

Features:

- Academic Awards
- At the Lab
- Bermuda 1991
- CSS *Neuse* Project
- Eller Dedication
- Maple Leaf* Project
- Michael Palmer Interview
- Michigan Field School
- Mobile Bay Project
- Plymouth Field School
- Monti Cristi "Pipe Wreck"
- Video-Mosaic Imaging
- Death's Door Project

*ECU graduate students uncovering secrets hidden in the Millecoquins wreck site on Michigan's Upper Peninsula.
(Photo: John R. Halsey)*

Stem to Stern

Newsletter of
East Carolina University's
Program in Maritime History
and Underwater Research

Faculty

William N. Still, Jr., Ph.D., Director
Gordon P. Watts, Jr., M.A., Director of
Underwater Research
Michael A. Palmer, Ph.D.
Richard A. Stephenson, Ph.D.
Carl E. Swanson, Ph.D., Faculty Advisor
John A. Tilley, Ph.D.
Bradley A. Rodgers, M.A., Staff
Archaeologist

Adjunct Faculty

Linley Vann, Ph.D.
John Broadwater, M.A.
David J. Cooper, M.A.

Conservation Technician

David B. Whipple

Office Manager

Mary M. Miller

Editor: William H. Thiesen

Assistant Editors: Shannon
Richardson, Daniel Warren

Staff: Adriane Askins, Jemison R.
Beshears, Frank J. Cantelas, John W.
Kennington, Lillian King, Richard
Mannesto, Edward Prados, Lisa E. Rupp,
Matthew Russell, John C. Schaefer,
Raymond E. Tubby

Published annually by the Department
of History, Program in Maritime History
and Underwater Research, East Carolina
University. Alumni are encouraged to
send current information regarding
achievements or occupational news to
the Editor. Any suggestions or comments
should also be directed to the Editor. We
look forward to hearing from you.

If you would like to receive a free
subscription of *Stem to Stern* please call
919-757-6097 or write:

Stem to Stern

Program in Maritime History
and Underwater Research
Department of History
Admiral Ernest M. Eller House
East Carolina University
Greenville, NC 27858-4353

FROM THE EDITOR

One year after moving into its new home at the Maritime Annex, the Program in Maritime History and Underwater Research has taken new strides to assure its prominence in the field. The dedication of the annex in the name of Admiral Ernest M. Eller commemorates an honorable man with a distinguished career of service to his country. Admiral Eller's generous donation of his personal library to ECU promoted Joyner Library to the forefront of repositories holding naval history collections. The Admiral Ernest M. Eller Fellowship in Naval History symbolizes the effort currently underway to support research in naval history at ECU.

The Program continues to expand both in scope and size. Dr. Michael A. Palmer joins the Program from the Naval Historical Center in Washington, D.C. He will provide another valuable addition to the Program in its efforts to foster the study of naval history at ECU. By August, a new staff archaeologist should grace the Program's offices, providing necessary support for the burgeoning archaeology branch.

Dr. William N. Still, Jr., has been busier than ever providing direction to the Program. By networking with the increasing number of maritime history institutions, he has consolidated the program's leadership role in the field. With the help of Director of Underwater Research Gordon P. Watts, Jr., the program has signed agreements with the Bermuda Maritime Museum, the University of Exeter in England, and the Saint Johns Archaeological Expeditions, Incorporated (SJA EI) of Jacksonville, Florida. The agreement with the Bermuda Maritime Museum will insure valuable field experience for future students and much needed archaeological research for Bermuda. The agreement with Exeter will permit students to receive ECU credit for studying maritime history in the United Kingdom. The SJA EI project, involving the Civil War steamer *Maple Leaf*, will provide further field work in what may be the richest cache of Civil War artifacts ever discovered. Future agreements with overseas and domestic maritime history institutions and underwater archaeology projects are currently in the works.

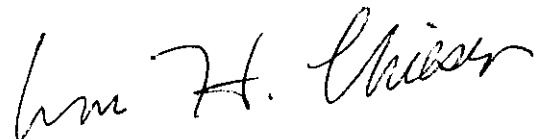
Dr. Carl E. Swanson has accepted the position of Faculty Advisor for *Stem to Stern*, the program's annual newsletter, in addition to his normal editorial and teaching activities. Professor Watts and Program Archaeologist and Conservator Bradley A. Rodgers have been hard at work leading field work in Alabama, Bermuda, Florida, Michigan, and North Carolina, in addition to their usual teaching responsibilities. Graduate field work has been national and international this year with students spreading ECU's fame through Alabama, Bermuda, the Dominican Republic, Florida, Michigan, North Carolina, and Wisconsin.

Bradley A. Rodgers, continues to win contracts for the Program's Conservation Laboratory, while continuing his work on artifacts from the Yorktown Shipwreck Archaeological Site. Large-scale projects such as these have fostered expansion, developing the lab into one of the nation's most comprehensive marine artifact conservation facilities, requiring the attention of a Conservation Technician. Accordingly, the Program has added David Whipple to the staff so that the conservation facilities will be managed properly.

In other news, by the beginning of 1992, state of the art Macintosh and IBM computers, including a plotter, will be installed in the Eller House. These machines should support the increasing volume of research performed by graduate students and staff.

The annual Brewster Lecture in history was given this year by Dr. Akira Iriye, Charles Warren Professor of American History at Harvard University. Dr. Iriye presented the lecture "The Significance of the Pearl Harbor Attack: A Fifty-Year Perspective."

Be prepared for further strides next year as the Program continues to set national and international standards, providing leadership in maritime history and underwater archaeology.



BRIEFS

Stem to Stern would like to congratulate Dr. William N. "Grandpa" Still, Jr., on the new addition to his family, granddaughter Ashlyn Rose Still, born in August. Congratulations to Roderick Mather and Amanda Brewer, who were married on December 28th and Kurt Knoerl and his wife, Nancy, for the arrival of Ian Charles Knoerl, born October 22nd. Dr. John A. Tilley entered the blissful state of matrimony in August, and we offer him, Mrs. Anne Tilley, and their family a hearty congratulations.

(continued on page 3)

ACADEMIC AWARDS

The Department of History annually offers privately funded departmental awards to promote academic excellence in the field of history. These awards are presented to first-year graduate students who show scholastic promise based upon their academic records, writing ability, and a personal interview.

On December 4, 1991, the Department awarded these fellowships at its annual Awards Day Ceremony. In keeping with the program's tradition of achievement, both Lawrence F. Brewster Fellowships were awarded to maritime students: Edward Prados, graduate of The College of William and Mary, and Matthew Russell, graduate of the University of California-Santa Barbara. At the same ceremony, second-year student Raymond Ashley was named recipient of the Mary F. Howard Scholarship in Marine Studies. And Jemison Beshears and William Thiesen, also second-year students in maritime history, were awarded Richard C. Todd Scholarships by Phi Alpha Theta, the history honors society.

The faculty, staff, and students of the Program in Maritime History and Underwater Research offer their heartiest congratulations to this year's recipients.

PAPERS

The following papers have been presented by staff, students, and alumni in 1991.

David Beard. "Causeways and Cribbing: Now You Can Get There From Here." Society for Historical Archaeology Conference on Historical and Underwater Archaeology, Richmond, Virginia.

Jonathan Bream. "Sail east northeast to 33° and there Bermuda will be." Escuela de Estudios Hispano-Americanos, Seville, Spain.

John Broadwater. "Volunteers in Underwater Archaeology." Conference on Historical and Underwater Archaeology.

James P. Delgado. "The Archaeology of the Atomic Bomb: Assessing the Sunken Ships of Operation Crossroads." Conference on Historical and Underwater Archaeology.

Kevin Foster. "Threatened James River, Virginia, Shipwrecks and Historic Sites." Conference on Historical and Underwater Archaeology.

_____. "Stephen Mallory's Occasional Cruisers: The Confederacy's Blockade Runner/Commerce Raiders." Tenth Naval History Conference, United States Naval Academy, Annapolis, Maryland.

Joe Friday. "The History, Archaeology, and Current Status of the Wreck of the USS *Huron*." Conference on Historical and Underwater Archaeology.

Lynn B. Harris. "A Preliminary Historical and Archaeological Survey of the SS *Robert Martin* (1853)." Conference on Historical and Underwater Archaeology.

T. Kurt Knoerl. "On the Shores of Fort Niagara: Archaeological Evidence for an Inundated Eighteenth-Century Shoreline." Conference on Historical and Underwater Archaeology.

John William Morris. "Eighteenth-Century Naval Architecture." Conference on Historical and Underwater Archaeology.

_____. "Final Hull Report on the Vessel Remains at Site 44Y088." Conference on Historical and Underwater Archaeology.

Michael A. Palmer. "Operation Desert Shield/Storm: A Historian's First Cut." Center for Naval Analysis, Alexandria, Virginia, and the Naval Historians' Seminar, Naval Historical Center, Washington, D.C.

_____. "The United States and the Persian Gulf." Nineteenth Maritime History Symposium, Maine Maritime Museum, Bath, Maine.

_____. "The Navy and Strategic Thinking in the Post-World War II Era: The Formative Period, 1945-1955." American Military Institute Annual Meeting, Duke University, Durham, North Carolina.

Stephenson, Richard A. "The Reciprocal Nature of a Long Range Planning Process as Related to Sustainable Development." Conference on Rural Planning and Development: Visions of the Twenty-First Century, Orlando, Florida.

William N. Still, Jr., and William S. Dudley. "Managing Navy Shipwrecks: New Approaches." Conference on Historical and Underwater Archaeology.

(continued on page 14)

MARITIME THESES

The following is a list of theses completed in 1991 by students enrolled in the Maritime Program:

--David R. Baumer. "Fishing Vessels of the Northern Gulf Coast Red Snapper Fishery."

--Kevin Foster. "Search for Speed under Steam: The Design of Blockade Running Steamships, 1861-1865."

--Claude V. Jackson, III. "Historical and Archaeological Investigations of a Sunken Federal Period Vessel Near Oriental, North Carolina."

--John William Morris, III. "Site 44Y088: The Archaeological Assessment of the Hull Remains at Yorktown, Virginia."

--James S. Schmidt. "Naval Operations of the Potomac Flotilla, 1861-1865."

A complete and updated list of all ECU maritime and naval theses is available upon request from Dr. William N. Still, Jr., Director, Program in Maritime History and Underwater Research, Department of History, Admiral Ernest M. Eller House, East Carolina University, Greenville, North Carolina, 27858-4353. Copies of ECU theses may be ordered through Inter-Library Loan at your local university or public library from Joyner Library, East Carolina University, Greenville, North Carolina, 27858.

Briefs (continued)

We also extend a warm welcome to Dr. Michael A. Palmer, a new addition to the Maritime History staff, coming from the U.S. Navy's Naval Historical Center, Washington, D.C.

Dr. Still has recently joined the Executive Committee of the National Maritime Alliance, a coalition of maritime related organizations based in Washington, D.C., whose purpose is to broaden the American public's awareness of its maritime heritage. Two alumni have joined the editorial staff of the *Southern Historian*: Brina J. Agranat, Managing Editor, and Associate Editor, William Stuart Morgan, III. Alumna Lynn B. Harris is the Editor of *The Goody Bag*, the newsletter of the Sport Diver Archaeology Management Program, University of South Carolina. And Victoria Schneider is currently working as an intern with the Bermuda Maritime Museum.

PUBLICATIONS

The following is a list of publications completed by faculty, students, and alumni within the last year.

Ashley, Raymond E. "The Search for Longitude." *American Neptune*, 52 (Winter 1992).

Bream, Jonathan. "Is this the *Santa Lucia*?" Bermuda Maritime Museum *Quarterly*, 4, no. 4 (Winter 1991).

_____. "Our Lady of Cuatrovitas." Bermuda Maritime Museum *Quarterly*, 4, no. 3 (Fall 1991).

_____. "A Flemish Pilot's Report of Bermuda in 1620." Bermuda Maritime Museum *Quarterly*, 4, no. 2 (Spring 1991).

_____. "Sifting through the Archaeology of the Stanley House." *Journal of Maritime History and Archaeology*, 3 (1991).

Cooper, David J., ed. (Bradley A. Rodgers, and Gordon P. Watts, Jr., et al.) *By Fire, Storm and Ice: Underwater Archaeological Investigation in the Apostle Islands*. Madison, Wisconsin: Wisconsin Historical Society, 1991.

Delgado, James P. *Pearl Harbor Recalled*. Annapolis, Maryland: Naval Institute Press, 1991.

_____. "The National Maritime Initiative: An Interdisciplinary Approach to Maritime Preservation." *Public Historian*, 13, no. 3 (1991).

Foster, Kevin. "Where They Lie: CSS *Tallahassee*." *Confederate Naval Historical Society Newsletter* (February 1991).

_____. "Where They Lie: Blockade Runner *America/Camilla*." *Confederate Naval Historical Society Newsletter* (October 1991).

_____. "The Littlest Blockade Runner." *Confederate Naval Historical Society Newsletter* (October 1991).

_____. "Cutters in Gray: The Coast Guard Enters the Navy." *Commandant's Bulletin* (November 1991).

_____. "Lend-Lease: Cutters Enter the British Navy." *Commandant's Bulletin* (November 1991).

Knoerl, T. Kurt. "East Carolina University's

Program in Maritime History and Underwater Research." *Pull Together*, newsletter of the Naval Historical Foundation and Naval Historical Center (Spring/Summer 1991).

Palmer, Michael A. *Arctic Strike: The Campaign on the Northern Flank*. New York: Avon Books, 1991.

_____. "The United States Navy and the Persian Gulf: The Origins of the Commitment, 1946-1953." In William Roberts, ed., *Naval History: The Ninth Symposium of the U.S. Naval Academy*. Annapolis, Maryland: Naval Institute Press, 1991.

_____. "Burke and Nelson: Decentralized Style of Command." *United States Naval Institute Proceedings*, 117 (July 1991).

_____. "The Navy Did Its Job." *United States Naval Institute Proceedings*, 117 (May 1991).

_____. "Sir John's Victory: The Battle of Cape St. Vincent Reconsidered." *Mariner's Mirror*, 77 (February 1991).

Reedy, James R. "Field Procedures developed for scattered, deeply buried site in high energy location: the *Whydah* (WLF-HA-I), Cape Cod, Massachusetts, USA" *International Journal of Nautical Archaeology* (1991).

Still, William N., Jr. "Shipbuilding in North America: A Case Study in the South's Maritime Heritage." In Lewis B. Fisher and Helge W. Nordvick, eds. *Shipbuilding and Trade, 1750-1950: Essays in International Maritime Economic History*. Pontefract, England: Lofthouse Publications, 1991.

Swanson, Carl E. *Predators and Prizes: American Privateering and Imperial Warfare, 1739-1748*. Columbia, South Carolina: University of South Carolina Press, 1991.

Thiesen, William H. "Recording the Timbers." Bermuda Maritime Museum *Quarterly*, 4, no. 4 (Winter 1991).

_____. "Maritime History Program Takes New Strides." *Department of History Newsletter*, East Carolina University (1991).

ELLER DEDICATION

In a ceremony held April 17th, 1991, East Carolina University's Maritime History Annex was named for Admiral Ernest McNeill Eller, USN (Retired). The dedication honored Eller's distinguished career as a Navy officer and maritime historian and his generous support of the Program in Maritime History and Underwater Research.

Described as one of the "important occasions in the life of the University" by Chancellor Richard Eakin, eighty guests including faculty, staff, and students of the Department of History attended the ceremony. Chancellor Eakin; Dr. Marlene Springer, Vice Chancellor for Academic Affairs; Dr. Diane Jacobs, Associate Vice Chancellor for Research and Dean of the Graduate school; Dr. Dean Allard, Director of the Naval Historical Center in Washington, D.C.; Rev. Herbert Weber, nephew of Admiral Eller; and Dr. Peter Eller, son of Admiral Eller; all participated in the dedication. "You honor Admiral Eller and yourself by undertaking this program at ECU," said Allard, who went on to describe Eller as a man filled with "energy, love of the Navy and love of North Carolina." Dr. Eller remarked that he and his father considered the dedication "an overwhelming honor" and that his father was proud to be associated with a program that educated people about the sea.

Admiral Eller, born in Marion, Virginia, grew up in North Wilkesboro, North Carolina. Before entering the Naval Academy in 1921, he attended North Carolina State College. Eller received his Naval Officer's Commission from Annapolis in 1925 and a Master's Degree from George Washington University in 1934. During World War II, he served as Assistant Naval Attaché at the American Embassy in London. Eller then directed training of anti-aircraft gunners and became a staff member of the Commander in Chief of the U.S. Pacific Fleet.

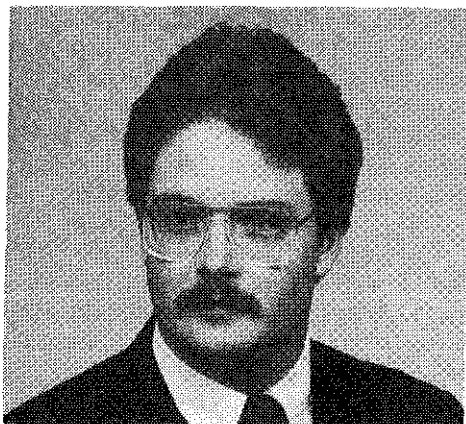
Eller saw combat while commanding the attack transport USS *Clay*, and served on the USS *Utah*, USS *Texas*, and the Submarine S-3. He was also Gunnery Officer aboard the USS *Saratoga* in January 1942 when it was torpedoed, during an operational foray in the Marshall and Midway Islands. His many decorations include the Legion of Merit with Combat Designation for his service with the Pacific Fleet. In 1954, he was promoted to the rank of Rear Admiral. From 1956 until his retirement in 1970, Admiral Eller served as director of Naval History and Curator for the Department of the Navy at the Naval Historical Center in Washington, D.C. He

also authored and edited numerous works on naval subjects, including: *Monitors of the Navy*, *Naval Weapons of the American Revolution*, and *The Battle of New Orleans*.

In 1990, Admiral Eller donated his personal library of over 2,000 books to ECU. The collection includes many multi-volume publications as well as rare and hard-to-find books. "The library is one of the greatest personal naval libraries in the country" said Dr. William N. Still, Jr., director of the Program in Maritime History and Underwater Research. The addition of the Ernest M. Eller library to the resources already available in Joyner Library at East Carolina has placed the University in the forefront of naval and maritime history collections.

Patrick J. Cole

MARITIME PROGRAM'S NEW NAVAL HISTORIAN INTERVIEWED



(Photo: Dr. Michael A. Palmer)

The following is a brief excerpt from an interview granted to Lisa Rupp by Michael A. Palmer, naval historian and recent addition to the Maritime Program's staff.

How did you become interested in maritime history?

As a kid I always liked military history. When I was at Temple [University] I studied with Russell F. Weigley, who is a historian of the Civil War and World War II. Every time I came up with a topic under these subjects, I found he knew too much. I wanted something that might give me an edge over him. So for various reasons I did my dissertation on the U.S. Navy and the Quasi War. When I did research, I came to the U.S. Naval Historical Center in Washington and they kept my name on file. So few people were doing maritime history that they checked up on me to see if I finished my dissertation. They offered me a job and I started working for them in 1983.



Naval Historian Dr. Dean Allard speaks during the dedication ceremony for the Maritime Program's Admiral Ernest M. Eller House. (Photo: ECU News Bureau)

How do you see the bureaucracy in the Navy changing?

It is going to get smaller. We don't need as much anymore. It is going to have to get leaner and more efficient. Of all the services, the Navy should do the best because everything still comes into this country by the sea. The Navy is getting involved in a lot of areas that people don't realize, like space. Because of the nature of modern naval warfare, ships are tied together through electronic communications involving satellites. The Navy was one of the first to do this - through necessity. These aspects favor the Navy.

Something else that favors the Navy is that people don't like missiles in their backyard. As we reduce ballistic missiles on both sides, my guess is that the larger proportion of the missiles reduced will be the land-based missiles. Since no one wants missiles in their backyard, they will be put at sea and that will mean a continued role for the Navy and a reduced role for the Air Force. Also, a ground-based missile fixed in a fired silo can be detected, so a missile-armed submarine has a much better chance. Our nuclear forces will be greatly reduced, but those that will survive will be sea-based.

How would you convince a person about the importance of maritime history?

I would ask them how their ancestors got here. Unless they were recent immigrants, or Native Americans, the odds are they came by boat. Something more recent I would ask them is how many flying tankers they've seen lately. Where do they think oil

and Japanese cars and electronics come from? Then I would remind them that over seventy percent of the earth is covered with water.

What role do you see yourself playing in the Maritime Program?

Working more and more with the graduate students and expanding their course offerings, especially in diplomatic and naval history. Maybe even to attract a new set of students.

What would you like to see happen to ECU's Maritime Program in the next few years?

Establishing a broad Maritime Program, offering a multi-disciplinary approach, so students can take naval, maritime, and underwater research. We need to get all these students thinking together. East Carolina is unique in its approach.

What do you think lies in the future for maritime history and research and do you foresee any changes?

One could argue that as the cold war winds down, people will be less interested in naval and maritime history. But I think people will become more interested since the immediate threat has disappeared. I think you will see a lot of trade issues and naval arms control issues. I think there will be a rise in academic productivity. Advances in the technology of underwater research will probably lead to a great deal more underwater archaeology, also a lot more jobs in the field.

BERMUDA 1991

SUMMER

The raising of the IMHA (Institute of Maritime History and Archaeology) 3 shipwreck in Bermuda brought to an end three years of detailed mapping and excavation. From the 10th of July to the 5th of August, an international team recovered the wreck from its four hundred year-old resting place (depicted on page fifteen). Underwater Research Director Gordon P. Watts, Jr., coordinated the group of ECU students and alumni as well as archaeologists from the United Kingdom, Canada, and Spain. The ECU group consisted of adjunct professor John Broadwater, graduate students Martin Peebles and John Schaefer, and alumni James Allan, Jonathan Bream, and John W. Morris.

The composition of the group brought together an array of different perspectives, providing a broader basis of knowledge. Many of the ECU group had previous experience with the wreck from the Fall Research Semester. Manuel Izaguirre of Spain and Etienne Arseneau and Brad Loewen of Canada brought with them a familiarity with similarly constructed vessels at Red Bay, Labrador, wreck sites.

The IMHA 3 site consisted of a large segment of midships that local Bermudian divers had thought to be the seventeenth-century wreck *La Vega*. About thirty feet away under the shadow of a reef lay ten feet of the ship's stern, exposed by ECU archaeologists in 1989. Arseneau and Izaguirre readily noticed similarities between IMHA 3's mast step and those they had seen on the Labrador wrecks. Izaguirre, expert in Spanish naval

architecture, believed the wreck, like the Labrador wrecks, to be a product of sixteenth-century Basque shipyards. Former ECU student Jonathan Bream joined the team after sixteen months of research at the Archives of the Indies, in Seville, where he found strong correlations between IMHA 3 and a shipwreck noted in early Spanish documents. The evidence suggests that the two sections may be the remains of the Spanish dispatch vessel *Santa Lucia*, which ran aground in Bermuda enroute from New Spain in 1584.

Past Field Schools have meticulously mapped, photographed, and labelled all pieces so that a careful record is kept of disassembly. As the team removed each section, more structural similarities appeared between IMHA 3 and the Labrador wrecks, in the form of dovetail joints, where floor timbers join the futtocks. Through pins had long rusted away, but the treenails often proved in such good condition that hydraulic jacks had to gently pry the timbers apart. Next the pieces were strapped into wooden pallets for lifting to the surface and loading into the "wet barge" for their transfer to the Corange Laboratory at the Bermuda Maritime Museum. Thanks to good weather, the last of the wreck's remains were transferred to storage tanks after only three weeks. The team used the remaining time to begin full-scale drawings of each timber. This provided a visual record of diagnostic features while laying the basis for monitoring conservation efforts. The sketching of other artifacts, such as cannon, continued as well, but the larger part of timber drawing had to be left to the next ECU team, arriving for the Fall Research Semester.

As many years may be necessary for conservation as it took to excavate and map IMHA 3. At the end of this project IMHA could come together again as a display. If so, it will constitute the only sixteenth-century vessel on display in the Western Hemisphere to date.

Martin D. Peebles

FALL

For those second-year students interested in the archaeological aspects of maritime history, the Program in Maritime History and Underwater Archaeology offers a course that teaches techniques in underwater investigation and laboratory analysis. For the past few years, this Fall Research Semester has been conducted in Bermuda in conjunction with the Bermuda Maritime Museum, to further research on the history of the island.

Last fall, under the direction of Gordon P. Watts, Jr., Bradley A. Rodgers, and John Broadwater, eight students continued work on the wreck designated IMHA3, believed to be the remains of a late sixteenth-century vessel. This preliminary dating of the site was determined by the exposed structural remains of the wreck, artifacts found, and the recovery of a cannon bearing the date of 1577. Further archaeological investigation and historical research may confirm the identity of the wreck. The students who participated in this project were Jemison R. Beshears, Patrick J. Cole, Amy Mitchell, Shannon Richardson, John C. Schaefer, Vicki Schneider, William H. Thiesen, and myself.

Previous field work on the site has consisted of detailed in situ mapping of the wreck and the recovery and storage of the wreck. The work assigned to our group consisted of drawing and cleaning recovered timbers on a one to one scale and to continue the ongoing survey for sites in the waters around Bermuda. Bermuda Maritime Museum staff members John Broadwater and Jonathan Bream instructed the students in detailing the diagnostic features of the timbers and in recording those features.

The students were separated into two-person teams, with each team being assigned its own timber. After careful inspection for any evidence of construction features, each timber was drawn. Important features included saw, adze, pressure, and scribe marks. Fastening patterns, such as treenails and nails, were noted as well as wood features that would lead to any insight on how the vessel was constructed. An observation form recording any pertinent information noted during the cleaning,



Divers working on the IMHA 3 wreck site. (Photo: Bermuda Maritime Museum)

drawing, and photographing of the timber was included with each individual drawing.

During periods of calm weather, the students sailed out to the reefs around the island to continue the Program's ongoing efforts to survey for new wreck sites. Steve Sellers, ECU Dive Safety Officer, accompanied the students on these surveys. Accomplished with the aid of two survey vessels, each towing two students at a time on specially designed tow boards, the group could inspect large portions of the reef area below.

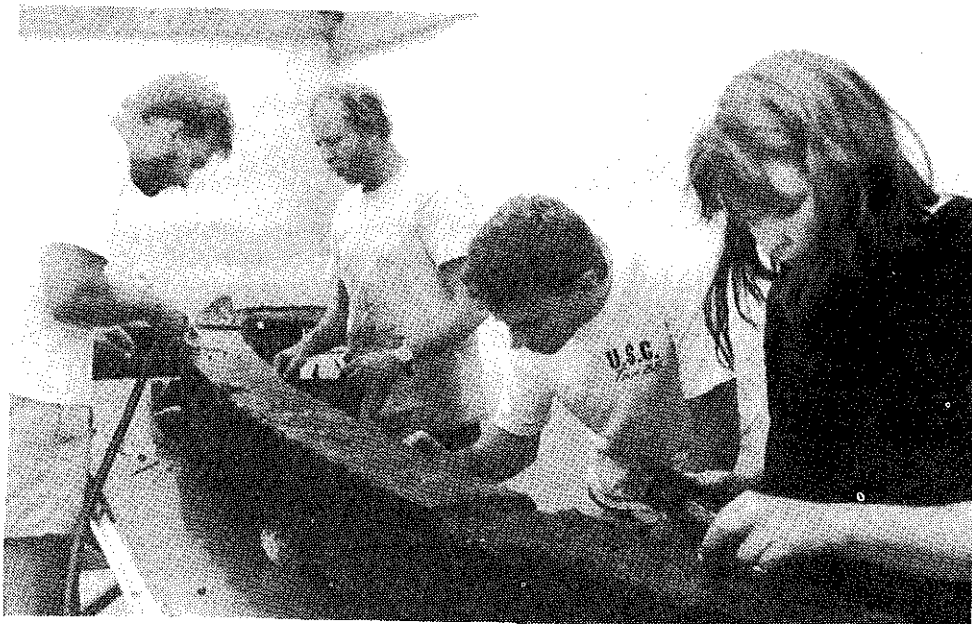
Snorkeling trips to exposed wrecks in St. George's Harbour and Little Sound provided first-hand exposure to late nineteenth-century ship construction. The students visited a total of four wrecks: the *Nörrköping* and *Emily Davies* in Little Sound and the *Taijon* and *Dorothea* in St. George's Harbour. These wrecks all provided excellent examples of transitional ship construction from the iron to steel era. The *Dorothea* also illustrated the continuous process of experimentation in ship design, having iron frames, wooden planking, and copper sheathing.

By the end of the four-week stay, the students had drawn all of the timbers of IMHA3. Little is known of late sixteenth-century ship construction methods, but researchers hope a comparison between the construction features of this site and the others of the same period, such as Red Bay, Labrador, and Padre Island, Texas, will prove enlightening.

Raymond E. Tubby

PLYMOUTH FIELD SCHOOL

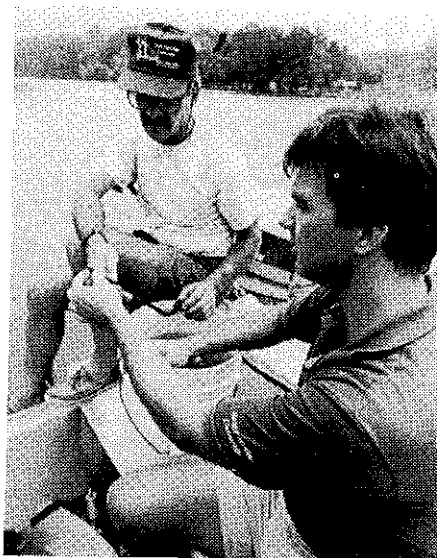
From 15 July through 3 August 1991, graduate students enrolled in East Carolina University's Program in Maritime History and Underwater Research annual Summer Field School documented the wreck of the Civil War gunboat USS *Southfield*, located in the Roanoke River near Plymouth, North Carolina. The team consisted of graduate students Patrick Cole, Stan Duncan of the University of Tennessee, Amy Mitchell, Shannon Richardson, and Raymond Tubby. Graduate assistants Scott Moore and myself helped in the field along with staff archaeologists Tom Adams and Bradley Rodgers, who led the team. Additional support came from ECU Dive Safety Officers Steve Sellers and Jim Sibthorp. The graduate students gained hands-on experience in the techniques and methods of underwater archaeology. The site proved a difficult environment in which to master research techniques, due to poor visibility and debris over the wreck. With persistence, a light, slate, and tape, team members drew the seventy-foot section of the extant wreck



ECU graduate students working at the Bermuda Maritime Museum's Corange Laboratory during Fall Research Semester. (Photo: Bermuda Maritime Museum)

in zero visibility water. Later at the University, individual on-site drawings were pieced together to reveal the whole vessel. Working in the river placed great demands on the student's patience and reserve.

The USS *Southfield*, originally a large Staten Island ferryboat built in 1857 in New York City by noted steamship builder John Englis, measured 200 and-a-half feet in length, 34 feet in beam, and 6 and-a-half feet in depth, with a draught of 6 and-a-half feet. For four years previous to the Civil War, the side wheel ferryboat plied the waters between Staten Island and Manhattan. In December 1861, the *Southfield* was purchased for use in the Burnside expedition to the Sounds of North Carolina. The ex-ferryboat served in the



*Program Director William N. Still, Jr., and Staff Archaeologist Bradley A. Rodgers ponder a bayonet recovered from the USS *Southfield*. (Photo: ECU News Bureau)*

North Atlantic Blockading Squadron for over three years as a gunboat off Plymouth and on the James River. In the Confederate attempt to wrest the Roanoke River and Ablemarle Sound from Union control, the CSS *Ablemarle*, an ironclad ram, crashed into the forward section of the *Southfield*. Within minutes the vessel had settled on the bottom of the Roanoke.

The boat was rediscovered in 1990, during a remote sensing survey of the area by a private contract firm. Local interest in the wreck generated from the discovery and concurrent research conducted at the Underwater Archaeology Branch of the North Carolina Division of History and Archives. The Underwater Archaeology Branch (UAB) archaeologists had conducted surveys of Civil War wrecks farther upstream from Plymouth to determine the feasibility of nominating the river area around Plymouth to the National Register of Historic Places-Civil War Shipwreck District. Later, the UAB contacted the Maritime Program to undertake a joint effort of documenting the historic wrecks.

With funding, housing, and support of the local museum, community groups, and the Weyerhaeuser Corporation, our team began documenting the *Southfield*, while UAB archaeologists documented some Civil War blockships farther upriver from the wreck-site. Results of the investigation will be used for my thesis site report. A map of the site and conserved artifacts will become part of a display about the gunboat at the Port o' Plymouth Roanoke River Museum in Plymouth.

James D. Spireck

MICHIGAN FIELD SCHOOL

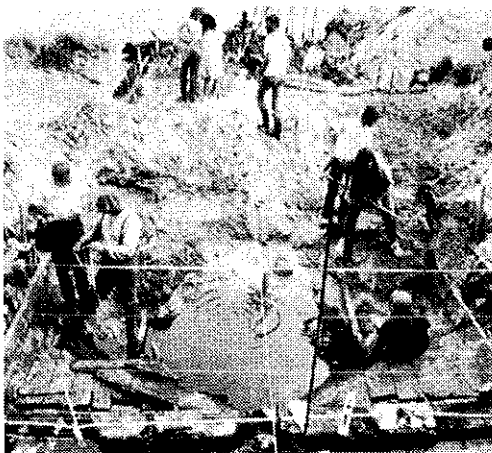
The excitement of discovery permeates the beginning of any archaeological excavation. This is particularly true in the case of shipwrecks, where vessels are suddenly lost, taking with them a small piece of history sealed within. It is the fate of many vessels to be battered to pieces by storms, torn apart by salvors, or irrecoverably lost in deep water. Rare is the discovery of a ship from an earlier time that still carries its cargo and the personal belongings of the crew. Rarer still is the discovery of such a ship on a landlocked site. Nine graduate students from the Program in Maritime History and Professor Gordon P. Watts, Jr., recently had the opportunity to work on such a site near Naubinway, Michigan, in early September, 1991.

William Ives, an early government surveyor, reported "the Reeck of a small vessel" nearly buried, lying on the shore of northern Lake Michigan. The year was 1849, and the wreck lay on a desolate stretch of coastline in Michigan's Upper Peninsula, far from any settlement. Following Ives' mention, wind and sand quickly finished covering the lonely wreck, preserving it for future rediscovery. This day came in April 1990, when a young boy named David Head was playing near the mouth of the Millecoquins River. He noticed the bow of an old sailing ship protruding from the river bank. The actively eroding bank exposed the vessel for the first time in nearly 150 years. Soon afterwards, the existence of the vessel was brought to the attention of Michigan State Archaeologist Dr. John R. Halsey. Following preliminary research, Dr. Halsey contacted the Maritime History Program to arrange an extensive site investigation and analysis.

The project was made possible by the assistance and support of the Association for Great Lakes Maritime History and a grant from the National Trust for Historic Preservation. The Hiawatha Sportsman's Club, which owns the wreck site, provided lodging for the students and a backhoe and bulldozer to remove several feet of sand covering the wreck.

Field work began by removing five to six feet of sand covering the wreck and exposing the top of the remains. Today, very little of the vessel lies above the river level so further excavation required the use of pumps to keep the site dry. Working in two teams, the students used shovels, trowels, and water to excavate the interior of the vessel. This "land" site provided an unusual type of work experience for students who normally work underwater.

Finding the unexpected has always been



The outline of the Millecoquins wreck looking from stern to bow. (Photo: John R. Halsey)

the romance of archaeology. Time, weather, and scavengers should have taken their toll on the small vessel. Quite surprisingly, however, it proved to be nearly intact. The first hint of this amazing state of preservation occurred with discoveries made in the bow. A storage locker still packed with tools and spare parts for rigging and a sleeping berth were found in the forecabin, where the crew lived. Leather boots, smoking pipes, tobacco, and food remains give quiet testimony to the living conditions of the crew.

The team working in the stern soon found a well appointed cabin used by the captain, his mate, and possibly, paying passengers. Ornate wood molding, interior paneling, and fine workmanship in this cabin are in stark contrast to the spartan conditions of the crew's quarters. Again, ideal preservation conditions offered a rare glimpse into the past. The nearly intact accommodations contained plates, eating utensils, wine bottles, condiments, a shaving kit, and other personal items still packed away. The wealth of artifacts helps to illustrate the segregated life-styles on board the ship.

As work progressed in the midships area, the cargo hold was found intact. Wooden barrels lay jumbled in the hold, some containing fish remains. Analysis of this cargo will provide new information on the early fisheries industry of the Great Lakes.

In conjunction with the excavation, detailed drawings and measurements were taken of the hull to study vessel architecture. Early examples of Great Lakes craft are extremely rare. The historical significance of this craft lies not only in its contents, but also in the wealth of new information it will provide on early vessel construction, style, and form.

Interest and support from the local community played a large part in the success of this project. In return, the students of East Carolina University provided a learning experience for local school children and residents of the area, who daily turned out in large crowds.

The value and significance of this small vessel lies not in any treasure it carried, but as a representative of a common working boat. Although typical and commonplace during its sailing career, it now represents a unique example of a Great Lakes vessel from the early nineteenth century. Many questions remain to be answered about this small craft including a firm identification. This past season's field work accomplished a great deal, but much of the site remains undisturbed for future research.

Frank J. Cantelas

SURVEY OF CIVIL WAR SITES IN MOBILE BAY

In the spring of 1991, East Carolina's Program in Maritime History and Underwater Research and the Baldwin County Archaeological Society sponsored a joint project to locate and evaluate several important historical wrecks in and around Mobile Bay, Alabama. Graduate students Frank Cantelas, Scott Moore, Martin Peebles, and James Spirek along with maritime professors Dr. William N. Still, Jr., and Gordon P. Watts, Jr., and ECU Dive Safety Officer Steve Sellers, spent a week in the Mobile Bay area. The team focused on positively identifying four specific wrecks: the CSS *Gaines*, a Confederate ironclad sunk during the Battle of Mobile Bay on 4 August 1864; the USS *Philippi*, a federal dispatch tug also sunk during the battle; the blockade runner *Ivanhoe*, which grounded on the gulf shore; and the French trading vessel *Bellone*, which foundered in the eighteenth century at its anchorage off Dauphin Island.

Equipped with the department's twenty-four-foot research vessel, a proton precession magnetometer, and a side-scan sonar, the team evaluated potential sites. Land crews with transits defined the areas that held the most promise for the wrecks based on historical literature. The research vessel made numerous passes over these areas locating the wreck-sites with the magnetometer and side-scan sonar, which were then evaluated through diver reconnaissance.

Divers located the remains of a vessel approximately two hundred feet long close to shore in approximately fourteen feet of water. The remains included two-inch thick metal plating in nine-foot long sheets, which matched the dimensions of the plating used

on the *Gaines*. The team also found bituminous coal on the wreck, which was used by the Confederate Navy. These finds, in conjunction with historical data supplied by the Baldwin County Archaeological Society, allowed the wreck to be tentatively identified by the ECU team as the CSS *Gaines*. On the site believed to be the USS *Philippi*, divers discovered a large metal boiler and anthracite coal. Earlier in the spring, a land archaeology team from Florida State University uncovered the site of the *Ivanhoe*. The remains of the *Bellone* could not be found during the search.

The results of the preliminary research indicate that this area has many more historically significant wreck-sites in addition to the four researched by the ECU team. By applying underwater archaeological techniques to these wrecks, a more complete history of the Mobile Bay area can be formed. The sites of the CSS *Gaines* and USS *Philippi* could provide a great deal of information concerning the Battle of Mobile Bay. Fundraising efforts for this project are underway. Hopefully, this important work will begin soon.

R. Scott Moore

DEATH'S DOOR/APOSTLE ISLANDS PROJECT

A marathon season of shipwreck survey work concluded this past August in the waters of Wisconsin. Part of a multi-year research project, the investigation is under the direction of David Cooper, State Underwater Archaeologist of Wisconsin and a program alumnus.

The survey team spent seven weeks working in the Death's Door area of northern Lake Michigan, documenting vessels that represent a broad span of nineteenth- and early twentieth-century shipping history. These wrecks included the *Meridian*, built in 1848, and the *Frank O'Conner*, one of the last large wooden bulk freighters built on the Lakes, which burned and sank in 1919. This area of Lake Michigan, currently being considered as Wisconsin's first underwater preserve, contains a unique collection of vessels.

In July, the survey team moved to Apostle Islands National Lakeshore on Lake Superior to continue and complete the work started by the 1990 Maritime History Field School. This work is part of a cooperative effort between the State and the National Park Service to assess and monitor diver activity on underwater sites. Team members also participated in a workshop with Park Service Resource Management Specialists from around the country to acquaint them with unique aspects of underwater archaeological sites.



ECU divers mapping the centerboard trunk of the shipwreck *Lucerne* off the coast of Wisconsin. (Photo: State Historical Society of Wisconsin)

By the end of the season, the survey team completed work on twenty-three vessels and two inundated fur trade sites. In addition to Cooper, the investigators included John Jensen and myself from ECU's Maritime History Program, Paul Lewandoski of Madison, Wisconsin, and Rob Barros from Texas A & M. The project was funded by the University of Wisconsin Sea Grant Institute with equipment and support provided by the University of Wisconsin, Marine Study Center, Madison.

Frank J. Cantelas

MAPLE LEAF WRECK SITE

East Carolina University has a long and continuing tradition as a center for the study of Civil War naval history. The Program in Maritime History has recently made a formal agreement with Saint Johns Archaeological Expeditions, Incorporated (SJA EI) of Jacksonville, Florida, to oversee research on the Civil War shipwreck *Maple Leaf*, which sank in the St. Johns River. Resting on the river bottom, the Union transport will be the object of a continuing program of research over the next three years.

The 173 foot side wheel steamer *Maple Leaf* (pictured on page fourteen) was built in Kingston, Ontario, in 1851. After a successful career carrying passengers and freight on the Great Lakes, American speculators bought the vessel with an eye to leasing it to the federal government during the Civil War. At the start of the conflict, the small and obsolete American navy proved totally inadequate to prosecute the war because Union strategy called for a blockade of the southern coast, requiring a large fleet. As a result, the navy bought and leased nearly every available vessel in the North.

The *Maple Leaf* was leased for federal service in 1862 to support the Southern blockade on the Atlantic Coast, earning her owners a handsome profit. She met her end on 1 April 1864, while rushing troops from Folly Island, South Carolina, to meet growing Confederate strength in northern Florida. While unloading troops in Jacksonville, the ship received an emergency call to come to the relief of Northern sympathizers in Palatka, a town located farther upstream on the St. Johns River. After evacuating forty-five people and their belongings, she proceeded back down river to Jacksonville. At four o'clock the following morning, the *Maple Leaf* struck a Confederate mine placed in the river channel and settled on the muddy river bottom within ten minutes. Four lives were lost in the tragedy, and no efforts were made to salvage the cargo. The hulk slowly disappeared beneath the thick mud, but the protruding engine machinery remained a hazard to navigation until government salvors removed it in the 1880s.

The remains of the *Maple Leaf* lay buried until 1986, when members of SJA EI rediscovered the wreck. Initial research and recovery operations showed the vessel to be very much intact, with nearly perfect preservation conditions. Wood, metal, paper, fabric, and leather artifacts were all found in excellent condition. When lost, the ship carried 400 tons of cargo, including personal belongings of three Union regiments, sutler stores, and general army stores. This cargo represents the largest cache of Civil War artifacts known to exist. Because much of the material belonged to ordinary soldiers, the *Maple Leaf* provides an opportunity to study the social and living conditions of the Union Army.

(continued on page 10)

Maple Leaf (continued)

With funding provided by SJA EI through the Jacksonville Historical Society and the State of Florida, ECU will pursue an active program of research involving both faculty and graduate students. This cooperative agreement will create exciting opportunities for our graduate students studying archaeology, artifact conservation, and historical research. Initial work will include creating guidelines for a three-year research program and preparing the site for the 1992 Maritime History Program Summer Field School. Over the three-year period, archaeological research will focus on mapping the forward and after deck and documenting the engineering spaces. Preliminary test excavations in the bow will reveal the condition of the hull structure in the mine-damaged area while determining the type of cargo packed in the forward hold. The site offers a unique chance for our students to get hands-on experience in underwater excavation techniques while making a valuable contribution to our knowledge of the Civil War.

Frank J. Cantelas

INDIVIDUAL STUDENT PROJECTS

CSS *NEUSE* Project

On 17 October 1862, the Confederate Navy Department and Howard & Ellis shipbuilders signed a contract to construct an ironclad gunboat in White Hall, North Carolina, on the banks of the Neuse River. Though construction began shortly after the signing, progress on the *Neuse*, one of twenty-two ironclads constructed and commissioned by the Confederacy, proved slow and sporadic, hampered by periodic shortages of material. By the time of her completion in 1865, the river's level had dropped, preventing her from dislodging the federal forces occupying New Bern, North Carolina. As these forces began to advance inland, during the close of the war, the Confederacy deliberately ran her aground, burning her to prevent capture. Soon afterward and in later years, salvaging of the ram continued until she became silted over and buried on the banks of the Neuse River.

In 1963, she was rediscovered and an attempt to raise her made through private, underfunded interests, resulted in the loss of much of the vessel's integrity. In 1964, the State of North Carolina took over where private individuals had left off and transported the vessel to her present resting

site in Kinston. The ship's remains were then stabilized and covered to prevent further damage from rainwater. The state built a visitor's center on the site, which continues to function in an interpretive role, providing information about the ship and its historic context through exhibits of artifacts, photographs, models, plans, a film, and guided tours. Along with the ship herself, several hundred artifacts were recovered during the course of the excavation, including gun tackle blocks, tools and personal items, stove parts, fittings and fragments of armor plate, along with hundreds of spikes and nails. Among the most valuable of the artifacts recovered were a number of 6.4-inch Brooke projectiles, including percussion fused shells, solid bolts, stands of grape shot, and rounds of cannister.

While much of this material was conserved shortly after recovery and subsequently placed on exhibit in the visitors center or loaned to state historic sites elsewhere, most was relegated to the only storage space available: a plywood and tin shed located within the site maintenance area. Approximately 2000 individual artifacts remained in this condition for over twenty-five years. In 1991, state conservators decided to conserve this collection, accession it, and place it in a more appropriate, environmentally controlled storage area. Over the summer, I worked on conserving the collection jointly through the State Internship Program and the course in museum techniques offered by the ECU Department of History. I carried out the work under the supervision of Eugene Brown, Site Manager of the Caswell-*Neuse* State Historic Site; Leslie Bright, conservator for the Department of Cultural Resources; and Dr. John Tilley, professor of history at ECU.

The actual work involved sand-blasting and treatment of all iron artifacts, cleaning and applying preservative to the wooden items, and moving and arranging treated artifacts to a new storage area. Perhaps 95 percent of the collection has been processed and awaits accessioning. Some work was performed at the State Underwater Archaeology Unit in Kure Beach and the remainder either on-site or in the Maritime History Conservation Laboratory at ECU. As the work progressed, individual items such as scrapers, caulking irons, marlinespikes, grapnels, leg irons, and campstool frames, that had remained undisturbed and forgotten, came to light, while others such as a trunnion cap square from one of the Brooke rifled guns, could be identified for the first time.

The most exciting point of the project came when I was transporting somewhat more than a ton of material, including thirty-

two rounds of ammunition and several hundred ship spikes, between Wilmington and Kinston. A vehicle suddenly pulled out in front of my van, forcing a near catastrophic recourse to the brakes. The several lively seconds I spent trying to regain control of my vehicle allowed contemplation of my possible dubious status as the only casualty in the long history of the ironclad ram *Neuse*. But I managed to pull through unscathed.

Raymond E. Ashley

MONTI CRISTI "PIPE WRECK"

This summer an underwater field team sponsored by the Pan American Institute for Maritime Archaeology (PIMA) and funded by a grant from Earthwatch, journeyed to the Dominican Republic. Led by archaeologist Jerome Lynn Hall, the purpose of this expedition was to document and excavate a small merchant vessel that sank on the republic's northern coast. Located approximately eighty meters off the tiny island of Cabras, the wreck lay in fifteen feet of water, undiscovered until the 1960s, when a local fisherman noticed the wreckage. It has been known as the "pipe wreck" because of the hundreds of clay smoking pipes scattered over the site. The pipes bear the hallmark of Edward Bird, an Englishman who lived and worked in Amsterdam between 1630 and 1665. The presence of the pipes establishes the probable date of the vessel's sinking in the mid-seventeenth century. The site has been salvaged by treasure hunters and visited by archaeologists in the past. But this project represents the first organized effort to excavate the site systematically, unlocking the mystery of the wreck's past.

As a second year ECU graduate student, specializing in seventeenth-century Dutch maritime trade, I eagerly joined a four member advance team that departed June 3rd. First, we met with government officials concerned with the site. Dr. Pedro Borrell Bentz of the Comision de Rescate Arqueológico Submarino in Santo Domingo provided us with much needed logistical support. He assigned a full-time commissioner and military guard to the project and helped locate necessary camp materials and needed storage space.

After a long overland trip to Monte Cristi, we finally reached the small desert island of Cabras, our home for the summer. The next two weeks we spent erecting tents, hiring cooks, bringing in provisions, visually assessing the site, and installing a grid system over the wreck. The rest of the excavation team, including a doctor, full-time conservator, and visiting Earthwatch

volunteers, arrived later, eager to begin work.

Our dive teams worked in three daily shifts from a floating platform I constructed with materials brought from the main island. Anchored securely over the site, it provided a secure staging area for divers and equipment. The impracticality of filling scuba tanks prompted the use of surface supplied air. This method proved more than adequate, allowing six divers on the site at once. The staff instructed volunteers in the proper techniques of hand-fanning and assigned each person his own work area. The team mapped every grid square and measured each artifact as it appeared. Earthwatch volunteers proved to be enthusiastic, careful workers, whose combined experience contributed to the project's overall success.

The three-month excavation yielded hundreds of clay pipe bowls and stems, a



One of many pipes found at Monticristi. (Photo: Gene Rowe)

sword, an iron cauldron, Bartmann and Delft sherds, various organic materials, and other diagnostic artifacts, all of which will be conserved at a laboratory in Santo Domingo. Under an agreement between PIMA and government officials, all cultural material recovered from the site will remain the property of the Dominican government. The team took precise measurements of all exposed wood prior to back-filling the site at season's end. The ship's keel and bottom timbers, discovered in surprisingly good condition, will provide researchers with important information on ship building techniques of this period.

Preliminary evidence suggests that the vessel may have been involved in triangular trade between Amsterdam, New Netherlands, and the buccaneers of Hispaniola. We hope that information gleaned from the work this summer and future expeditions will reveal the ship's

identity, reasons for its sinking, and more details about its cargo and crew.

Jemison R. Beshears

VIDEO-MOSAIC IMAGING OF THE *ALVA BRADLEY*

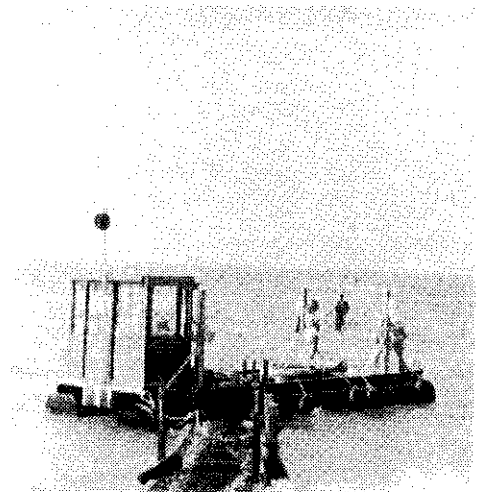
This past July, a diverse group of archaeologists, technicians, and volunteers gathered to work on a research and design project that promises to improve the accuracy and efficiency of submerged site documentation. In the quiet, serene surroundings of Leelanau County, Michigan, Harley Seeley of Michigan State University prepared to field test the concept of Video-Mosaic Imaging (VMI) on the wreck of the schooner *Alva Bradley*. The VMI system is designed to produce a two-dimensional mosaic map of an underwater site using a video camera interfaced with an Amiga computer equipped with graphics software. The camera is mounted on a movable assembly that travels along a grid system placed over the site. Seeley, and Ken Vrana, Underwater Preserve Specialist for Michigan Sea Grant, along with Jay Martin, developed the idea for VMI while working on the *Rockaway* project. Overseeing the project were Canadian contract archaeologist Phill Wright and Jed Jaworski, Director of the Northwest Michigan Maritime Museum and Field Operations Coordinator for the Manitou Bottomlands Preserve Committee. As an ECU graduate student and intern for the museum, I provided logistical support.

Before the three-week endeavor of documenting the *Bradley* could begin in earnest, a few minor obstacles had to be overcome. Because of the immense size of the donated grid, a barge had to be constructed at the eleventh hour to deploy the behemoth. While Seeley's team of technicians pieced together the "mother grid," as it came to be known, Jaworski and his group of museum employees and local volunteers turned the Maritime Museum's grounds into a shipbuilding yard. Working around the clock, relying on our high school welding skills, we built the forty-foot work barge, *Jed & Tom's Excellent Adventure*, out of discarded heating fuel tanks, scrap steel, and a donated gas station attendant's booth complete with bullet-proof glass. Meanwhile, Seeley's crew decided to redesign the cumbersome grid. After attacking the "mother grid" with a Sawzall, "son of grid" was born, measuring only twenty feet by five feet. The grid would now be much easier to deploy and move about on the site.

Documentation of the *Bradley* had been

an ongoing project of the Manitou Bottomlands Underwater Preserve Committee since the wreck's discovery in April 1990. Traditional methods of mapping used at the site have proven slow and tedious because of the size of the wreck and the vast number of artifacts present. It became necessary for the site to be fully recorded as soon as possible because artifacts such as the brass dinner bell had been acquired or moved by sport divers. We discovered many of the more collectable pieces had been placed upon the keel - making the site look like a flea market

Jaworski invited Seeley and Sonics Corporation to test VMI on the *Bradley*. Marty Wilcox, Pete Wilcox, and Donald Scott of Applied Sonics Corporation arrived in Empire, Michigan, on the day of the grid deployment. They came to test the feasibility of integrating their SHARPS (Sonic High Accuracy Ranging &



The Jed & Tom's Excellent Adventure after launching. (Photo: Thomas Stoltmann)

Positioning System) with VMI and to field test a new digital high definition side-scan sonar system they had developed. With the Applied Sonics people present, the successful launching of the barge, and placement of the grid, everything was in place to begin field testing of VMI.

Over a four-day period late in July, the VMI crew placed the grid on site and successfully recorded a twenty by sixty-foot swath of the *Bradley*. Using lift bags, we moved the grid along the keel, even though keeping the grid level without disturbing the site was difficult. According to Vrana, the system worked better than expected, grid problems aside. Working as part of the four-person underwater camera operating crew, I found the process of gathering the video data progressed quite rapidly. We covered a ten by twenty-foot

(continued on page 12)

Video Mosaic Imaging (continued)

section every dive. The camera crew was responsible for moving the camera along the grid at the command of the computer operator, who "grabbed" video images from the camera and stored them on disk. Also, the camera crew had to reposition the grid along the baseline. On the surface, Seeley and Martin gave directions to the divers through an underwater loudspeaker system while the divers replied through written messages placed under the camera. Particularly pleased, Wright found the "B-52s" could also be heard over the loudspeaker system. Though the entire wreck was not covered within the allotted time, the project nevertheless proved an unqualified success. According to Seeley, given another week, the entire site could have been covered.

The images "grabbed" by the computer and manipulated by Seeley using graphics software have shown a high degree of clarity, providing a clean, high-resolution image of the area covered. SHARPS proved to be an asset to VMI by providing exact camera position verification along with an accurate outline of the wreck-site, accomplished by two divers in three hours. VMI should prove to be extremely useful and cost effective for use in documenting and monitoring both new and previously recorded sites. In waters with at least five feet of visibility, VMI could prove to be the documentation and management tool of the future for submerged cultural resources.

Thomas Stoltmann

WHERE ARE THEY NOW?

The following list updates the current location of former program members.

- James Allan - Director, Institute for Western Maritime Archaeology, Berkeley, California.
- Brina J. Agranat - Doctoral Candidate, University of Alabama.
- David Baumer - Curator of Small Boats, Mariners' Museum, Newport News, Virginia.
- David Beard - Archaeology Head of the Underwater Archaeology Management Program (UAMP), Charleston, South Carolina.
- Colin Bentley - Sailing instructor, College of Charleston.
- Kathryn Bequette - Private school teacher, Colorado.
- Jonathan Bream - Archival Researcher, Bermuda Maritime Museum and Doctoral Candidate, University of Seville, Spain.
- Robert Browning - Historian, U.S. Coast Guard, Washington, D.C.

- David J. Cooper - Underwater Archaeologist, State of Wisconsin.
- Diane Cooper - Exhibit Specialist, Treasure Island Maritime Museum, San Francisco, California.
- Lee Cox - Archaeological contracting consultant, Philadelphia.
- James P. Delgado - Director, Vancouver Maritime Museum, British Columbia.
- Rita Folse-Elliott - Contract archaeologist.
- Robert Feingold - Program Specialist in the Florida Keys for the Sanctuaries and Reserves Division of NOAA.
- Kevin Foster - Historian, U.S. Coast Guard, Washington, D.C.
- Joe Friday - Police Officer, Greenville, North Carolina
- Lynn B. Harris - Assistant Head of the Underwater Division, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Charleston.
- Rick Heron - Doctoral Candidate, Texas A & M University.
- Robert (Bob) Holcombe - Director, Confederate Naval Museum, Columbus, Georgia.
- Claude V. (Sandy) Jackson - Contract Archaeologist.
- John O. Jensen - Research Assistant, State of Wisconsin.
- I. Roderick Mather - Doctoral Candidate, Oxford University.
- Dave Moore - Contract researcher, Maryland.
- R. Scott Moore - Doctoral Candidate, Ohio State University.
- Stuart Morgan - Doctoral Candidate, University of South Carolina and Public Information Officer, Editor of *County Focus Magazine* and *Carolina Counties* newsletter for the South Carolina Association of Counties in Columbia, South Carolina.
- John W. (Billy Ray) Morris, III - Contract archaeologist.
- Kaea Morris - Archaeological researcher, Tupe, Arizona.
- Sam Newell - Public school teacher, North Carolina.
- Robert Reedy - R2 Underwater Consultants, Morehead City, North Carolina.
- Bradley A. Rodgers - Archaeologist/Conservator, Program in Maritime History and Underwater Research, ECU.
- James S. (Steve) Schmidt - Senior Archaeologist, GIA Consultants, Pittsburgh, Pennsylvania.
- Robert Schneller - Naval Historical Center, Washington, D.C.
- Bruce G. Terrell - Maritime Historian, NOAA, Washington, D.C.
- Heidi Tobias-Smith - Administrative

Assistant, PACON International, University of Hawaii.

Lolly Vann - University of Edinburgh, Scotland.

Wilson West - Researcher, House of Representatives, Washington, D.C.

David B. Whipple - Conservation Technician, Program in Maritime History and Underwater Research, ECU.

IN PRINT

A limited number of the following publications are now available through the Program in Maritime History and Underwater Research. Requests should be directed to Mary M. Miller, in care of the Department of History, Admiral Ernest M. Eller House, East Carolina University, Greenville, North Carolina 27858-4353. Please make checks payable to East Carolina University.

Rodgers, Bradley A. *Conservation of Water Soaked Materials Bibliography*. Herbert R. Paschal Memorial Fund, 2nd edition. Program in Maritime History and Underwater Research, East Carolina University. 1990.....\$5.00

In Search of Our Maritime Past, Proceedings of the Fifteenth Conference on Underwater Archaeology. Program in Maritime History and Underwater Research, East Carolina University. 1988.....\$10.00

Cooper, David J., ed. *By Fire, Storm, and Ice: Underwater Archaeological Investigation in the Apostle Islands*. 1991. Available from David J. Cooper, State Underwater Archaeologist, The State Historical Society of Wisconsin, 816 State Street, Madison, Wisconsin, 53706.

Cooper, David J. and Bradley A. Rodgers. *Report on Phase One Marine Magnetometer Survey in Death's Door Passage, Door County, Wisconsin, 1989*. NOAA 1990. \$5.00 plus \$2.35 postage, also available from David Cooper.

Cooper, David J. and Bradley A. Rodgers. *Survey of Submerged Cultural Resources in Northern Door County; 1988 Field Season Report*. \$7.00 plus \$2.35 postage, also available from David Cooper.

AT THE LAB

"Excavation without conservation is vandalism," writes one archaeology conservator, emphasizing that the conservation of objects recovered from archaeological sites is indeed a necessity. In order to produce students prepared to deal with this expanding dimension of the field, ECU's Program in Maritime History boasts one of the nation's best water-soaked materials conservation laboratories, under the direction of Archaeologist Bradley A. Rodgers. From its beginnings in the basement of Ragsdale Hall, the lab has expanded into a conservation training facility for students and staging area for the summer field excavations, as well as a center for outside conservation contracts.

Shannon Richardson

LAB UPDATE

Because of its growth and productivity, the lab has won two artifact conservation contracts since becoming operational, while consulting on several more. The contract with the Commonwealth of Virginia to conserve the artifacts recovered by the Yorktown Shipwreck Project brought the Conservation Laboratory operating funds, allowing it to become a nationally recognized facility.

In order to conserve the over 700 artifacts involved in the Yorktown Project, Professor Rodgers provided for the construction of a new wet lab, located near the main laboratory office building, which houses a drying and coating room, electrolytic room, wood shop, and a dark room. The new lab contains twelve holding tanks, three treatment tanks, three cleaning sinks, and a silica medium sand blaster. Its design also allows for treating artifacts with either poly ethyl glycol (PEG) or sucrose in insulated, heated tanks.

The contract with Virginia also initiated the design and construction of several important pieces of equipment. To treat the various pieces of textile and leather artifacts, a textile treatment table was constructed. This table includes an overhead illuminating magnifier, a back-light built into the table surface, a water jet cleaning tool, and a suction device for removing debris. To treat stoneware and ceramics, a Cascade Agitating Tank was built. This unit allows for the continuous flow of water through five treatment bins, rinsing chlorides and contaminants from artifacts. To bring artifacts to ambient humidity after treatment is complete, a humidity control chamber was constructed from an agricultural liquid storage tank. This unit contains three

removable shelves to allow for various sized artifacts and also contains a sonic humidifier. Because of the volume of artifacts being treated, Professor Rodgers decided to maximize PEG usage by constructing a recovery system. The bulking agent recovery tank incorporates a "scrounged" 1500 gallon agricultural tank and two 300 gallon storage tanks. By pumping used bulking agent into the large tank, the lab can evaporate the liquid to a desired percentage, usually 80 percent, and store it until needed. So far, all of the PEG remaining after treatment with the artifact tanks, about 160 gallons, has been recovered. Because of the magnitude of this conservation project, I was hired by the Maritime Program as Conservation Technician to provide management continuity.

Consultations with a university architect to extend the wet lab have developed plans to house an 800 cubic foot heated, treatment tank in the new addition to our existing lab. The new tank can be used as one large tank or divided into four separate compartments, each capable of treating a separate artifact. The new building will also hold a cleaning sink and eventually a built-in humidity control room.

As the Maritime History Program has expanded and developed new projects, the Conservation Laboratory, through outside contracts, has enabled itself to handle any conservation eventuality required by project research. The existing lab, already light years ahead of the 1989 facilities, is poised to make another quantum leap in conservation capacity. Stop by for a tour and prepare to be impressed!

David B. Whipple

OTHER NEWS

The foundation of the Conservation Laboratory's success is the wealth of knowledge accumulated by both faculty and students. A cornerstone of new research, the second edition of *Conservation of Water Soaked Materials Bibliography* is now available through the Program. Supported by the Herbert R. Paschal Memorial Fund, this latest edition contains over 700 listings of books and articles relating to the conservation of wood, glass, ceramic, metal, organic, and composite objects that have been recovered from a marine environment. Our library now holds over 350 of these books and articles, providing an important resource. Funding from outside grants promises to provide more additions, and updated editions of the bibliography can be expected in the future.

This year's conservation course is conserving artifacts recovered from the program's 1991 field projects in Plymouth, North Carolina, and the Millecoquins River, Michigan. Larger Civil War-vintage artifacts undergoing treatment include one of the USS *Southfield's* blocks and her tiller. Several artifacts recovered at the Millecoquin's wreck-site will enlighten researchers on Great Lakes life during the early nineteenth century. These include cutlery, wine bottles, well-preserved samples of rope and leather, and various metal objects.

In addition to individual projects, the lab is also in the midst of processing

(continued on page 14)



Maritime Program research vessels and Summer Field School crewmembers on site at Plymouth, North Carolina. (Photo: ECU News Bureau)

1992 SUMMER FIELD SCHOOL

During the second summer session in 1992, East Carolina University will sponsor its fourteenth annual Summer Field School in Maritime History and Underwater Research. This unique program has been developed to provide a limited number of qualified students with a basic introduction to American maritime history and the scientific methods and techniques employed in underwater archaeological research. Each student in the program will participate in classroom lectures, workshops, seminars, and will conduct on site research. Students who plan to participate in the diving aspects of the project must make arrangements with the East Carolina University Diving Safety Officer to insure that all aspects of a 60 foot depth certification have been met prior to the beginning of the field research.

Undergraduate (senior level) and graduate level credit will be offered. A tuition and fees schedule is available upon request. Semi-private residence hall rooms can be reserved for around \$30.00 a week on campus. For the time in the field, housing will be provided near the site with the students responsible for their own meals. This year, the field school will be held in Jacksonville, Florida, working on the Civil

War shipwreck *Maple Leaf*. Skills used will include excavation, site mapping, and other archaeology-related techniques.

Applicants for the program should be enrolled in history, archaeology, geography, or related fields. For additional details, medical forms, application, and tuition and fee schedule, please contact:

Dr. William N. Still, Jr.
 Director of Maritime History
 Department of History
 Admiral Ernest M. Eller House
 East Carolina University
 Greenville, North Carolina 27858-4353
 Telephone (919) 757-6097

Other News (continued)

Revolutionary War artifacts from the Yorktown Shipwreck Archaeology Project. Of the 763 items submitted to the lab for treatment, some 330 have been completed. Professor Rodgers and Conservation Technician David Whipple note that the contracts are "right on schedule." Lab assistants are also nearing the final stages of conserving a 250-pound wood and metal cannon carriage from Yorktown. This is the largest composite artifact the lab has ever undertaken. The remainder of the Yorktown Shipwreck Archaeology Project's artifacts should be finished by fall

of next year.

With a proven record of productivity, resourcefulness, with potential for expansion, the Conservation Laboratory has become one of the foremost facilities of its kind in the nation. As such, the lab is not only an asset to ECU's Maritime History Program, but a significant addition to world-wide underwater archaeology and conservation.

Shannon Richardson

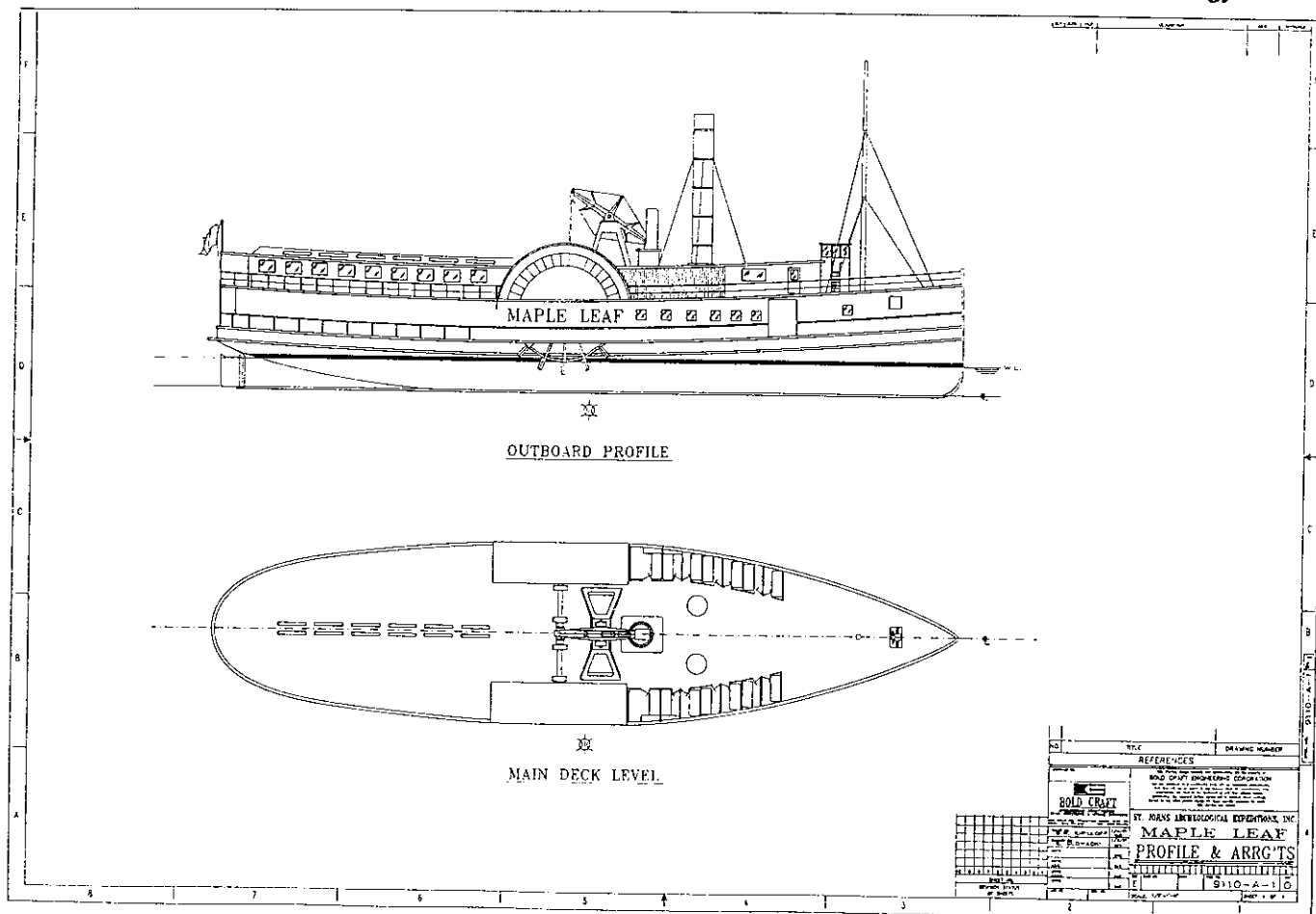
Papers (continued)

_____. "Confederate Naval Technology." T. Harry Williams Symposium in Civil War History at Southeastern University, Hammond, La.

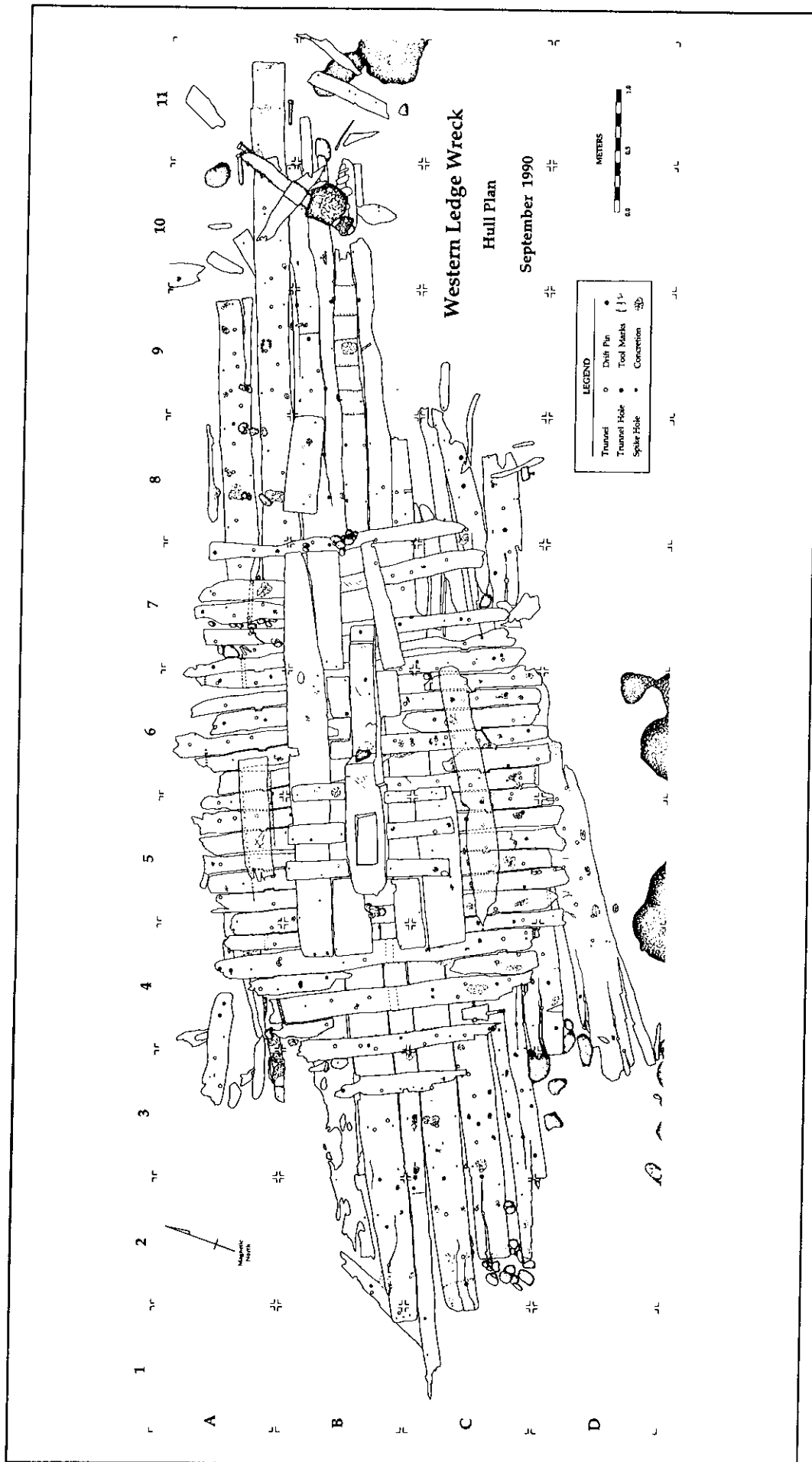
Bruce Terrell. "Louisiana's Submerged Cultural Resource Management Plan." Conference on Historical and Underwater Archaeology.

Gordon P. Watts, Jr. "Running the Blockade: A More Detailed and Different Perspective." Conference on Historical and Underwater Archaeology.

_____, et al. "USS *Monitor*: Update on Data Analysis from the 1987 Season." Conference on Historical and Underwater Archaeology.



Profiles of the side wheel steamer *Maple Leaf*. (Illustration: B.W. Kirilloff, E. Glowacki, and Bold Craft Engineering Corporation)



(Illustration: Frank J. Cantelas)

GRADUATE STUDENT RESEARCH

The following list reflects research interests of students and alumni of the program.

Brina J. Agranat: Rebuilding the *Peacock*: An Inquiry into the Early Navy's Practice of Rebuilding Vessels of War, and the Preparations for the First United States Exploring Expedition.

James Allan: The Maritime History of Fort Ross, California.

Raymond E. Ashley: Scurvy and Longitude: The Integration of Science into Eighteenth-Century Maritime Practice.

Adriane Askins: Eighteenth-Century East India Company Trade with China.

Jemison R. Beshears: Dutch Maritime Trade in the Caribbean and Related Shipwreck Sites.

Frank J. Cantelas: The Archaeological Investigation of the Millecoquin River Wreck: An Early Nineteenth-Century Great Lakes Sailing Vessel.

Jay Chapman: American Post-Revolutionary War Sea Power.

Diane Cooper: Matthew Turner and the Shipbuilding Industry in the San Francisco Bay Area, 1875-1900.

Cristen Gober: A History of the USS *Kearsarge*.

Robert Holcombe: The Evolution of Confederate Ironclad Design.

Shawn Holland: A Study of Women in American Seaports during the Nineteenth

Century.

John O. Jensen: Cholera and Immigrants: Maritime Quarantine and American Society in 1892.

John W. Kennington: The Ordinary Sailor of the Savannah River Squadron, 1861-1865.

Lillian King: A Study of Swedish Maritime Commerce and the Byzantine Empire.

T. Kurt Knoerl: An Archaeological Investigation of the Cove Area of Old Fort Niagara.

Richard Mannesto: A Submerged Cultural Resource Study of White Fish Point, Michigan.

Betsy Mathews: A Study of the Construction and Design of the Six-Masted Schooner *George W. Wells* and Its Relationship to Bulk Shipping.

Amy Mitchell: A Macro-Botanical Analysis of the Revolutionary War Era.

R. Scott Moore: The Evolution and Design of Greek Naval Forces and Strategies in the Hellenistic Age.

Glenn Overton: A Detailed Analysis of the USS *Schurz*.

Martin D. Peebles: Changes in Trade, Royal Policy, and Naval Architecture in Late Medieval and Early Tudor England.

Edward Prados: The Ancient and Medieval Maritime Trade of Arabia Felix (Yemen).

Shannon Richardson: The History and

Future of Waterlogged Artifact Conservation.

Lisa E. Rupp: Early Successes of the Caribbean Pirates, 1550-1650.

Matthew Russell: The British Logwood Trade in Spanish Central America, 1670-1763.

John C. Schaefer: Nineteenth-Century Shipping on Lake Superior.

Victoria Schneider: Maritime Trade in America's Revolutionary Era.

Heidi Tobias-Smith: Sea Ventures and Dream Traders: Anglo-American Rivalry in the Early China Trade, 1784-1860.

James D. Spirek: USS *Southfield*: A Historical and Archaeological Investigation of a Civil War Gunboat.

Thomas Stoltmann: A Site Report of the *Alva Bradley*, North Manitou Island, Michigan.

William H. Thiesen: Bellwether of America's New Navy: The ABCD Warships.

Raymond E. Tubby: A Study of the Navy's Rejection of the USS *Wampanoag*.

Lolly Vann: The *Star of India*: The Impact of Unsanctioned American Trade Activity in the Mexican Territory of California, 1845-1846.

Daniel Warren: A Study of the East India Company's Competition in the Seventeenth Century.

Stem to Stern

Program in Maritime History
and Underwater Research
Department of History
Admiral Ernest M. Eller House
East Carolina University
Greenville, NC 27858-4353

Non-Profit Org.
U.S. Postage
PAID
Permit No. 110
Greenville, NC
