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Program graduate student, Mike Coogan examines a small ceramic pitcher from a seventeenth-century wreck in Bermuda. (Photo: Gordon P. Watts, Jr.)

Stem to Stern

Newsletter of
East Carolina University's
Program in Maritime History
and Nautical Archaeology

Faculty:

Timothy J. Runyan, Ph.D.,
Interim Director

Lawrence E. Babits, Ph.D.
Michael A. Palmer, Ph.D.
Anthony J. Papalas, Ph.D.
Bradley A. Rodgers, Ph.D.
Richard A. Stephenson, Ph.D.
Carl E. Swanson, Ph.D.
John A. Tilley, Ph.D.
Gordon P. Watts, Jr., M.A.

Staff Archaeologist:

Frank Cantelas

Office Manager:

Karen Underwood

Editor: Phillip B. McGuinn

Assistant Editor: Mark Burdette


Staff: Rick Jones, Jeffrey Morris,
Annalies Corbin Kjorness, Ann
Merriman, Chris Olson, Paul Steinberg,
Jinky Smalley, Mike Coogan, Scott
Emory, Frank Cantelas

Published annually by the Department of History, Program in Maritime History and Nautical Archaeology, East Carolina University. Alumni are encouraged to send current information regarding achievements or employment 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 919-328-6097, Fax: 919-328-6754, or write:

Stem to Stern

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

 Printed on recycled paper

2,000 copies of this document were produced at a cost of \$1,650 or \$0.825 per copy.

FROM THE EDITOR

East Carolina University's Program in Maritime History and Nautical Archaeology entered a second phase in 1994 with the retirement of Dr. William N. Still and the interim appointment of Dr. Timothy Runyan. A legacy to the vision of Dr. Still, the program continues to expand.

Stem to Stern has grown along with the program. Entering its tenth year of publication, the 1995 edition is the largest printed, which mirrors the Program's growth.

The Program's needs have changed as it has grown. More focus must be given now to providing the equipment, facilities and faculty required to continue to provide a quality education. Dr. Runyan discusses these topics in his interview.

Students and faculty are constantly making contributions to the field of Maritime History and Nautical Archaeology. Unprecedented numbers of faculty, students and alumni presented papers at the 1994 and 1995 Conferences on Underwater Archaeology. This year seven current students will make presentations at the North American Society for Oceanic History Conference in Wilmington, NC. Also, a number of research projects have recently been conducted and others are underway. Details of the recent projects are covered beginning on page 17.

During this transition period, the faculty, students and university administration remain committed to maintain the initiatives developed by Dr. Still and to explore ways to reinforce the program's reputation and to enhance the quality of education received by the student while making significant contributions to the field of Maritime History and Nautical Archaeology.

IN BRIEF

Dr. Larry Babits was named by the Archaeological Institute of America as Anna Marguerite McCann and Robert D. Taggart Lecturer in Underwater Archaeology for 1995-96. Congratulations.

Dr. Bradley Rodgers and the students of the 1994 Maritime Archaeology Field School in Hawaii received the 1994 Exemplary Program Award for the Credit Programs given by the Western Association of Summer Session Administrators. The Hawaii field school earned the award because of its unique preliminary research to final site report approach to study.

IN MEMORIAM ERNEST W. PETERKIN

The Program in Maritime History and Nautical Archaeology lost a good friend and adjunct colleague during the recent Conference on Underwater and Historical Archaeology in Washington, D.C.

Ernest Peterkin was stricken and died on Friday, 6 January while attending the meetings. He attended the *Maple Leaf* symposium on Thursday and then met with SJAIE and ECU students to view shoes and boots recovered from the *Maple Leaf*. On Friday morning, he met with other students and discussed their work. He died on the way to the hospital after suffering a heart attack. He was 74.

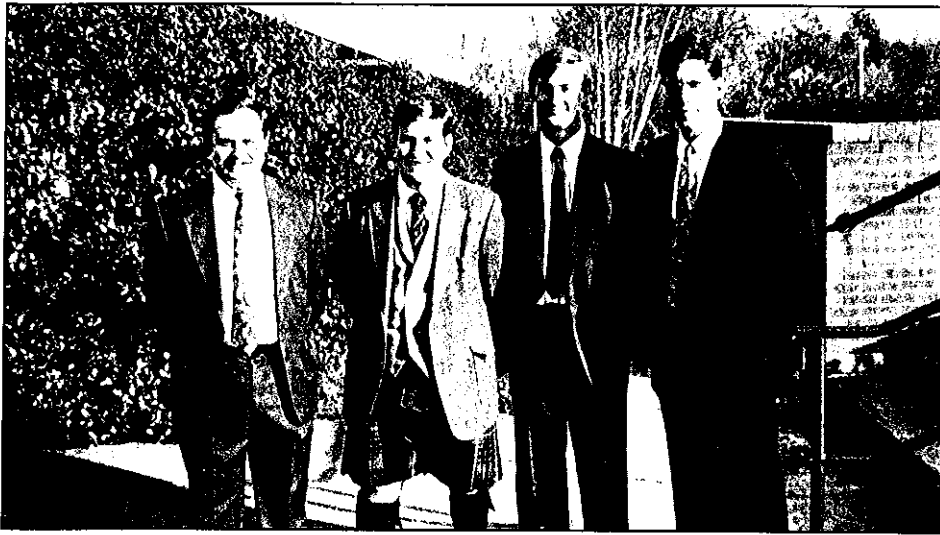
Ernie was exceedingly curious about the past. His attention to detail serves as a model for those who would aspire to knowledge.

He made major contributions to research on both the *Monitor* and the *Tecumseh*. His knowledge of monitors was encyclopedic and readily shared. He prepared the

engineering drawings of the USS *Monitor* for publication as part of a lifelong interest in Civil War ironclads.

His knowledge of leather goods, especially shoes and boots, his abilities with needle and thread, and his expertise in the manual exercise of the late eighteenth century were legendary. He was one of the creators of modern living history and participated in events ranging from the Columbus voyages to the Plains Indian Wars in clothing he made.

While he worked closely with Bill Still, Gordon Watts and Larry Babits on various projects, his ready accessibility and willingness to provide sources benefitted many Maritime students, some of whom never met him personally. He will be sorely missed but his legacy already can be seen in the many teachers and interpreters all over the country who learned their trade from him. In that aspect, his contribution to the future, he lives on.



Award winners: (L to R) Charles Bayman, Joshua M. "Scotty" Smith, Tom J. Marcinko, Mike Coogan. (Edwin Combs and Jeffrey Day: not pictured)

MARITIME STUDIES ASSOCIATION

The Maritime Studies Association (MSA) is a non-profit organization that was established by graduate students at ECU in Spring 1992. MSA's goals include assisting graduate students with research, promoting interest in our maritime history and providing information about our maritime cultural resources to the community at large.

Lectures to local communities provide opportunities to reach the public. For example, **Wendy Coble** and **Annalies Corbin-Kjorness** recently spoke to the local elementary schools on the role of divers and nautical archaeology. Professional conferences also serve as an avenue for the dissemination of information.

Also, MSA's newly-formed Speakers Committee is in the process of making arrangements for noted historians and archaeologists to visit ECU to talk about their research interests and current work. These lectures will be open to the public and are free of charge.

Currently, MSA is in an excellent position to expand its influence and participation in a variety of projects due to an increase in the number of new students and to the work accomplished by past MSA members. With a variety of academic backgrounds, students come from Greece, England, and from all over the United States. Geographic diversity is also reflected in the research interests of MSA students. For example, members have on-going archaeological projects in Bermuda, Canada, England, and Yemen. Historical research

includes a wide range of topics--such as Colonial maritime law, Civil War navies, and the Manila galleon fleets.

This year, students in the Maritime program worked on projects at sites in Alabama, Florida, North Carolina, Michigan, Virginia and Bermuda. Their research has yielded valuable information, artifacts, and experience, but these benefits come at a high cost. Technology and travel are expensive, and the increasing number of students in the program have strained financial resources. More equipment is needed to cover future projects and to give students a strong learning platform. Additionally, the financial costs of traveling to, and living on, sites prevents many students from participating fully in field schools and academic conferences.

In 1992, MSA set up the Maritime Studies Association Trust Fund Account to address these financial concerns. Over the past two years, a number of local and national businesses and students have contributed to the fund, both by providing specialized equipment and by defraying research costs.

If you would like to contribute to the MSA Trust Fund, please make your checks payable to ECU Foundation for Maritime Studies Association Trust Fund. Anyone donating \$25 or more will receive a Maritime History and Nautical Archaeology T-shirt in appreciation. In addition, anyone interested in becoming Associate or Alumni members of MSA may write to: MSA (attn: Kerry O'Malley), c/o ECU Program in Maritime History and Nautical Archaeology, Admiral Ernest M. Eller Building, Greenville, NC 27858-4353.

MARITIME STUDENTS RECEIVE RECOGNITION

In addition to a number of research and teaching assistantships, ECU's Department of History offers scholarship awards to graduate students. These awards are provided by private benefactors in an effort to support research in the field of history and are presented to students based upon their academic records and proven writing ability. In keeping with the Maritime Program's tradition of excellence, the history department has once again awarded a number of fellowships to students in the Maritime Program. **Thomas J. Marcinko** and **Joshua M. Smith** were named recipients of the Lawrence F. Brewster Fellowship. The Paul Murray Graduate Scholarship in History has been awarded to **Jeffrey L. Day**. The Admiral Ernest M. Eller Graduate Fellowships in Modern Naval History were awarded second year student **Edwin L. Combs** and first year student **Charles E. Bayman**.

Michael P. Coogan was awarded the Richard Cecil Todd Phi Alpha Theta Scholarship in History.

The faculty, staff, and students of the Program in Maritime History and Nautical Archaeology offer hearty congratulations and wish the above-named students all the best in their research endeavors.

GRADUATE THESES IN MARITIME HISTORY

The following theses were completed in 1994 by students in the Program in Maritime History:

Patrick Cole. "God's Grace: English Maritime Salvage, 1600-1800."

Stan Duncan. "Site Formation Processes: An Environmental History of the *Maple Leaf* Site, 1864-1993."

John Kennington, Jr. "Gray Jackets in Savannah: The Enlisted Sailor of the Confederate States Navy on the Savannah River, 1861-1864."

T. Kurt Knoerl. "Beneath Niagara: A Methodological Approach to an Inundated Eighteenth-Century Site."

Amy Mitchell. "A Comparison of Wood Use in Eighteenth-Century Vessels."

John Schaefer. "A Long and Slow Martyrdom: The Jesuit Role in the Huron Country, 1632-1650."

Hans Van Tilburg. "The Maritime History and Nautical Archaeology of China in Southeast Asia: Song to Early Ming Dynasties (960-1435)."

NEW HISTORY CHAIR DR. ROGER BILES

Dr. Roger Biles moved into the corner office of Brewster A-301 in August to become the eighth chair of the East Carolina University History Department. Dr. Biles replaces Dr. MaryJo Bratton who was acting chair from 1992-1994. He comes to ECU from Oklahoma State University where he served as Interim Associate Dean of the College of Arts and Sciences and previously twice chaired the Department of History (1987-89 and 1991-93).

Dr. Biles was attracted to East Carolina University partly because of its history. While teaching at Memphis State University from 1981-84, Biles chose to research the city and the South. "Through my study of the South," Biles says, "I came to think highly of North Carolina as a state that supports higher education. ECU is a part of the university system that has a good reputation academically, although it is probably better known on the east coast."

Dr. Biles' interest in the South has resulted in two books: *Memphis in the Great Depression* (1986) and *The South and the New Deal* (1994) "While my graduate training isn't in Southern history, I decided to apply my graduate training to the city in which I was living at that time." Trained as an urban historian, he received his doctoral in history from the University of Illinois at Chicago in 1981. Biles, a native of Illinois, is a 1972 Phi Beta Kappa graduate of the University of Illinois at Urbana-Champaign, from which he also received his master's in history in 1974.

"I am fascinated by urban politics and big city bosses," Biles says. His first book, *Big City Bosses in the Depression and War: Mayor Edward J. Kelly of Chicago*, was published in 1984, and 1995 will see the publication of his biography of former Chicago mayor Richard Daley. However, Biles refuses to be categorized as just an urban historian. "My work at Memphis State and Oklahoma State University demanded that I teach more broadly," Biles asserts. "I taught twentieth-century American history. In the course of research, I developed a particular interest in the 1930s," an interest that led to the publication of *A New Deal for the American People* (1991). "I'm as much a historian of that era as an urban historian," he confides.

As he settles into Greenville, what has he found here and where does he see the department going? "We are at a defining point in the ECU Department of History. We have a mature department, but it also has a blend of younger faculty," Biles

relates. "This will continue as new people replace faculty members who retire." Biles indicated that two to five faculty members will retire in the next five years. Also, the department recently hired Civil War historian Dr. David Long.

Since his arrival, Dr. Biles has noted several strong aspects of the department. "This is a very good teaching department with a good commitment to classroom instruction," Biles notes. "Also, I've been pleasantly surprised by Joyner Library. Its holdings in American history are better than I thought it would be, and of course, it'll get better after the construction of the new wing."

Another item that has impressed Dr. Biles has been the Program in Maritime History and Nautical Archaeology. "I came to ECU with only a vague knowledge and understanding of what the program was," Biles confessed. "In four months here, however, I've been tremendously impressed by what I've seen." Biles indicated that he was particularly struck by the quality of the program, quality of the students, and the dedication and achievements of the faculty.

In fact, Dr. Biles' immediate goal is to establish a doctoral program in Maritime History and Nautical Archaeology and to continue to improve the program. Despite the fact that the most recent doctoral program proposal was turned down by the UNC Board of Governors, Dr. Biles is not ready to give up on the proposal. "We'll be persistent and continue to try to get the Ph.D.," Biles asserts.

"The program has been very successful, but to ensure it continues, we need to address issues of funding and personnel to keep it at that level." Biles admitted the program was experiencing growing pains and needs to be stabilized as a Masters program before addressing the concerns of establishing the doctoral program. "Not only has the program grown, but the potential is there, it seems, to be almost unlimited," Biles remarks. "However, we can't let it grow without maintaining a balance of students, faculty and funding."

In the long run, where does Dr. Biles see the Department going? "Generally, I'd like to see the doctoral program in place. Also, I'd like to see the same attention to teaching with an increased attention to research and publications," Biles states. He knows, however, that these goals won't magically appear. "I realize that I have to do things to let that happen," he says. "I have to provide support and incentives to get that to happen."

Joining Dr. Biles in Greenville are his wife, Mary Claire, and children, Brian, Grant and Jenny.

Phil McGuinn

RUSSIAN HISTORIAN FILLS NEW POSITION

Dr. Semion Lyandres joined the History Department at ECU this Fall as a historian of Russia and the Soviet Union. The Leningrad State Pedagogical Institute awarded Dr. Lyandres a B.A. in Russian history in 1980. Seven years later, Dr. Lyandres earned an M.A. in modern European history from Boston University followed by an M.A. in Russian history from Stanford University in 1988. Dr. Lyandres also earned his Ph.D. in 1992 from Stanford with a major in Russian/Soviet history and a minor in East European history.

Dr. Lyandres's experience includes research assistantships at Harvard and Stanford from 1986-1992. He also taught as a Visiting Assistant Professor in Russian/Soviet history at Stanford from 1988-1991. Immediately before coming to ECU Dr. Lyandres was a National Fellow at the Hoover Institution on War, Revolution and Peace.

PAPALAS JOINS MARITIME PROGRAM

Dr. Anthony J. Papalas became the latest permanent addition to the Maritime faculty last spring when he began to offer a course on maritime history of the Western World to 1415. An ancient world historian, Dr. Papalas wants to provide the Maritime Program with an ancient history dimension.

Dr. Papalas received his B.A. and M.A. in history from Wayne State University. In 1969 he earned his Ph.D. from the University of Chicago. He taught at Carthage College for a short period before moving to ECU. He recently published a book entitled *Ancient Icaria*.

After directing several M.A. theses concerning ancient maritime history, Dr. Papalas found himself wanting to take a more active role in the Maritime Program. Dr. Papalas realized that with his background he could fill a need for an ancient maritime historian, so in the Spring of 1994 he began teaching the course on early maritime history.

"I like the variety of students in the program," says Dr. Papalas who hopes to see more work done by students in the field of ancient maritime history. Dr. Papalas would like to see more courses concerning ancient history as the program expands and attracts more students with ancient history interests.

Mark Burdette

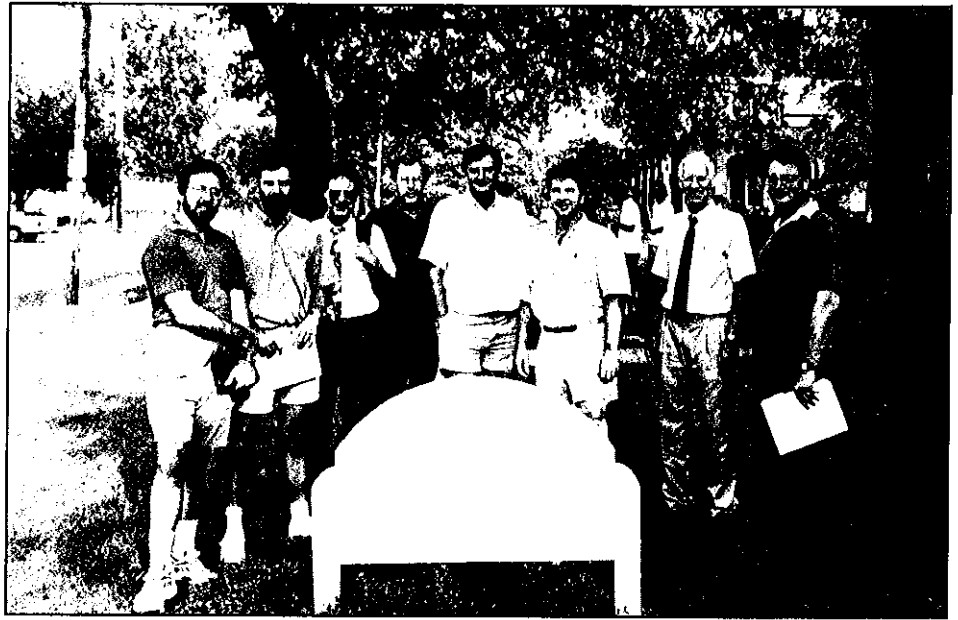
COFFEE TALK WITH DR. RUNYAN

In August, Dr. Timothy Runyan arrived at the Eller House to fill the vacancy left by Dr. William Still when he retired in June. Dr. Runyan came to East Carolina University from Cleveland State University where he has taught since 1969. After he graduated from the University of Maryland with a degree in medieval history, he won a fellowship to do research and attend the Institute of Historical Research at the University of London for two years. He has taught at the University of Maryland, Cleveland State University and Oberlin College, in addition to holding a number of administrative positions. He is a past president of the North American Society for Oceanic History, and currently is President of the Great Lakes Historical Society. Dr. Runyan spearheaded the fund raising for and renovation of the Great Lakes steamship William G. Mather, a 618-foot bulk carrier. He has published a book on medieval maritime history, edited a volume of essays for NASOH called *Ships, Seafaring and Society*, and in 1994, co-edited with Jan M. Copes *To Die Gallantly: The Battle of the Atlantic* (A Military Book Club selection). He is editor of *The American Neptune*, a quarterly journal of maritime history published by the Peabody Essex Museum, Salem, MA.

On some mornings Dr. Runyan holds staff meetings at his "annex office" across the street from the Eller house at a local coffee shop. We joined Dr. Runyan there one morning, and spent time trying to understand where the Program stands and where it is going.

Editor: Why did you take the position of visiting professor and interim director of the program in Maritime History and Nautical Archaeology?

Dr. Runyan: I'm here because this is an exceptional program that has won national and international recognition as a place to train underwater archaeologists and produce maritime historians. I was flattered to have the opportunity to come down here to work with the faculty and students who I've found very dedicated to what they're doing and very directed in their efforts. My main focus has been to contribute what I can in the way of teaching and research and to involve people in some of the things that I have been involved with, including *The American Neptune* which is being produced here at the university this year. Also, for my own purposes, I came to learn from the others who are here, especially the archaeologists, because at Cleveland State,



Maritime History and Nautical Archaeology Staff in front of Eller House at the rare moment before everyone heads off to field schools: (L to R) Steve Sellers (Dive Safety Office), Frank Cantelas, Carl Swanson, Larry Babits, Gordon P. Watts, Jr., Bradley Rodgers, Timothy Runyan, and Michael Palmer.

we don't have any underwater archaeologists. This is a great opportunity for me.

On the more administrative side, I hope to bring some focus to decision making and uniformity in practices that will make us more efficient. Also, I want to develop some of the initiatives the program has started, primarily the development of the Ph.D. program.

Editor: What did you expect to find here?

Dr. Runyan: I have known most of the maritime faculty before I came here through conferences and organizations in which I had been active. The personalities and

"Students learn in the field which is one of the unique features of this program."

some of the key figures in the program were not new to me. I was also well aware that the only other program was at Texas A & M University, and that although a number of universities have talked about or made efforts to develop programs, none of them have really developed the way that the program at East Carolina University or Texas A& M have developed. So I had a good idea of what to expect.

Editor: What have you seen over the past several months? What are the program's strengths and weaknesses?

Dr. Runyan: I can't talk about weaknesses, [laughs]. Its strengths are that you've got here a collection of faculty which

has attracted an excellent core of students who have been coming in and out of ECU ever since the program began in 1981. Therefore, you have an established reputation in the field and you've trained some of the key figures who hold important positions in the maritime field in the country today. One strength of the program is that it runs field schools. Students learn in the field which is one of the unique features of this program. We conducted four field schools in one year. That is a tremendous commitment to the program on behalf of faculty who are willing to go for months at a time to work in not-always-friendly environments. This allows students the opportunity to work in the field, so that a graduate of this program comes out really ready to work in the field and that is very important. This is an initiative that must be maintained by the program.

Another strength is the relationship the program has with the new chairman of the history department, **Dr. Roger Biles**. I think Dr. Biles has provided organizational skills and leadership that have helped me. Also, **Dean Keats Sparrow** has been a principal supporter of the program since its inception and has always put the program in Maritime History and Nautical Archaeology in the forefront of his agenda for the College of Arts & Sciences. **Vice Chancellor Yarbrough** and **Chancellor Richard Eakin** have stepped up in the support of the program also.

The students are a strength. This was best expressed recently when the students asked 'what can we do to make the program

MORNING COFFEE WITH DR. RUNYAN

(Continued from page 5)

better.' So we ended up having a series of five o'clock meetings. One of these was held with the Associate Vice Chancellor for Institutional Advancement, Charles Phlegar, who came to talk about what that office could do to assist the program. The graduate students took that opportunity to explain what they felt ECU needed to take this program to first class status. He was so impressed he asked for a proposal which, working with the faculty, we have now generated. We're now working with Ms. Scott Wells in the development office to go out and raise additional monies from outside the university to move this program to the cutting edge of the field. To find students willing to take their time away from an already busy schedule and commit themselves to attend a series of meeting, to draft plans and mission statements, and to identify potential sources of support is, I believe, extraordinary. There's a maturity about the students and the faculty that is a strength.

We have been very fortunate in the support from the university in the form of two new pontoon boats that will be very good for river and estuary work. Also, we received a new truck that was needed to pull the boats.

Editor: *We'd like to talk about the program's weaknesses. You may turn them, as some have, into opportunities, but every program has weaknesses that need to be acknowledged. What have you found?*

Dr. Runyan: The weaknesses that I've noted in the program, if that's the proper term, are places where there is opportunity for improvement, which I think is a better way to put it.

The program could use better financial support from the university and administration because the program is responsible not only for the maintenance, but also the provision (for teaching) of a large amount of technical equipment. If one is to emerge from this program trained in the latest equipment, then the program must have that available. It has to provide the opportunity for students to work with that equipment. We must have a working magnetometer, a working G.P.S. system, and other state-of-the-art equipment, so that our students emerge from the program fully competent in the technology of the field.

In addition, the program here is a demanding one that takes more than two years. My own view is that the focus is too often the process of going through the program rather than the final product, which is the thesis. We need to look at the program from the point of view of the consumer, which is the student, and see if we are providing the instruction and guidance to succeed in the program.

I think we also need to build better bridges with some of the other units of the University that link to the work that we do.

Editor: *Given the strengths and weaknesses you've identified for the program, where do you see its opportunities?*

Dr. Runyan: The program has the potential to grow if additional staff are added so that more students can be accommodated. Without additional staff, there's not much opportunity for growth because the program can't handle more students than it is currently enrolling which is about 15 each year.

Growth in quality can come in curriculum and faculty development. We can establish program links with other institutions. We have an agreement with the Navy Memorial Foundation and we have an intern there in

"No program can sit still. You have to continue to grow."

Washington, D.C. We have links with the University of Hawaii where we've run a field school. We have a link with the University of Exeter and have begun talks with King's College in London which should be pursued.

More recently, we have a possible relationship in Denmark with the University of Aarhus and the University of Copenhagen. The list of potential links is virtually unlimited, but our ability to participate would mean a commitment of resources and faculty.

Editor: *What threats are there to the program's success you've outlined?*

Dr. Runyan: Of course, the decision could be made by the university to reduce its support, and that would cause problems. Another is if the faculty are not supported or stabilized in their positions, then you become vulnerable to turnover, and you don't have the necessary continuity that is acquired by retaining the faculty who have been developed over the years to do successfully the work they are currently doing. In the end the university is just a name, it is really composed of the individual faculty members who constitute the program, and they are the ones who attract the students to come here to study.

No program can sit still. You have to continue to grow. We must explore these new opportunities and we need the resources to develop the international contacts and broader-based national contacts. Through the development efforts currently underway, we need to build a bank of resources, that is funding, to do the kinds of work necessary to make the program always on the cutting edge of the profession. When you are one of only two programs in this country you have to compete. You don't want to be a distant second. If you want to be first, you have to

WHAT IS THE STATUS OF THE DOCTORAL PROGRAM PROPOSAL?

Editor: *What is the status of the plan to establish a doctoral program in maritime history?*

Dr. Runyan: We submitted a proposal last fall to establish a doctoral program within the History Department in Maritime History and Nautical Archaeology. That proposal was rejected by the General Administration of the University of North Carolina with no explanation. In January, Chancellor Richard Eakin, the Interim Vice Chancellor for Academic Affairs Dr. Tinsley Yarbrough, Dean of the College of Arts & Sciences Keats Sparrow, Dr. Biles, Associate Vice Chancellor Myra Cain, and I met with representatives of the General Administration to discuss the

proposal and the reasons for its rejection. Two positive outcomes of the meeting were the expressed support for the program and the proposal from Chancellor Eakin and the recommendation to resubmit the proposal under interdisciplinary studies. Chancellor Eakin stated that he would find the funds to support the program when it is approved. The proposal will be rewritten to include a greater interdisciplinary focus. We will work with Anthropology and other programs as part of the repackaging of the proposal for resubmission. We will submit the proposal for review next fall, and if approved we would look to begin the doctoral program in the fall of 1996.

MORNING COFFEE

(Continued)

do what the competition does and take the initiatives necessary to make it attractive for students and faculty to come to East Carolina University.

Editor: *Where do you see the program in five years?*

Dr. Runyan: The initiatives I've already spoken about in terms of ties to other programs, including those in Europe, and elsewhere, will be an important part of this program. The continued work to develop the doctoral program is very important, and that is going to determine where a lot of the energies of the program are focused in the next several years.

The other main focus will be on where the maritime historians see their work progressing. There are some new opportunities in that field because the archival resources, particularly for contemporary history, have provided a number of different areas of study. We've gone through a period where historians have focused on social history. This has now reached into the maritime and naval historical field, and there are a lot of opportunities there.

On the archaeological side, we're in an age where deep water diving and retrieval are available. If you can do recovery or work on sites and shipwrecks at great depths, it opens up a whole new world of opportunity. Are we prepared to invest in this kind of work and are we prepared to address the risks that are involved? Although it produces tremendous rewards, it is also very expensive.

It probably means that you have to work in conjunction with other institutions or government agencies that have the resources and funding to do that kind of work. Some of that has been done on the *Monitor* and the initiatives that we've been involved with in France with the *Alabama* are wrecks in these categories. If we decide not to do that, then we're confined to working primarily shallow water sites with the limitations inherent in that work.

One problem area for the program is that it is funded through the History Department. However, the program operates like a hard science, and, therefore, needs a budget correspondent to a hard science department like biology, chemistry and physics. It is unusual for a humanities department to manage a unit like this or the equipment necessary for this program as part of its operating budget. The Maritime History and Nautical Archaeology program is unique and needs to be funded for the program it is.

Editor: *Thank you.*



Luiz Cunha (right) and Dr. Bradley Rodgers discuss artifacts conserved from the Yorktown project before they are returned. (Photo: Phil McGuinn)

BRAZILIAN FULBRIGHT SCHOLAR: LUIZ CUNHA

The Program in Maritime History and Nautical Archaeology welcomed its second Fulbright scholar and first visiting Fulbright, to campus in January. **Luiz Cunha**, a visiting Fulbright scholar from Brazil, chose East Carolina University because of its reputation in nautical archaeology.

"I received my Fulbright under the Cultural Preservation Program to study conservation at ECU," Luiz said. Besides conservation, he is studying ship construction and maritime material culture.

Cunha, a native of Rio de Janeiro, Brazil, received degrees at Estacio De Sa University, Bennett Methodist College and St. Ignatious Catholic University. His visit is administered by the Latin American Scholarship Program of American Universities, and sponsored by the Center of Advanced Training for Graduate Students and the Sao Paulo Vitae Institution.

Cunha is on a leave of absence from the Naval Oceanographic Museum located on historic Imperial Square in downtown Rio de Janeiro. Originally hired as the museum's underwater archaeologist in 1988, today he is Section Chief of Conservation and Restoration and Interim Section Chief of Cataloging and Research. He is responsible for administering all Brazilian shipwrecks in coordination with the Brazilian Navy.

While continuing field work and research in underwater archaeology, Luiz also advises state government archaeologists on maritime issues and trains university stu-

dents in archaeology, conservation and restoration.

When he returns to Brazil, Luiz would like to continue his association with ECU through jointly sponsored projects in Brazil. "I am the only underwater archaeologist in Brazil and there is so much to do," Cunha said. One possible project involves investigating the 1827 British-built, Brazilian frigate *Dona Paula*. This well-preserved site could provide a model for other joint projects. In the future, Luiz hopes to develop a program to train future Brazilian nautical archaeologists through the university system.

Immediate plans call for improving the Federal conservation laboratory and updating conservation techniques used in Brazil. In addition, he wants to investigate the suspected site of a Portuguese caravel in Guanabra Bay in Rio de Janeiro. Cunha plans to write a monograph on Brazilian nautical archaeology, placing it in a worldwide context.

The Fulbright Program and ECU are not Cunha's only exposure to the United States and education, however. As an exchange student, he graduated from high school in Detroit, Michigan in 1976.

Luiz enjoys the university environment and is impressed by the high caliber of students in the Maritime Program. "I do not have much spare time but I like to jog and ride my bicycle and play pool with other students."

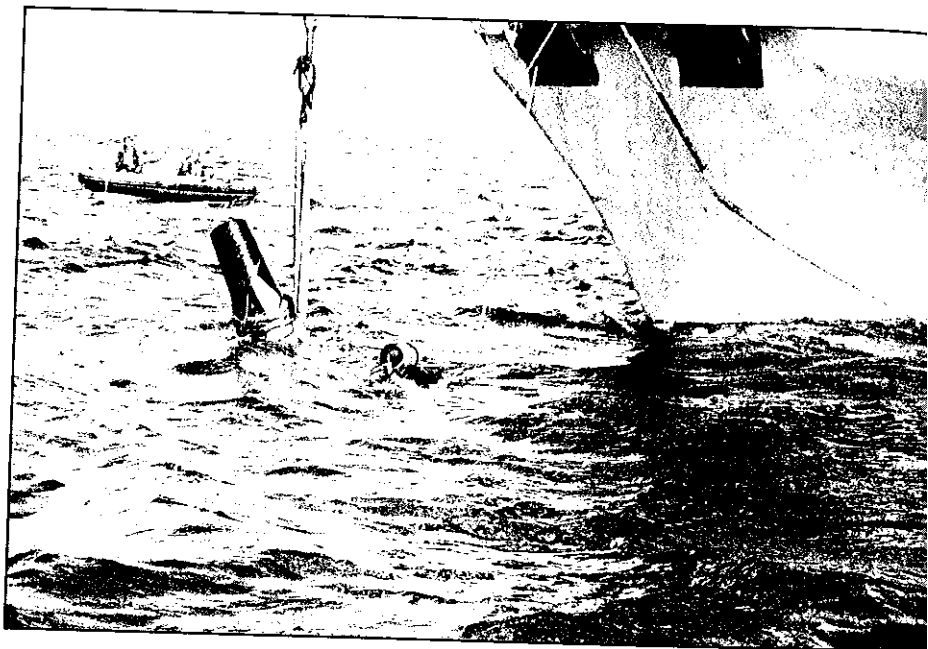
Frank Cantelas

CSS *Alabama*: The 1994 Campaign

Investigation of the Confederate commerce raider *CSS Alabama* took a dramatic turn during the summer of 1994. An impressive exhibit of material associated with the *CSS Alabama* and artifacts from the wreck was opened in Cherbourg and under the direction of Captain Max Guerout, a team of archaeologists and volunteers raised the warship's Blakely rifle and pivot carriage. The exhibit focused on the career of the *Alabama*, the engagement with the *USS Kearsarge*, and the discovery and subsequent investigation of the wreck site. Recovery of the heavy gun attracted the interest of a variety of European news and television services and focused almost as much attention on the *Alabama* as the celebrated engagement with the *USS Kearsarge*. A well illustrated article by Captain Guerout in the December issue of the *National Geographic* magazine included recovery of the Blakely rifle and provided an introduction to work on the *Alabama* for the American public. In 1994, program graduate and University of Florida doctoral candidate **John W. "Billy Ray" Morris, III**, joined **Program Director of Underwater Research Gordon P. Watts, Jr.**, in working with Captain Guerout's team. With the exception of an investigation of the *USS Monitor* carried out under Watts' direction in 1983, work on the *CSS Alabama* is the deepest research project in which the staff and students of the Program have been involved.

The 100-pdr Blakely rifle was the *Alabama's* most sophisticated piece of ordnance. It was mounted on a heavy pivot carriage forward of the vessel's stack and could be rotated across the deck to fire from either side of the ship. Both the gun tube and the carriage were located on top of the starboard forward boiler near the extremity of exposed hull structure. During the first week of diving the pivot carriage was moved away from the guntube using lift bags. It was repositioned inside the hull and secured on top of a lifting frame for recovery. With the pivot carriage out of the way, the gun tube was rigged with lifting slings.

During the second period of diving the carriage and gun tube were recovered. Both the carriage and the gun tube were floated off the wreck with heavy duty lift bags. The French navy vessel *La Fidele* lifted the carriage and gun tube using a massive frame on the bow designed to position and recover buoys. Once on deck the dimensions of the carriage and tube were recorded.



A diver watches as the 3.2 ton Blakely rifle is hoisted aboard the La Fidele. (Photo: John W. "Billy Ray" Morris, III)

After a short celebration at the dock in Cherbourg, the *Alabama's* ordnance was shipped to the conservation laboratory of Archeolyse International for stabilization and preservation. Initial inspection of the Blakely confirmed that the tube contained a fused projectile. Equally interesting was the absence of readily apparent maker and proof marks on the gun.

Once the Blakely and carriage were recovered, the focus of on-site attention was turned to the test excavation initiated in 1993 and examination of the after pump. Continued excavation produced a collection of artifacts that included additional Davenport tableware with a nautical motif consisting of a cable around the rim and crossed anchors within the symbol of the garter. A variety of different styles of ironstone cups were also recovered. The different styles suggests that the officers and crew of the *Alabama* collected tablewares from their prizes. The remains of a small wood box with the stenciled inscription "WINCHESTER'S PERFUMED SALTWATER SOAP BOSTON, MASS." suggests that salvage priorities included a broad spectrum on amenities. Recovered material also included a number of glass and ceramic storage containers for vegetables and condiments. A gimbaled brass bulkhead lantern with the number 39 etched on the base was also found in association with the glass and ceramic material.

On-site investigation included examination and documentation of one of two pumps carried fore and aft aboard the *Alabama*. Although the pump was heavily fouled with marine growth, it appears to be a small vertical cylinder steam engine. Exposed

elements of the pump included the cylinder, upper pump housing, flywheel, a pressure chamber, discharge pipe, and what appears to be part of a strainer mechanism. Although the pump has not been identified it is likely to be a patented and commercially available small steam pump. A current survey of maritime sources may shed light on the pump and its manufacturer. Although the pump would have been suitable for dewatering the hull, it probably also served for fire suppression and/or washdown. Small steam pumps were common by 1860 and the *Alabama's* may well have been produced in Birkenhead, Liverpool or the surrounding area.

In addition to helping document the technology associated with the design and manufacture of small steam pumps, additional examination of that artifact can provide insight into the *Alabama's* steam propulsion plant. The pump's components provide a model for the ship's machinery. The physical condition of the pump's components should reflect those of the principal steam plant. Problems and solutions associated with conservation of the steam pump will provide insight into the methods and costs of conservation of the *Alabama's* the main steam plant. To provide insight into those problems, additional investigation and recovery of the pump has been recommended as a priority for the three-year research design developed by the *CSS Alabama* Challenge organization. Gordon Watts, John Morris and **James Allan**, another ECU alumnus, have been invited to join the French team in that three-year research project.

Gordon P. Watts, Jr.

GREAT LAKES FALL FIELD SCHOOL MILLECOQUINS SHIPWRECK

In April 1990, a young boy named David Head made an important discovery in maritime history. Eroding from the bank of the Millecoquins River on the north shore of Lake Michigan were the remains of a vessel that had not been seen since 1849, when it was mentioned in a surveyors report by William Ives. The wreck lay buried under a forested area a few hundred feet from the lake shore. The existence of the newly rediscovered vessel was soon reported to Michigan State Archaeologist John R. Halsey. After a preliminary investigation Halsey contacted East Carolina University's Program in Maritime History and Nautical Archaeology to arrange for extensive site documentation and analysis.

A preliminary site investigation began in 1991 when a crew of 10 graduate students and Maritime staff spent ten days excavating a portion of the vessel. The 1991 project included an intensive excavation of both the bow and the stern sections of the vessel. To the investigators' surprise it was discovered that the wreck lay in an amazing state of preservation. Personal items of the crew as well as the cargo were still on board. The 1991 investigation demonstrated that another look at the Millecoquins shipwreck was warranted.

The 1994 project was made possible with

the assistance and funding of the Association for Great Lakes Maritime History and the Hiawatha Sportsman's Club. The Hiawatha Sportsman's Club, which owns the wreck site, also provided lodging for the students as well as heavy equipment and logistical support for the project.

In early September of this year **Dr. Bradley A. Rodgers** assisted by **Frank Cantelas** and three other graduate students, **Wendy Coble**, **Annalies Corbin Kjorness**, and **Ann Merriman** returned to Naubinway to re-investigate the Millecoquins site. The ECU crew were aided by numerous program alumni, along with the good wishes and hearty cuisine supplied by the volunteers of the Hiawatha Sportsmen Club. The 1994 investigation focused on the cargo hold of the ship. Field work began with the removal of five to six feet of sand covering the wreck site with heavy equipment. Afterward, a grid system was set up over the cargo spaces and the team commenced the back breaking removal of sand by shovel, trowel, and brute strength. As the wreck lies below the level of the lake, water pumps were used to help keep the site dry and maintain the

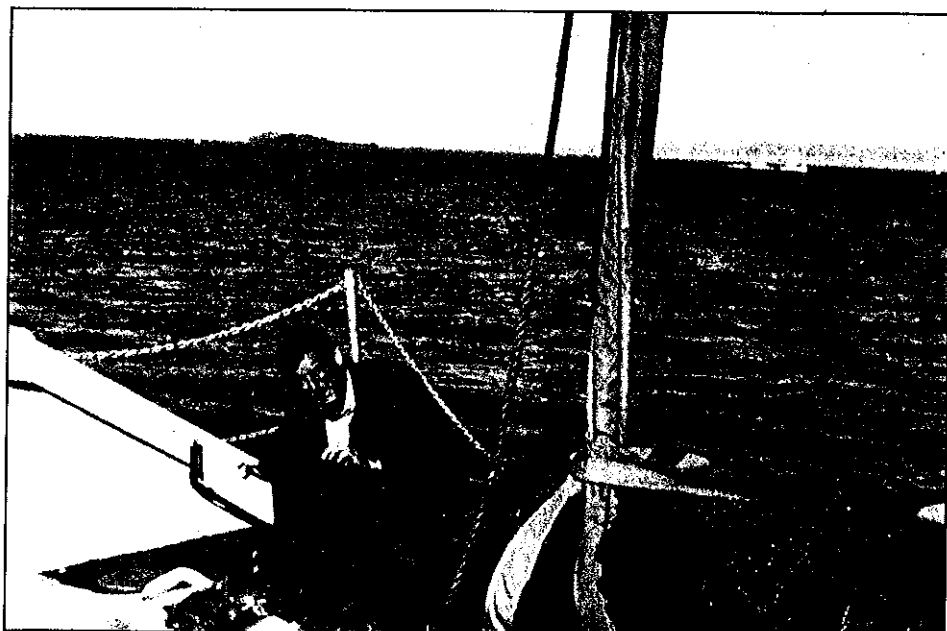


Ann Merriman records barrels uncovered on the Millecoquins wreck (Photo: Wendy Coble)

essence of a "land" project.

In order to maximize data collection while minimizing the site impact, excavators concentrated their efforts on the starboard side of the cargo spaces from the keelson to the side of the hull. Previous sampling in 1991 suggested that the ship was carrying a cargo consisting of salted fish. This was verified in this year's excavation as the team found the remains of numerous barrels. Most of the barrels were in a remarkable state of preservation, lying on their side and "flattened" due to the weight of the sand overburden, but were still largely intact and upright. Within these the team found a significant amount of fish remains. There was evidence that the barrels had been disturbed by storm action since being placed in the ship. Originally the barrels appeared to have been stowed on their sides end to end throughout the cargo hold and stacked several layers thick (there were exceptions to this as several barrels were found standing at either end of the hold).

The team extracted and examined 28 barrels from the starboard side of the hold. It was determined that there were four different types of barrels on board the ship. Samples were taken of the fish and seven samples of different barrel types were recovered for closer examination and conservation at ECU's conservation laboratory. Near the end of the project, the team excavated a storage cabinet or pantry-



Gordon P. Watts, Jr., takes measurements on the Blakely rifle (Photo: John W. "Billy Ray" Morris, III)

(Continued on page 10)

MILLECOQUINS SHIPWRECK

(Continued from page 9)

located near the after cabin bulkhead. Numerous pieces of china were discovered along with a variety of silverware, a ceramic jug, glass fragments, and an intact brass dinner bell. These items are also being conserved at ECU.

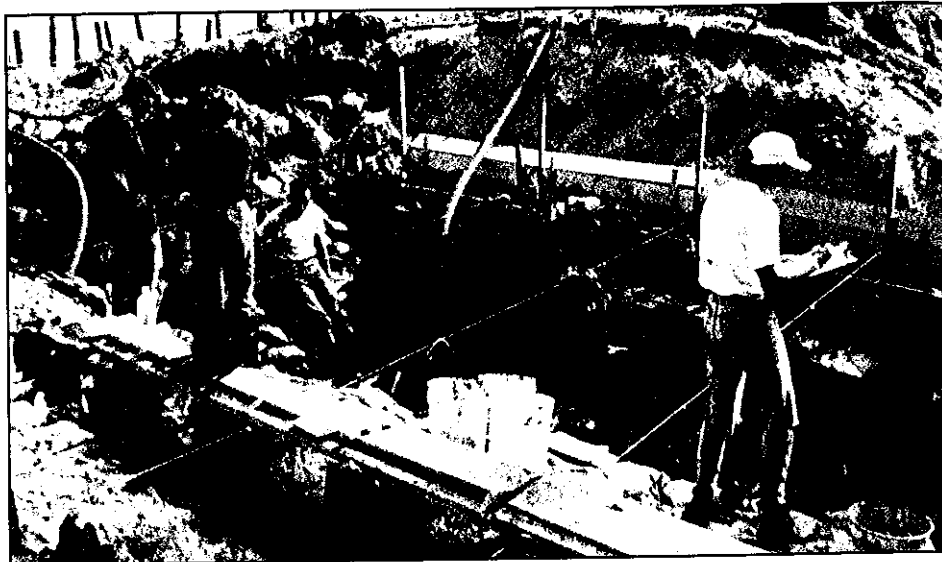
In addition to cargo documentation, drawings of the hull will be used to aid in the study of the ship's structure. The historical significance of this craft lies not only in its contents, but in the wealth of new information it will provide concerning early trading vessel structure in the Great Lakes and the lives of the crews that worked them. After the cargo was removed, extensive measurement were taken and drawings made of the hull structure in the cargo area.

This project was a success in part due to the interest and support of the local population. In return, the students of East Carolina University provided a learning experience for the local residents, who turned out daily in numbers to watch our progress. The Millecoquins shipwreck is significant because it is a rare representation of working vessels on the Great Lakes in the early nineteenth century. Though a common site on Lake Michigan in the past, today it is a unique and historically significant find. Two seasons of excavation have answered many questions concerning the ships' significance and activity, however, many questions still remain, including the vessels identity.

Annalies Corbin Kjorness

ECU PUBLISHES THE AMERICAN NEPTUNE

The American Neptune, a quarterly journal of Maritime History published by the Peabody Essex Museum, Salem, MA, is being published at ECU this year. Founded by Pulitzer Prize winner Samuel Eliot Morison and others in 1941, it is the leading journal in the field. Editor Timothy J. Runyan is receiving help from several students who are learning the ropes about scholarly publication. Editorial assistant Paul Steinberg has done the production work. Jinky Smalley, Eleftheria Mantzouka, Ed Combs, Molly Conlin and Phil McGuinn have assisted.



Millecoquins Shipwreck Site: Annalies Corbin Kjorness discusses the site with visitors(left) and Ann Merriman(center) and Amy Mitchell(right) work the excavated site. The Millecoquins River lies in the background. (Photo: Wendy Coble)

FORT FISHER/UNDERWATER ARCHAEOLOGY UNIT INTERNSHIP

The State of North Carolina, through the Youth Advocacy and Involvement Offices, sponsors an annual internship program that is open for residents of North Carolina. To qualify for this program, a North Carolina resident needs to be enrolled in any US college or university. The program selects approximately one hundred students and places them in various state government departments. The placement of the students is dependent on their academic background and interests. The internships occur during the summer months, which allow students to take advantage of the time afforded by summer break. These internships, which last about three months, can provide students with valuable practical experience.

For the summer of 1994, the internship program selected **Christopher Olson**, a graduate student in East Carolina University's program in Maritime History, to work with the North Carolina Underwater Archaeological Unit (UAU) located in Kure Beach, NC. Olson was assigned to help conservator **Leslie Bright** in the conservation lab.

Conservation work centered primarily on the preservation of a seventeen-ton compound engine recovered from the excursion boat *Estelle Randell*, which burned in 1910 in Columbia, NC. This project involved sandblasting and the application of a rust

retardant. A temperamental sandblaster made the work much more challenging. A plywood cover was also fabricated to replace the missing steam cylinder head. Other conservation projects included cleaning and treating artifacts recovered from the ironclads *CSS Raleigh* and the *CSS Neuse*.

Practical fieldwork experience was gained during the Fort Fisher National Park Service survey. (See *Ft. Fisher story on the next page*.) Working in the cramped cabin of the *Snap-dragon*, UAU's research vessel, Olson gained experience setting up and operating a Mini-Ranger navigation system, a magnetometer, and a Side-Scan Sonar. Four people worked the equipment during survey runs: **Richard Lawrence**, Director of the UAU, piloted *Snap-dragon*, **Julep Gillman-Bryant** (UAU) monitored the Side-Scan Sonar, Olson tracked the magnetometer read out, and another ECU graduate student plotted survey lane positions and relayed information to Richard. Sonar images were obtained for the first time of all the blockade runner wrecks in the vicinity of Fort Fisher. Their locations in relation to the present-day shoreline were accurately plotted. In addition to the known wrecks, the location of an 1851 shipwreck was discovered.

For the student in maritime history and archaeology, this internship provides tremendous practical experience.

Chris Olson

FORT FISHER RESEARCH PROJECT

Funded by the National Park Service (NPS), a two-year project began this summer for the mapping and investigation of Confederate and Union vessels wrecked off Fort Fisher, NC. Beginning in the first week of July 1994, a combined effort was made between graduate students from East Carolina University under the leadership of the program's Director of Underwater Research, **Gordon P. Watts, Jr.**, a team from North Carolina's Underwater Archaeology Unit (UAU) and Southern Oceans Archaeological Research, Inc. of Pensacola, Florida to systematically map as well as determine the historical significance of several Confederate blockade runners located between Carolina Beach Inlet and Fort Fisher.

Operating in conjunction with a comprehensive battle site survey being conducted by UAU, students instructed by **John W. "Billy Ray" Morris, III, Marianne Franklin, and Gordon Watts, Jr.**, began mapping the Confederate blockade running vessels. Unusually strong winds and chronic thunderstorms forced the cancellation of many dive days for safety reasons. Nevertheless, site plans were produced for the *Condor* and the *Arabian*, both celebrated blockade runners. In addition, the *Venus* and *Stormy Petrel*



Graduate Students Mike Coogan (L) and Tim Marshall shoot bearing lines that Richard Lawrence (North Carolina Underwater Archaeology Unit) relays to the research vessels in order to locate wreck site off of Fort Fisher. (Photo: Phil McGuinn)

were roughly mapped and the USS *Aster* and USS *Louisiana* were located and investigated for future documentation. The July 1995 field school will complete the investigation of the Union vessels. Once the blockade runners have been mapped, attention will ultimately turn to the Union vessels with the intention of completing a representative sample of both Confederate and Federal vessels operating during the war.

The remains of the Fort Fisher shipwrecks represent unique features of one of the most significant battlefields of the American Civil War. A detailed plan of these wrecks will be made for their upcoming inclusion on the National Register of Historic Places. In addition, the project will complete the development of plans for site protection and interpretation in conjunction with programs at Fort Fisher.

(Continued on page 14)

FORT FISHER: CONFEDERATE GIBRALTAR

On 19 April 1861, President Abraham Lincoln declared a naval blockade of Southern ports in an attempt to isolate the Confederacy from the industrial markets of Europe. Situated on a railroad line to other parts of the Confederacy, Wilmington, NC, allowed the shipment of goods between the South and other European countries. Of all the Southern ports, Wilmington proved to be the most difficult to blockade because of its unique geography near the Cape Fear River and a series of formidable fortifications constructed along the two access inlets of the river. The two Cape Fear entrances were separated by Smith Island and by Frying Pan Shoals which stretch for more than fifteen miles into the Atlantic Ocean. In addition, Fort Fisher, the largest earthwork fortification in the Confederacy, protected the New Inlet entrance to the Cape Fear River north of Smith Island. Heavily armed with several British-supplied Armstrong and Whitworth cannon, it served as the most effective deterrent to Union efforts to close the Cape Fear, until captured in an amphibious assault in January 1865.

Although the Union blockade failed to destroy Confederate maritime commerce, the risks of blockade running were extremely high. More than thirty steam-powered vessels were lost in attempts to run into Wilmington, and several sank within a mile of Fort Fisher. The vessels represent a sample of the Anglo-Confederate trade. Blockade runners sunk in North Carolina waters included large oceanic transports, such as the steamer *Modern Greece* which ran aground north of Fort Fisher in 1862. Others, like the *Arabian*, which was built at Niagara-on-the-Lake to support maritime commerce and transportation on Lakes Erie and Ontario, were pressed into clandestine trade. The wrecks off the shore of Fort Fisher also include examples of vessels designed and built specifically for blockade running, such as the *Condor* and *Stormy Petrel*. Losses were also suffered by the Union Navy in attempts to restrict navigation at New Inlet. Both the tug USS *Aster* and the steamer USS *Flambeau* were lost within sight of Fort Fisher.

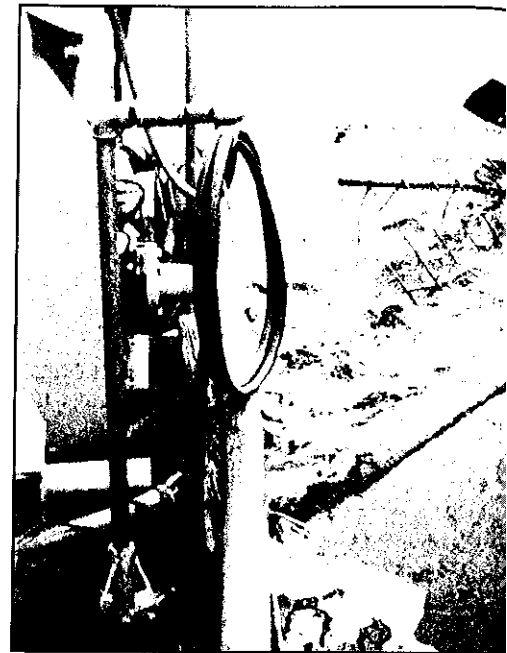
MAPLE LEAF FIELD SCHOOL 1994

On 1 April 1864, a Union transport, the *Maple Leaf*, carrying the personal effects of three Union regiments, the 112th and 169th New York and the 13th Indiana, collided with a Confederate mine 12 miles south of Jacksonville, FL, on the St. Johns River. No salvage attempts took place due to a strong Confederate presence near the river. The side wheel steamer then settled into the muddy river bottom. The exposed superstructure posed a threat to navigation and the Army Corps of Engineers had it demolished in the 1880's. The remainder of the *Maple Leaf* lay covered in silt and mud for more than 100 years until its rediscovery by the Saint Johns Archaeological Expeditions Inc. (SJAEI) in 1984.

The 1994 field season, under the direction of **Frank Cantelas** and **Dr. Larry**

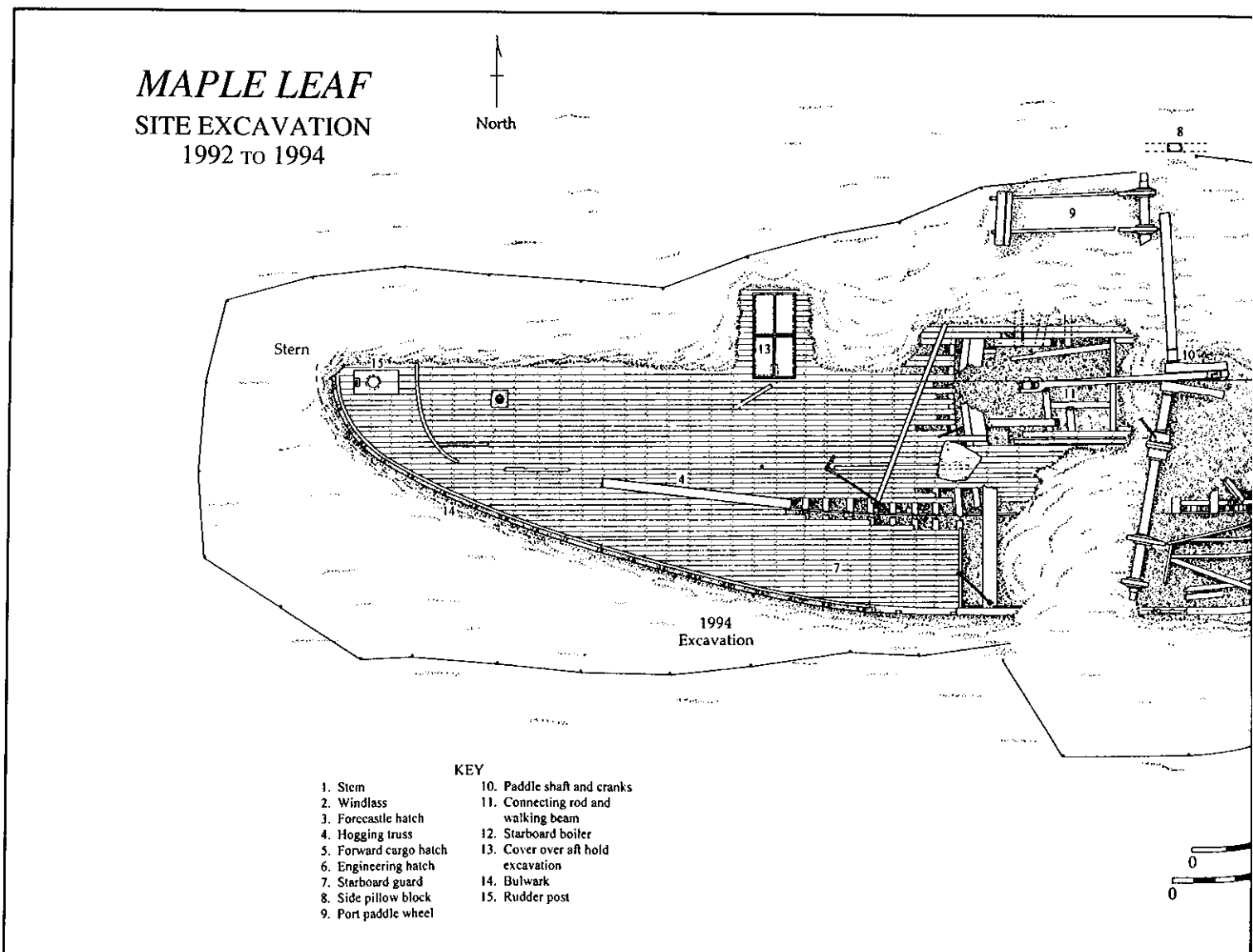
Babits, was the third consecutive field school conducted on this site. The primary objectives of the two previous field seasons were to excavate and record the forward deck and starboard engineering spaces. Last summer, our objective was to finish recording the starboard side of the vessel, focusing on the hogging truss and the aft deck with the hope of locating the rear cargo hatch.

The members of the field school were a mixture of first year maritime students: **Chris Kirby**, **Tim Marshall**, **Michael Coogan**, and prospective students: **Charlie Clausen**, **Filippo Ronca**, and **Johnny Bilou**. After two weeks of scientific and blackwater dive training, they were split into three teams. **Paul Steinberg** and **Annalies Corbin Kjorness**, members of the 1993 *Maple Leaf* field season, and **Rick Jones**, a trained dive master, supervised these teams. The duties for each team rotated between dive, dive support and logistics. **Steve Sellers** and **Jim**



Above: Graduate Students Chris Kirby (Front) and Tim Marshall (Back) working on the surface. (Photo: Frank Cantelas)

Below: Final *Maple Leaf* site plan, showing three years of excavation.





Chris Corbin Kjomess measure the hogging truss on the excavation site.

Sibthorpe from ECU's Dive Safety Office supervised all diving operations.

The *Maple Leaf* lies 25 feet below the surface of the St. Johns River and the excavation area is surrounded by a silt barrier. This barrier, developed to prevent mud from sliding back into the excavated site during the first field season, has been used each subsequent season. After an initial dive to become familiar with the site, all team members quickly became accustomed to the difficult diving conditions: low visibility and strong currents.

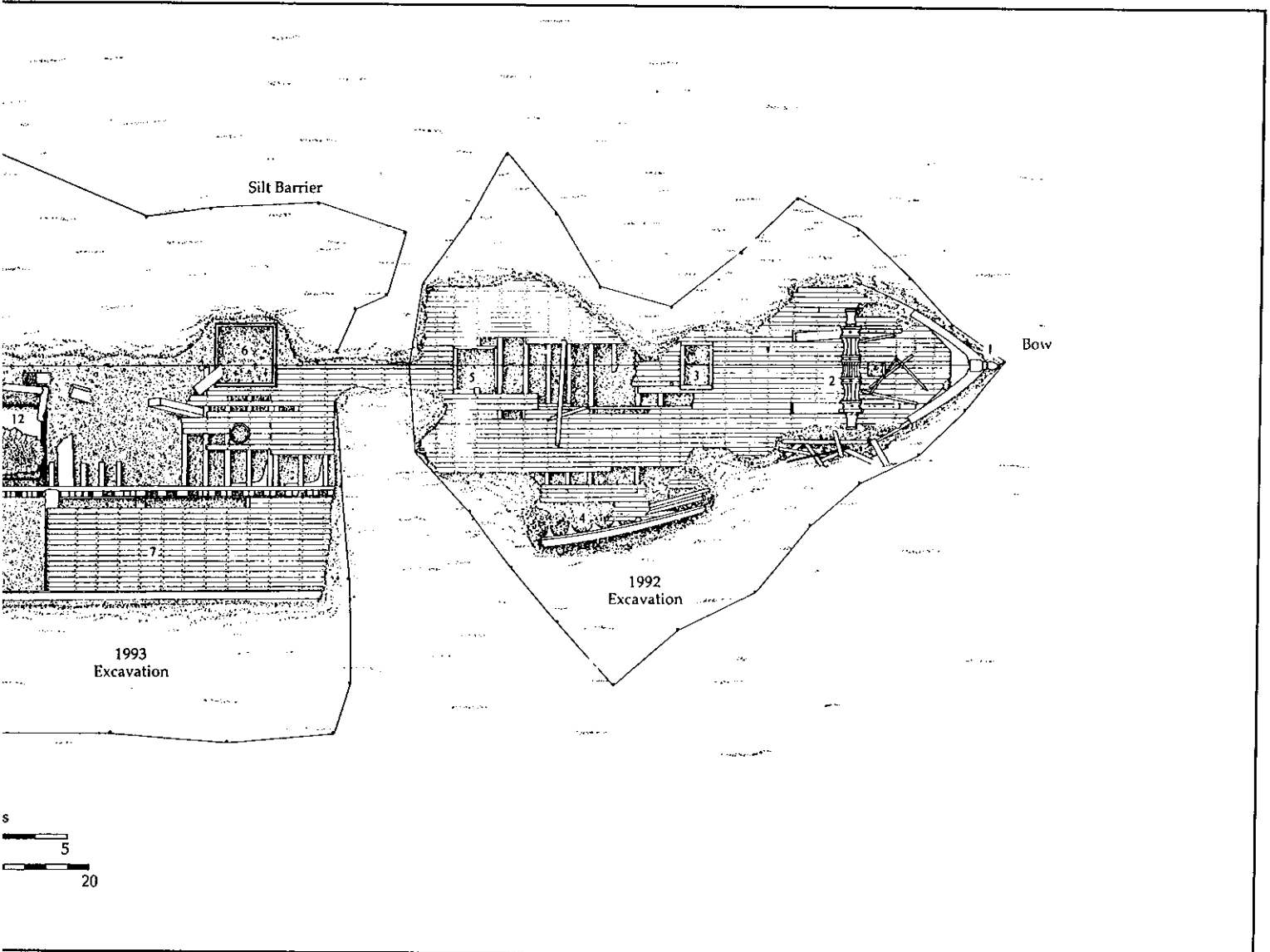
Dredging began immediately to remove the accumulated silt. When a shell layer containing cultural material was encountered, a 1/4 inch mesh catch bag was placed over the exhaust end of the dredge. The contents of the bag were screened on the surface to recover artifacts. Artifacts, such as bullets, glass and buttons, were provenienced and sent to the SJAEL conser-

vation lab for preservation and cataloging. Some of the more outstanding artifact recoveries included a well preserved Enfield rifle and a packing crate of plug tobacco.

Mapping the site involved dividing the aft deck into grid units and assigning each team member a unit to map. One of the more difficult tasks was mapping the hogging truss or bishop arch. This structure acted like a bridge truss, making the vessel longitudinally rigid, thus preventing hogging or sagging at the ends. The aft end of the truss was found fallen over on the deck. To expedite documentation, the truss was placed on a cradle, raised to the surface, and drawn by Chris Kirby and Annalies Corbin Kjomess.

Divers wore full face masks equipped with wireless communication. This enabled the students to be in contact with the surface at all times. Even though getting an air check every fifteen minutes was distracting

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HAWAII FIELD SCHOOL RECORDS PBY & HONORS

For the second year, graduate students in Maritime History and Nautical Archaeology, and students from the University of Hawaii participated in a joint summer field school in Hawaii. **Dr. Bradley A. Rodgers** directed the field school sponsored by East Carolina University, the University of Hawaii, and the National Park Service. The class was designed to give students an understanding of method and theory in underwater archaeology. In addition, students were expected to complete a project from preliminary research to the final site report for the first time in any East Carolina University field school. This unique approach to field training along with the talents and efforts of staff and students allowed the field school to win the prestigious Western Association of Summer Sessions award in the category of summer session credit programs.

The field school combined the talents of an eclectic group of five graduate students and ten undergraduates. Among the participants were a chiropractor, a dive charter operator, a geologist, and students of underwater resource management. Attending graduate students from ECU included Dive Safety Officer and assistant Field School Director **Hans Van Tilburg**, with crew chiefs **Jinky Smalley**, **Ann Merriman**, **Wendy Coble** and **Rob Dickens**.

The field school was structured in three segments to more accurately convey the entire range of archaeological Phase II field work. Students learned that pre-disturbance field work involved a great deal of planning, logistical preparation and historical research.

The project this year centered on a sunken PBY Catalina flying boat believed to have been destroyed by attacking Japanese planes on December 7, 1941. The flying boat lay in the protected waters off Kaneohe Marine Base, Oahu, where it was likely stationed as a reconnaissance plane just prior to America's entry into World War II. At that time there were three squadrons of PBYs stationed at Kaneohe Naval Air Station (now Marine Base) and one at Pearl Harbor. The wreck site consisted of a left wing, the cockpit and forward fuselage, and remnants of a tail section.

Students spent the first two weeks receiving six hours per day of classroom

instruction in preparation for the field work. Each day ended with a round table discussion of various cultural resource management subjects. The difference between archaeology and salvage became one of the more colorful debates along with discussions ranging from the education of sports divers in basic field techniques, to priorities in choosing sites for fieldwork and what cultural resource managers should do with a sunken battleship. During this segment university program graduate students delivered lectures on different maritime topics.

Also during this first segment, students prepared for the field segment by learning electronic and manual field mapping techniques for accurate shoreline and wreck site positioning. Students were divided into three working teams with graduate students assigned as team leaders. Each team researched and worked together on a specific historical and archaeological portion of the project.

The second two weeks were devoted to field work on the PBY site. During this section of the field school, students learned techniques of measured sketching, archaeological diving, and the layout of site and shoreline maps while Jim Adams of the National Park Service took video footage and still photography of the site. A copy of the underwater video footage will soon be available in the Ruppe Memorial Library at the Program's Admiral Eller House. As this was Phase II pre-disturbance work, no artifacts were removed and no excavation was done.

The final few days of field work gave participants an opportunity to work on the U.S.S. *Arizona* in Pearl Harbor. Students assisted the National Park Service test silt deposition on the wreck as well as photograph concretion buildup at designated test areas. Team members found time spent at the memorial an excellent opportunity to talk with some of the memorial's 4,000 daily visitors about nautical archaeology and the Maritime Program at East Carolina University.

During the field school's final segment, students completed the Kaneohe site maps, their historical research, and practiced their newly acquired skills by drafting the site plan of the S.S. *Kauai* from the previous year's field work. To complete the field school, the three teams and presented a 90-page research paper on PBY flying boats, the history of the Kaneohe base, and future research options for the PBY site. Preliminary results of the survey could not conclusively prove whether the plane was damaged, abandoned or destroyed during the

December 7, 1941 attack on Oahu.

In the future, according to Dr. Sherwood Maynard, director of the Marine Options Program at the University of Hawaii, Manoa, the field schools will continue to focus on pre-disturbance wreck surveys in the shallow waters around the islands. The university's goal is to document as many sites as possible before they can be adversely affected by storms and human usage. Because of its success, the Field School has been nominated at the national level for best summer course, 1994.

Wendy M. Coble

FORT FISHER

(continued from page 11)

Currently, the interpretative program at Fort Fisher focuses primarily on the fort's defensive role. Little has been done to make the public aware of the importance of Civil War blockade runners.

An assessment of the surviving vessel structure and the nature and scope of the archaeological record will be developed. A management plan will also be designed to ensure protection of the resources. The plan will involve an assessment of the possibility of developing one or more of the wrecks as an underwater park. The concept of an underwater park established to develop natural or cultural resources has proven highly successful in several states.

With the continued growth of SCUBA diving as a magnet for tourism, the development of a system of underwater parks could attract visitors and stimulate the local economy.

Mike Coogan

MAPLE LEAF

(continued from page 13)

it was reassuring to know that you were not alone in the dark, murky water of the St. Johns. Divers usually remained submerged 90 minutes in the 80-degree waters.

After four weeks of long, hot and stormy days, the team had achieved its objectives: the hogging truss, rudder post, rear cargo hatch and aft deck features were recorded and plotted. *(See Site Plan on pages 12-13.)*

On 12 October 1994, the *Maple Leaf* became the fourth underwater National Historic Landmark, after the *Arizona*, *Utah*, and *Monitor*. Although East Carolina University plans no field season for the *Maple Leaf* in 1995, conservation and research continue on the artifact collection.

Paul Steinberg

BERMUDA FIELD SCHOOL MEETS A 'STONEWALL'

The Fall Field School Program in Bermuda entered its second decade in September with the arrival of students from East Carolina University for the eleventh season of shipwreck research. Sponsored jointly by the Bermuda Maritime Museum and the program in Maritime History and Nautical Archaeology, the 1994 Fall Field School focused on systematic shipwreck survey activities along the reef complex. A second objective included the relocation of the remains of a vessel called the 'Stonewall' wreck and documenting the vessel, if sufficient structure remained. The survey included both magnetic remote sensing and towed diver searches along the north and western areas of the Bermuda reef system. A differential global positioning system (DGPS) was used to control the survey search patterns. Coordinates were recorded for each contact that was confirmed to be a vessel. The data will be used to create an electronic database site file inventory maintained by the Bermuda Maritime Museum. As part of the field school, the team revisited the site of the 1992 & 1993 Field Schools, an eighteenth-century British collier, to check on material deposited on the wreck for protection and to look for additional disturbance by divers. The wreck site, subject of **Michael Krivor's** thesis,

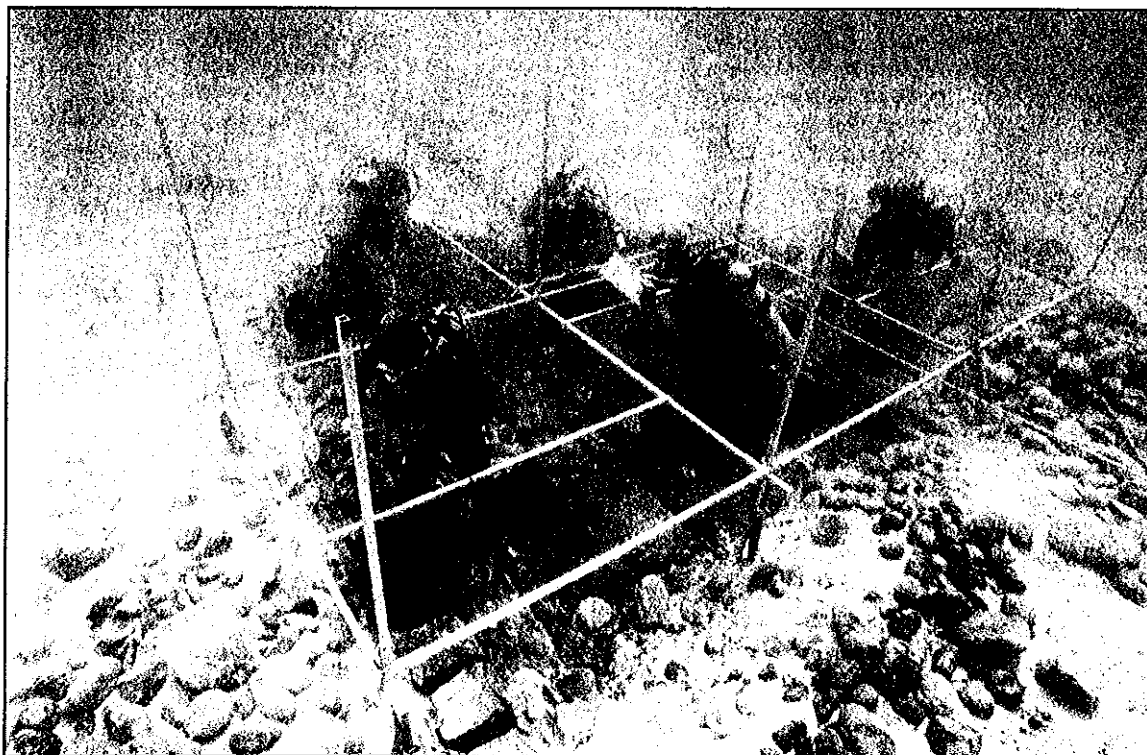
was visited several times. The baseline was restrung along the datum from the previous season and a photo-mosaic was taken to document the state of preservation. During the survey process, tow boarders saw a ballast pile resembling a stonewall. Subsequent investigation confirmed the site to be the 'Stonewall' wreck. The vessel lay buried in sand at a depth of four to five meters. The Bermuda Maritime Museum then applied for and received a government permit to record the preserved data. The site had been previously documented by a team from Franklin Pierce College in 1975. Under the auspices of the permit, the 11-member team cleaned and documented the site in September. The 1994 Field school team consisted of nine Program in Maritime History and Nautical Archaeology students: **Ed Combs, Mike Coogan, Rick Jones, Chris Kirby, Eleftheria Mantzouka, Tim Marshall, Phil McGuinn, Jinky Smalley, and Paul Steinberg**, in addition to **Jim Sibthorp**, Diving Safety Officer--all led by **Gordon P. Watts, Jr.** The team benefitted from the local expertise of Phil Williams and Brian Furness who provided technical assistance. The team cleared an 11 by 6 meter section of the ballast stones and sand. Investigation of the wreck confirmed that much of the lower hull, studied in 1975, remained intact. The exposed structure consisted of the keel, keelson, exterior planking, floors, futtocks, and fillet pieces. Using a metal grid system, the exposed hull was mapped *in situ* and three representative sectional profiles were recorded. The

exposed remains were also photographed with the reference grid in position to permit subsequent creation of a photo-mosaic. After the exposed sections had been documented, the vessel was recovered with sand and ballast stones in compliance with the research permit. Several artifacts, including ceramics, musket and pistol balls, a silver spoon and a piece of shoe leather were recovered to facilitate dating the wreck. Significant among the artifacts were a ceramic vessel (perhaps an inkwell) and a miniature ceramic pitcher.

Preliminary artifact analysis indicated that the 'Stonewall' wreck can be dated to the 1680s versus the estimated date of 1650 which was given by the Franklin Pierce College study. Nevertheless, a more definitive analysis and conclusion must await additional survey and study. During the 1995 field season, efforts will be exerted to uncover and document the rest of the vessel and provide more answers to the origin and date of the wreck.

Portions of the field school also included conservation and archival research training. Students cycled through the Bermuda Maritime Museum's state of the art conservation laboratory to work with **Dr. Lesley Dean** on artifact conservation and preservation. In addition, students worked in the Hamilton Library and Bermuda Archives reviewing the *Bermuda Gazette* and other documents for references to shipwrecks for inclusion in the Museum's data base.

Phil McGuinn



Mapping exercise in Bermuda: Graduate students use a two-meter grid system to map the uncovered portions of the hull on the 'Stonewall' wreck. The baseline runs through the two center grid squares and above the keelson. (Photo: Gordon P. Watts, Jr.)

CONSERVATION LABORATORY NEWS

In 1994 the Program's Conservation Laboratory continued its commitments to conserving artifacts from the Millecoquins Shipwreck Project, Yorktown Shipwreck Archaeological Project, and the Norfolk Navy Museum while beginning new projects such as the conservation of the Lake George Radeau's gun port lids. Students under the direction of Program Conservator **Dr. Bradley A. Rodgers** will conserve many of these artifacts as part of their work in History 6840 "Conservation of Material from Underwater Environments," thus gaining valuable hands-on training.

Materials from the Millecoquins Project awaiting conservation include artifacts of wood, metal and composites, ceramics, and textiles. Conservation processes include immersion in polyethylene glycol

(PEG), electrolytic reduction, freeze drying, and treatment in the Cascade Agitation Tank. Some of the more interesting artifacts include a composite brass and wood bell, blue and red transfer ware china, a delicate sail needle, and wooden barrel heads stenciled with words. After conservation, the artifacts will be returned to the Hiawatha Sportsman's Club in Naubinway, Michigan for museum display.

Work continues in the treatment of a large anchor from the Norfolk Navy Museum in Virginia. Conservation began in April 1994 with the assistance of the Spring conservation class. The anchor is being treated by electrolytic reduction in the lab's custom-built holding tank.

The Yorktown Shipwreck Project conservation is nearing an end. The few re-

maining artifacts are in their last stage of treatment and completion is anticipated by December 1994. These artifacts represent the last of hundreds conserved for the Yorktown Project and mark the end of an association for the Program that began in 1984.

The Conservation Lab Library continues to grow. Items cataloged total 520 with additions made weekly. Lab technician **Ann Merriman** has recently instituted a new laboratory proceedings notebook to more efficiently track artifacts and cleaning schedules. Wet and Dry Lab reorganization and computerization began in August 1994 and will continue throughout the school year to increase lab proficiency.

Ann Merriman

NEW EQUIPMENT RECEIVED BY MARITIME PROGRAM

The Maritime Program has received some badly needed new equipment. The new acquisitions include a truck, two boats and a variety of computer equipment. Also new this year is an improved system to keep track of equipment in use by students and faculty.

One of the most important new acquisitions is a blue 1994 Ford Kingcab pickup truck with a special heavy duty towing package. The vans previously used for towing boats to and from various sites were inadequate for the job, especially over long distances. The Kingcab with the towing package provides a more dependable, powerful towing vehicle.

The Program also recently acquired two new boats: a Playcraft pontoon boat and a pontoon platform. Designed to be used in conjunction with each other, the Playcraft provides motive power while the other serves as a diving platform. The craft are designed for work on rivers and lakes.

The Program has also received new computer equipment in the form of a Hewlett Packard laserprinter, two Gateway Pentium computers, and a Hewlett Packard Scanjet Scanner. **Dr. Larry Babits** submitted a proposal in January to upgrade the Student Computing Facility located in the Eller Building. The \$76,000 proposal would

replace the IBM-286 and 386 machines with IBM Pentiums, upgrade the printers and Macintosh machines, and improve the scanning equipment.

Finally, in order to keep track of Program equipment, new and old, equipment managers **Rick Jones** and **Mike Coogan** developed an equipment status board. The board enables students and faculty to know the location and state of repair of equipment at any given time and to reserve the equipment for future use. This new system should clear up problems that occurred when the needs of various students for program equipment conflicted. The system should also provide for much needed maintenance time for the equipment.

Mark Burdette

CANTELAS JOINS MARITIME STAFF AS ARCHAEOLOGIST

In January, **Frank Cantelas** was hired as a full time staff archaeologist. Reflecting increased importance of the Maritime Program, Cantelas fills the position held by **Dr. Bradley A. Rodgers** who moved into a newly created faculty position. Dr. Rodgers remains the conservator for the Program while Cantelas will be responsible for field project coordination and grant

application and management.

"Our immediate need is to ensure all the equipment is working and ready for the summer field schools," Cantelas said.

For the spring, he is focusing on maintaining and repairing equipment and seeing to the details to get ready for the summer field school. He is working closely with **Rick Jones** and **Mike Coogan** to further the work they had done preparing the maintenance schedules and tracking equipment.

Cantelas knows the program and his new position well. He has over a decade of experience. He is completing his Master's degree from East Carolina University in Maritime History and Nautical Archaeology. In addition, he has been working as the project archaeologist on the *Maple Leaf* project under contract with SJAEL and sponsored by the State of Florida. As project coordinator, Cantelas coordinated and organized the summer field school on the *Maple Leaf* and supervised the Saint John's Archaeological Expedition Volunteers to document the site.

Desiring to make an immediate contribution to the program, Cantelas wants to address areas of the program that haven't been fully explored to date. "After we get a good handle on the equipment issues for the summer field schools," Cantelas said, "I want to look into developing some ideas related to ship construction based on model reconstructions."

Phil McGuinn

READER'S POINT VESSEL EXCAVATION

In a cooperative effort, students from Texas A & M University and East Carolina University's Program in Maritime History and Nautical Archaeology excavated the Reader's Point vessel in St. Ann's Bay, Jamaica. Conducted under the auspices of the Jamaica National Heritage Trust (J.N.H.T.), the project was supervised by **Dorrick Gray**, Director of Field Research.

The team spent spring 1994 excavating the site, documenting the vessel and conserving recovered artifacts and wood samples.

The core crew consisted of **Dorrick Gray**, **Greg Cook** and **Clive Chapman**, both Texas A&M students, **Amy Rubenstein**, and **David Ames**. Other volunteers included **Norine Carroll**, **Karl Gottschamer**, **Darren Hurst**, **Mike Lenardi**, **Tom Shannon**, **Mike Krivor**, of ECU, and **Daria Merwin**, **Juan Vera**, and **Rich Wills**, all of Texas A&M.

Cook and Rubenstein worked together planning the project and raising funds. Support came from private and public sources. Cook was awarded a Junior Fulbright Fellowship to conduct the project. Other donations from local sources and companies were just as important.

After receiving funding, Cook prepared an operating budget and Rubenstein prepared plans for the conservation of artifacts. Conservation lab supplies and chemicals were purchased by Rubenstein who had worked as a conservator before in St. Ann's Bay.

Field work began using common excavation tools, a dredge and a water pump. An air compressor supplied air simultaneously to two divers and to an air scribe. The vessel lay buried under approximately six feet of mud and a large ballast pile at a depth of three feet.

The team removed the ballast pile and mud to expose the hull to documentation. The hull was recorded *in-situ*. The most interesting part of the project involved the mapping and recording of the data. Permanent datums were set up from which direct measurements were taken. Once divers had recorded measurements, the data

was transferred to the WEB computer program. The WEB computer program was created by **Nick Rule** of the *Mary Rose* project.

The program uses computer algorithm to indicate best-fit and the degree of error of the data. This enabled the divers to identify incorrect measurement and retake them while still in the field. Artifacts and hull structure were mapped using the computer program and a hand-drawn site plan. In addition, a photo-mosaic was taken to verify the site plans.

The anaerobic environment contributed to the preservation of the artifacts and hull. Several artifacts were retrieved.

From the excavation, almost the entire length of the ship is believed extant. The excavations revealed a total length of sixty-five feet from the radial cant frame construction in the bow along the keelson to the eroded stern knee. There is evidence of repair work to correct a nine-foot split on the keelson running through the maststep, presumably caused by a violent dismasting. Preliminary analysis predicts the vessel was an English sloop, possibly built in New England; detailed analysis of the hull construction continues.

The artifact assemblage produced typical eighteenth-century English objects. The catalogue included over 850 objects. The artifact types retrieved from the vessel included ceramics, glass, leather, metal, faunal and organic remains. Ceramics were predominant, and there were not less than twenty-one different types. These included varieties of astbury, agate, creamware, faience, jackfield, slipware, and stoneware according to **Matt Reeves** who assisted with ceramic identifications.

The ceramics were conserved using basic techniques. Each object was rinsed in successive fresh water baths for one week and air dried. Some ceramics were treated with hydrogen peroxide and/or hydrochloric acid to bleach them and rid them of encrustation because of the condition when removed from the water. Often field work required improvisation especially on a



Reader's Point Wreck: David Ames records the hull using direct survey method. (Photo: Amy Rubenstein)

limited budget. Therefore, to get a constant supply of distilled water, while in the field, we captured the condensate from a commercial refrigerator. This system produced nearly four gallons of water in every twenty-four hour period.

The leather, glass, and bone artifacts were treated by solvent dehydration. The bone and glass were also consolidated in a polyvinyl acetate solution. The glass samples included green, clear, soda, and leaded varieties.

Wooden artifacts were treated using the acetone/resin method since no oven was available. These artifacts, in solution, were heated only by the Jamaican sun. All metal objects were encrusted and nearly all of them were of iron. Where metal remained, the objects were treated by electrolysis. Epoxy casts were made of the artifact encrustations.

Interesting artifacts included an iron, sheaves, buckles, a carpenter's plane, and a lice comb. Initial analysis dated the vessel to the last quarter of the eighteenth century. This conclusion was based on details of pipe bowls, ceramics, glass bottles, and the skull of a Brown (Norway) rat. The Norway rat has been documented as the dominant ship rat in Western Europe by 1750, so it is

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MACKNIGHT SHIPYARD WRECK PROJECT

Field investigation of the MacKnight Shipyard Wreck was carried out in May 1994 as a cooperative effort between the North Carolina Department of Cultural Resources, Underwater Archaeology Unit (UAU), project supervisor **Rick Jones** and volunteers from the Program in Maritime History and Nautical Archaeology at East Carolina University. The vessel was discovered the previous season during an investigation of the suspected colonial shipyard of Thomas MacKnight.

Before beginning field work, historical research was initiated. Unlike many wrecks which are stand-alone archaeological sites, this wreck had the potential to be closely associated with a historic land site (MacKnight's Shipyard-See *Stem to Stern* Volume 9, Fall 1993). Moreover, even if the wreck were not associated with the shipyard, the continual use of the site from the 1750s through the present posed the possibility of artifactual contamination and confusion in interpretation. The area does not have a history of sport diving, thus the wreck should be relatively undisturbed. A preliminary survey by **Mark Wilde-Ramsing** and **Julep Gillman-Bryant** from UAU, the previous season indicated this was the case. Their survey revealed a partially intact wooden vessel with the stem post, keelson and some exposed frames.

On-site operations took place in less than

optimal conditions. Heavy rains and cold weather made operations uncomfortable. Joining UAU members **Mark Wilde-Ramsing** and **Julep Gillman-Bryant** and project supervisor **Rick Jones** were several ECU graduate students. **Mike Coogan** and **Tim Marshall** assisted with the land based survey while **Paul Steinberg** and **Jinky Smalley** conducted dives under the supervision of project dive safety officer **Annalies Corbin Kjorness**.

Our field objectives were threefold: 1) determine the extent of the remains, 2) document the vessel by mapping the remains, and 3) to obtain wood samples and diagnostic artifacts (if any) for analysis. Although conditions were less than ideal with high winds, rain, an unusually cold period, and the traditional "blackwater" environment found in North Carolina rivers the crew did an excellent job reaching all our objectives. A heavy matting of organic materials made excavation difficult and slow, therefore, most of the excavation concentrated around the stem and stern posts, along the port side of the keelson, and short transects at the mast steps. The vessel appears to be intact with a length of 44 feet between perpendiculars, a beam of 14 feet, and depth of hold of four to five feet. The outer planking was discovered in good condition although the extent was impossible to determine.

Ceiling planking on both port and starboard sides extended almost to the turn of the bilge. All but one of the floors and futtocks remained in place on the port side. The cant frames on the starboard side bow area were in place although they had become detached from the keelson and were buried

in the sediment.

A gudgeon strap and a broken pintel, initially, were all the evidence of the stern post/rudder system. **Mark Wilde-Ramsing** made one final effort to excavate around the stern on the last day. He was rewarded with partially uncovering the rudder itself with the other gudgeon strap intact.

The most intriguing find, however, was the presence of three steps along the keelson. The first step was located five feet abaft the stem post and the next two at 10-foot intervals with the last being a saddlestep. Wood analysis indicated the use of white oak for the keel, keelson, stem and stern post, trunnels, ceiling and outer planking. Interestingly, the frames were of red cedar. Iron nails were used very little in the construction of the vessel, mostly to hold the planking in place for the trunnels.

Diagnostic artifacts such as pieces of ceramics, brass and copper buttons, and a wrought iron three-legged kettle helped to preliminarily date the vessel's sinking to circa 1790-1810. The construction material, the construction method and the historical record of a sawmill operating adjacent to the site during the projected time period seemed to indicate a locally built vessel.

A preliminary interpretation of a locally built sloop, converted to schooner, engaged in the inland waterway commerce of shingle/lumber/stave trade seems to fit the archaeological and historical record thus far uncovered.

Wilson and **Barbara Snowden**, Currituck County Historians, provided invaluable logistic support and encouragement.

Rick Jones

READER'S PT. WRECK

(Continued from page 17)

probable the vessel dates after that time. Dr. Philip Armitage provided the preliminary bone analysis upon which the initial findings were based. Many sample analyses are forthcoming. Research and analysis of this site are continue. This account is preliminary and a final report will be released later in 1995.

Amy Rubenstein

RUPPE LIBRARY SUPPORT WANTED

The Program is specifically looking for basic archaeology and underwater archaeology textbooks, histories of underwater archaeology, artifact identification texts, and site/survey reports. If readers are interested in making library donations, please contact Dr. Babits at the Program in Maritime History.



Reader's Point Wreck Conservation: Karl Gottschamer pours epoxy to make casts of iron objects. (Photo: Amy Rubenstein)

CHICKAHOMINY WRECKS EXCAVATED

A combined team from East Carolina University's Maritime History and Nautical Archaeology program and the Maritime Archaeological and Historical Society, with the approval of Virginia's Department of Historic Resources, completed two weeks of work on a revolution-era shipyard and two row galleys in the Chickahominy river. Led by **Gordon P. Watts, Jr.**, ECU's Director of Nautical Archaeology, and **Jeff Morris**, ECU graduate student, the 30-member joint team documented the well-preserved remains of two warships scuttled by the Virginia State Navy during an attack by the British in 1781 and the site of Virginia's major Revolutionary War shipyard.

Working in limited visibility, the team carefully measured the underwater wrecks and mapped the site using sonar, sight and feel. "We've seriously groped these wrecks in the last couple of weeks," said Gordon Watts, as much of the work had to be done by touch because of the poor visibility.

Although much of the wrecks' planking is gone, Morris said the keels, ribs, and other parts of the ships clearly identified them as two "row galleys" that are reported to have been scuttled by the Virginians as the British soldiers launched an upriver raid on the shipyard in flat-bottomed barges.

Historians and archaeologists have known that important remains existed on the site for years. In the 1960s and '70s, sport divers hauled away many artifacts before the shipyard site and adjacent wrecks could be placed on the National Register of Historic Places in 1979. Earlier work on the site by researchers from the state and a graduate student at Virginia Commonwealth University only scratched the surface of the importance of the site.

The vessels, one 84 feet long and the other about 65 feet long, lie beneath 13 to 35 feet of water next to each other some 500 yards upstream from the shipyard wharves. Row galleys were shallow-draft vessels that could be powered by sail or oars and used to maneuver in the narrow channels of Virginia's waterways, according to Morris.

Shipyards workers who had been warned of the British attack attempted to take the galleys named *Louis* and *Safe Guard* upriver to safety. A strong northwest head wind and an outgoing spring tide made escape impossible said Morris. The crews then anchored the ships and fired a single

broadside at the approaching British troops in their barges. The galleys' crew then scuttled the ships so they would not be captured and escaped to shore.

The British raiders, under General Benedict Arnold, burned the shipyard and surrounding buildings, said Morris. A larger gunship, the *Thetis* was under construction at the yard but records don't show whether or not she had been completed by the time of the raid. "If she was on hand," said Morris, "She was probably burned, but there's a chance she was in the river and was scuttled, too."

Sonar surveys showed an underwater anomaly that could be a third ship; however, it was covered more completely by sediment. Research conditions proved too dangerous to completely investigate the site due to speeding bass boats near the channel.

Besides the wrecks, researchers found remains of timber "ways" used to launch ships, the possible site of a wharf and building sites. Although the sport divers stripped the site of many artifacts, Morris and his colleagues recovered a number of cannon balls, iron tools, and glass artifacts.

The site contains much more information and researchers from ECU will apply for grants to continue to study the shipyard and its wrecks said Morris.

Phil McGuinn

CURLEW SITE INVESTIGATED

During the American Civil War, the Confederacy's efforts to control the North Carolina sounds centered on fortifications and small gunboats. Typical of the Confederate gunboats was the steamer *Curlew*. The *Curlew* was a 136-foot iron side-wheel steamer built in Wilmington, Delaware in 1856. Before the war, she was used in a passenger and freight service between Edenton and Nags Head, North Carolina. The Confederate government acquired the *Curlew* in 1861 and operated the vessel until February 7, 1862. While attempting to resist Burnside's invasion of Roanoke Island, a federal shell hit the *Curlew*, and sprang a bottom hull plate. The Confederate crew ran the sinking vessel aground on Redstone Point in Croatan Sound and burned the *Curlew*. After an initial salvage, the wreck's location was forgotten.

The *Curlew*'s precise location remained unknown until 1988, when the North Carolina Underwater Archaeological Unit (UAU) conducted a magnetometer search

around Redstone Point. While investigating a magnetic anomaly, divers discovered a steam engine piston guide and a large area of wreckage. Positive identification was made when the builder's plate was recovered. A rough sketch of the wreck site was made before the end of the fieldwork.

In 1993, ECU graduate student **Christopher Olson** chose the *Curlew* as a topic for his master's thesis. In October, 1994, he and ECU graduate students **Paul Steinberg**, **Ann Merriman**, **Wendy Coble**, **Chris Kirby** and members of the UAU returned to the *Curlew* to construct a Phase II pre-disturbance site map.

In the course of five days a better understanding of the distribution of the wreckage was achieved. The wreck lay in 12 to 15 feet of water, with about three feet of visibility. A 180-foot baseline was laid out across the major components of the wreck. The main wreckage area consists of two components: a 48-foot hull section running in a north-south direction, and a 40-foot hull section running perpendicular to the north-south section. The latter section contained what is identified as the bow. The bow is twisted on its side, with the port side facing upwards. The sides of the hull are intact up to the turn of the bilge, with the upper sections variously collapsed outward and inward. The ship's sternpost and rudder were also discovered.

The hull itself showed early American iron construction details. The hollow keel is semi-circular in cross-section with remnants of a reinforcing timber inside. The hull bottom was reinforced by five longitudinal stringers. An interesting discovery involved the construction method of attaching the frames to the shell plating. The *Curlew* was constructed with bar frames riveted to the shell plating by means of metal clamps.

The *Curlew*'s construction appears rather primitive when compared to British iron ships, and even some American ships, from the same era. British iron ships of this period were constructed with "I" or "L"-beam frames riveted directly to the shell plating, as opposed to the clamp-over-bar method used on the *Curlew*.

Although one of the lesser known ships of the Confederate Navy, its relative obscurity makes the *Curlew* valuable archaeologically and historically. Construction details for American-built iron ships of this era lack adequate documentation. The information drawn from the survey and history of the *Curlew* fills a gap in the overall knowledge of the Civil War and iron ship construction.

Chris Olson

MASTERS CANDIDATE PUBLISHES BOOK ON SLOOPS

Paul Fontenoy, a second year master's degree candidate in the Program for Maritime History and Nautical Archaeology, recently published his first book, *The Sloops of the Hudson River*. Mystic Seaport Museum, Inc., released the book in November, 1994.

The book explores sloops on the Hudson River from Dutch settlement to about 1870. "I wanted to examine the working vessel as a tool used in a broader context. In terms of tradition, I don't think small work boats change unless there is an external force". Fontenoy uses ownership patterns, busi-

ness practices, cultural change, and the natural environment and geography of the Hudson River valley to investigate his premise. "Material on the Hudson River sloop is plentiful and no one has ever really looked at them," Fontenoy said.

Originally a shallow, beamy vessel to navigate shoal water, the Hudson River sloop is clearly a distinct type. Competition among sloops precipitated changes in ship design eventually making them deeper and faster. River shoals, however, hindered through navigation and the deeper sloops had to be lightered over the shallows. Later, with the advent of the centerboard about 1815, the sloop reverted back to shallow draft. When the Erie Canal opened in 1825, Hudson River shipping received a tremendous boost. Sloops found a new use as transshipment vessels between the canal and New York City. Competition, however, continued to grow as steamboats and

schooners came on the scene. With fewer crew members, the Hudson River schooner was cheaper to operate and eventually eclipsed the sloop. According to Fontenoy, however, the growing barge traffic linking the canal to New York City closed the niche sloops occupied for so long, causing their demise.

When asked how he managed to publish a book before finishing his degree, Fontenoy said the work stems from several years of research accepted for publication before he came to ECU. He is also conducting dissertation research for a Ph.D. from Kings College in London on the introduction of steam to the American east coast.

On the home front, Fontenoy and his wife Julianne became new parents when their first daughter, Emily, was born on August 31, 1994.

Frank Cantelas

PUBLICATIONS

The following is a list of publications by faculty and alumni completed within the last year or not previously noted:

Babits, Lawrence E. "The Maple Leaf Shipwreck." *Archaeology* 47 (1994) (5): 48-50.

_____. "Balloon." *Encyclopedia of the Confederacy* I:125, Simon and Schuster, New York.

_____. "Archaeology." *Encyclopedia of the Confederacy* I:48-50, Simon and Schuster, New York.

_____. "Two Cannon from the CSS Georgia." *Military Collector and Historian* XLV (1): 30-32.

_____. "An Early Falcon and Its Shot." *Military Collector and Historian* XLV (1): 38-39. (With **Dr. Brad Rodgers**).

_____. "A Survey of the North Shore, Pamlico River: Bath Creek to Wade's Point, North Carolina." 1995 (with Jeff Morris).

_____. Book Review: Donald E. Graves, *The Battle of Lundy's Lane* in *Choice*, February 1994.

_____. Book Review: Dan L. Morrill, *Southern Campaigns of the American Revolution* in *Choice*, March 1994.

_____. Book Review: Glenna R. Schroeder-Lein, *Confederate Hospitals on the Move: Samuel H. Stout and the Army of Tennessee* in *Choice*, April 1994.

Palmer, Michael A. Book Review: Louise Levathes, *The Treasure Fleet of the Dragon Throne, 1405-1433* in *The American Neptune*, Vol. 54.4.

_____. Book Review. Efim Rezan, ed., *Russian Ships in the Gulf, 1899-1903* in *The Northern Mariner/Le Marin du Nord*, 4, (October 1994): 82-83.

_____. Book Review. Michael T. Isenberg, *Shield of the Republic: The United States Navy in an Era of Cold War and Violent Peace*, vol. 1: 1945-1962 in *The Journal of Military History*, (July 1994): 555-56.

_____. Book Review. Roger Hilsman, *George Bush vs Saddam Hussein: Military Success! Political Failure in the Naval War College Review*, (Spring 1994): 123-25.

_____. Book Review. Dmitri Volkogonov, *Stalin: Triumph and Tragedy* in the *Naval War College Review*, (Winter 1994): 140-42.

_____. Book Review. Will and Sharon Rogers, with Gene Gregston, *Storm Center: The USS Vincennes and Iran Air Flight 655* in *The American Neptune*, (Fall 1993): 304-305.

Papalas, Anthony. *Ancient Icaria*. Chicago: Bolchazy-Carducci, 1993.

_____. "Boy Athletes in Ancient Greece". *Stadion*. 17,2, 1993.

Runyan, Timothy J. ed. with Jan M. Copes *To Die Gallantly: The Battle of the Atlantic*. Boulder, CO: Westview Press, 1994.

_____. "The Cog as Warship" in *Cogs, Caravels and Galleons: The Sailing Ship 1000-1630*. (London: Conway, 1994): 47-58.

_____. and Jan M. Copes. "The Steamer *William G. Mather*: A Study in Maritime Preservation" in *Bermuda Journal of Archaeology and Maritime History*. vol. 5, (1993): 110-125.

_____. "Wine and War: The Anglo-Gascon Wine Trade in the Middle Ages" in *Food Transport by Sea* (Munich: Bohlau, 1993): 1-11.

_____. "Naval Logistics in the Hundred Years War," chapter in *Feeding Mars: Essays on Logistics and Resource Mobilization in Western Warfare from the Middle Ages to the Present*, edited by John Lynn, (Boulder: Westview, 1993).

_____. Articles on "English Navy," and "Ships and Shipbuilding," in *Medieval England: An Encyclopedia*, edited by J. Rosenthal, 1993.

_____. Articles on "Naval Power" in *Medieval France: An Encyclopedia*, edited by J. B. Henneman, 1993.

Swanson, Carl E. Dr. Swanson has reviewed books in maritime history for various journals relating to the field.

Terrell, Bruce G. *Fathoming Our Past: Historical Contexts of the National Marine Sanctuaries*. (Mariner's Museum, 1994)

Watts, Gordon P., Jr. "A Decade of Shipwreck Research in Bermuda." *Bermuda Journal of Archaeology and Maritime History*: 5:12-57.

_____, **Tim Hastings, Ted Dunlap** and **Stan Duncan.** *Mobile Bay Shipwreck Survey: Civil War Shipwreck off Fort Morgan Point*. Reprint to National Park Service, 1995

PAPERS

The following papers have been presented by staff, students, and alumni in 1994:

Palmer, Michael A. "The Bristoe Station Campaign: Robert E. Lee's Generalship in Microcosm." Fall meeting of the Association of Historians of North Carolina, Blowing Rock, NC, October 21, 1994.

_____. "Victory at Sea: Sea Power and the Defeat of the Axis." Paper presented at the East Carolina University Symposium on History and Social Studies, Greenville, NC, September 23, 1994.

_____. "The Happiest Day of My Life: The Atomic Bomb and the End of the War in the Pacific." Paper presented at the East Carolina University Symposium on History and Social Studies, Greenville, NC, September 23, 1994.

_____. "Naval Command and Control in the South Pacific: The Strategic and Operational Dimensions." Paper presented at the World War II in the Pacific Conference, Crystal City, VA, August 10, 1994.

_____. "U.S. Navy Roles and Missions: Past, Present, and Future." Paper presented to the North Jersey Council, Navy League of the United States, Patterson, NJ, July 11, 1994.

_____. Commentary for the Post World War II European Navies session, presented at the Eleventh Naval History Symposium, Annapolis, MD, October 22, 1993.

CUA PAPERS 1994 - 1995

Students, Alumni and faculty members presented a wide range of papers at the Conferences on Underwater Archaeology held in Vancouver and Washington in 1994 and 1995.

1994

Askins, Adriane, and Matthew Russel. "Artifact Analysis of Rubber Blankets and Poncho from the Union Transport, *Maple Leaf*."

Babits, Lawrence E. "The *Maple Leaf* "PX" - A preliminary Reporting on the Union Transport *Maple Leaf*"

_____. "Will the Real Housewife Please Stand Up: Feminists, Campfollowers and Housewives on Military Sites."

Cantelas, Frank, and Bradley Rodgers. "Civil War Soldiers and Great Lakes Ships: A Current Look at the *Maple Leaf*."

Hastings, Timothy A. "Tinware of the Union Infantry as Exemplified by Material Recovered from the Steamer *Maple Leaf*."

Krivor, Michael. "A Preliminary Investigation of an 18th-Century Vessel in Bermuda."

Manley, Lee, and Keith V. Holland. "The *Maple Leaf* and Public Education."

Mannesto, Richard N. "An Investigation of 1863-4 Minnie Ball Manufacture to Determine Detrimental Effects of Prolonged Firing."

Mitchell, Amy. "A Comparative Analysis of Wood Use on 18th-Century Wooden Vessels."

Morris, John W. III. "Hull Analysis of IMHA-3, A Sixteenth-Century Spanish Wreck."

Schneider, Victoria E. "A Preliminary Analysis of Footwear Recovered from the *Maple Leaf*."

Tubby, Raymond E. "Artifacts of Distribution: Scales and Weights of the *Maple Leaf*."

Turner, Lex. "Analysis of the Contents of a Union Army Field Desk."

Watts, Gordon P., Jr. "Location, Documentation and Recovery of the Western Ledge Reef Wreck: A 16th-Century Vessel Lost on the Bermuda Reefs."

1995

Babits, Lawrence E. "The *Maple Leaf*, an Interim Reporting."

_____. "Tentage of the *Maple Leaf*." Conference on Underwater and Historical Archaeology, Society for Historical Archaeology, Washington, D.C., 1995 (with David Pruette).

_____. "The Frustration of Jane Bones." Conference on Underwater and Historical Archaeology, Society for Historical Archaeology, Washington, D.C., 1995.

Browning, Robert M. "The Coast Guard and Submerged Cultural Resources."

Cantelas, Frank and Bradley A. Rodgers. "A Brief Look at the Steamship *Maple Leaf*."

Derrow, Stuart. "Preliminary Analysis of the Faunal Remains from the Emanuel Point Shipwreck."

Duncan, Stanley K., and R. Stephenson. "Site Formation Processes: An Environmental History of the *Maple Leaf* Site 1864-1994."

Harris, Lynn. "Integrating Shipwreck Management, Research and Public Education in Southern Africa"

Jackson, Claude V. "The Cape Fear Comprehensive Study: Historical and Cartographic Research in Southeastern North Carolina."

Jones, Sheridan R. "The MacKnight Shipyard Wreck: An Interim Report of a Probable North Carolina-Built, Federal Period Vessel."

Krivor, Michael. "Final Report on the Wreck of a Late 18th-Century British Merchant Ship, Bermuda."

Morris, Jeffery D. "1994 Investigation of a Revolutionary War Shipyard on the Chickahominy River, Virginia."

Morris, John W., III, and Marianne Franklin. "Naval Architectural Evaluation and Hull Analysis of the 18th-Century Vessel at Town Point in Pensacola Bay, Florida."

_____, **Gordon P. Watts, Jr.** and Marianne Franklin. "The Comparative Analysis of 18th-Century Vessel Remains in the Archaeological Record."

Olson, Christopher. "Investigations of the CSS *Curlew*: A Victim of the Battle of Roanoke Island, North Carolina."

Overton, Glenn. "The Cape Fear Comprehensive Study: Findings from a Remote Sensing Survey and Archaeological Investigation."

Peebles, Martin. "CSS *Raleigh*: The History and Archaeology of a Confederate Ironclad in the Cape Fear River."

Reedy, James R. Jr. "Documentation and Analysis of a 19th-Century Centerboard Schooner."

Richardson, Shannon K. "Connect the Dots: Underwater Mapping of an Early 19th-Century Elliptical Bastion Foundation, Old Fort Niagara, New York."

Rubenstein, Amy L. "Artifacts of the Reader's Point Vessel."

Russell, Matthew. "An Archaeological Investigation of Three Beached Shipwreck Scatters, Thought to Represent Three Hall-Built Pacific Coast Lumber Schooners, at Channel Islands National Park Final Report."

Smalley, Jinky. "Light for War: Lighting Devices from the *Maple Leaf*."

Spirek, James D. "Pinned to the Bottom: The Wooden Hull Remains of the Emanuel Point Shipwreck."

Terrell, Bruce G. "Managing the Resources of the National Marine Sanctuaries."

Turner, C. Alexander III. "A Preliminary Report on the Schooner *Scuppermong*: A Mid-Nineteenth Century North Carolina-Built Centerboard Schooner."

Van Tilberg, Hans. "Zero Visibility Diving: The Risks and Payoffs."

1995 SUMMER FIELD SCHOOL

East Carolina University will sponsor the sixteenth annual field school in Maritime History and Nautical Archaeology from May 16 to June 20, 1995. This program has been developed to provide qualified students with a basic introduction to American maritime history and the scientific methods and techniques employed in nautical archaeology research.

The program begins with a two week training session to acquaint students with the principals of nautical archaeology techniques. Dive training held in Greenville, North Carolina, includes pool and open water exercises. Following the training session field operations will commence on two shipwreck sites near Greenville. The field school will conclude on Tuesday, June 20, 1995.

The 1995 field school will investigate two shipwreck sites in the Pamlico River drainage system within 30 miles of Greenville. Both vessels are threatened by river erosion and shoreline development. The Cypress Landing wreck, found in 1994, is a 19th century centerboard schooner, a type of vessel indigenous to the tidewater area of North Carolina. The site will provide shallow water training in water depths to 10 feet. Tasks will concentrate on mapping exercises.

The investigation will then shift to the primary objective of the field school; the Chicod Creek Wreck, near Grimesland, NC. This Civil War gunboat was built by the Confederates in 1862 to patrol local waterways. As Federal troops advanced on Washington, NC, in 1862, the Confederate commander burned the gunboat to keep it from falling into Union hands. Today, this vessel is historically significant as a rare example of Confederate naval technology. The well-preserved hull rests in twenty-five feet of water allowing students to practice mapping and recording techniques learned during earlier exercises.

Students will participate in classroom lectures, workshops, and seminars. On-site activities provide practical experience in excavation techniques, underwater mapping, and documentation procedures. Non-diving students gain experience in historical research. Students participating in project diving must make arrangements with the East Carolina University diving safety officer to ensure that all aspects of a thirty foot depth certification have been met prior to the start of field research. This is normally completed during the Greenville training period.

Two semester hours of credit are offered at the graduate and undergraduate (senior) level. Tuition and fees for out of state students are \$1053.00, subject to change by the state legislature. Students will be responsible for their own housing and food during their stay in Greenville. Semi-private air conditioned residence hall rooms can be reserved for \$250 for the summer field school session.

Applicants for the field school should have a background in history, archaeology, anthropology, geography, or related fields.

Deadline for Application is April 15, 1995

Please contact:
Program in Maritime History and
Nautical Archaeology
East Carolina University
Greenville, NC 27858
919/328-6097

PAMLICO SURVEY

In 1993 the Program in Maritime History and Nautical Archaeology began investigations of a survey along the north shore of the Pamlico River. The survey focused on the areas between Bath Creek and Pamlico Beach and was completed in the spring of 1993. The survey focused on sunken vessels, adrift vessels and floating derelicts. Vessel types found in the survey include several bateaus, trawlers, skiffs, barges, freight boats, and one ageing house boat. The survey also located a number of prehistoric sites along the shore as well as several eroding into the river.

All submerged sites were documented with magnetometer signatures and differential Digital Global Positioning System locations. The final report has been submitted to the Underwater Archaeology Unit, North Carolina Department of Cultural Resources.

Currently, ECU is conducting an identical survey of the Pungo River between Wades Point and Woodstock Point on the river's western shore. The Pungo River survey is expected to be completed this spring. The 1993 survey as well as the current survey were funded by a survey and planning grant awarded by the Department of Cultural Resources. **Dr. Lawrence Babits** is principle investigator, assisted by **Jeff Morris**, **Annalies Corbin Kjorness**, volunteer graduate students, and family members.

Annalies Corbin Kjorness

STUDENT RESEARCH PROJECTS

(continued from page 24)

Darren Poupore - United States Naval Operations During the Battle of the Santa Cruz Islands, October 26, 1942

Shannon Richardson - The History and Future of Waterlogged Artifacts Conservation

Amy L. Rubenstein - The Conservation and Artifact Assemblage of an 18th-Century British Merchant Vessel in St. Ann's Bay, Jamaica

Matthew Russell - An Historical and Archaeological Investigation of Three Hall-built Pacific Coast Lumber Schooners: *Dora Blum*, *Comet*, and *J. M. Colman*, Located in the Channel Islands National Park

Jinky Smalley - The Manila Galleon Trade and its relation to Spanish/ Filipino/ Chinese intercourse as evidenced in ship construction, trade goods, and ship complements

Joshua M. Smith - Defending Massachusetts in the War of 1812: State and Local Resistance to Federal Authority during the 1812-15 conflict

Paul Steinberg - An Historical and Archaeological Investigation of the USS *Flambeau*: a Civil War Blockader located off Fort Fisher, NC

Lex Turner - Site Report of the Civil War Era Merchant Schooner *Scuppernon*

Ray Tubby - An Historical and Archaeological Survey of the Cramer Wreck, Mullica River, New Jersey

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

Daniel Warren - A History of the Steamship *Monumental City* and the Impact of American Shipping on British Colonial Policy in Australia

SPECIAL NOTICE

Karen Underwood joined the Program as Administrative Office Assistant last year. She provides invaluable support to the five professors and multitude of students working in Eller House, and is our primary link to the outside world. Karen recently returned from maternity leave following the birth of her second child, William. Karen and her husband Tom also have a daughter, Ashley. We are glad to have her on our staff.

WHERE ARE THEY Now?

James Allen - Institute for Western Maritime Archaeology, Berkeley, CA

Brina J. Agranat - Doctoral Candidate, University of Alabama

Ray Ashley - Director, Maritime Museum of San Diego, CA

Adriane Askins - Submerged Cultural Resources Unit, National Park Service, Santa Fe, NM

David Baumer - Curator of Small Boats, Mariners' Museum, Newport News, VA

David Beard - Contract Nautical Archaeologist

Colin Bentley - Sailing Instructor, College of Charleston

Kathryn Bequette - Director, Maritime Archaeology and Research, OELS, Evergreen, CO

Jemison Beshears - Vice President, Panamerican Institute of Maritime Archaeology and Itinerant Actor

Jonathan Bream - Doctoral Candidate, University of Seville

Robert Browning, Ph.D. - Chief Historian, U.S. Coast Guard, Washington, DC

Frank Cantelas - Archaeologist, Program in Maritime History and Nautical Archaeology, East Carolina University

Patrick Cole - Purchasing Agent, Sunnyvale, CA

David J. Cooper - State Underwater Archaeologist, State Historical Society of Wisconsin

Diane Cooper - San Francisco Maritime National Historic Park

Lee Cox - Contract Nautical Archaeologist, Dolan Research, Philadelphia, PA

James P. Delgado - Executive Director, Vancouver Maritime Museum, BC

Stanley K. Duncan - Nautical Archaeologist, Panamerican Consultants, Memphis, TN

Ted Dunlap - National Maritime Alliance, Bath, ME

Rita Folsie-Elliot - Archaeologist, LAMAR Institute, GA

Robert Feingold - Program Specialist, NOAA, Florida Keys, FL

Kevin Foster - Maritime Historian, National Park Service, Washington, DC

Joe Friday - Police Officer, Greenville, NC

Wesley K. Hall - Director, Mid-Atlantic Technology, Wilmington, NC

Lynn B. Harris - Assistant Head, Underwater Division, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia, SC

Rick Herron - Doctoral Candidate, Texas A&M University

Bob Holcombe - Director, Confederate Naval Museum, Columbus, GA

Claude V. (Sandy) Jackson - Underwater Archaeology Unit, State of North Carolina, Ft. Fisher, NC

John O. Jensen - Doctoral Candidate, Carnegie Mellon University, Pittsburgh, PA

John Kennington, Jr. - Historian, Coastal Heritage Society, Savannah, GA

T. Kurt Knoerl - Construction Supervisor, Detroit, MI

Amy Jo (AJ) Knowles - Museum Curator, US Coast Guard, Washington, DC

Richard Mannesto - Great Lakes Historical Shipwreck Museum, Sault Ste. Marie, MI

I. Roderick Mather - Doctoral Candidate, Oxford University

Amy Mitchell - Institute for Wood Analysis, Troy, OH

Dave Moore - Director of Archaeology, St. John's Expeditions, Inc., East Palatka, FL

R. Scott Moore - Doctoral Candidate, Ohio State University

Stuart Morgan - Doctoral Candidate, University of South Carolina

John W. (Billy Ray) Morris, III - Doctoral Candidate, University of Florida and Director, Southern Oceans Archaeological Research

Kaea Morris - Archaeologist, Zuni, NM

Sam Newell - Public school teacher, Greenville, NC, and Contract Nautical Archaeologist

Glen Overton - Contract Nautical Archaeologist and Dive Charter Operator, Wilmington, NC

Martin Peebles - Archaeological Illustrator and Contract Nautical Archaeologist, Carolina Beach, NC

Edward F. Prados - US Naval History Program Developer for the Persian Gulf, U.S. Navy Memorial Foundation, Washington, DC

Heidi Primo - Professor of Social Studies and Pacific Islands History, College of Micronesia, Kohlonia, Pohnpei, Federated States of Micronesia

James R. Reedy, Jr. - Contract Nautical Archaeologist, Beaufort, NC

Shannan Richardson - Archaeologist, Fort Niagara, NY

Bradley A. Rodgers, Ph.D. - Visiting Assistant Professor of History, East Carolina University

Matthew Russell - Submerged Cultural Resources Unit, National Park Service, Santa Fe, NM

John Schaefer - Researcher, Naval Memorial Foundation, Washington, DC

James S. (Steve) Schmidt - Nautical Archaeologist, Espey Huston Associates, Austin TX

Robert Schneller, Ph.D. - Historian, Naval Historical Center, Washington, DC

James Spirek - Nautical Archaeologist, State of Florida

Thomas Stoltman - Northwest Maritime Museum, Empire, MI

Hans Van Tilburg - Nautical Archaeologist, University of Hawaii

Bruce G. Terrell - Maritime Historian and Acting Maritime Archaeologist, NOAA, Washington, DC

William H. Thiesen - Doctoral Candidate, University of Delaware

Ray Tubby - Nautical Archaeologist, Tidewater Atlantic Research, Washington, NC

Lex Turner - Nautical Archaeologist, Tidewater Atlantic Research, Washington, NC

Lolly Vann - Contract Archaeologist, MD

Daniel Warren - Electrician's Apprentice, Bullpitt, IL

Wilson West - Researcher, U.S. House of Representatives, Washington, DC

David R. Whipple - Historian, Naval Historical Center, Washington, DC

NATIONAL MARITIME HERITAGE ACT PASSED

Passage in fall 1994 of the National Maritime Heritage Act established a process to generate resources for preservation, education and support of maritime programs. Funds for the act will be generated from proceeds obtained by the scrapping of the National Defense Reserve Fleet. An estimated \$1.5 million annually will go to support maritime initiatives.

The Secretary of the Interior will administer the funds on advice from the National Maritime Heritage Grants Advisory Committee. Half of the grants will fund maritime heritage preservation via State Historic Preservation Officers. The

remaining half will fund maritime heritage education projects through the National Trust for Historic Preservation.

Although no immediate effect will be felt, the act will create a number of jobs and fund projects. Mechanism for award and application guidelines are being set up now. Watch for more information from the National Maritime Alliance and the National Maritime Initiative(NPS).

The act would not have passed, however, without the outstanding efforts of the National Maritime Alliance. **Dr. William N. Still, Jr., Dr. Timothy Runyan, and Kevin Foster** serve on the Board of Directors.

GRADUATE STUDENT RESEARCH

The following reflects research interests of Program students:

James Allan - The Maritime History of Fort Ross, California

Adriane Askins - Site Report on the *Sacred Heart of Jesus*, Edenton, NC

Charles E. Bayman - Operational Difficulties Experienced by Admirals Graves, Shuldham and Howe on the North American Station, 1775-1778

Jimison R. Beshears - Dutch Maritime Trade in the Caribbean and Related Shipwreck Sites

Mark Burdette - The Development of United States Navy Air Defense, 1929-1941

Jay Chapman - American Post-Revolutionary War Sea Power

Edwin Lawrence Combs - History of the Wilmington Squadron, Confederate States Navy

Michael P. Coogan - Historical and Archaeological Investigation of USS *Louisiana*-- Powdership destroyed off of Fort Fisher, NC, December, 1864

Diane Cooper - From Small Ways to Big Business: The Growth of the Wooden Ship Construction and Waterborne Industries Along the United States Pacific Coast, 1875-1900

Stuart Derrow - An Historical and Archaeological Study of Sixteenth-Century

Spanish Shipboard Subsistence

Ted Dunlap - Development of U.S. Naval Regulation over its Historic Shipwrecks

Sabrina Faber - Social and Economic Aspects of the Athenian Naval Empire

Paul Fontenoy - Development and Economic Success of Steamboats in Northeast America

Steve Gibbons - Piracy and Economics of the Carolinas, 1675-1725: Emphasis on North Carolina after 1700

Cristen Gober - A History of the USS *Kearsarge*

Tim Hastings - History and Archaeological Site Report of the CSS *Gaines* Sunk at the Battle of Mobile Bay

Rick Jones - Site Report on the MacKnight Shipyard Wreck, Currituck County, NC

Annalies Corbin Kjorness - Comparative Artifact Analysis of nineteenth-century Western Steamboat Passengers' Personal Possessions with particular attention in the steamboats *Arabia* and *Bertrand*

AmyJo Knowles - History and Development of Minor Aids to Navigation in U.S. Waters

Michael Krivor - Research and Documentation of an 18-Century British Collier, Bermuda

Eleftheria Mantzouka - Classical

Transport Amphorae from a Shipwreck at Alonnesos, Northern Sporades, Greece

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

Heather McAllister - 18th-Century Silver Trade from Mexico to Spain

Ann Merriman - Historical Research of Washington, NC, Trading Schooners Associated with S. R. Fowle, Co., and Conservation of the 1994 Millecoquins Artifact Assemblage

Christopher Olson - A History and Archaeological Site Report on the CSS *Curlew*

Kerry O'Malley - Early 19th Century North Carolina Shipping

Tim Marshall - An Historical and Archaeological examination of the steamship *Arabian*

Glenn Overton - A Detailed Analysis of the USS *Schurz*

Harry Pecorelli, III - Spanish Colonial Maritime Commerce in the Eighteenth Century

Martin D. Peebles - Site Report on the *Raleigh*, Fort Fisher, NC

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

(Continued on page 22)

Stem to Stern

Program in Maritime History
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Admiral Ernest M. Eller House
East Carolina University
Greenville, NC 27858-4353

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