan tailored to specific resources. NOAA conducted a program review in 1980 to expand scientific knowledge of significant marine and estuarine resources and improve management decision-making.
- Provide for maximum compatibility with public private use.

In January 1976, NOAA and the U.S. Navy signed a Memorandum of Understanding (MOU) under which the Navy would assume initial responsibility for management and protection of the National Marine Sanctuary program. The MOU was envisioned as an interim disposition of the shipwreck and its artifacts.

The MOU has remained in effect in the ensuing eleven years, with intermittent arrangements being made to accomplish in consultation with the U.S. Navy a number of purposes—namely the Monitor lantern and anchor and the National Marine Sanctuary. This understanding was then passed to the Smithsonian Institution. The anchor, recovered in 1983, was conserved and displayed at the North Carolina University and the South Carolina Institute of Anthropology. A consensus was expressed at the 1976 conference entitled ‘The Monitor, Its Meaning and Future’ that the nation needed to determine the full nature of the environment and physical condition of the wreck, so that sound management decisions and long-range plans could be made. Some of the more significant recommendations include:

- Establish specific sanctuary goals.
- Develop a master plan meeting the requirements of the MOU.
- Develop specific operational guidelines to conduct necessary stages of research for implementation of the master plan.

In accordance with these recommendations, NOAA established the following goals for the NMSP in January 1982:

- To provide maximum compatibility with public/private use.
- To ensure systematic scientific recovery and dissemination of historical and cultural data and information of other agencies, archeological data, and to preserve and develop the physical environment of the shipwreck so that it may appropriately enhance both the significance and interpretive potential of the remains.
- To enhance public awareness and understanding of the Monitor as a historical and cultural asset by providing interpretive and educational services and resources.

On November 9, 1982, the State of North Carolina Technical Advisory Committee was established by the Secretary of Commerce to review of research proposals, recommend support for projects, and negotiate options ranging from non-disturbance through complete recovery of the wreck. Two steps, the alternatives study method, will identify requirements for all management options of the National Marine Sanctuary, conservation, engineering, museumology, and planning, using the following criteria:

- Do the management options provide opportunities to require resources are available?
- Are there acceptable costs?
- Are the final results worth the costs?

From this an alternative study, a preferred management plan will be recommended to NOAA for the final decision. When NOAA has rendered this decision, a dedicated management plan implementation option will be developed. The preferred management plan will be coordinated with the national marine plans and implemented by each plan's implementation.

**Selection Process**

In June 1984, NOAA presented the evolving project concept to the NMSP members and received a recommendation to proceed with a principal museum. NMSP was chosen because it is the national association organizing the Salem Marine Sanctuary and is most qualified to deal with issues that may arise. This goal was given to NMSP to assure the NMSP in continuity to museums as离退休 national museums must be aggressively and consistently empha-

**Museum Benefits**

Selection of a principal museum at this time is essential to the NMSP. A museum plan can be developed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary. Museum plan has been developed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary. Museum plan has been designed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary. Museum plan has been developed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary.

**USS Monitor Protection Program**

As a result of the 1984 NOAA report, the highest priority was assigned to development of a master plan for the NMSP. The overall goal of the NMSP is to extend resource protection through a structured program of management, research and public education. The overall goals of the NMSP are to:

- Enhance resource protection through implementation of a comprehensive, long-term plan tailored to specific resources. NOAA conducted a program review in 1980 to expand scientific knowledge of significant marine and estuarine resources and improve management decision-making.
- Provide for maximum compatibility with public/private use.

In January 1976, NOAA and the U.S. Navy signed a Memorandum of Understanding (MOU) under which the Navy would assume initial responsibility for management and protection of the National Marine Sanctuary program. The MOU was envisioned as an interim disposition of the shipwreck and its artifacts.

The MOU has remained in effect in the ensuing eleven years, with intermittent arrangements being made to accomplish in consultation with the U.S. Navy a number of purposes—namely the Monitor lantern and anchor and the National Marine Sanctuary. This understanding was then passed to the Smithsonian Institution. The anchor, recovered in 1983, was conserved and displayed at the North Carolina University and the South Carolina Institute of Anthropology. A consensus was expressed at the 1976 conference entitled ‘The Monitor, Its Meaning and Future’ that the nation needed to determine the full nature of the environment and physical condition of the wreck, so that sound management decisions and long-range plans could be made. Some of the more significant recommendations include:

- Establish specific sanctuary goals.
- Develop a master plan meeting the requirements of the MOU.
- Develop specific operational guidelines to conduct necessary stages of research for implementation of the master plan.

In accordance with these recommendations, NOAA established the following goals for the NMSP in January 1982:

- To provide maximum compatibility with public/private use.
- To ensure systematic scientific recovery and dissemination of historical and cultural data and information of other agencies, archeological data, and to preserve and develop the physical environment of the shipwreck so that it may appropriately enhance both the significance and interpretive potential of the remains.
- To enhance public awareness and understanding of the Monitor as a historical and cultural asset by providing interpretive and educational services and resources.

On November 9, 1982, the State of North Carolina Technical Advisory Committee was established by the Secretary of Commerce to review of research proposals, recommend support for projects, and negotiate options ranging from non-disturbance through complete recovery of the wreck. Two steps, the alternatives study method, will identify requirements for all management options of the National Marine Sanctuary, conservation, engineering, museumology, and planning, using the following criteria:

- Do the management options provide opportunities to require resources are available?
- Are there acceptable costs?
- Are the final results worth the costs?

From this an alternative study, a preferred management plan will be recommended to NOAA for the final decision. When NOAA has rendered this decision, a dedicated management plan implementation option will be developed. The preferred management plan will be coordinated with the national marine plans and implemented by each plan's implementation.

**Selection Process**

In June 1984, NOAA presented the evolving project concept to the NMSP members and received a recommendation to proceed with a principal museum. NMSP was chosen because it is the national association organizing the Salem Marine Sanctuary and is most qualified to deal with issues that may arise. This goal was given to NMSP to assure the NMSP in continuity to museums as离退休 national museums must be aggressively and consistently empha-

**Museum Benefits**

Selection of a principal museum at this time is essential to the NMSP. A museum plan can be developed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary. Museum plan has been developed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary. Museum plan has been designed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary. Museum plan has been developed to bring resources to the NMSP to provide an interpretive core for the National Marine Sanctuary.

**USS Monitor Project Organization**

The USS Monitor Project (USMP) has been organized to develop a museum that provides critical professional input to the agency in development affecting the Monitor shipwreck. The overall steering committee for recommending policy and action to NOAA is the Project Implementation Committee (PIC). Six subcommittees have been organized to evaluate potential planning and management level considerations concerning the wreck. The PIC met in March, June and October, 1986, to discuss current and projected plans for research, documentation and development and to make recommendations for the following persons are PIC members:

- Mr. Edward C. Bears, chief historian, National Park Service.
- Dr. Winthrop Braithwaite, Washington, D.C.
- Mr. John C. Cummings, Chief, Marine Archaeology Branch, National Park Service, Denver, Colorado.
- Mr. Ross Holland, former director of restoration, Statue of Liberty/Ellis Island Commission, New York, New York.
- Mr. Philip Lundeberg, curator emeritus, Smithsonian Institution.
- Mr. Edward Miller, sanctuary project manager, Marine and Estuarine Management Division, told Cheesbead that consideration is being given to selecting participating museums, as well as the principal museum, so that there will not be one winner and the rest in the selection. The Monitor Project Office, in addition to retaining overall responsibility for the entire Project, will manage development of a principal museum.

**USS Monitor Project Organization**

The USS Monitor Project (USMP) has been organized to develop a museum that provides critical professional input to the agency in development affecting the Monitor shipwreck. The overall steering committee for recommending policy and action to NOAA is the Project Implementation Committee (PIC). Six subcommittees have been organized to evaluate potential planning and management level considerations concerning the wreck. The PIC met in March, June and October, 1986, to discuss current and projected plans for research, documentation and development and to make recommendations for the following persons are PIC members:

- Mr. Edward C. Bears, chief historian, National Park Service.
- Dr. Winthrop Braithwaite, Washington, D.C.
- Mr. John C. Cummings, Chief, Marine Archaeology Branch, National Park Service, Denver, Colorado.
- Mr. Ross Holland, former director of restoration, Statue of Liberty/Ellis Island Commission, New York, New York.
- Mr. Philip Lundeberg, curator emeritus, Smithsonian Institution.
- Mr. Edward Miller, sanctuary project manager, Marine and Estuarine Management Division, told Cheesbead that consideration is being given to selecting participating museums, as well as the principal museum, so that there will not be one winner and the rest in the selection. The Monitor Project Office, in addition to retaining overall responsibility for the entire Project, will manage development of a principal museum.

**USS Monitor Project Organization**

The USS Monitor Project (USMP) has been organized to develop a museum that provides critical professional input to the agency in development affecting the Monitor shipwreck. The overall steering committee for recommending policy and action to NOAA is the Project Implementation Committee (PIC). Six subcommittees have been organized to evaluate potential planning and management level considerations concerning the wreck. The PIC met in March, June and October, 1986, to discuss current and projected plans for research, documentation and development and to make recommendations for the following persons are PIC members:

- Mr. Edward C. Bears, chief historian, National Park Service.
- Dr. Winthrop Braithwaite, Washington, D.C.
- Mr. John C. Cummings, Chief, Marine Archaeology Branch, National Park Service, Denver, Colorado.
- Mr. Ross Holland, former director of restoration, Statue of Liberty/Ellis Island Commission, New York, New York.
- Mr. Philip Lundeberg, curator emeritus, Smithsonian Institution.
- Mr. Edward Miller, sanctuary project manager, Marine and Estuarine Management Division, told Cheesbead that consideration is being given to selecting participating museums, as well as the principal museum, so that there will not be one winner and the rest in the selection. The Monitor Project Office, in addition to retaining overall responsibility for the entire Project, will manage development of a principal museum.
Monitor Photomapping Expedition Scheduled for Summer 1987

A photomapping expedition to the Monitor wreck site, estimated to include some 10,000 photographs, is planned for May 25 through June 15, 1987. It will build on work carried out in the summer and fall of 1985 (see “Recap of 1985 Monitor Expeditions” in this issue). NOAA is sponsoring this ambitious mission in cooperation with the United States Navy.

The Navy will provide the undersized remotely-operated vehicle Deep Drone with its support vessel. Eastport International of Upper Marlboro, Maryland, will operate the vehicle in its capacity as prime contractor for Navy undersea operations.

A controlled photomosaic of the Monitor and its surrounding area is the principal scientific objective. It must be of sufficient accuracy that measurements from the mosaic can be used to locate objects and structures at the site to within one to two feet. The mosaic will be made available to marine archaeologists, naval architects, engineers, and historians, who will use it in the course of reconstructing features of the original ship and determining effects from environmental and human-related changes. This information will greatly assist in development of alternatives that will ensure the Monitor’s future preservation as a national historical and cultural resource.

The United States Navy’s remotely operated vehicle Deep Drone will be utilized in a photomapping expedition to the Monitor wreck site during May and June 1987. For additional details, see “Monitor Photomapping Set for Summer 1987” elsewhere in this issue.

Background

Three main classes of events have collectively influenced the Monitor’s present condition. They are, chronologically, capsizing/sinking; the environment, and the reported World War II depth charging. Based on a complex analysis of known parameters, Captain E. W. Petersen, has developed a predictive model of artifact distribution in the area surrounding the wreck. He has concluded that artifacts may be found within an area measuring approximately 105,000 sq. ft, or an area of roughly 2.3 acres in seawall depth. This is the preliminary estimate of the archaeological site, and is the primary area of concentration during this summer’s photomapping mission.

Expedition photography will take several forms, including:

- 70 mm still, for photomapping
- 35 mm stereo for photographic documentation
- color broadcast-quality video for real-time analysis of scientific data, and
- film documentation of the expedition as a whole.

The photography should enable a comparison between historical records of the ship’s original configuration and her appearance today, after weathering the effects of the Gulf Stream and being exposed to the corrosive effect of 125 years seawater and biofouling. These insights, combined with information gained from previous expeditions to the wreck, will aid NOAA in development of preservation alternatives. All alternatives will be considered from non-disturbance through complete recovery.

NOAA has said that even if future plans for the Monitor National Marine Sanctuary include artifact recovery, nothing will be raised in the absence of a well-thought-out plan for conservation and interpretation of such artifacts. The approach for next summer’s mission reflects the agency’s methodical assessment of the wreck’s current condition as well as available management options for ensuring its continued protection in future generations.

1985 Monitor Expedition: Review of Accomplishments

In August and November 1985, NOAA sponsored two expeditions to the United States Monitor site as part of the initial phase of final site documentation and mapping. Data collected during these expeditions will contribute to development of a sanctuary atlas, an environmental baseline, and will analyze interaction between the environment and the shipwreck. Additionally, development of an electronic grid was proved, laying the groundwork for the planned 1987 photomapping and site documentation expedition.

Eastport International, as contractor to NOAA, coordinated a complex program of scientific remote sensing of the wreck and adjacent area. Operations included side-scan sonar imaging, current measurement, subbottom profiling and magnetometry. A major Eastport contribution to future archaeological work on the Monitor was development of an electronic grid system. All archaeology, whether on land or underwater, depends for its orientation on all objects found being referenced to a horizontal grid system over the site. This applies equally to survey and excavation. Underwater archeologists have long (i.e. since the 1940s) known that, when time and development of the SCUBA system enabled under-water archaeology to be conducted, made use of mechanical grid systems using string and metal pegs or PVC pipes, but such methods work well only in relatively shallow water. Since the Monitor is a 230-foot depth is too deep for these conventional approaches, a new method had to be devised.

Eastport International utilized its proprietary ALLNAV system to integrate surface and underwater navigation inputs to produce an electronic grid system, covering an area encompassing over 2,500 square meters with the Monitor near its center. In this application ALLNAV’s surface navigation component came from the Motorola Mini-Ranger positioning system, and the subsea input from EG&G SeaLink transponders.

Mini-Ranger is based on two transmitters, with the receiving location constituting the third point of the navigation triangle. One transmitter was located on the Cape Hatteras Lighthouse at Beaufort, North Carolina, 16.1 nautical miles northwest of the wreck, and the other at Diamond Shoals Light. The latter is located offshore on a structure resembling an offshore oil platform. The Environmental Protection Agency Research Vessel Peter W. Anderton contained ALLNAV’s shipboard portion. The shipboard computer continuously processes received signals to produce the electronic grid and time position fixes on the surface, accurate to within a few meters.

After establishing position over the Monitor by means of an earlier Loran-C fix and a systematic grid search combining Mini-Ranger coordinates with side-scan sonar, the SeaLink subsea navigation system was employed. It consisted of four underwater transponders placed in systematically constructed metal stands beyond the four corners of the grid. At the conclusion of the survey, these transponders were released from their stands and floated to the surface for recovery. During the 1987 return to the wreck site an electronic grid will be re-established over the ship, but with higher-accuracy transponders enabling navigational accuracies to within centimeters, as opposed to the 1- to 3-meter accuracies achieved in 1985.

SeaLink works acoustically. A transducer, operating like an underwater microphone, emits a signal to interrogate each transponder and obtain exact range fixes, which are integrated and displayed aboard ship every 30 seconds. Unlike Mini-Ranger, SeaLink is not a real-time system, limited by the speed of sound in water and the complex geometry which the computer must solve. As a result, SeaLink’s surface navigational usefulness in this mission was found to be greater in relatively smooth water conditions with minimal winds and currents. Results also depend on the ship’s ability to maintain course.

Remote Sensing Survey

A controlled sidescan sonar survey was run over the wreck site, towning an EG&G 100-kHz “fish” at 3 to 5 knots over the underwater grid, with 50-meter north-south and 100-meter east-west track spacing. Simultaneously the ship’s two digital depth sounders provided continuous depth readings.

Side scan sonar revealed that the wreck lies in an essentially featureless silty area extending over the full area of the grid. Beyond the grid limits, however, indications point to more complex geological formations with areas of exposed rock and features of depressions and outcrops. Results of a higher-resolution 300-kHz sidescan survey indicate that the Monitor itself may have contributed to alteration of surrounding landforms, a prominent northeast-to-southwest scarp mark on the seabed extends from the wreck on its lee or northeast side. This may have been formed by the passage of the northerly Gulf Stream over the wreck.

Two current meters and a transmissometer instrument for measuring relative visibility (absence of particulate matter) in water were deployed east and west of the wreck. It is hoped that before next season’s plans can be finalized, the results will help explain current dynamics and seabed deposition or erosion in the area immediately adjacent to the Monitor.
Dear Friend Lawrence...

Editor's Note: Permission to print the following letter was granted by Richard W. Lawrence of Wilmington, North Carolina. The letter was given to him by his father, James F. Lawrence. It was addressed to Richard Lawrence's grandfather, also James F. Lawrence, who was originally from Tennessee. The family moved from Tennessee to Ashevile, North Carolina, and upon the deaths of the elder Mr. Lawrence and his wife, the younger James F. Lawrence found this letter in a box of family papers. The recipient of the letter was not in the military when he received the letter, but later joined Company J, Tennessee Infantry of the Confederate Army, and was captured and imprisoned at Camp Chase, Ohio.

Camp 3rd Ala., Reg. 2, Newport News, Va., Wednesday, March 12, 1862

Dear Friend Lawrence:

You must, ere this, have numberd me with the slain of one of the many battle fields we daily hear of, but it gives me much pleasure to state that I still live, move, and have my being. I have returned from writing for the simple reason that I have nothing to write about — that is, only what I read, and you have the same means of gaining information.

You told me you had watched the papers faithfully to see if they were harmed or taken prisoners, but have seen nothing of them.

Even you may now be in the army. How is it? With much regret did we read of our defeat in Eastern Kentucky, and of the death of your gallant Gallicott[er] (sic). They followed the defeated forces Henry and Donaldson, and Roanoke Island. The success at the last named place almost put Norfolk, Portsmouth, and the Gosport Navy Yard within their power, unless reinforcements were soon sent here. Our Regiment was ordered to report to Gen. Blanchard, at Suffolk, where it was supposed Burnside's land force would attempt to get possession of the two railroads leaving the place for Richmond and the south. For two weeks we felt that if attacked, we either would be slaughtered, taken prisoners, or starved out. But fortunately, before Burnside got ready to strike his second blow, we received reinforcements, and had given them a blow that will compensate for all the recent defeats on our side. As follows: The hull of the old steamer Merrimac (burned by the Federals when they endeavored to destroy the Navy Yard) has been converted into a powerful battery resembling the roof of a house as seen on the water, and encased in five inches thickness of iron, with a sharp iron prow beneath the water and carrying ten heavily rifled cannon. On Saturday, she went down to the enemy's shipping accompanied by several small gunboats, and during the afternoon sunk the ironclad Congress, grounded and riddled the enemy's Monitor, and threw down two ironclads to the Men-Of-War Roanoke and St. Lawrence, as well as killing a great many at the Newport News batteries. Some five hundred more were drowned on the Cumberlant, a great many burned on the Congress, and a goodly number of prisoners taken. At night the magazine of the Congress exploded with terrific force.

This great fight took place within plain sight of Norfolk and thousands of us witnessed it all. The burning ship was particularly grand at night. But the morning following the enemy sent in a small ironclad battery of two guns, and for four hours they kept up a terrific fire, without material injury on either side, when finally the Merrimac (now "Virginia") ran into her, and it is supposed set her to leaking. She had the day before broken her iron prow in the Cumberland or she would undoubtedly have sunk the Ericson (sic).

About noon Sunday the Virginia and all the James River gunboats came up the Yard leaving the blockade of the noble James broken. The Virginia bears many marks, but nothing serious. Total loss on our side: 7 killed and 17 wounded. Nothing more, but hoping to hear from you at Norfolk.

Your Friend,

J.G. Gilmore

*Editor's note: Probably a reference to Confederate Brigadier General Felix Zollicoffer, who was killed in the Battle of Mill Springs on January 19, 1862.*

---

Summary of Results

The following are some preliminary results of the 1985 field work.

The electronic grid that was established will enable archaeologists to perform controlled studies of deeply submerged sites with accuracy and repeatability comparable to current practices in land archaeology. Methodologically speaking, this accomplishment will apply not only to future studies of the Monitor, but also to a broad array of other deeply submerged sites which would be closed to archaeologists whose only option for "getting to the site" was SCUBA diving.

- Data collection enabled further definition of the wreck site, which now is known to extend beyond the wreck itself. Apparent debris was "visible" on the side scan sonar record and extended to at least 100 meters to the north and northeast of the wreck. A scientific object of the 1987 expedition will be to identify these "targets" as geological or archaeological. The photographic parameters for the 1987 expedition are based upon a predictive model of artifact distribution. Identification and documentation of these "targets" will allow further definition of the wreck site and facilitate planning for future research.

Collectively, these accomplishments provide a framework for planning further non-destructive survey and site testing.

The electronic grid now established should make it possible to measure the structure of the wreck along with objects that have become detached from the ship, with sufficient accuracy to begin systematic comparisons with historical documentation on how the ship was constructed. This information is crucial to understanding the interaction of the wreck with the environment and will permit systematic evaluation of various preservation alternatives.

Actual side scan sonar image of the remains of the USS Monitor recorded during 1985 operations. A large unidentified object is visible behind the wreck.

---

Editor's Note: The preceding recap draws largely on the paper "Monitor Project Research Design," presented at the 1985 Naval History Symposium, by Dr. Richard A. Gould, Department of Anthropology, Brown University. It is supplemented by observations by the Cheesbiter editors.
The John L. Worden Papers

Editor's Note: The following article is reprinted with permission from the Mariners' Museum, Newport News, Virginia.

In the pre-dawn hours of March 9, 1862, a thick fog blanketed Hampton Roads. The mansard of inactivity did not ease the crew's anxiety aboard the Monitor. The rough voyage from New York allowed little opportunity for sleep. The Monitor's late-night arrival in the harbor was greeted by a glowing red sky, illuminating the grim results of the Union fleet's misfortune against the Rebel ironclad Virginian (ex-USS Merrimack). These warships were either sunk, burning, or damaged. No one in Hampton Roads was encouraged when the pygmy ironclad arrived. Many brave survivors had witnessed the destructive power of the Virginian and few believed this tiny vessel could save the fleet. Lieutenant John L. Worden, commanding the Monitor, reported for duty and anchored his vessel for the night. Before going to sleep he penned a short letter to his wife, stating, "the Merrimac has caused sad work amongst our vessels," but wrote confidently, "She can't hurt us."

The fifty-two-year-old naval career of John L. Worden would have largely gone unnoticed in history had it not been for his brief encounter in Hampton Roads. His career already spanned twenty-eight years without distinction, but a sudden turn found him in command of an untried, experimental, ironclad warship on the verge of making naval history. Located just a few miles from the scene of this historic conflict, the Mariners' Museum is fortunate to hold a collection of papers documenting the career of this man who helped usher in the age of armored warships.

The bulk of this collection lies within the Civil War period. This was a war of many firsts and Worden was one of the early statistical firsts as the first Union prisoner of war. In those uncertain days preceding the conflict, Worden was sent South to deliver secret orders to the U.S. naval squadron at Pensacola, Florida, regarding the reinforcement of Fort Pickens. This fortification controlled the shipping channel into Pensacola Bay and ownership of it held great strategic importance to both Union and Confederate forces. Worden journeyed safely through the South to deliver his message, but was arrested by Confederate authorities on his return trip, April 13, 1861, after the two belligerent sections commenced hostilities.

A series of letters is contained in the Worden papers highlighting the negotiations for his release. They reveal the complicated procedure for the voluntary exchange of prisoners during this early state of war. Since the U.S. government did not recognize the legitimacy of the Confederacy, all negotiations were conducted privately without official sanction by either government. As a result, Worden remained incarcerated for several long months.

Following his exchange and subsequent historic encounter with the Virginia, Worden was promoted to Commander and transferred to the South Atlantic Blockading Squadron. Here he was given command of the Montauk, one of the newest monitors. Admiral Samuel F. Du Pont, commanding the squadron, wished to test the firepower and vulnerability of this new ironclad. To accomplish this, in January, 1863, Du Pont ordered the Montauk to deliver a series of attacks upon Fort McIntosh, Georgia, on the Ogeechee River. Although the Monitor proved to be a superb defensive weapon, its offensive capabilities were hampered by slow and inaccurate firing. Undaunted, Commander Worden continued to hammer the Confederate batteries for some weeks. His fortitude was finally rewarded on February 28, when he discovered and destroyed the privateer CSS Nashville, grounded near the fort, and described by Worden as a "baffling one." For this exemplary work he was promoted to captain and received a personal letter of thanks from Admiral Du Pont, which can be found in the collection. In the Spring of 1863, Captain Worden was transferred to New York to supervise ironclad construction until the war ended. His post-war career saw a continued rise in rank to commodore, May 1866 and rear admiral, November 1872. During these intervening years he also served as the Superintendent of the Naval Academy, 1869-1874. Leaving the Academy, Worden sought a more adventurous life, becoming the commander of the European Squadron, 1875-1877, which visited many ports of Europe. His papers indicate a strong popularity with the Europeans as a military hero from his command of the Monitor. As a result, he received numerous social invitations from royalty and heads of state. After returning from his European command, the aging admiral settled down as a member of the Navy Examiners Board and later President of the Retirement Board until his voluntary retirement in December 1886. At this time Congress awarded him a sea pay in appreciation for honorable distinguished service.

Worden continued to remember with pride his days aboard the Monitor. The Mariners' Museum Library also has a newspaper photograph album which he filled with images of those young officers and crew who served him so well during those turbulent days. These are often rare views of those crewmembers of the Monitor, whose history books have forgotten. Also included are photographs of such related individuals as Thomas F. Rowland, builder of the Monitor; John M. Brooke, naval constructor of the Virginia; and John Taylor Wood, officer on board the Virginia. In all, this is a rich collection of photographs and manuscripts which help to document one of America's naval heroes. It is also one of the many Library collections preserved for the benefit of both the naval buff and the historian.

Roger Thomas Crew, Jr. The Mariners' Museum

Cheesebox is published by the South Carolina Institute of Archaeology and Anthropology (SCIAA), University of South Carolina, 2312 Pendleton Street, Columbia, SC 29201. Volume V, No. 3 | February 1986. Michael Mulcahy, Eastport International; Managing Editor, Dina B. Hill, SCIAA, Production Editor; Funding provided by the National Oceanic and Atmospheric Administration.

Readers are encouraged to comment on Cheesebox. All comments will be acknowledged. Signed comments will be published with the written consent of the author. Correspondence should be addressed to Ms. Hill, South Carolina Institute of Archaeology and Anthropology.

The Pilot House

This is the first issue of Cheesebox to appear since April 1985. The hiatus occurred due to printing difficulties encountered at East Carolina University (ECU) and the completion of the NOAA cooperative agreement with ECU in July 1986. The South Carolina Institute of Archaeology and Anthropology (SCIAA) is under contract to continue publication of Cheesebox, while the USS Monitor Project continues to evolve.

During the Cheesebox reorganization Mr. Michael Mulcahy, managing editor of Sea Technology Magazine for nine years, joined the USS Monitor Project as assistant project manager for public relations, and is Cheesebox managing editor. Ms. Dina Hill, formerly of ECU, has joined SCIAA as Monitor Project coordinator and is Cheesebox production editor.

The Pilot House will continue to be a forum in which Cheesebox editors will underscore current events. The following are significant recent events:

• The photomapping expedition originally scheduled for July 1986 was postponed until summer 1987 (see story on page 4).
• In September 1986, the National Committee for the 125th Commemoration of the Battle of the Ironclads was established to plan ceremonies for a national observance of the famous battle. The commemorative events will be held March 6-9, 1987, at Hampton Roads, Va. The article on page 1 of this Cheesebox describes national events to be held. Hampton Roads area events will include special tours of local historic areas and addresses by authorities on Civil War naval history.
• On October 30, 1986, the USS Monitor Project Planning Committee recommended that a foundation be established to support the objectives of not only the USS Monitor Project but also the National Maritime Sanctuary Program and maritime conservation in general.
PUBLICATIONS


Miller, Edward M., *"The Monitor National Marine Sanctuary:"


The Titanic: Lost and found. Oceanus, vol. 28, No. 4, Winter 1985/86. Special issue. $5.00.


To Order Publications, Please Contact:

Dina B. Hill
MONITOR Project Coordinator
South Carolina Institute of Archaeology and Anthropology
University of South Carolina
1321 Pendleton Street
Columbia, South Carolina 29205

Please make checks payable to USS MONITOR PROJECT

---

Artist's concept of the transponders placed at the Monitor site in order to establish the electronic grid system during 1985 on-site operations.
Perspectives on the Civil War
1993 Civil War Lecture Series
Presented by
The Mariners’ Museum & Monitor National Marine Sanctuary
The Mariners’ Museum • 100 Museum Drive • Newport News

Sunday, July 25, 2:00–3:00 P.M.
Huntington Room

Sunday, August 22, 2:00–3:00 P.M.
Huntington Room
The Battle of Mobile Bay: A Case Study in Modern Warfare, Dr. Emory M. Thomas, Professor of History, University of Georgia

Friday, September 10, 5:30–6:30 P.M.
Huntington Room
The Monitors and Admiral Samuel DuPont’s Attack on Charleston, William Dudley, Senior Historian, Naval Historical Centre

Sunday, October 17, 2:00–3:00 P.M.
Huntington Room
The Monitor Revealed: The 1993 Field Season, John Broadwater, Manager, Monitor National Marine Sanctuary

These events made possible in part by funding from Sanctuaries and Reserves Division, National Oceanic and Atmospheric Administration

OPEN TO THE PUBLIC – FREE OF CHARGE – BUSINESS ENTRANCE
For more information call Department of Education, The Mariners’ Museum, 595-0368

Please help us keep you better informed by keeping us notified of any change in your current address.

Monitor National Marine Sanctuary
P.O. Box 147
Rescue, VA 23242

Non-Profit Organization
U.S. POSTAGE
PAID
Newport News, VA
 Permit No. 2041

Funding by the National Oceanic Atmospheric Administration

NOAA PLANS MAJOR SCIENTIFIC EXPEDITION TO THE MONITOR IN 1993

In July of this year NOAA will launch its first major expedition to the Monitor since 1987. Known as the Monitor Archaeological Research and Structural Survey (MARS), the expedition involves a variety of investigations that will be carried out by a team of scientific divers and a manned subservient. MARS will be conducted from the 160-foot research vessel Edwin Link, which is being chartered from the Harbor Branch Oceanographic Institution in Fort Pierce, Florida. All divers will employ mixed-gas technology in order to avoid the adverse effects which result from breathing compressed air at the Monitor’s depths. (Most dive training organizations urge divers not to go below 130 feet on compressed air, and the Monitor lies in 230 feet of water.) Diving operations will be supported by a NOAA open diving bell, a deck decompression chamber, and a team of NOAA diving experts. In addition, the manned subservient Johnson-Sea-Link will be on hand to record the site and site operations on high-resolution color video. Sanctuary Manager John Broadwater will direct the expedition and participate in the diving. MARS is being conducted by the Sanctuaries and Reserves Division of NOAA.

MARS is an essential first step in assessing current management options for such issues as site stabilization, archaeological and research needs, and increasing public access to the Sanctuary. NOAA has been requested by various elements within the sport diving community as well as by several members of Congress to reevaluate policies related to public access at the Sanctuary. Before that can take place, however, NOAA must first conduct a detailed on-site assessment in order to comply with federal historic preservation legislation.

There is also an urgent need to conduct a detailed assessment of the Monitor’s hull. In recent years, NOAA has observed accelerated deterioration of the hull. Evidence points to both natural and human causes. A detailed assessment of these changes is an essential prerequisite to any plan to stabilize the hull by mechanical or electrochemical means. Divers conducting research on the Monitor have discovered more than a dozen fragile glass bottles on the wreck, apparently uncovered by the strong currents that sweep through the site. Archaeologists must map and recover these and possibly other artifacts before they are damaged or lost due to additional erosion or other causes. Archaeologists will also conduct a limited test excavation within the base of the turret to determine its condition and possible contents. As a pilot project for hull stabilization, divers will pump sand from the periphery of the site to an area beneath the hull to shore up the hull and relieve stresses. If successful, the entire area beneath the hull could be filled with sand to support the hull. NOAA will also deploy a permanent single-point mooring and sub-surface buoy suitable for supporting future expeditions to the site.

Research Objectives
NOAA has divided expedition goals and objectives into two categories, primary and secondary, to indicate their...
relative importance and to indicate the criteria applied to the development of contingency plans. NOAA's research and management goals, as described in the Draft Revised Management Plan distributed in May 1992, as well as suggestions and comments from persons who reviewed the draft plan, were the basis for the expedition priorities.

Primary research goals

Deployment of a permanent mooring at the sanctuary: NOAA will deploy a clamp anchor of approximately 4,000 pounds weight at a position about 50 feet from the Monitor's port stem (i.e., northeast of the stern). The location for the mooring anchor is a function of the prevailing currents at the site and the anticipated future usage of the mooring. Prevailing currents will carry the buoy and mooring lines away from the Monitor. The anchor will be located far enough away to protect the wreck from the mooring line but close enough to allow divers to swim from the anchor to the wreck without undue difficulty. The NOAA National Data Buoy Center will help determine the final size of the anchor based upon a maximum design wind and wave loading, a 25-foot sailboat, two divers and related equipment.

Recording personnel will affix a sub-surface float to the mooring anchor using line or cable. Recording horizontal and vertical measurements of key hull components: the expedition director will determine the final hull points to be measured after an analysis of recent changes at the site. Scientists will record horizontal and vertical line distances between key points on the hull for use in periodic assessment of changes in the site. They will also record the locations of elevations on the hull using a puleseeder point on the rim of the turret as a datum. These measurements will be used for updating the site three-dimensional model and for periodic assessment of site changes.

Mapping and recording exposed and threatened artifacts: project personnel will establish a temporary baseline for the midship's line and back it to determine a reference for mapping. They will then record the position of the baseline. Project personnel will also establish a reference elevation datum at the rim of the turret and document its position. Archaeologists can then record artifact locations in plan and elevation and photograph their locations. Finally, archaeological will record the artifacts which will be placed in the care of a conservator for cleaning and treatment.

Conducting a test excavation within the turret: first, archaeologists will carry out a small test excavation within the base of the turret to determine whether the turret floor is still in place. They will also determine if artifacts and deck plating have fallen from the turret into the hole in the deck above the Johnson-Shell submersible will have a special hatch located on a bracket near the submersible's bow. The submersible pilot will maneuver the submersible to a position in the desired location near the forward portion of the turret where the main crossmember is attached to the turret wall. This is the location where a hatch in the base of the turret should be located. An archaeologist will closely supervise the excavation from within the pilot's platform of the submersible, and in the water next to the turret. The excavation should not need to penetrate more than 3-6 inches before the base (floor) of the turret is encountered. Even if the wooden floor of the turret has disintegrated, the metal framework should still be in place. Archaeologists will examine whatever remains are encountered. If wood planking is still present, it will be carefully probed with a wire or knife blade to reach a subjective determination of the extent of deterioration and structural soundness of the cross member. If, as a result, the framework is in reasonably good condition, the site should be considered a potential area for architectural recovery. As is the practice at the Monitor, the site should be surveyed visually by the submersible pilot and photographed by the submersible's camera. Upon returning to the surface, the submersible pilot will check the position of the turret within the submersible's field of vision.