The Monitor at Drewry’s Bluff (continued from page 10)

good commander to withdraw. I suppose thecession sheets are shrieking with delight at the defeat of the Lincoln gunboats. Our turn will come soon when we can act in conjunction with McClellan [sic], who is forcing his way toward the Rebel capital.

We came down the river in the evening & are now (Friday morning) [May 16] lying at anchor off City Point. I went on board the Galena at the termination of the action &...she looked like a slaughter house...of human beings...]

[Editor's note: This suggests that, despite Keeler's statement that the Drewry's Bluff engagement was not a defeat for the Federal vessels, it was in fact viewed as a defeat. Admiral Goldsborough on May 12 wrote to Geidt Wellles: “The Monitor and Stevens have both gone up the James River with orders from me to reduce all the works of the enemy as they go along, spike all their guns, blow up all their magazines, and then get up to Richmond, all with the least possible delay, and shell the city to a surrender.” The Navy did not pass the barrier until 1865.]

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

Friday, September 10, 5:30–6:30 P.M.
Huntington Room
The Monitor and Admiral Samuel Du Pont's Attack on Charleston, William Dudley, Senior Historian, Naval Historical Center

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

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

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

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Monitor National Marine Sanctuary
P.O. Box 147
Rescue, VA 23424

Funding by the National Oceanic Atmospheric Administration

Monitor National Marine Sanctuary Activities Report

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 (MARRS), the expedition involves a variety of investigations that will be carried out by a team of scientific divers and a manned submersible. MARRS 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 depth. (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 submersible 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. MARRS is being conducted by the Sanctoraries and Reserves Division of NOAA.

MARRS 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 policiest 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 system for future expeditions to the site.

Research Objectives

NOAA has divided expedition goals and objectives into two categories, primary and secondary, to indicate their

The Johnson-Sea-Link submersible will support the 1993 expedition to the Monitor National Marine Sanctuary.
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 that was contributed in May 1992, as well as suggestions and comments from persons who reviewed the draft plan, were the basis for the expeditions 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 stern (i.e., northeast of the stern). The location for the mooring anchor is in section 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 against chafing by the mooring line but close enough to allow divers to swim from the anchor to the wreck without undue difficulties. The NOAA National Data Buoy Center will help determine the final size of the anchor based upon a maximum drag weight of an influence boat, two divers and related equipment. Project personnel will affix a sub-bottom acoustic unit 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/or straight-line distances between key points on the hull for use in periodic assessment of changes in the site. They will also record horizontal elevations on the hull using a pseudoelevation point on the rim of the hull as a datum. The pseudoelevation point 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 forward of the middens which will serve as 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 hull and document its position. Archaeologists can then record artifact locations in plan and elevation and photograph their locations. Finally, archaeologists will recover 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 into the turret from the hole in the deck above the Johnson-Sea-Link submersible will have a special thresher located on a bracket near the submersible’s bow. The submersible pilot will maneuver the submersible to a position over the turret 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 sphere 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 wood-en floor of the turret has disintegrated, the metal framework should still be in place. Archaeologists will examine whatever remains are encountered. If the vessel is decked or shielding still present, it will be carefully probed with a wire or knife blade to reach a subjective determination of the extent of deterioration and damage caused by teredo worms. If practical, archaeologists will recover a wood sample from the turret floor.

Secondary objectives

Stabilizing a portion of the hull with sandbags and dredged sand: first project personnel will assess the feasibility of pumping sand from the site perimeter to the area beneath the hull where the hull is suspended off the bottom as well as the effectiveness of pumped sand in supporting and stabilizing the hull. If project personnel determine that this activity is feasible, they will use a hydraulic dredge with extended hose to pump sand beneath the wreck. They will carry a long suction hose approximately 50 feet to the north of the hull, out of the pipe debris field, from which they will pump sand to an area under the hull to be selected by an archaeologist after an initial inspection.

The archaeologist will select the area based upon how well the sand is likely to be contained by the hull in the face of constant currents. Divers will anchor the disc harrow in the desired location beneath the hull where sand is to be deposited. They will lower sandbags to the bottom for placement beneath the hull as needed to hold down the area being filled with sand. Divers will also place several small pvc rods, marked at one-foot increments in the area before sand pumping begins, so that progress can easily be gauged. The rods will permit periodic measurements to be made in the future to determine if the sand remains in place or was scoured away or transported to another location.

Recording select portions of the hull in high-resolution video: project personnel will first videotape the underside of the hull forward and all of the turret and in the vicinity of the pilothouse. They will then videotape the stern, with special attention to the sloop, sholt, propeller and deck field where recent changes have been noted.

Deploying a current meter and thermograph and recovering the thermograph: first, archaeologists will recover the thermograph already in place and deploy a current meter and thermograph. These instruments will record long-term site environmental conditions, specifically water temperature and current velocity and direction. Recovered select artifacts from within the hull: project archaeologists will select artifacts for recovery based on an analysis of recent video records. Artifacts considered for recovery include the broken Portions of a serpentine-spoked wheel that activated a hand-wheel for reverse engine and glass bottles that have been uncovered by currents.

Previous expeditions have located a number of tools within the site for the forward of the middens bulkhead. In order to map the locations of these artifacts, project personnel will establish a temporal baseline by using a vinyl-coated (continued on page 13)

Discover 3,000 Years of Maritime History at The Mariners’ Museum

One of the largest international maritime museums in the world, The Mariners’ Museum in Newport News, Virginia, is dedicated to “preserving the culture of the sea and its tributaries, its conquerors by man, and its influence on civilization.” The museum, founded in 1930, has developed a collection of more than 33,000 maritime artifacts including ship models, scrimshaw, marine paintings, decorative arts, intricately carved figureheads, working steam engines, and other items. The interpretation of its collections, which reflects man’s use of the sea for transportation, food, battle, and pleasure, offers visitors insight into 3,000 years of maritime history.

The Galleries

Among the museum’s newest galleries is the Age of Exploration, the largest of The Mariners’ “core curriculum galleries” designed to cover important concepts of maritime heritage and experience. Through a fascinating collection of maps, ship models, charts, and books, the gallery chronicles the scientific and technological changes in shipbuilding, ocean navigation, and cartography that made the explorations of the fifteenth through eighteenth centuries possible. A unique collection of ship models includes many rare reproductions of early charts, books, maps, and navigation instruments for visitors to examine. Complementing the exhibit are items short videos that help bring the Age of Exploration to life.

Other galleries include the Enemy More Close: Admiral Horatio Nelson gallery, which highlights the brilliant career of the British admiral; the Chesapeake Bay Gallery, which pays tribute to this great body of water through maritime artifacts and photographs, and work and pleasure boats used by the Bay’s oyster men, coast pilots, and interactive exhibits; and the “William Francis Gibbs: Naval Architect gallery, which highlights the career of the man who designed the SS United States, World War II Liberty ships, and more than 6,000 naval and commercial vessels. The Mariners’ Small Craft Collection reflects the international scope of the museum, encompassing more than forty vessels from five continents, including a gondola from Italy, canoes from Africa, and sampans from China and Russia.

Among the museum’s most popular exhibits is the Crabtree Collection of Miniature Ships—sixteen exquisitely detailed model replicas of ships that depict the evolution of the sailing ship. The collection reflects twenty-eight years of intensive effort by artist August F. Crabbe, whose models, most of them built to the scale of 1/4 inch to the foot, are truly miniature ships. Each vessel is a conscripted masterpiece, with each tiny-size counterpart was built and many are decorated with incredibly detailed carvings.

The Mariners’ Great Hall of Steam relates the story of ongoing commercial steamships and includes the Clash of Armor exhibit which tells the story of the CSS Virginia and the USS Monitor and the CSS Virginia. The exhibit features artifacts from The Monitor National Marine Sanctuary, including the ship’s iron anchor and navigation lantern. A video recorded in the sanctuary takes visitors on an underwater tour of the Monitor wreck site as it appears today. A platform in the shape of a ship’s bow provides a stage for costumed actors who are on hand periodically to talk with visitors about the work of the Monitor’s crew and life aboard an ironclad.
The Mariner's Museum Library

From Mark Twain's pilot's license to toe-edge seascape illustrations, the Mariners' Museum Library and Archives hold a vast spectrum of material related to humankind's interaction with the world's waterways. The library houses more than 70,000 volumes and 130,000 photographs. Along with monographs and photos, the collection includes ledgers, registers, diaries, postcards, bound clippings, maps, ships' logs, published journals, television programs, charts, maps, blueprints, newspapers, and memorabilia.

Archer M. Huntington, the institution's co-founder and early driving force, endowed the museum's library to the museum's curators and in educating the general public. In 1918, the collection encompassed hundreds of volumes and thousands of materials ranging from nautical subjects, things, and interests, and otherwise to advance learning. Unlike many museum libraries, it was not an addendum but an important component of the establishment from its inception.

Ports and starboard running lights signal the library's entrance which resembles the bow of a ship at the south end of the museum complex. This section, with its distinct gray, slumped-look brick exterior, is the oldest quarter of the museum. In 1980-81, the library received extensive renovations and in 1989 received a new roof. With alterations in the 1980s the library now boasts about 8,000 square feet. In keeping with the maritime theme, the interior is decorated with posters and prints of the naval vessels, small craft, pleasure boats, and the like.

To keep the visiting researchers and the museum's educators and curators up to date on current developments in the field, various magazines and periodicals are easily available in the reading room. There is also a section on new acquisitions. The library acquires over 1,000 additional volumes each year, many of them donations.

The staff of seven works more than 2,000 paid and unpaid hours a year and answers just about as many mailed inquiries. Last year the letters arrived from every state in the Union and over twenty countries. The archivist and librarian divided the responsibilities for the facility. Each has an assistant, and they share the talents of another full-time and two-part-time assistants. For technical services support, the staff relies heavily on interns from Old Dominion University, the University of North Carolina at Chapel Hill, and the Catholic University of America as well as nine loyal, weekly volunteers.

These volunteers bring many years of experience, personal collections, researchers, and employees of Newport News Shipbuilding to the library's collection of books and back issues of such magazines as Rudder, Motorboating and Sailing, Yachting, and Motorboat, as well as the extensive years of British and American yacht registers.

While the founder of Chris-Craft hailed from Michigan, closer to home and to the Great Lakes, his collection was not important. With the numerous naval bases in the Tidewater area and yards in Portsmouth and Newport News, the activities involving the U.S. Navy get the lion's share of attention. No naval event draws more patrons to the waterfront than the late summer or fall latch-up of Hampton Roads. Fascination continues with the March 1862 battle when the ironclad CSS Virginia (ex-Merrimack) clashed with its federal counterpart, the USS Monitor.

The library and archives contain a number of important Monitor and Virginia research items specifically and related material of a general nature. There is John L. Worden's personal image album, which included tintypes and carte-de-vistes of fellow officers. Worden commanded the Monitor during her famous engagement. To accompany this, the library holds the unique multi-volume compilation of William Hester's articles on the two ironclads. The James Bullock Papers contain specification documents on the CSS Alabama, and there is also a log of the CSS Florida.

To flesh out these treasures are hundreds of photographs and monographs. The prints portray Confederate and Union warships, blockade runners, and civilian steam boats that naval officials pressed into service as transports, floating hospitall, and gunboats. Biographies, official papers, dissertations, naval regi-ments, memoirs, maritime studies, and published logs and letters round out the text on the Civil War.

Until recently, this vast collection has been referred to as "hidden" from patrons, but efforts are being made.

(continued on page 9)
The Monitor Collection: A Study in History

The Monitor Collection was born the moment John Ericsson conceived the Monitor. One of the most interesting documents in the collection is a copy of Ericsson's conceptual drawing of a turret vessel. Construction of the Monitor resulted in plans and sketches as well as contracts, requisitions, and correspondences. The Battle of Hampton Roads was the subject of paintings, sketches, articles, diaries, and even more correspondences, not to mention official and unofficial reports, news articles, poetry, music, and books. Records related to the Monitor continued to accumulate during her long stay in Hampton Roads: supply and parts requisitions, correspondences, and documents related to repairs and modifications; payroll records; crew lists; and orders to and from her commanding officers. And after she was lost off Cape Hatteras, there were more official reports, final pay rosters for her crew, articles and letters detailing the sinking. For the next hundred years, the Monitor continued to be a point of interest for historians.

Information on the Monitor really ballooned after the wreck was located by scientists aboard the R/V Eastwind in August 1973. While few photographs exist of the ship aloft, photographic images of the wreck were recorded. Beginning with that expedition of discovery. In addition to the volumes of paper records there were now videotapes, slides, photographs and negatives; sonar and magnetometer records; and, beginning in 1977, artifacts recovered from the Monitor.

Until 1987, groups of records were deposited with NOAA and with the agencies that assisted NOAA in various aspects of research and management. The North Carolina Division of Archives and History (NCDAH), for example, had taken an active role in seeking protection for the wreck after its discovery and continued to assist NOAA with research through 1982 and management through 1986. NCDAH generated a tremendous amount of research material and accepted responsibility for some of the video and photographic records generated by expeditions in which the agency had played a role. This material was stored at the agency's headquarters building in Raleigh or at the Underwater Archaeology Unit at Fort Fisher. When East Carolina University took a leading role in developing research plans for the site in 1983, they began to generate and accumulate research data on the Monitor. In the meantime, NOAA had undergone several reorganizations, resulting in Monitor material being stored in several areas in their headquarters building in Washington, D.C.

Through a cooperative agreement with the U.S. Navy, Monitor artifacts were stored in facilities associated with the Washington Navy Yard.

It soon became apparent that the research data, particularly the videotapes of the wreck, were possibly the most valuable information about the site. There was concern about the storage conditions of the material and about its long-term survival and accessibility. So the decision was made to seek proposals for a Principal Museum that would provide proper curation for the artifacts and the research data. The Mariners' Museum was selected as principal museum for the Monitor National Marine Sanctuary in 1987, and the Monitor Collection was formalized.

In addition to bringing together all of the Monitor material stored at NOAA, original material was solicited from the agencies and individuals involved in Monitor research over the years. NCDAH and ECU donated all of their records and research data, including video, photographs and negatives, and historical material. Several individuals involved with Monitor research also donated research material.

Under a cooperative agreement with NOAA, the Mariners' Museum now has curatorial responsibility for the collection, including artifacts recovered from the site. The research material is housed in the museum's library. In addition to research data generated by investigations of the wreck, the collection contains historical material on the Monitor, her officers and crew, drawings and plans, and copies of correspondence from Ericsson, government officials, and the men who served aboard her. There is also information on the CSS Virginia and her crew as well as on other monitors.

Cataloging is an ongoing process. Since this is a "living" collection that is added to at every opportunity, cataloging will never be complete, but hopefully the current backlog of material will be available to researchers in the not-too-distant future.

The Monitor Collection was opened to the public for research in October 1992. Research in the collection is by appointment with the sanctuary education coordinator. Limited research may be conducted through the mail or by telephone. It may be of interest to individuals researching family members who served on either the Monitor or Virginia that the portion of the Monitor Collection catalog relating to crew members of both vessels is available on several computer genealogy bulletin boards.

NOAA is actively seeking donations of Monitor-related material for inclusion in the collection. We are interested in family papers including diaries and journals, letters, or military papers. Catalog entries for donated material will include the name of the donor.

The sanctuary education coordinator may be reached as follows:

Dina R. Hill, Education Coordinator
P.O. Box 147
Reeves, VA 23434
(804) 599-3122

Mentorship Provides Educational Opportunity

The Mariners' Museum is a non-profit education and cultural institution founded and maintained to advance man's knowledge and understanding of his maritime heritage, the culture of the sea and its tributaries, its conquest by man, and its influence on civilization. This mission is achieved through a wide variety of ongoing educational programming, exhibits and hands-on activities developed by the education department. One of the most exciting programs deals with internships/mentorships. One of the mentorships for the 1992-93 academic year took on a new twist, as it involved not only the Education Department, but also the Monitor National Marine Sanctuary. Octavia Cubbins, Director of Education for the museum, and Dina Hill, Education Coordinator for the sanctuary, met with Sue Greener, Mentor Coordinator for New Horizons Governor's School for Science and Technology, and worked out a pro-
4. Observation of a professional normal.
5. An increase in personal growth and maturity.

Arun Rao, age 17 and a junior at Potomac High School, began his membership in September 1992. Arun’s project/study was to assess the chemical and biological changes in the wreck of the USS Monitor and study the feasibility of establishing a cathodic protection system for the wreck. By examining previously collected data, interviewing consultants, and conducting experiments, Arun arrived at an abstract, introduction, experimental design, methodology, expected results, conclusions/relev-

ancy, and bibliography. By December 1992, Arun made an oral presentation to faculty and students at New Horizons.

When much of his research had been completed, Arun served as an interpreter to visitors viewing underwater footage of the wreck in the museum’s Classroom of Armor exhibit.

Arun’s favorite subjects are history and English. He is a member of the varsity tennis team and works a blockguard in the summer. He would like to attend either Princeton or the University of Virginia where he plans to pursue studies in international relations and law.

Discover 3,000 Years of Maritime History at the Mariners’ Museum

(continued from page 5)
to bring the material to light. The archivist and librarian have developed brochures on the holdings and have written short articles about various features in hopes to promote its use. Most critical, however, is the slow process of automation.

This effort started with the participation of regional libraries in a project to place current periodical holding records in an electronic format so other libraries can locate a title by online means. The library receives about 175 newsletters, flyers, magazines, and journals on such topics as history, maritime lore, shipping, commercial fishing, international trade, the arts, recreational boating, sailing, navigation, museum affairs, geography, and naval history. They originate from England, France, Canada, New Zealand, Australia, and across the

United States. So one can readily understand the contributions these periodicals have made to enrich this form of database.

Continuing with these efforts the Library has sent documentation of its rare book holdings to the Library of Congress Cataloging Center (CCLC) as part of a joint grant with the Virginia History Library Network (VHL). Long-term plans include the conversion of all records of the holdings converted by OCLC and the addition of pertinent catalog information to the staff. The HLN is now in the process of writing a grant to make selected manuscript records available through OCLC at the Mariners’ the logbooks, personal journals, and account ledgers will be part of this tentative project.

For those wishing to use the materials in the library and archives, the facility is open 9:30 AM to 5:00 PM, Monday through Saturday with the exception of holidays. None of the collection circulates, and the stacks are closed to the public, but a photocopying machine is available. Staff photographers can reproduce most images. Mail inquiries are welcome; however, the staff is not able to accommodate written requests for extensive research.

With the additional Chris-Craft material, undertaking the first steps of automation, and the addition of 1,000 volumes a year, the library and archives are growing at a steady pace. Their growth is not only measured in an increase in titles or linear feet of documents, but by the new services automation will provide patrons and staff. In spirit, the library and archives staff accession books on topics ranging from the art of tattooing to steamer trunk labels, to maintain the unique collection characterized by Huntington as “devoted to the culture of the sea.”

The Staff of the Monitor National Marine Sanctuary

John D. Broadwater, Manager

Mr. John D. Broadwater has been the sanctuary manager since April 1992. He received his B.S. degree in Electrical Engineering from the University of Kentucky in 1966, a M.S. degree in Electrical Engineering from the College of William and Mary, and is a doctoral candidate at the Scottish Institute of Maritime Studies, University of St. Andrews, Fife, Scotland.

Mr. Broadwater served as Associate and co-founder of Marine Archaeological Research Services Corporation in 1989, he directed projects in the Mediterranean and seven successful projects in the waters of the world, including Virginia and New Jersey. Mr. Broadwater also participated in the 1979 and 1983 expeditions to the Monitor.

In 1991, he was appointed as the first Archaeologist with the Virginia Department of Historic Resources, where he directed a study of shipwrecks from the Battle of Yorktown 1781, and developed a long-range management program for location, study, and protection of underwater archaeological sites throughout Virginia.

In 1993 he served as First Mate on the trans-Atlantic voyage of the replica square-rigged sailing ship Cupid.

Mr. Broadwater has lectured throughout the U.S. and Europe, and has written and illustrated numerous popular and technical articles, including the article “The ‘City of Hatteras’” in June 1986 issue of National Geographic. He is a certified Marine Surveyor by the American Society of Professional Archaeologists and an Instructor Emeritus with the Professional Association of Diving Instructors.

Dina B. Hill, Education Coordinator

Dr. Dina B. Hill’s more than twenty years experience in the field of cultural resources management. From 1972 to mid-1983 she was employed by the Underwater Archaeology Program of the North Carolina Division of Archives and History. During her tenure there she assisted in development and implementation of the state’s subaqueous cultural resources. Mr. Hill was instrumental in the development

and conduct of annual field schools in underwater archaeology in conjunction with local universities, and development and production of technical reports on sites. Responsibilities also included participation in various research and education projects related to the Monitor National Marine Sanctuary, and carried out under a North Carolina-NOAA cooperative agreement.

Ms. Hill also served as education coordinator of the Program in Maritime History and Nautical Archaeology at East Carolina University (ECU) in Greenville, North Carolina. Primary responsibility was to develop and conduct of research and education programs for the Program’s National Marine Sanctuary under an EUC-NOAA cooperative agreement. Responsibilities for the Program in Maritime History included assisting in development and conduct of field projects, production of technical reports, and development of grant proposals.

Responsibilities as education coordinator for the Monitor National Marine Sanctuary include development and implementation of an education plan for the sanctuary as well as development and production of education programs and products identified and defined by the plan. The plan emphasizes public outreach and educational programming available to the general public.

Ms. Hill attended Old Dominion University and the University of North Carolina Wilmington with majors in history and archaeology.

Editor’s Corner

This is the first issue of Cheesecox since 1987. The current education plan for the Monitor National Marine Sanctuary calls for at least one issue of Cheesecake annually. Additional issues may be published if funds are available.

A number of changes in staff have occurred since the last issue. The first education coordinator for the sanctuary was hired in August 1992. At this time, the education coordinator for the Monitor National Marine Sanctuary was hired, the program was named the Monitor National Marine Sanctuary, and the new manager began work. The Monitor National Marine Sanctuary, under the leadership of Mr. John D. Broadwater, is now in its second year of operation.

A new education coordinator, Ms. Dina B. Hill, who has been involved in Monitor-related activities for almost twenty years. In 1992, Mr. John D. Broadwater was hired as sanctuary manager, replacing Lt. Rene Byon, who had served as manager since early 1989. Mr. Broadwater has also been involved in Monitor-related activities for nearly twenty years. (See biographical sketches of the sanctuary staff on page 4.)

Current management objectives include finalizing a draft management plan that was circularized for comment in mid-1992; continued planning for the MARSS expedition; developing medium-term research plans for the sanctuary.

Education objectives include continued development of programs on the Monitor such as the 1993 lecture series, identifying programs and products that will give children greater opportunities to learn about the Monitor sanctuary and the National Sanctuary Program, and development of programs that can be sent to classroom, public service organizations, and other interested groups. Many of these programs are being developed in conjunction with the Mariners’ Museum, the principal museum for the Monitor National Marine Sanctuary.

If you have any comments on Cheesecake or would like additional information on the Monitor National Marine Sanctuary, please contact:

Dina B. Hill, Education Coordinator

The Staff of the Monitor National Marine Sanctuary

PO. Box 147

Rescue, VA 23242

We look forward to hearing from you.

We are pleased to present a new article from the staff of the Monitor National Marine Sanctuary. This article provides an overview of the sanctuary’s mission and its role in the study of maritime history. The article also highlights recent developments and forthcoming projects. We hope you enjoy this informative piece and look forward to hearing your feedback.

In addition to major research at the museum using the Monitor Collection, during first semester Arun submitted a written scientific proposal which was accepted for abstract, introduction, experimental design, method, expected results, conclusions/relevance, and bibliography. During second semester, Arun made an oral presentation to faculty and students at New Horizons.

When much of his research had been completed, Arun served as an interpreter to visitors viewing underwater footage of the wreck in the museum’s Classroom of Armor exhibit.

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Discover 3,000 Years of Maritime History at the Mariners’ Museum

(continued from page 5)
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The Monitor at Drewry’s Bluff  
May 15, 1862

But three shot struck us making deep indentations but doing no real harm. No one on board was hurt but all suffered terribly in the way of the wind. It was one of those warm, muggy days with a very rare atmosphere which, shut up closely as we were, made ventilation unattainable. At times we were filled with powdersmoke below threatening suffocation to us all. Some of the hardest looking men dropped during the firing.

Being unable to change our position, the batteries soon got the range & their shot began to tell fearfully on the Galena against whom the shells seemed to concentrate their fire. Her iron sides were pierced through & through by the heavy shot, apparently offering no more resistance than an egg shell, verifying the Commodore’s opinion that she was beneath naval criticism.

We soon began to see that she was being roughly used as she went crashing through her sides, still she held out & the thunder of her guns poured out from the suppression of a battle that enveloped her sending their iron messengers with remarkable accuracy. We could see large clouds of dirt & sand fly as shell after shell from our vessels exploded in the rebel works, & no sooner was a silent worked apparently in one portion of the batteries that were opened from some other part, or from some now heretofore unseen battery.

Their guns were manned by sailors, probably from the Merrimac & the Jamestown & Yorktown (Patrick Henry), which last two had been sunk with the other obstructions. It became evident after a time that it was useless for us to contend against the terrific strength & accuracy of their fire.

Suddenly volumes of smoke were seen coming from the Galena’s ports & hatches & the cry went through us that she was on fire, or a shot had penetrated her boiler—her men poured out of her open ports on the side opposite the batteries, clinging to the anchor, to loose ropes, and dropping into the boats. We at once raised our anchor to go to her assistance but found she did not need it.

Her Cap’t, Haled & us said that he should have leave us as he had expended all his ammunition, having fired 360 rounds. The smoke pro- ceeded from a shell exploding & set- ting fire to a cartridge which one of the powder bags was carrying to a gun, burning him badly.

We all stared down the stream, following on the banks by sharp shoot- ers cracking away at every man who exposed himself.

The Galena had fourteen men killed & twenty wounded, some of whom will die. The wooden vessels fought well but were not as badly injured as the Galena, on whom & on ourselves the enemies (sic) fire was concentrated. All our vessels withstood could bring but ten guns to bear, they were heavy & well served & the fire from them was almost incessant.

The galley was a name heap of the shells, the scrape of solid shot, the shell whistle of the rifle balls as in my Merrimac experience. The captain occupied a situation where he could communicate directly with the pilot made me an idler in the fight & let me of liberty to observe more closely the various elements of the battle.

The shot would strike us with a heavy buzz & the Monitor would shiv- er as if she were a sensitive being, shrinking back & falling to the bottom. We did not regard the matter in the light of a defeat as we accomplished our pur- pose, which was to make a reconnaiss- ance, an observation of the position & extent of the obstructions, the position & strength of the batteries. We found it next to nothing that it was an impossibility to force them with the means at our command & the river is so narrow it is equally impossible to bring a much larger force to bear.

We could have remained there & let them hammer away but it would have done us no good & it was a matter of prudence on the part of a (continued on page 12).