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1779 PENOBSCOT BAY EXPEDITION 1975

Until recently, AINA's field projects have focused on seafaring in the Mediterranean, and excavations in Turkey, Cyprus, and Italy have provided valuable information about maritime trade and architecture of merchant ships in Classical antiquity. In June, 1975, AINA undertook its first New World project, and its first warship excavation, with a preliminary excavation of the brig **Defence** and a survey in Penobscot Bay and River, the sites of an important chapter of American Revolutionary War history. The Penobscot Bay project, under the direction of David C. Switzer, AINA Adjunct Professor of American Naval History, was made possible by grants from the Maine State Museum, as part of its program, "Project: Heritage Restored;" the Maine State Bicentennial Commission; the Maine State Historic Preservation Commission; and the Alcoa Foundation. Accommodations for the team and surface vessels were provided by the Maine Maritime Academy in Castine, which served as project headquarters.

Excavation of the **Defence** took place under Dr. Switzer's direction between June 1 and July 15, and served as the locale for AINA's second summer field school; eight students from seven American colleges and universities received training in underwater archaeological methods and classroom instruction on American naval history and architecture.

The survey, undertaken as part of the Maine Maritime Academy-Massachusetts Institute of Technology Ocean Engineering Summer Laboratory, was conducted between June 20 and 28. Under the supervision of David B. Wyman, Associate Professor of Ocean Engi-

neering at MMA, it provided MMA and MIT students an opportunity to learn how surveying is done and to see sonar and magnetometer equipment in operation.

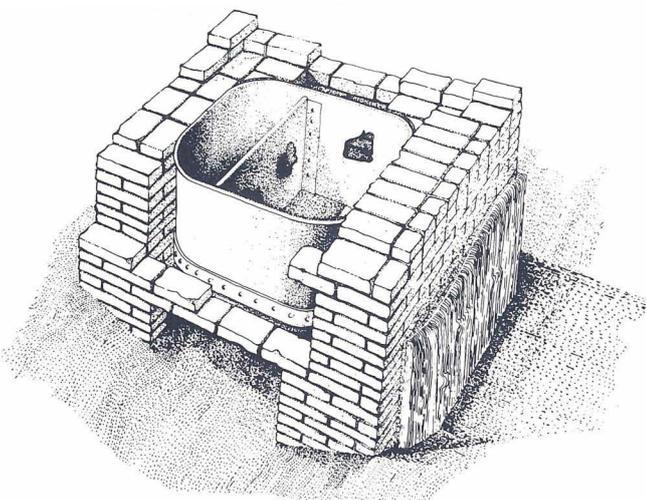
Interest in the **Penobscot Fleet** and its fate has been generated in recent years by Dean Mayhew, Associate Professor of History at the Maine Maritime Academy, who has done extensive research on the history of the fleet, and who initiated interest in searching for its remains. Here Prof. Mayhew provides AINA readers with the historical background of the project, and Profs. Switzer and Wyman describe the excavation and survey.

The Penobscot Blunder

The coast of Maine played a key role

in military and naval activities in the years 1775-1783. The Bagaduce Peninsula, at the tip of which is located the town now called Castine, then formed part of the State of Massachusetts. By 1779 the area attracted the attention of the British, for it provided masts, a crucial item for ship construction, and the harbor served as an excellent base for naval operations. In July, 1779, a small British force of fewer than 800 troops and three small sloops of war seized Castine and began building fortifications. The Massachusetts state government, alarmed at this incursion into its territory, assembled an expedition to evict the enemy.

Brigadier General Solomon Lovell of the Massachusetts militia was placed in charge of a force numbering nearly 2,000. In charge of the naval contingent



Brick cookstove with copper cauldron inside, from the brig **Defence**.

Peter Hentschel

BANGOR

Penobscot River and Bay, Showing locations of the D

was Commodore Dudley Saltonstall of New London. On the staff was Lt. Col. Paul Revere, commander of the artillery train. The fleet consisted of three Continental Naval vessels, frigate *Warren* of 32 guns, brigs *Providence* and *Dilligent* of 14 guns each, three Massachusetts State Navy brigs of 16 guns each, and a dozen privateers of from 10 to 22 guns, including the brig *Defence*, of 170 tons, 16 guns, and 100 crew members under the command of John Edmonds. Some 23 transports and an ordnance brig carried the troops.

The Americans arrived off Castine in late July; over two weeks of indecision and vacillation followed, during which naval and military commanders squabbled over what to do. Meanwhile, the British grew stronger.

In mid-August, the Americans formulated a plan to carry on a grand attack on the ships and Fort George. It was too late.

Sir George Collier, Commander-in-Chief of His Majesty's ships in America, had received intelligence of the situation in Penobscot Bay, and set forth from New York with seven ships to relieve the siege. One ship got lost in the fog, and when the remaining six arrived, the American fleet fled up Penobscot River.

The *Defence* hid herself in Stockton Cove, but the British *Camilla*, under Capt. Collins, discovered her and tried to take her. To avoid capture, the *Defence* crew set torch to the new brig, and when the fire reached her magazine, she blew up.

Except for one privateer fired near Castine, and three warships captured by Collier, the remainder of the American fleet lies on the Penobscot River bed at Sandy Point or above. About half the transports were burned around Sandy Point. The ordnance brig *Samuel* was sunk near Winterport, and as early as August, 1779, a British crew recovered 18 lb. siege guns from it. Upstream, at Oak Point, the *Warren* and an ordnance brig were destroyed. The *Vengeance* and *General Putnam*, heavy privateers of

over 20 guns each, lie further north. Off South Brewer lie the state brig *Active* and privateer *Charming Sally*, and in a compact group near High Head in Bangor are the *Hector*, *Black Prince*, and *Monmouth*, while just above them rest the *Hazzard* and *Tyrannicide*.

Both British and American crews made attempts at recovering military equipment from the sunken vessels. Some 50 or 60 guns were recovered by the British in August, 1779, and taken to Castine. The Americans were less

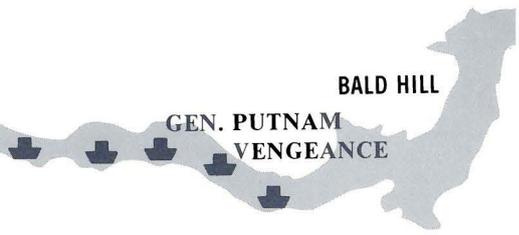


Divers lower the Visual Acuity Tent into the water for a trial run.

Photo by Cynthia Orr

successful, recovering only some stores.

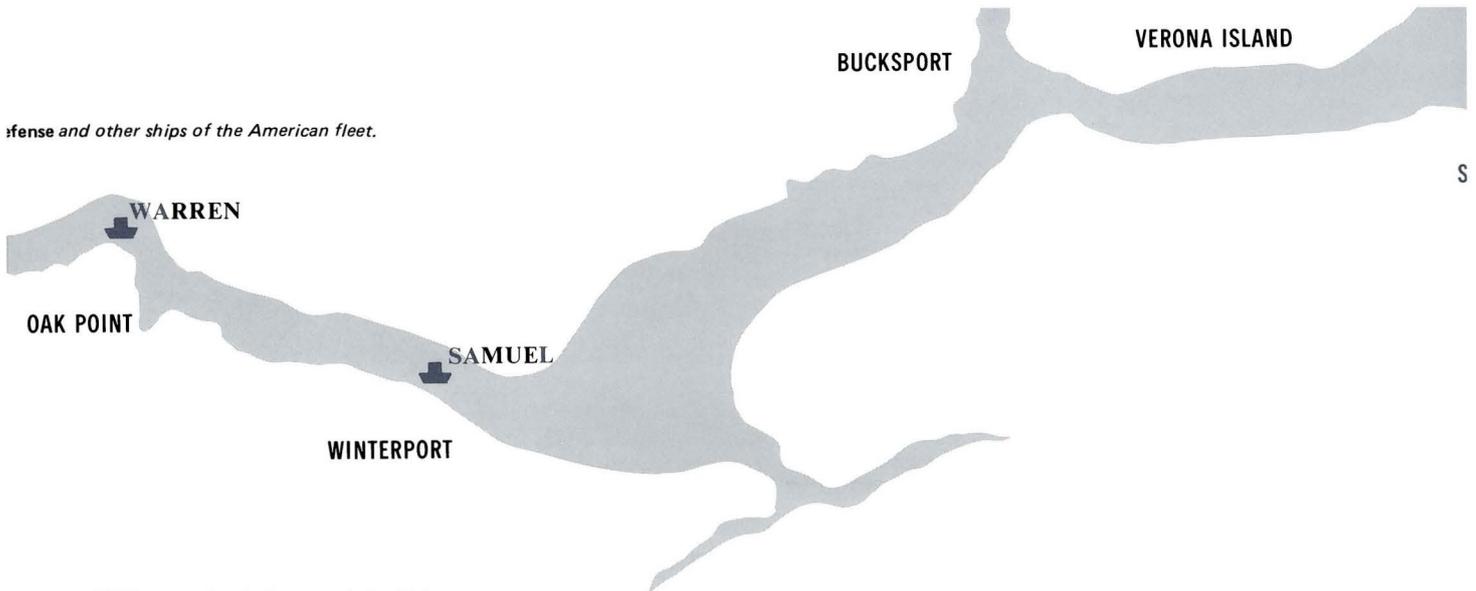
Throughout the 19th and 20th centuries numerous attempts were made to locate the wrecks and recover guns from them. In this period an estimated 35 cannon were removed from the wrecks; some are in private hands or are lost, and some are on display in Bangor, Brewer, and other towns in the area.



Newspaper stories and other accounts of salvage efforts and accidental discoveries of remains of the fleet are useful in pinpointing the location of some of the wrecks, and in certain cases the type of guns recovered is useful in identifying a wreck by name. For example, in 1952, workmen building the Joshua Chamberlain Bridge connecting Bangor and Brewer recovered four cannon which proved to be Armstrong four-pounders, 5'4" in length. Since only one vessel of the American fleet carried this type of gun, the wreck can only be that of the Continental brig *Dilligent*.

In the summer of 1972, under the direction of Capt. W.F. Searle, USN Ret., the Maine Maritime Academy-Massachusetts Institute of Technology Summer Sea Grant Ocean Engineering Laboratory Afloat undertook a search operation with the objective of locating the *Defence*. The ship was found in Stockton Harbor, close by Sears Island, in 25 ft. of water. The identity of the ship was verified by the recovery of a 6 lb. cannon and several other artifacts including cannon and musket balls. The MMA-MIT Summer Sea Grant Project continued to explore the wreck site in 1973 and 1974. The hull of the ship and her two mast stumps were positively identified.

At this point it was decided that any further work should follow scientific archaeological procedures. Capt. Searle, George F. Bass and Donald A. Frey of



Defence and other ships of the American fleet.

AINA examined the wreck in February, 1975, and concluded that it was an important archaeological site worthy of careful excavation.

—Dean Mayhew

Excavating the *Defence*

From June 1 to July 15, the major task was to conduct a feasibility study of the *Defence* site to ascertain whether or not a complete excavation should be scheduled for the summer of 1976.

In addition to myself, Dr. Bass, and associate project director David Wyman, the *Defence* project team included eight students and two "old-timers", Mary Strouse and Faith Hentschel. The student group included a wide range of talents.

Much time was devoted to constructing equipment designed to facilitate working in the shallow but cold and murky waters of Stockton Harbor: a clear water box was made to aid underwater photography; a floating seive was required for the discharge end of the airlift; a grid of 2" PVC pipe provided points of reference on the sea bed.

By the end of the first week, which included orientation dives, a 50' by 20' float provided by the Maine Maritime Academy was towed to the site by the expedition boat *Panthalass*, and anchored over the wreck.

Once diving began in earnest, we operated in teams of two in designated

sectors of the wreck in order to provide information concerning the condition of the vessel. Excavation was conducted outside the bow, at the stern, and in the

at the time of the scuttling.

Underwater work was extremely difficult: visibility ranged from zero to six feet. When the airlift was operating the former figure prevailed. The students, however, got the feel of things very quickly. Aiding in this respect were



Photo by Henry Graham

The problem of poor visibility for photographing is discussed by (l. to r.) Rhys Townsend, David Wyman, Rick Geffken, David Switzer, Kenneth Pott, and George Bass (bottom of picture).

fore peak. The port side frames, the best preserved, were cleared and numbered. A trench was extended from the port side forward of the main mast to the center line. Extensive airlifting was also carried out in the stern area. Here was revealed a jumble of timbers most likely caused by an explosion of the magazine

classes in ship construction conducted by AINA ship reconstructor J. Richard Steffy. On a trip to the Penobscot Marine Museum, Dick was able to expand on his classroom talks, aided by numerous models, pictures, and pieces of equipment on display.

In addition to a number of inboard



profiles that were obtained through probing, all of the port side frames and a majority of those on the starboard side were triangulated. Using these figures, David Wyman drew up an extremely accurate site plan—working in the little shack on the float that served as a work area and a warming hut on foggy, chilly days.

Underwater photography posed a problem. The clear water box leaked, with the result that sea water quickly displaced clear water. We believe the box still has definite possibilities, and modifications should solve the leakage problem.

Lack of good photographs did not, however, mean that we were not able to obtain pictures of structural remains and objects *in situ*. Architect Peter Hentschel became the eyes of the expedition. On innumerable dives with clipboard, measuring stick, and tape, Peter made preliminary drawings of the bow section, the framing details, and the cookstove and its copper cauldron—one of the outstanding features of the wreck. From sketches and measurements, he produced excellent diagrams and pictures. Indeed, as someone commented, “He saw more than any of us.” When he wasn’t diving, Peter offered to draw some of the more significant artifacts recovered.

Artifact conservation was the responsibility of Rhys Townsend and Cynthia Orr, who painstakingly labeled, numbered, recorded, and stored artifacts in a holding tank at MMA. Formulae and chemicals provided by Maine State Museum Conservator, Stephen Brooke, were employed to retain ferrous and wooden objects in a holding condition.

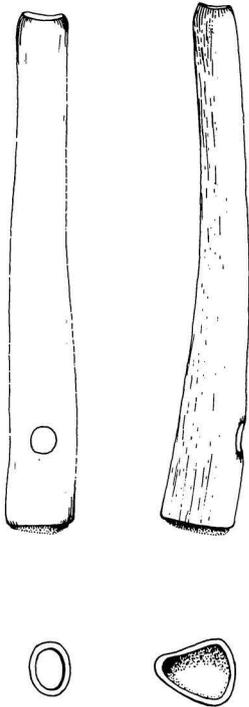
Although artifact recovery was not the prime concern of the summer’s work, a number of objects were brought up by the airlift—grapeshot concretions, cannon balls, wooden grapeshot stands, beef bones, and numerous pieces of wood. One of the most interesting objects recovered was a bone whistle which may have been a bos’n’s pipe.

During the limited time we had to work, we were able to experiment with other special equipment designed to counteract the murky conditions created by the silt bottom and stirred-up blue clay which surrounded and filled the wreck over the years. George Bass designed a jet-box, which would allow a diver to maintain visual contact with a small area of the wreck. A square windshield with water jets creating a silt-clearing current, the jet-box could be handled by one person and moved with ease. Some difficulty was encountered, due to the fact that the water forced

through the jets was aerated. Again, this experiment proved useful in terms of future equipment design. Another experiment was with a conical polyurethane tent dubbed the Visual Acuity Tent (VAT). Designed by Peter Hentschel, the tent, with an eight-foot diameter base, will provide one or two divers with a constantly-cleared working area. The clearing current will be provided by a pump on the surface which continually circulates clear water to the apex of the cone.

The *Defence* excavation project was extremely successful. The structural remains of the vessel appear to be intact, and we have hopes of beginning a full-scale investigation next summer. I must comment on other elements than those noted above that made things go so well. One was the enthusiasm of the students. Another was the living and working facilities provided by Maine Maritime Academy. Also instrumental to the success of the *Defence* project was the assistance of Warren Riess, who secured a large compressor and provided advice regarding underwater photography. We all look forward to the summer of 1976 and foresee another successful season built on the foundations of the past summer’s experience.

—David C. Switzer



Bone whistle from the *Defence*, tentatively identified as a bos'n's pipe.

Peter Hentschel

Searching for a Fleet

The survey, conducted to determine the feasibility of locating additional vessels from the ill-fated Penobscot Expedition of 1779, fell into two parts: (1) a detailed examination of the *Defence* site, to gather background data on target characteristics of a known vessel of this fleet, and to get a better understanding of the *Defence* site, and (2) a preliminary survey of possible sites in the Penobscot River to establish the feasibility of surveying in the river and to locate targets for further examination.

The vessel used for the survey was *Panthalass*, a 34 ft. fiberglass lobster boat owned by Maine Maritime Academy. Dr. Harold Edgerton of MIT provided a side scan sonar, a rotary side scan sonar, and a mud-penetrating sonar, and Martin Meylach of Meylach Magnetic Search Systems employed a proton precession magnetometer. A great deal of data was gathered both on the *Defence* site and on the Penobscot River.

The hull of the *Defence*, which

barely projects above the mud bottom, showed up very well on the record during the survey with side scan sonar. A mast from the vessel was found about 65 ft. to the west of the site. An oak log, 1 ft. in diameter by 20 ft. long, partially buried in the mud bottom, was the only other object found in the area, and is not related to the wreck.

The rotary side scan sonar developed by Dr. Edgerton proved very valuable in surveying the *Defence*. The device allows a boat to anchor near a suspected target; the rotary side scan sonar is rigged and slowly rotated, so that distance and bearing to any target can be read. This information is plotted, and a good site plan of bottom targets can be produced. It is also useful in directing divers to a target for close examination.

The *Defence* site was also surveyed with Martin Meylach's proton precession magnetometer. The perimeter of the area to be surveyed, 200 ft. square, was marked out with buoys at 50 ft. intervals. The buoys were made of large, light-colored plastic trash bags, filled

turnabout, another anomaly, hitherto unsuspected, was picked up 100 ft. southwest of the *Defence's* mainmast. The anomalies have not been investigated by divers, but are believed to be large iron objects such as cannon or piles of cannon balls. The survey demonstrated that a vessel of this fleet can be detected on both sonar and magnetometer instruments.

The second part of the survey investigated the feasibility of surveying the Penobscot River for additional wrecks of the unfortunate fleet. With the results of Dean Mayhew's historical research in hand (see above) the survey team explored a number of sites in the river between Sandy Point and Hampden. Riverbed conditions were good for both sonar and magnetometer, with limited background interference. A number of anomalies was discovered, and, coupled with the historical record, have real potential. Time limitations did not permit us to put divers on the targets, but bearings were taken and their locations marked on a chart of the river.



David Wyman works on the plan of the *Defence* hull remains.

Photo by Henry Graham

with air. They proved highly visible, even in choppy water and when facing into the sun, and facilitated navigation. They are easy to recover. The *Panthalass*, towing the magnetometer sensor at low speed, passed over the wreck site in parallel paths at 10 ft. intervals. A number of magnetic anomalies was discovered in the immediate vicinity of the wreck, and while the boat was making a

A complete survey of the Penobscot River should be made, with special emphasis on the promising targets discovered in the preliminary survey. Diver investigation is an important aspect of the survey and can be facilitated by the use of rotary side scan sonar, which allows the divers to be guided by surface command directly to the target.

—David B. Wyman



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The American Institute of Nautical Archaeology is a nonprofit scientific/educational organization whose purpose is to gather knowledge of man's past as left in the physical remains of his maritime activities and to disseminate this knowledge through scientific and popular publications, seminars, and lectures. The AINA Newsletter is published periodically by AINA and is distributed to its members and Supporting Institutions to inform them of AINA's current activities.

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