



Monitor National Marine Sanctuary Activities Report



CHEESEBOX

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Monitor National Marine Sanctuary

National Trust for Historic Preservation Joins Effort to Preserve **Monitor** on Tenth Anniversary of Sanctuary

Annapolis, Md. — Twelve years after the sunken wreck of the USS **Monitor** was discovered off Cape Hatteras, North Carolina, the National Oceanic and Atmospheric Administration (NOAA) and the National Trust for Historic Preservation are teaming up to determine whether the Civil War ironclad can, or should be raised.

"We will not raise the ship unless we know we can preserve it, display it properly

and, of course, pay for it," said Dr. Nancy Foster, Director of NOAA's Sanctuary Programs Division.

Dr. Foster announced the establishment of the national project, to be called the **USS Monitor Project**, at ceremonies held at the U.S. Naval Academy on January 30, 1985, marking NOAA's tenth year of stewardship over the **Monitor** site. Dr. Foster said the National Trust will provide NOAA with the means to raise private

funds for the project as well as facilitate the wide-spread participation of universities, other agencies of government, and other private organizations interested in helping to preserve the **Monitor**. The National Trust for Historic Preservation is the only national, private nonprofit membership organization chartered by Congress to encourage public participation in the preservation of sites, buildings, and objects significant in American history and culture.

The first efforts between NOAA and the National Trust will focus on the necessary organization and planning for the project, modeled after other major historic ship preservation projects in Europe. These include the 1628 Swedish warship **Wasa**, recovered intact in 1961 and displayed in Stockholm, Sweden, and the 1545 Tudor warship **Mary Rose**, recovered in 1982 and displayed in Portsmouth, England. By benefiting from the experience of these and other projects abroad, and also the National Park Service experience with the ill-fated USS **Cairo**, a Civil War gunboat that was virtually torn apart during recovery operations in 1964 and now on display at Vicksburg, Mississippi, it is hoped that a pragmatic solution can be found for the problem of what should be done with the **Monitor**.

The planning effort will concentrate not only on the collection of archeological and historical data at the site and the engineering of any recommended recovery, but will also address the project requirements for conservation, display, interpretation, and funding. No recovery efforts will begin until there is assurance that there



LANTERN FROM MONITOR UNVEILED—Dr. Nancy Foster of the National Oceanic and Atmospheric Administration looks at a signal lantern recovered from the wreck of the **Monitor**, a Civil War ironclad ship. The lantern was displayed for the first time at ceremonies at the U.S. Naval Academy in Annapolis, Md. (AP Laserphoto)

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National Trust for Historic Preservation joins effort . . .

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are sufficient resources available to support the project in its entirety, from seafloor operations through conservation, and to the final museum displays and exhibits.

The results of recent research on the structural condition of the shipwreck and the conditions found in the submarine environment off Cape Hatteras have stimulated concern about the continued preservation of the shipwreck in its 220-foot-deep ocean tomb. This has prompted experts to recommend that the site should be thoroughly documented and that plans be made to recover as much of the historical and cultural information at the site as possible. Options include the archeological excavation and documentation of the wreck *in situ*, and possibly the stabilization, relocation or the partial or full recovery of the wreck, if found to be feasible.

The **Monitor**, because of its precarious position and continued exposure to the corrosive marine environment, has been called a structural time bomb, and efforts must be undertaken soon if it is to be saved, said Dr. Phillip K. Lundeborg, Curator Emeritus of the Smithsonian Institution's Armed Forces Division.

"Simply stated, time is running out on the **Monitor**," Dr. Lundeborg told an audience that included descendants of the ship's builders and officers.

The **Monitor** is resting upside down and is being supported by its displaced turret. Concern has been expressed that the structure will collapse causing further damage to the archeological and historical value of the site.

The announcement between the two agencies is an expression of the national concern for the future of the **Monitor** and signals the long-hoped-for cooperation between the public and private sectors to thoroughly analyze the problems involving the **Monitor**, and to develop the best solutions in our time that assure the preservation of as much of the **Monitor** and its associated records, documents, and archaeological collections as possible for future generations. Dr. Foster stated, "We will not be satisfied with anything less for our **Monitor**, than the archaeological and historical standards set by the **Wasa** and **Mary Rose** projects in Europe."

Additionally, the precedents for national cooperation and action established for the **Monitor** may lead to pragmatic solutions for other historic shipwrecks in

need of protection and preservation in the United States.

Highlights of the ceremony included the first public showing of the ship's lantern recovered from the site in 1977, and the introduction of the descendants of the builders of the **Monitor** and the ship's officers. The lantern has been completely stabilized and restored by conservation experts at the Smithsonian Institution. (Note: Details of this treatment have been previously reported in **Cheesebox**.) The lantern has been placed on public display at the Naval Academy Museum and will remain there through May 1985.

Speakers at the event included the Rev. Dr. Winthrop Brainerd of Christ Church, Baltimore; Capt. Ernest W. Peterkin of Camp Springs, Md.; Dr. Phillip K. Lundeborg, Curator Emeritus at the Smithsonian Institution; Dr. Nancy Foster, Chief, Sanctuary Programs Division, NOAA; and Mr. Peter Neill, Director of the Office of Maritime Preservation at the National Trust for Historic Preservation.



Display for 10th Anniversary Ceremony
(Photo courtesy of U.S. Department of Commerce)

The above article was extracted from the numerous press accounts that were written about the January 30 event, including the Associated Press and the *New York Times*. This issue of **Cheesebox** is devoted to the text of the remarks at the Tenth Anniversary Ceremony which helped to provide a measure of what has been accomplished over the past ten years, but also pointed out the challenges that lie in the future.

The **USS Monitor Project** gratefully acknowledges the generous support of the **Taste of the South**, a not-for-profit organization consisting of congressional delegations, which helped to sponsor the event, and also expresses sincere gratitude to the U.S. Naval Academy for its assistance and permission to hold the ceremonies in historic Mahan Hall.

Invocation

. . . by the Rev. Dr. Winthrop Brainerd
Christ Church, Baltimore



Rev. Dr. Winthrop Brainerd

To do justice to the celebration of the ten years of work on the **Monitor** National Marine Sanctuary is, first, to look back with thanksgiving for all that has been achieved. We remember with gratitude the work, the zeal, and the talents of so many people, whose dedication to the **Monitor** National Marine Sanctuary, the first of its kind, allows us to be here today. Above all, we remember before God, in whose care and keeping he is, the life and work of John Newton, the discoverer of the **Monitor**, and give thanks for all that he accomplished.

But this celebration is also a time to look forward to what we must still do. As with the builder of the **Monitor**, John Ericsson, the tools and the technology are available to us. It was Ericsson's genius, however, to take what was available to him and use it in a new and unexpected way. We, like Ericsson, are now faced with the job of making decisions in the use of all that we have, with imagination, with sensitivity, and with the same zeal and generosity of those who have borne the weight of this project in the last ten years.

In the long story of human endeavor, there are moments in time when the course of history is changed, and the 8th and 9th of March, 1862, is one of those events. This first battle of ironclad ships has shaped the destiny of humanity. This was, in many ways, best understood by the man for whom this Hall is named, Admiral Alfred Thayer Mahan. Therefore, it is our job, first of all, to provide for the ability for all men and women to understand this event: it is one which changed forever the way we live our lives.

But we have another task. Twenty

months after the Battle of Hampton Roads, on November 19, 1863, a Military Cemetery was dedicated. On that occasion, President Lincoln said, "We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that this nation might live. It is altogether fitting and proper that we should do this. But in a larger sense, we can not dedicate—we can not consecrate—we can not hallow—this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract." Our burden is to take this one step further. We must translate into Naval terms what President Lincoln said at Gettysburg.

The U.S.S. **Monitor**, her Officers and Men, have dedicated and consecrated her "far above our poor power to add or detract", and we are the guardians of that hallowed shrine. We are not just the preservers of a "thing", an invention or a

technology; we are, and must be, the servants of the **Monitor**, of all who served on her, of those who fought and those who died with her, and if we are to discharge our responsibilities properly, we must serve with the same devotion. The words of the surgeon of the **Monitor** call us to a vision of our duty to them, "Their names are for History; and so long as we remain a people, so long will the work of the **Monitor** be remembered, and her story told to our children's children. Her work is now over. She lies deep under the stormy waters of Cape Hatteras. But, 'the little cheese-box on a raft' has made herself a name which will not soon be forgotten by the American people."

The **Monitor** National Marine Sanctuary is the first of many, and the first of any new and untried project sets an example for all the rest that follow. We have been able, in the last ten years, to reach the threshold of a vision of what

every National Marine Sanctuary must become. We owe this not only to the **Monitor**, not only to the past, but to the future: to those who will succeed us, and who will look, with hope, at what we have done. That example must give them the excitement of our vision, and a renewed dedication, when they shall be faced with carrying on the work that we have now begun.

Let us then, as we begin a new decade of endeavor, consecrate ourselves as did those who began our work one hundred and twenty-three years ago. Let us show humanity that which has shaped our common destiny; let us preserve with integrity and honor this shrine to the valor of our Navy; and let us pass to our heirs in this work, the pride which will shape their duty and service to our country and her history.

May Almighty God pour His grace upon us, and prosper us in our work. Amen.

Introduction of **Monitor** Kin

... by Capt. Ernest W. Peterkin, USNR, (Ret.)



Capt. Ernest W. Peterkin, USNR, (Ret.)

There are always at least two types of people involved in the life of a ship—those who build her and those who sail her. Today we are fortunate to have with us relatives of the builders and the crew of the **Monitor**.

The **Monitor** was constructed for John Ericsson and his associates by Thomas Fitch Rowland at his Continental Iron Works in Greenpoint, Brooklyn, New York. Two of his descendents are with us today. By their preservation of the records of the **Monitor** and the Continental Iron Works and their cooperation, we have a much greater understanding of the construction of the vessel.

May I introduce the lineal great-grandson of Thomas Fitch Rowland, Mr. Thomas Fitch Rowland, Jr. of Madison, Connecticut, and the great-great grandson of Thomas Fitch Rowland, Mr. Robert Rowland Coykendall of Marion, Massachusetts.

We are grateful to the staff of the Navy Memorial Museum at the Navy Yard in Washington for the display of the builder's model of the **Monitor** borrowed from the New York Historical Society Museum. This model was given to the museum in 1862 by Thomas Fitch Rowland and has recently been removed from storage, cleaned of its decorative paint and has revealed the long-sought clues to the plating of the hull. The model provides

an important building-block that will assist in the analysis of the condition of the wreck.

Although John Ericsson was a very private person, he had a life-long friend, fellow industrialist Cornelius Henry Delamater, the owner of the Delamater Iron Works. Harry Delamater built the engines for the **Monitor** and supported Ericsson in many of his endeavors. They both died in 1889. It is my pleasure to introduce his great-grandson, Mr. Nicholas Donnell Ward of Washington, D. C.

The first commanding officer of the **Monitor**, Lieutenant John Lorimer Worden, the only man seriously wounded
(Continued on page 10)



Mr. Robert Coykendall, Mr. Thomas Rowland and Mr. Nicholas D. Ward — descendents of the builders of the **Monitor**. (Photo courtesy of the U.S. Department of Commerce)

Remarks

... by Dr. Phillip K. Lundeberg
Curator Emeritus
Smithsonian Institution

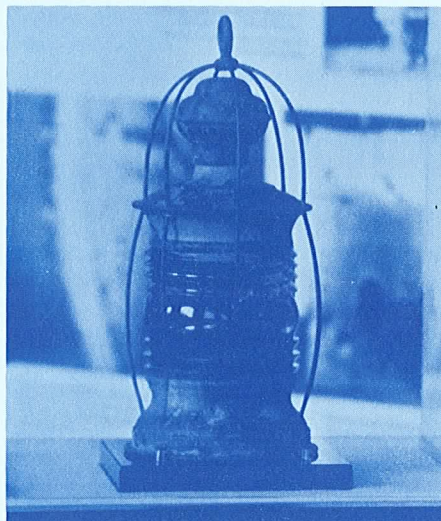


Dr. Phillip K. Lundeberg

Two decades ago the distinguished historian of the American sailing ship era, Howard I. Chapelle, was asked to advise Strawberry Banke, the corporation restoring the colonial area of Portsmouth, New Hampshire, regarding construction of an authentic, full-scale replica of an early eighteenth century merchant ship for inclusion on the waterfront of that historic restoration project. Colonel Chapelle, now recognized as a major source of technical inspiration for the maritime preservation movement, responded not only with his characteristic brochure of hull lines and sail plans but an arresting additional bit of advice. Never finish building your ship, he urged. Make the lofting, construction and sparring of that vessel an indelible, ongoing part of your visitor's experience on Portsmouth's colonial waterfront. Enable them, even as onlookers, to share in the ship carpenters' application of eighteenth century wood-working skills to the virgin timber of old New England.

What did Chapelle really have in mind? Those who have enjoyed the additional dimension of a maritime museum whose exhibits feature an operating ship-model shop or an active boat-building shed, or who have indeed entered the steam-filled preservation house for the recovered Swedish man-of-war *Wasa*, will grasp what Chapelle was driving at—enabling the public to visualize and comprehend the creative processes of ship construction or preservation, thereby deepening its insight into the full cultural dimension of our maritime heritage, of which we in the United States are now becoming increasingly aware. The prolonged, method-

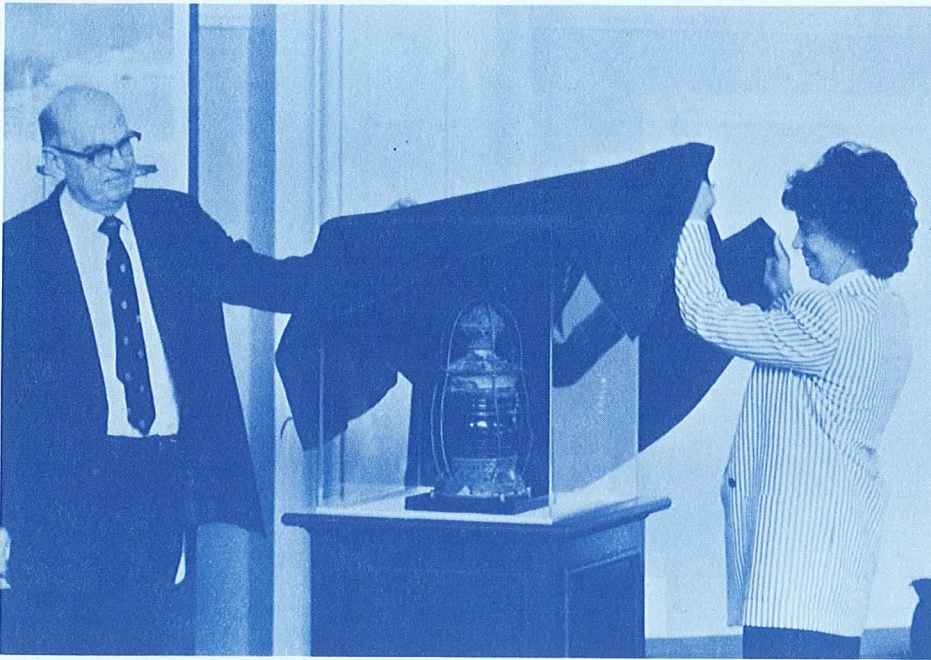
ical conservation process that has been observed daily by hundreds of visitors to the *Wasa* house in Stockholm, the *Great Britain* wharf at Bristol or the Hanseatic cog gallery of the Deutsche Seefahrts-museum at Bremerhaven must afford us considerable insight into our own future strategy as we commemorate today the tenth anniversary of the establishment of the *Monitor* Marine Sanctuary. But for the task ahead, I believe, we need even longer perspective on the *Wasa* project and indeed on the century-old evolution that has occurred in historic ship preservation both here and in Europe, in order to discharge adequately the awesome cultural responsibility that rests off Cape Hatteras. In Europe, particularly Scandinavia, the discovery, survey and excavation of historic sunken vessels, whether found under water or underground, have not been virtually simultaneous events. The stewardship exercised by the National Oceanic and Atmospheric Administration over the *Monitor* National Marine Sanctuary is in that same prudent, responsible tradition. A number of Norse burial mounds, believed from their size to hold Viking ships as well as their fearsome skippers, have long been identified and protected in Scandinavia and will, according to cognizant authorities, continue to remain safely *in situ* until the necessary organizational, technological and financial resources are available for their responsible exploration, evaluation and possible recovery. With proper organization and seasoned leadership the entire process may move ahead dramatically, as at the Viking ship museum at Roskilde, near Copenhagen, where archaeological survey, recovery, preservation and long-term exhibition have been achieved with exemplary state-of-the-art precision.



The *Monitor's* lantern recovered in 1977. (Photo courtesy of U.S. Department of the Navy)

In stark contrast to the relatively stable condition of such ancient marine sites or, indeed, the fresh-water grave in Lake Champlain from which the Continental Gondola *Philadelphia* was recovered intact a half-century ago, the fragile *Monitor* finds herself far less happily sited. Who better than NOAA and the Navy appreciates the hazards of sea and weather that claimed her off Hatteras in 1862 and menace all future operations in those waters? Simply stated, time is running out on the *Monitor*. Lying upside down on her displaced, inverted turret, the shaky, composite hull of the historic ironclad will inevitably collapse over that turret, destroying forever the integrity of her unique machinery arrangements, arrangements which Captain Ernest Peterkin has been able in part to reconstruct from surviving plans and related documents. Among those major assessments made thus far on the *Monitor*, the engineering report highlighting this structural time bomb must undoubtedly be our most imperative challenge. It well illustrates the urgency of moving forward with a comprehensive program for completing those resource studies required to provide a sound basis for the ultimate and not distant decision regarding the *Monitor's* proper disposition. One salient fact remains clear: battered by depth charges during World War II, lying in waters that might conceivably provide brief sanctuary for hostile submersibles in the future, the *Monitor* nevertheless still survives, still unclaimed by wrecker's ball and smelter, the fate sadly of virtually all her descendants. Like the heavily-timbered *Philadelphia*, that long-forgotten survivor of Valcour Island, the *Monitor* sank in waters accessible to the technology of modern marine archaeology. The opportunity thus remains for such on-site study and possible recovery operations as our scientific and engineering skill may afford, guided by intelligent, sequential planning and sustained by resources appropriate for survey, preservation and display of all or portions of this prime cultural artifact. Thus, time has not entirely run out on the uneasily submerged *Monitor*, but the haunting experience of Great Britain, which ultimately found herself without a major survivor from the Dreadnought era, must give added impetus to our task.

Yet another fact, represented in microcosm by the weathered artifact first displayed today, remains equally clear. No single association, institution or government agency disposes of the total resources that may be required by the evolving *Monitor* Project, given the prior-



Dr. Nancy Foster and Dr. Phillip K. Lundeberg unveil the *Monitor's* lantern during the ceremonies (Photo courtesy of the U.S. Department of the Navy).

ities that confront our nation at home and abroad. As with *Wasa*, the *Monitor* undertaking requires active, collaborative involvement by qualified state and federal agencies, the museum academic communities and, not least, widespread private benevolence. Provided challenging models at Stockholm and Roskilde, the *Monitor* venture permits and—by virtue of its technical complexity—absolutely requires, the application of systematic guidelines and resolute adherence to archaeological and technological standards that will, we trust, provide a worthy model for future maritime preservation efforts throughout the nation. This venture is worthy of our very best efforts, for its quality, the patient determination with which it advances, will effectually define a national cultural policy for historic shipwrecks for generations to come.

In sharing in the celebration of the tenth anniversary of the *Monitor* National Marine Sanctuary, we would therefore say to NOAA, "Well done!" but also "Press on!", taking full advantage of all that has been learned from previous ship archaeological experience abroad and on our own coasts, northern lakes and rivers—from Penobscot Bay and Lake Champlain to the Mississippi, Mobile Bay and the Gulf of Mexico. Dr. Foster, on behalf of the Smithsonian Institution, it is a great pleasure for my colleagues, notably Conservators Eleanor McMillan and Kory Berrett, to return to NOAA, now finally stabilized and restored, the venerable signal lantern from the *Monitor*, striking symbol of her last desperate hours afloat

and persuasive evidence of the complexity of her prospective preservation. As a sometime member of the Academy's History Department, I must confess particular satisfaction that the lantern is to be first publically exhibited in this institution, whose students and faculty indeed first launched the modern *Monitor* venture."

Remarks

... by Dr. Nancy Foster, Chief
Sanctuary Programs Division, NOAA



Dr. Nancy Foster

The Basis for a New Agency and Ocean Program

It was only fifteen years ago that a Presidential Commission reported that



Mr. Kory Berrett, conservator, examining his handiwork. (Photo courtesy of U.S. Department of Commerce)

the future prosperity of this country depended on the development, utilization, and preservation of our maritime environment and its resources.

Quickly acknowledged in the Stratton Commission report was the fundamental maritime character of this country. From the days of discovery and colonization to present-day super-power, America's path to growth and development has been by the sea. Her people came from across the sea, her boundaries have been protected by the sea, and her industries have flourished from the raw materials and goods that have been transported over the sea. The report clearly points out that America's future is largely dependent upon our understanding and wise use of the sea and the resources that it contains.

Our understanding of how to wisely use the sea and the vast resources that it contains is largely dependent upon scientific inquiry. We have learned the hard way that to do otherwise is foolish and irresponsible. Due to the mounting economic pressures and demands being placed on our environment by an increasingly complex and congested world, much of our modern marine science is directed towards learning how to achieve a balance between resource utilization and resource preservation. Man must learn how to achieve economic prosperity without permanently destroying the environment. No longer can we look at the sea as the ultimate dumping ground, as even the vast oceans have a limit from which they will be unable to recover.

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Remarks

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The major recommendation of the Stratton Commission was the establishment of a new agency that would effectively focus our national efforts involving the sea and would ensure the full and wise use of the marine resources in the best interests of the United States and the American people. The agency that was established as a result was the National Oceanic and Atmospheric Administration, commonly referred to as NOAA.

It was in partial fulfillment of this basic mandate that NOAA established the National Marine Sanctuary Program under provisions of Title III of the Marine Protection, Research, and Sanctuaries Act of 1972. The fundamental purpose of the program is to enhance specific resource protection through a structured program of management, research, and public education.

Initially directed at resources having distinctive conservation, recreational, ecological, cultural, and esthetic values, the scope of the program has been increased to include areas having historical, cultural, archaeological, and paleontological significance. This was done in recognition that submerged cultural resources are valuable and fragile marine resources that require careful management similar to other natural resources. Just as coral reefs and fish habitats can be irreparably damaged by the indiscriminate acts of man, so can submerged cultural resources be irresponsibly destroyed.

Applicable to sites from the shoreline to the edge of the continental shelf, including the Great Lakes, this law has far-reaching ramifications for the protection and preservation of archaeological sites and historic shipwrecks similar to the *Monitor*.

The *Monitor* was the first National Marine Sanctuary established in the United States. It was also the first, and remains to date the only, sanctuary designated exclusively for a nationally significant submerged cultural resource. The intent of the National Marine Sanctuary Program is to establish a sound management reference, not only for the *Monitor*, but for all types of submerged cultural resources located within National Marine Sanctuaries, both present and future. As the National Marine Sanctuary Program continues to develop and mature, we hope to include other archaeological sites and historic shipwrecks within the same type of management framework developed for the *Monitor*.

Historic Shipwrecks as Marine Resources

The study of a shipwreck provides an invaluable opportunity from several disciplinary viewpoints to study the physical remains of man's activities upon the sea, in many instances well preserved and relatively undisturbed by man or the marine environment.

An historic shipwreck should be viewed as a valuable marine resource of primary source data on man's maritime activities that is unavailable elsewhere. The potential of this resource is restrained only by our technology and our attitudes towards its value and use. Similar to fragile coral reefs irreparably damaged by souvenir-seeking sport divers, an historic shipwreck should not be viewed as an economic resource in the unharvested sea waiting to be exploited. The further development of the science of marine archaeology will constitute an important element in the search for a greater understanding of our past, while careful management of the resource will assure maximum benefit from utilization.

Research in the *Monitor* National Marine Sanctuary

At the 1978 National Conference on the *Monitor*, the focus of research was set on the fundamental question of what **should** be done with *Monitor*, in contrast to what we **can** or **want** to do. Thus, a significant emphasis was placed on the process of decision making in order to insure the maximum benefit for the American people, without degrading the historical and archaeological value of the site.

There was general consensus that more research and information about the environment and its impact on the material condition of the wreck were necessary before any decision could be made about the ultimate disposition of the *Monitor*. The understanding of what **is**, and not what we **hope** or would **like** it to be, is the fundamental issue underlying the decision of what **will** be done with the *Monitor*. One of the first tasks, therefore, was to accurately determine the condition of the wreck and the nature of the submarine environment.

Since the designation of the Sanctuary in 1975, NOAA has sponsored three major expeditions to the site. In 1977 a photogrammetric survey was attempted, and a piece of hull plate and the lantern were recovered. In 1979, a team of archaeologists conducted forty-nine dives in twenty-six days from a lock-out sub-

mersible, completed a test excavation in the vicinity of the Captain's cabin. As a result, over 106 artifacts were collected and conserved and have been part of *Monitor* displays at numerous museums around the country. In 1983, the *Monitor*'s anchor was located and recovered and is now undergoing conservation treatment at East Carolina University.

But the on-site activities, perhaps the most visible, represent only a small portion of NOAA's efforts on behalf of the *Monitor*. Extensive investigations have been made into the historical records of the ship, including biographical studies of the captains and crew, and a catalogue of drawings of the *Monitor*.

The research program has placed equal emphasis on the archaeological record at the site as well as the existent historical records of the ship, recognizing the tremendous value the historical records will have to future investigations of the wreck, as well as acknowledging NOAA's responsibility to protect and preserve the *Monitor* and also its associated archaeological collections, papers, and records.

The results of this research have revealed the tremendous amount of material available for study, leaving the impression that we have barely begun the serious investigation of how the *Monitor* was designed, constructed, fought, and lost at sea or the understanding of the ship's significance to us as a people.

The on-site research has been exploratory in nature and has identified a serious threat of collapse to the remaining historic structure, due to its continued exposure to a highly corrosive submarine environment, and to the unequal and highly stressed support provided by the displaced turret.

What this means is that if the remaining structure of the *Monitor* is to be preserved from further deterioration and its eventual collapse, active management options involving the archaeological documentation, and the recovery of artifacts and possibly structure, should be considered.

The systematic evaluations of these various future options requires a comprehensive plan for the Sanctuary. This plan must address not only the archaeological documentation, formal reporting, and the recovery of any artifacts, but also must evaluate the historical, conservation, engineering, interpretation, display, and funding requirements for each of the possible options before any **final** decision can be made as to what option will ultimately be selected so that the maximum value of the resource may be preserved.

Previous projects, both here and

abroad, have taught us that to proceed with any recovery plans before questions concerning conservation, display and the required funding are fully answered will surely jeopardize the success of the project.

Strategy for the Master Plan — A Multidisciplined Effort

The development of the master plan for the **Monitor** will involve five principle disciplines. These include archaeology, history, conservation, engineering, and museology. Add to these the three additional critical areas of organization, planning, and funding and one begins to appreciate the scope of what the master plan must include.

Each discipline will look at the **Monitor** from its unique disciplinary perspective and each possible option will be evaluated to determine what is technologically and fiscally feasible and also what is worthwhile and appropriate for the **Monitor**. Once this is understood, then the results will be integrated into a collective master plan. With the potential complexity, magnitude, and duration of the project, the true meaning of multidisciplinary is not yet, I am sure, fully appreciated.

Similar to a chemical reaction which once begun cannot be interrupted if it is to go to successful completion, the process that will be called the **USS Monitor Project** should not be interrupted once implementation begins. Before we risk the destruction of the site through archaeological excavation, we must be sure that there are acceptable and pragmatic answers in all areas that will effect the preservation of the resource.

Conceptually, the project has been divided into three distinct manageable phases. Each phase is distinct from the previous phase. Each represents a different level in the decision-making process and each has its own unique technical and logistical requirements.

In summary, the three phases are:

(1) *Pre-disturbance Survey and Documentation* — This phase will involve the thorough photogrammetric mapping, documentary filming of the **Monitor** as a shipwreck, and the assessment of the site and its environment.

Photogrammetric mapping permits the accurate measurement of the existent structure and its evaluation in terms of its environmental context. We must know how the **Monitor** was historically constructed so that we can accurately determine how much of the original ship is still remaining and evaluate its physical condi-

tion and have some measure of the effect of the environment so that we can understand in quantifiable terms what we are dealing with in regards to quantity, composition, and state of preservation. A fundamental premise of science is that to measure, is to know; all else is speculation.

The documentary filming of the **Monitor** before any major site disturbance will insure the preservation of the **Monitor** as it exists today, regardless of whether the ultimate disposition is decided by nature or by man. The professional filming of the **Monitor** on the seafloor is what should be done as a minimum and may be the only logical and feasible method of providing public access to the Sanctuary. If we are unable to preserve the **Monitor** materially, whether *in situ* or otherwise, it certainly is within our technology to at least preserve her as a shipwreck and provide public access via film.

The completion of Phase One will include the assessments of the site from the various disciplinary perspectives with recommendations as to the feasibility of any further *in situ* documentation of the **Monitor**. The management decision to proceed onto the next phase will depend upon the results of Phase One and the assessment of securing the necessary resources for Phase Two.

(2) *Archaeological Documentation and Excavation* — Phase Two involves the *in situ* documentation and excavation of the site and the recovery of loose artifacts. Due to the labor-intensive efforts and long bottom times required for archaeological excavations, saturation diving systems and other advanced diving technology will be required. Additionally, a suitable and operational conservation facility must be standing by to receive the resulting artifacts as they are recorded. Due to the expected costs involved, there will be intensive field operations requiring meticulous planning and preparations so that maximum benefit will be derived from the on-site time.

(3) *Recovery of Selected Structure* — Should Phase Three be implemented, it will involve the heavy salvage of any structure selected for display purposes. Due to the high risks in any salvage operation, the archaeological documentation of the site must be as complete and as thorough as possible prior to the commencement of any heavy lift similar to the **Mary Rose** operation, so as not to risk the preservation of any valuable data at the site should any mishap occur.

Recognizing the fundamental dynamic character of the **USS Monitor Project** process, an intentional feature of the project will be that each phase will be

complete, as much as possible, in and of itself. This should safeguard the management option of being allowed to discontinue subsequent phases due to some harsh reality, while hopefully not jeopardizing the success of the project as a whole. The perception of success or failure of the project rests largely with the statement of the goal for the project.

The goal of the project should be simply stated as *the definitive documentation of the USS Monitor, both archaeologically and historically*. This accurately states the purpose of the project without misleading anyone that the intent is solely to raise the **Monitor**, for **Monitor's** sake, which it certainly is not.

Given the great number of questions remaining to be answered at this time, it is unknown whether or not any further recovery efforts will be made; however, every effort will be made to document the **Monitor** to the level which we are technologically and fiscally capable of and that is advisable to do in the best interests of the resource.

Furthermore, recognizing that the ultimate archaeological documentation is the preservation of the actual artifact itself, this purpose statement does not categorically eliminate any of the options which should be considered, including complete recovery, while retaining the fundamental scientific and historical nature of the project.

The management reference for historic shipwrecks can be improved and a major public policy precedent can be established for the preservation of our maritime heritage by applying and further refining the recently developed Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and by applying the principles described in the Advisory Council on Historic Preservation Handbook for the Treatment of Archaeological Properties to the **Monitor** problem.

By compiling the definitive documentation on the **Monitor** for the Historic American Building Survey (HABS)/Historic American Engineering Record (HAER), the **Monitor** will become the first ship to be so recorded, and therefore preserved, in the Library of Congress.

Additionally, this will build upon the precedent established by the Smithsonian Institution with the recent publication of the Historic American Merchant Marine Survey (HAMMS) and will provide a good rationale for the definitive documentation of other vessels, whether shipwrecked or afloat, to assure their continued preservation through documentation.

Remarks

(Continued from page 7)

The development of criteria for the documentation and preservation of historic shipwrecks similar to the Swedish example, and those developed by the International Congress of Maritime Museums for the preservation of historic vessels afloat, will have far-reaching ramifications for the entire field of maritime preservation in the United States.

Finally, from NOAA's perspective, a purpose statement such as the definitive documentation of the USS **Monitor** will insure the achievement of the Sanctuary's primary goal of preserving the **Monitor**. Preservation through documentation is the only manner in which we can be assured of the continued preservation of any material artifact. The only question that remains is, what level of documentation will we be capable of?

By viewing what rests on the sea floor today as an archaeological resource of national significance, the level of documentation that we are ultimately capable of achieving will necessarily become the most effective way of preserving the ship. This will avoid the pitfall of setting unobtainable project goals which, in effect, will mislead the public and merely design the project for failure in the public perception from the onset should no recovery result.

Immediate Management Objectives

The major emphasis at this time is being placed on the organization of the project, planning for the development for the master plan, and planning for the completion of Phase One.

I am pleased to announced on this tenth anniversary of the designation of the **Monitor** National Marine Sanctuary, that the National Trust for Historic Preservation and NOAA have concluded an agreement to develop and implement the master plan for the **Monitor**, to be called the **USS Monitor Project**. The National Trust will combine its fund raising and historic preservation expertise with the scientific and technical expertise of NOAA to help preserve the **Monitor** and its associated artifact collections, papers, and records.

The organization of the **USS Monitor Project** will facilitate the continued participation of universities, other organizations, and individuals who have provided the crucial support and energy for the project to date, as well as encourage the expanded support and participation of other interested parties needed to carry

out the project.

In regards to the already existant artifact collection and the growing historical documentation of the **Monitor**, the Council of American Maritime Museums, consisting of all major maritime museums in the United States, has been asked by NOAA to develop criteria for the perpetual care, display, and interpretation of the **Monitor** collection of artifacts and papers. In this manner, the selection of a qualified and appropriate organization as the permanent caretaker of the collection will be based on sound professional criteria.

A project of this nature, scope, and duration must be nationally oriented to be successful. The **USS Monitor Project** is truly a national project. The **Monitor** is one of the most famous ships in our nation's history, if not the world. The mere mention of the name brings an astonishing degree of recognition and familiarity. And to preserve her will certainly require a national effort. The project needs the cooperation and assistance of federal agencies, state and local governments, universities, industry, private foundations, and the support of our citizens.

There are major public policy questions involving the protection and preservation of historic shipwrecks. There are severe technical questions that have to be addressed and there are organizational problems which have to be overcome. At the International Congress of maritime Museums in Hamburg, Germany, last fall, it was confidently stated that we will accept nothing less for our **Monitor** than the standards of preservation achieved by the **Wasa**, BREMER COG, and **Mary Rose** projects in Europe. We have much which we can learn from our colleagues across the Atlantic. Their problems have been remarkably similar to the ones we confront today. How different our solutions need to be remains to be seen.

We should not shy away from the promise made ten years ago today with the designation of the nation's first national marine sanctuary — that the **Monitor** would be a management model for the protection and preservation of historic shipwrecks in the United States.

In the final review, should we be unable to progress beyond Phase One for any reason, we will be able to truthfully say that we did the best we could. Those that follow us will certainly sit in judgement of what we accomplish. However, they will have our record that we took seriously our responsibility to save the past for the future and that we preserved for them as

much of the **Monitor** as we could in our time.

Lastly, we will be able to rest, assured that what remains of the **Monitor** on the sea floor will always lie protected in sanctuary in the "Graveyard of the Atlantic," as a solemn and silent memorial to the jack tars of the U.S. Navy who called themselves **the Monitor boys**.

Thank you all for your help.

Remarks

... by Peter Neill, Director
Office of Maritime Preservation
National Trust for Historic Preservation



Mr. Peter Neill

Last week, I was attempting to explain my work as Director of the Maritime Program for the National Trust for Historic Preservation to a young exchange student from the People's Republic of China.

What exactly did I do? Well, for example, I was soon to become involved in the documentation and possible recovery of the USS **Monitor**, whereupon he brightened. He knew exactly what I meant. "**Monitor** versus **Merrimac**. The Battle of Hampton Roads," he recited. "Your Civil War. The War Between the States."

I do not know why I was so astonished by his familiarity with the **Monitor**, as it has been my experience that people from outside our borders are frequently more interested in the Civil War than are we. In the mind of this young Chinese, the dramatic confrontation between two ironclad ships clearly epitomized the confrontation between North and South, the conflict of brother against brother, our war to free the slaves.

This anecdote quietly affirms the

Monitor's real and symbolic power as an historic artifact worth preserving. And, of course, that is the specific mission of the National Trust as the only national, non-profit, private organization chartered by Congress to encourage public participation in the preservation of sites, buildings, and objects significant in American history and culture.

While the nation has made great progress in the conservation of the natural environment, fine arts, and historic buildings, we have been particularly indifferent to our maritime patrimony. The influence of maritime culture upon the discovery, exploration, and settlement of our country

is irrefutable. In essence, we are all "boat people," newcomers to these shores through wave after wave of immigration, a succession that continues today.

Our indifference may be seen in the few ships remaining from "the great age of sail," in abandoned small craft, in deteriorated harbors. Only recently have we begun to redress this situation, a rediscovery measured by our flourishing maritime museums and waterfront revitalizations — and by the expanding activities of underwater archaeologists. Thousands of wrecks have been charted, and teams of young scientists and volunteer divers have begun to amass vast amounts of data

through their explorations of our coasts, our lakes and navigable waterways.

The **USS Monitor Project** stands at the center of this activity. It presents formidable technical challenges and will not be successful without full collaboration between public and private institutions and between archaeologists, historians, engineers, divers, and numerous other experts and interested parties. That collaboration we begin today, a beginning that may, just may, permit us to match an artifact to an idea — in the mind of my young Chinese friend and millions of Americans fascinated by the lessons of their past.

Discovery of Builder's Model of the U.S.S. Monitor Unravels Hull Plating Mystery

... by Capt. Ernest W. Peterkin, USNR, (Ret.)

During the search for drawings of the ironclad steamer U.S.S. **Monitor**, the writer learned in 1979 that the New York Historical Society possessed a 7-foot, 2½-inch, half-hull model of the vessel. Accession data indicated that the model had been given to the Society in 1862 by her constructor, Thomas Fitch Rowland, owner of the Continental Iron Works at Greenpoint, Brooklyn, New York. The model was found in the Museum's storage area covered with decorative paint: vermilion below the waterline and black above. Located on a high shelf and of considerable weight, it was not possible to examine the model closely.

Three years later, with the assistance of Edward M. Miller, the model was removed from storage where improved lighting conditions revealed the trace of scribed lines below the paint's surface. The most obvious lines were a few edges of the plates of the sloping sides around the bow and stern and the division of the side armor. Several inches of the keel were missing up forward and revealed a series of numbers written in pencil on the shellacked surface of the bare wood. These numbers agreed with the frame numbers assigned by Ericsson in design

drawings of 1861. As these features of the model, its scale (one-half-inch-to-the-foot) and markings were typical of a traditional "builder's model," used to layout framing and plating lines and to transfer the design to full-sized, three-dimensional terms, the model was brought to the attention of the late Commander Terry A. Damon, USN, (Ret.), Director of the U.S. Navy Memorial Museum at the Navy Yard in Washington, D.C. Recognizing the potential of the model for obtaining information concerning the plating of the **Monitor**, now obscured by the marine growth on the wreck or badly disturbed by her World War II depth-charging, Rear Admiral Kane, USN (Ret.), Director of Naval History, obtained permission in 1984 from the New York Historical Society Museum to borrow the model and have it cleaned.

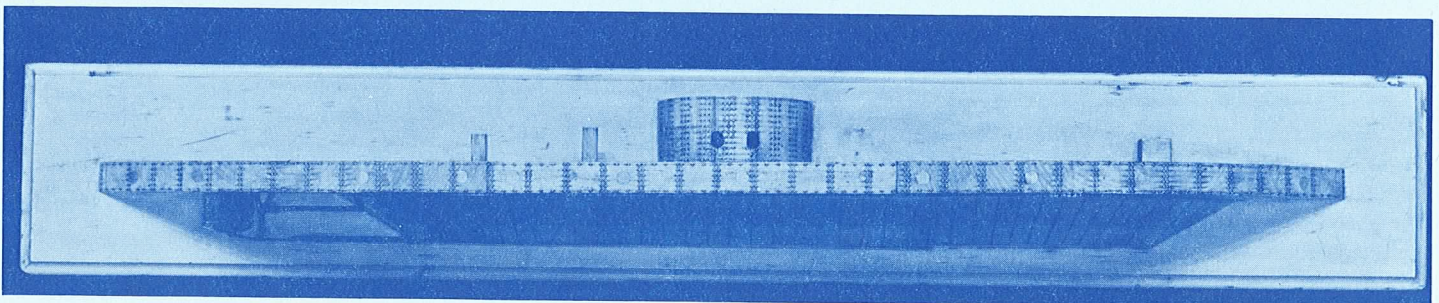
With permission granted from the Society and under the skillful efforts of Mr. John H. Hill, conservator, of Unionville, Pennsylvania, the decorative paint and varnish were removed by the patient use of paste paint remover, toluene, alcohol, spatula, scalpel and cotton swabs. "In this way none of the pencilled lines and numbers were disturbed."

Brought to the Navy Memorial Museum

under the care of the current director, Dr. Oscar Fitzgerald, the cleaned model revealed the plating design for the underbody of the vessel. The plate dimensions and shapes on the model not only agree with limited information available from contemporary drawings and plating lists available from the Griswold collection in the Smithsonian, but now make available the exact locations and detailed shapes previously the subject of conjecture.

The dimensions indicate that the model represents the "moulded surface" of the ship's lines and account for the lack of height of the armor belt of some 8 inches. The moulded surface of the deck in this case is the underside of the 10-inch deck beams. The locations of the deck beams are inscribed on the deck. Consequently, information on the division of the deck plating is missing. The plating of the side bulwark is obscured by the side armor. An attempt will be made to X-ray the model for these and other marks that may have been made on covered surfaces. The division of the plating of the armor shelf is not shown, but small notches marked along the edge of the overhang may indicate these divisions. The bottom

(Continued on page 10)



Discovery of Builder's Model Unravels Hull Plating Mystery

(Continued from page 9)

plating is not numbered, but its strakes run the length of the bottom. The plating of the bottom and the overhang are arranged with an "in-out" pattern. The longitudinal edges are lapped and the athwartships edges are butt-strapped. The plates of the sloping sides of the lower hull run with the lengths athwartships and their edges butt-strapped.

As Ericsson's original design for the **Monitor**, which was submitted late in September 1861 and plating lists cor-

responding to the builder's model were made as early as October 10, 1861, this model was probably constructed in early October 1861.

The discovery of the model, original drawings and plating lists completes many of the long-sought clues to the design of the **Monitor's** hull. This model provides an important building block that will assist in the reconstruction of the drawings of the hull and the analysis of the condition of the wreck.

Introduction of **Monitor** Kin

(Continued from page 3)

aboard her during the engagement with the **Virginia**, became a celebrated national hero and later, admiral in the United States Navy. I have the honor to present to you his descendent, Commander Marianne Drew, USNR, of Annandale, Virginia.

The last commanding officer of the **Monitor** was Commander John Pyne Bankhead and I am honored to call your attention to his descendent, Rear Admiral Skyler N. R. Pyne, USN, (Ret.).

May I express our appreciation for their attendance here today and commend them for their interest in commemorating their ancestors who made possible the demonstration of a new naval technology.

EDITOR'S NOTE: Credits for photographs of individual speakers featured in this issue who participated in the Tenth Anniversary Ceremonies are as follows. Photos of Rev. Dr. Brainerd, Capt. Peterkin, Dr. Foster, and Mr. Neill are courtesy of the U.S. Department of the Navy; the photo of Dr. Lundberg is courtesy of the U.S. Department of Commerce. All other photo credits appear in the caption below each specific photograph.

List of Publications

Publications on research conducted for the U.S.S. **Monitor** National Marine Sanctuary are available to the public upon request. Please contact the editors of **Cheesebox** or:

Ms. Gloria Thompson
Sanctuary Programs Division
Office of Ocean and Coastal Resource Mgmt.
National Ocean Service
National Oceanic and Atmospheric Admin.
3300 Whitehaven Street, NW
Washington, D.C. 20235

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Program in Maritime History
and Underwater Archaeology
Department of History
East Carolina University
Greenville, NC 27834-4353

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