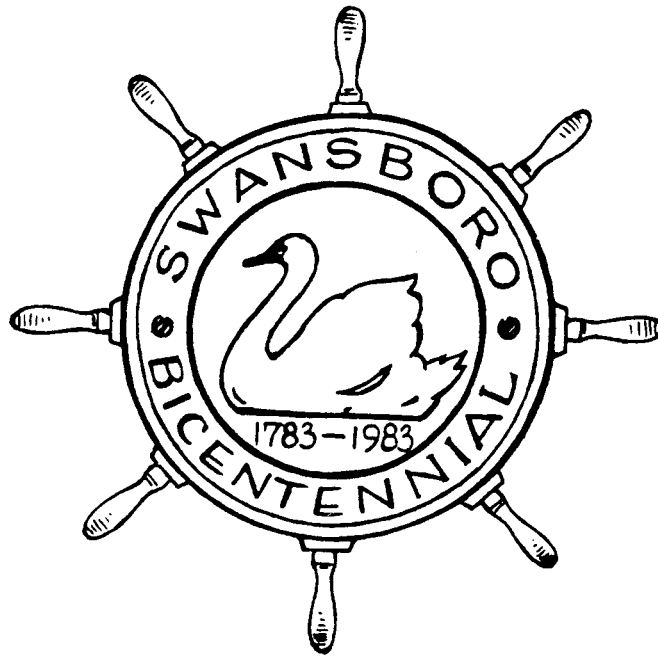


**THE SUBMERGED CULTURAL RESOURCES
OF SWANSBOBO, NORTH CAROLINA**



Program in Maritime History and Nautical Archaeology
Department of History
East Carolina University
Greenville, North Carolina



THE SUBMERGED CULTURAL RESOURCES OF SWANSBORO

Sponsored by the
Swansboro's 200th Anniversary Celebration Committee
Swansboro, North Carolina

Richard A. Stephenson and William N. Still, Jr., Editors

Program in Maritime History and Nautical Archaeology
Department of History
East Carolina University
Greenville, North Carolina 27834

May 1994

TABLE OF CONTENTS

Table of Contents	2
List of Figures and Field School Staff and Students	3
Executive Summary	4
Introduction	6
The Submerged Cultural Resources Survey	8
The Deer Island Wharf Investigation	9
The Site and the Geographic Setting	10
A Brief History of Swansboro	14
The Submerged Cultural Resources of Swansboro and Vicinity	25
The Deer Island Wharf Investigation	29
Conclusions	43
Recommendations	46
Bibliography	47
Appendix	49
Description of Targets in Swansboro Harbor	49
Description of Targets in Southwest Channel to Bogue Inlet	51
Description of Targets in West Channel; Huggin's Island	52
Description of Targets of Highway 24 Bridge; Swansboro Harbor	53
Description of Targets of the White Oak River	53
Description of the Deer Island Wharf Site	55
A Dedication to Tucker R. Littleton	56
Acknowledgements	56

LIST OF FIGURES

Figures

1.	Project Area	7
2.	White Oak River Basin	11
3.	The White Oak River portion of the Whimple Map of 1738	17
4.	Swansboro Harbor Survey	26
5.	Location of Deer Island	31
6.	Sketch of Wharf Remains	34
7.	Profile of the Test Units 1 and 2 in Lawn	40

FIELD SCHOOL PROGRAM STAFF AND STUDENTS

Gordon P. Watts.....	Field School Director and Underwater Archaeologist
Dr. William N. Still.....	Program Director and Maritime Historian
Dr. Richard A. Stephenson.....	Director of Logistics and Environmental Specialist
Tucker R. Littleton.....	Historian
Andrea Heintzelman-Muego.....	Wharf Specialist
Wesley K. Hall.....	Graduate Assistant
Lee Cox.....	Graduate Assistant
Stuart Morgan.....	Graduate Student
Brad Rogers.....	Graduate Student
Colin Bentley.....	Graduate Student
Kathryn Bequette.....	Graduate Student
Robert Finegold.....	Graduate Student

EXECUTIVE SUMMARY

The survey of Submerged Cultural Resource of Swansboro and surrounding waters was made possible by the joint effort of Swansboro's 200th Anniversary Celebration Committee and East Carolina University's Program in Maritime History and Nautical Archaeology. Historical and geographical research revealed several potential sites. These areas were investigated using a proton precession magnetometer, underwater reconnaissance, and terrestrial archaeology methods.

In Swansboro Harbor, sixteen magnetic anomalies were mapped. Of these sixteen possible sites, six were twentieth century debris, eight targets had no associated artifacts, and two targets were associated with a small amount of wood and ballast stone. Targets beneath the bottom sediment were located by probing the overburden with two-foot long rods.

In the White Oak River thirteen targets were investigated after a visual inspection of the river bank. Six targets were found to have no associated artifacts. Five targets were possibly related to nineteenth century logging activity. The two remaining targets, which revealed eighteenth and nineteenth century artifacts, could be associated with historic plantation landings.

Five magnetic anomalies were discovered in the area of Bogue Inlet and the old Southwest Channel. Of these five targets, only one revealed any evidence of cultural remains.

Near Huggin's Island, between Swansboro and Bogue Inlet, seven magnetic targets were examined. Six anomalies had no

associated artifacts and one contained unidentifiable debris.

Exploratory diving near the Highway 24 Bridge, which separates Swansboro Harbor from the White Oak River, revealed an early twentieth century navigation light but no other associated artifacts.

Test excavation of the Deer Island wharf site in Swansboro Harbor revealed the wharf to be of probable early nineteenth century construction. Built in loose cobb or "Lincoln Log" style, it was fastened with wooden trunnels. Wood scraps, pine resin, and barrel hoops indicate that naval stores were more than likely the main cargo loaded at the wharf.

INTRODUCTION

The bicentennial of the founding of Swansboro, North Carolina occurred in 1983. To commemorate this historic event, the town established the Swansboro's 200th Anniversary Celebration Committee. A nautical archaeological survey was among several of the activities planned for 1983. The Maritime History and Nautical Archaeology Program at East Carolina University was commissioned to work with the bicentennial committee, particularly Tucker R. Littleton, in conducting an underwater archaeology survey during the summer. The purpose of the survey was to identify and assess the submerged cultural resources in the vicinity of Swansboro (see Figure 1). The survey was in accordance with the National Historic Preservation Act of 1966 (Public Law 89-665), and the Advisory Council on Historic Preservation Procedures for the Protection of Historic and Cultural Properties (36CFR Part 800).

Research efforts, using both primary and secondary sources, have identified probable sites of historical activity. These locations were quickly investigated visually as well as with a passive remote sensing device known as a proton precession magnetometer. The magnetometer detects magnetic anomalies produced by ferrous metal, displacements in the magnetic background such as a wooden hull, and thermal remnant magnetism from geological materials and structures. Once the locations were mapped, each site was inspected visually by using SCUBA and other types of diving equipment. The observations were recorded

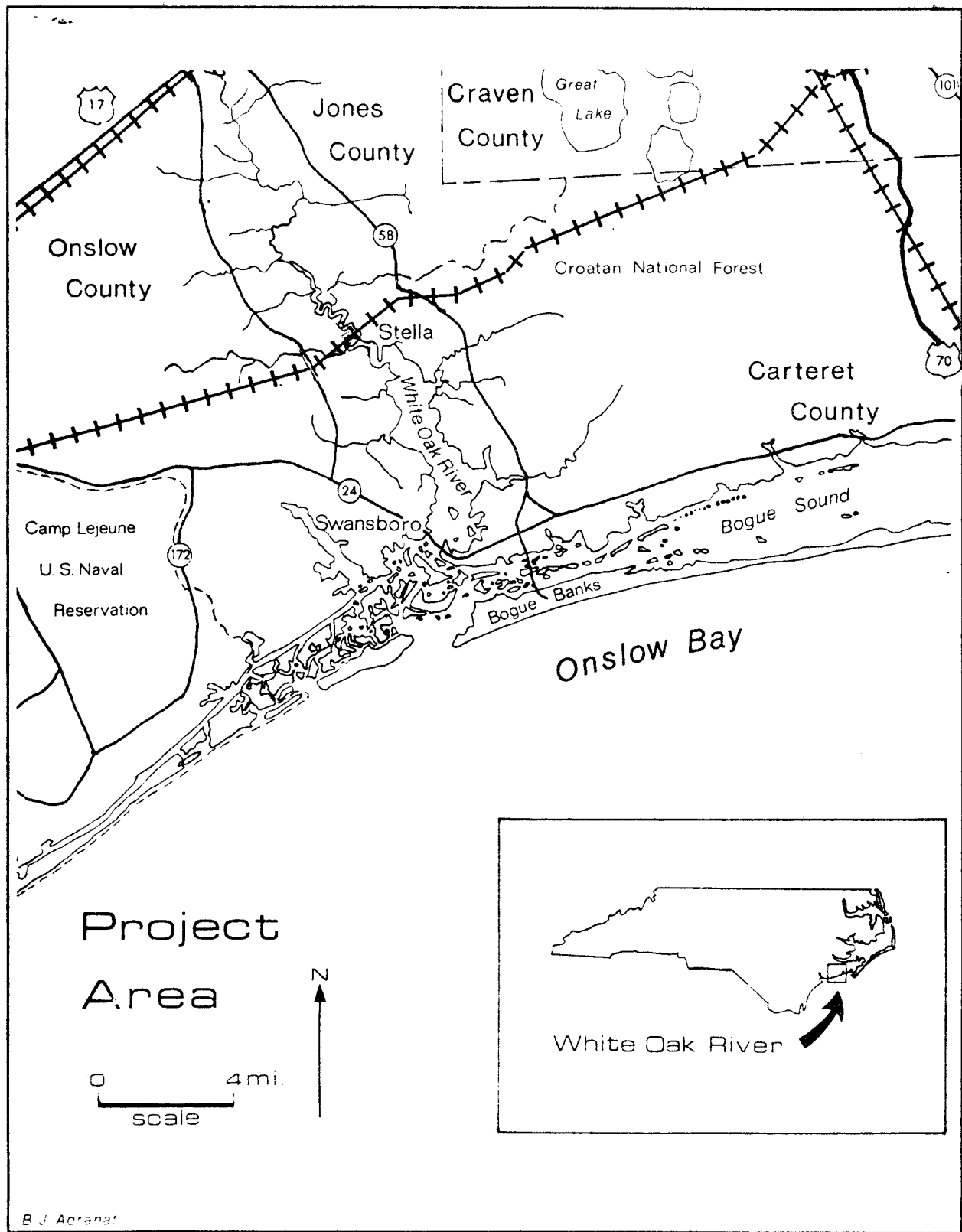


Figure 1 Project Area

and are described in the Appendix.

The students and staff of the Maritime History and Nautical Archaeology program, while eagerly contributing to Swansboro's celebration, has benefitted greatly from learning about Swansboro and its people, both past and present.

The Submerged Cultural Resources Survey

The 1983 submerged cultural resources survey took place by running lanes using the magnetometer in the numerous channels between Bogue Inlet and the White Oak River, as well as up the White Oak River. In addition, it was learned that a colonial wharf had existed at Deer Island, and this was investigated as well.

Swansboro, located in Onslow County, is connected to the Atlantic Ocean by Bogue Inlet which is approximately fifty miles northeast of Wilmington. The old business district which has numerous structures of historical significance is geographically, 34 degrees 41 minutes north latitude, and 77 degrees 7 minutes west longitude.

The survey area is in the coastal zone of North Carolina, which includes the fresh water or fluvial environment of the White Oak River, the salt water environment of the Atlantic Ocean at Bogue Inlet and the estuarine environment in between. The survey was divided into four geographical areas for research purposes: 1) Bogue Inlet, 2) channel access routes from the inlet to the harbor, 3) Swansboro Harbor, and 4) White Oak River

to approximately seven miles upstream of the harbor.

The Deer Island Wharf Investigation

While seeking permission to set up a transit station on Deer Island as part of the Swansboro Harbor survey, it was learned from the owner that an old wharf had been facing the harbor. This led to an investigation of the wharf during the field school. The wharf became an important part of the survey, as well as a better understanding of the maritime history of Swansboro.

THE SITE AND THE GEOGRAPHIC SETTING

Swansboro is located on the edge of a relict sand ridge, formerly part of an ancient shoreline related to sea level fluctuation during the Pliocene Epoch, more commonly known as the Ice Age. Swansboro Harbor is formed by the converging of the White Oak River, the Intercoastal Waterway, and Bogue Inlet. The land to the west of the harbor, the site of Swansboro, is sufficiently elevated to allow protection from high storm tides. It also provides a locus for trade and the processing of the land and water resources of the area.

The White Oak River basin is one of the smaller basins on the North Carolina coastal plain, containing a drainage area of approximately 280 square miles (see Figure 2).

. From its headwaters above Maysville to the sound the stream flows for about thirty-five miles. An elevation of less than 100 feet is found near Wolf Swamp, a broad poorly drained area which is considered the source of the stream. The stream gradient is approximately 1.5 feet per mile, a common gradient in the coastal plain. With such a low gradient in addition to being a small watershed, the volume of freshwater is relatively small and its movement very slow. This pristine and beautifully calm environment, coupled with the saline water coming through the small inlet channels, allows the sediment from both sources to create a considerable number of flood shoals at Bogue Inlet and islands in the estuary. Shoaling makes navigation through the inlet and sound channels difficult. Access to the basin through

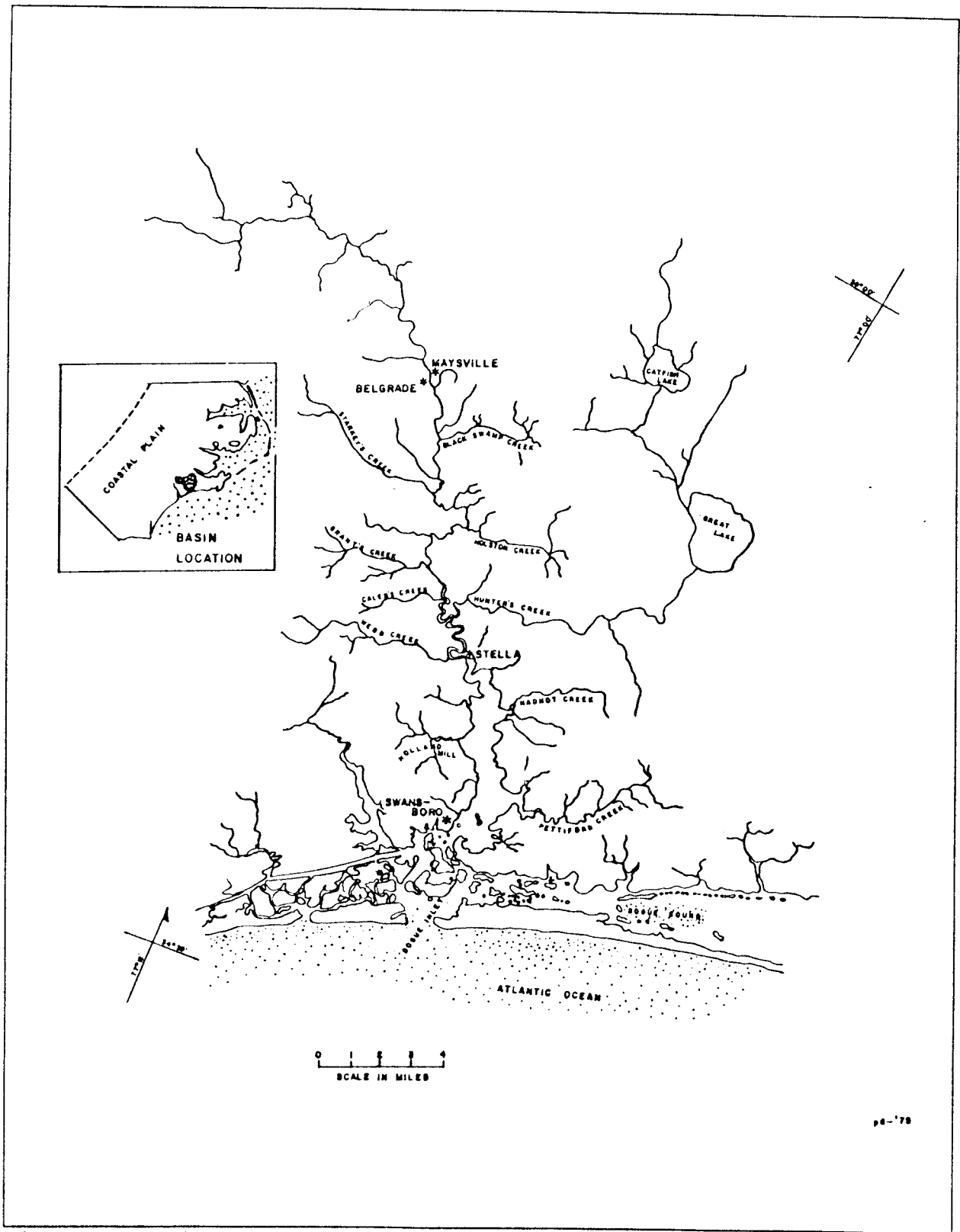


Figure 2 White Oak River Basin

Bogue Inlet is usually shallow and shifting, in fact, in the early 1970's, a storm temporarily closed the inlet. After it reopened, the inlet has slowly migrated toward the east.

The size and access of Bogue Inlet tended to control the growth of Swansboro and its maritime activity. Other ports located at inlets with larger stream basins and more stable inlets have experienced greater growth. Ports like Wilmington, Beaufort, and Morehead City prospered while Swansboro lacked the necessary hinterland and deep channels to support a larger settlement.

The White Oak River drainage basin includes forest covered pocosins, freshwater and saltwater marshes, tributary streams, and an estuary. Much of the basin is low lying and poorly drained. Some of the better drained areas have emerged as agricultural land with corn, soybeans and tobacco being the dominant crops. The area also supports several dairy farms and a substantial hog and cattle industry.

The White Oak basin has very few settlements. In the headwaters, Belgrade and Maysville are the only nearby settlements. Stella, now a landing, was once the site of a small settlement with some shipbuilding activity. Swansboro is by far the largest settlement with about 1,200 people, and quite significant economically, with lumbering and naval stores being very important.

The waters of the White Oak River holds much of the area's resources. The estuary is an excellent shellfish habitat and is

fished commercially. The initial extraction of the natural resources such as lumbering in the White Oak River had little negative impact on the environment. However, agricultural chemical runoff and hog farming operations has created environmental stress (Dulin 1975). Of late, sport fishing, recreational boating, and swimming activities have been continually increasing. Waterfront cottages, mobile homes, and other intensively used land contributes individual septic tank effluent to the surface groundwater which quickly finds its way into the estuary and sounds. Consequently, the aquatic habitat is ecologically stressed and threatened with substantial impact. The altered water quality has affected biological production, as well as valuable submerged cultural resources.

A BRIEF HISTORY OF SWANSBOBO

Since Swansboro was first settled, the surrounding waters have played an important role in its development (Sharpe 1958:971; Darby & Dwight 1836:516). In 1524 the Italian navigator and explorer Giovanni da Verranzano dispatched a small group to meet Indians somewhere between New River Inlet and Bogue Inlet (Littleton 1941). Verranzano, a Florentine employed by the French, wrote about the coastal area of Onslow County during his exploration of North America from Florida to Maine.

According to Ralph Lane's chronicles of Sir Richard Grenville's expedition and John White's map of 1585, the English, with the support of Portuguese navigator Simon Ferdinando, fished in the waters of Onslow Bay the following year. Before John White arrived at Roanoke Island in 1587 to search for what today is known as the "Lost Colony", he may have stopped along the barrier islands of the Crystal Coast. From White's last visit to the North Carolina coast in 1590 to the beginning of the eighteenth century, which is a period of extensive European exploration and settlement, sojourners may have visited or settled in the Onslow Bay area, though they left no documentary evidence.

The first documented settlement in Onslow County did not occur until 1713. English, Scot, African, Welsh, and French settlers immigrated to the area from New England, Maryland, Virginia, and the northeastern section of North Carolina. Agriculture and a large naval stores industry soon formed the

basis of the area's economy. The White Oak River along with the New River became the centers of early settlement, much like other rivers up and down the eastern seaboard. More than likely, vessels were built in Onslow County before it was formally organized. The concentration of people along the water routes made it likely that small craft, row boats, canoes, perriangers, and small sailing vessels would have been built for local transportation. Dug-out cypress canoes commonly called "cunners" were probably the first small vessels built in the area. A ferry, known now as Sneads Ferry, was established across New River by 1731 (Still 1983).

Swansboro was patented by 1730. Thomas Harding, a shipwright, purchased 540 acres of land in Onslow County in 1726, but did not settle on the property (Still 1983). Isaac and Jonathan Green, Sr., two brothers from Falmouth, Massachusetts, were to become Swansboro's first European residents. On April 7, 1730 they purchased from Ebenezer Harker "... a certain plantation and tract of land containing by estimation 441 acres situate lying and being in ye precinct of Carterett in ye county and province of aforsaid being ye west side of ye mouth off White Oak River" (Record of Deeds, D.32 April 7, 1730 Carteret County).

An early map by H. Moll, dated 1730, shows Bogue Inlet and the Weetock River, but no evidence of any settlement in the area. The better known Whimple map of 1738 shows Bogue Inlet with a nine foot channel through the bar and a designated anchorage in the sound. The shoreline of the White Oak River shows eight

sites having plantation type settlements, but only the settlement of Dudley was named (see Figure 3). These early charts are rather general and frequently have a variety of inaccuracies.

Activity along the White Oak River began to increase in the latter 18th century. In 1757 Theophilus Weeks was appointed inspector of exports for Bogue Inlet. Weeks also operated an "ordinary"; a combination inn and boarding house. Around 1770 Weeks decided to start a town on his plantation. He laid out six streets and forty-eight lots, each sixty feet by two hundred feet. In 1771 the first public sale of lots occurred in the fledgling town. Weeks became the "Founder of Swansboro", which at that time was the only town on the coast between Wilmington and Beaufort (Littleton 1983). Mouzon's 1775 map of North Carolina shows Bogue Inlet, the White Oak River, and Dudley, but indicates no other settlement in the area.

Swansboro, formerly known as Bogue, Week's Point, The Wharf, and New Town, was officially designated on May 6, 1783, by the North Carolina General Assembly. The enactment stated that "the said village of New-Town shall be and is hereby erected into a town by the name of Swannsborough" (Brown 1960:1, 346-347; Littleton 1983:1; Powell 1986:364, 484; Saunders 1968:256; Sharpe 1958:2). In 1877 the village was incorporated with its present spelling, Swansboro.

During the American Revolution, a warehouse was established at the mouth of the White Oak River to supply the Continental armed forces. Here, beef and pork were salted and barreled. A

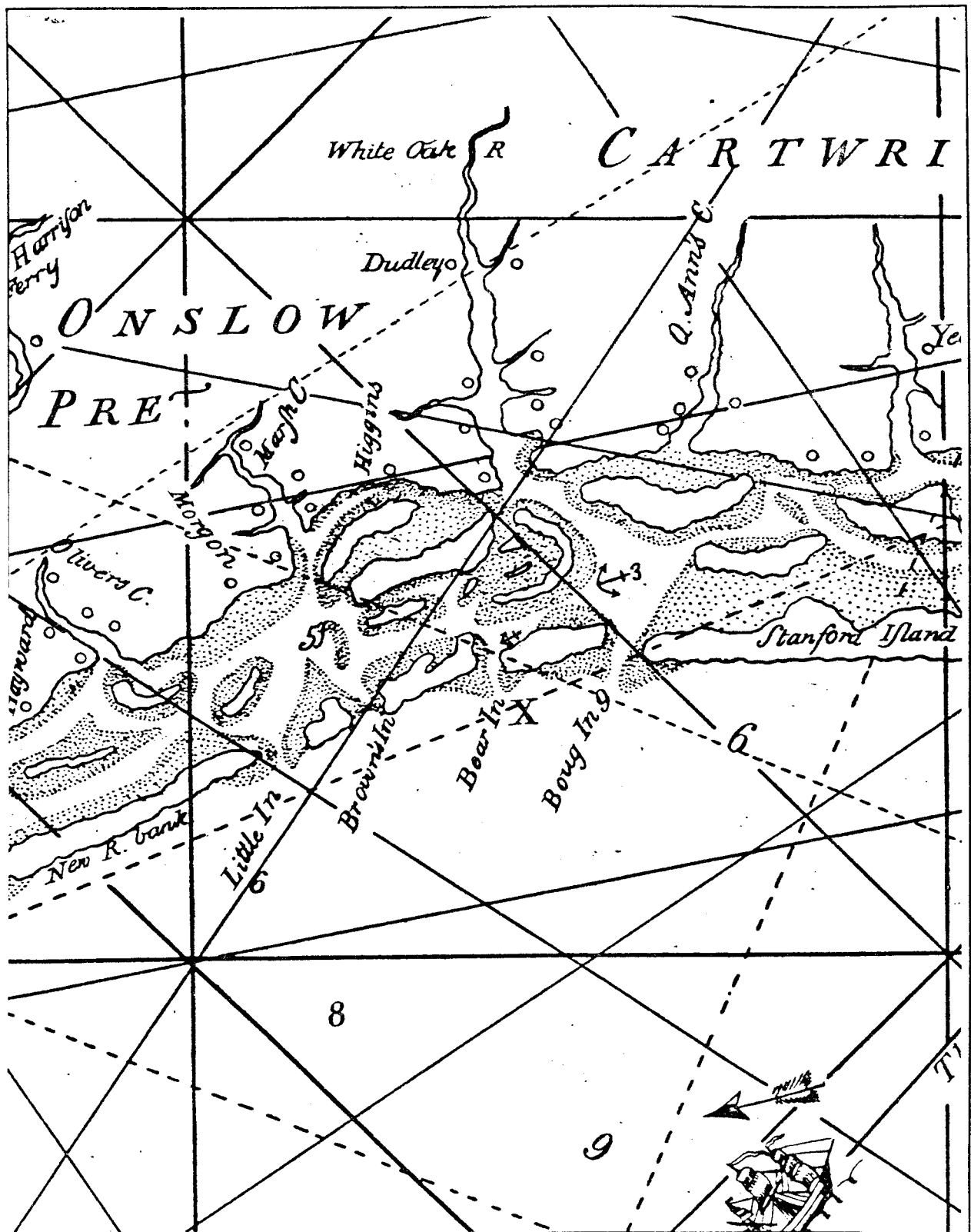


Figure 3 The White Oak River Portion of the Whimble Map of 1738

British blockade of the coast greatly reduced the importation of salt, making its production of critical importance. In response to the crisis, several salt works were established in the Swansboro area to produce salt from sea water. Jeremiah Hote operated a salt works on Deer Island during these years. Throughout the war, vessels from the port of Swansboro engaged in privateering, and a military company from the town patrolled the coastal area.

In 1783 a treaty was signed with Great Britain that ended America's struggle for independence. In the years that followed, Swansboro emerged as a coastal port. Week's Wharf became one of the inspection points for the Port Beaufort customs district, which included Onslow County (Littleton 1983:1; Brown 1960:349). In 1786 the territory trading through Bogue, Bear, and New River inlets was separated from Port Beaufort and created into the port of Swansboro. A post office was established in the new port in 1799.

The major industry in the White Oak River area was related to the extensive forests and the exportation of naval stores such as tar, pitch, turpentine, and resin. Turpentine was mentioned in the county minutes as early as 1734. For more than 100 years after that date, turpentine and tar continued to be the chief source of revenue for the area. Other exports included hides, pickled beef, pork, lumber and staves (Littleton, 1983).

The steam distillation of pine sap rendered water, resin, and spirits of turpentine. Tar, a by-product of pitch, was

obtained after the final distillation. In the process of getting the sap to run, the trees were gashed near the base and then carved to form a box in the trunk, thus the evolution of the term, "box pines". As the chipping dried up, new chipping was required to cause the sap to run again. Each new chipping made a longer box up the tree face. According to G. W. Perry (1859), writing a treatise on turpentine farming indicated that pitch pines, like long-leaf pines, were considered the best producers of turpentine and tar. Pitch pines were also valued as lumber and for their medicinal purposes.

Naval stores were packaged into barrels and kegs of local manufacture. These products were exported from Swansboro and Deer Island from the 1770's until the end of the nineteenth century. The barrels and kegs were rolled down the wharf into cargo nets. The nets were then gathered up and the cargo lifted aboard waiting schooners.

The period between the Revolutionary War and the War of 1812 saw an increase in Onslow's shipbuilding industry. In 1807, William Tatham, an agent of the national government sent to survey the coastal area between Chesapeake Bay and the Cape Fear River wrote, "The town of Swansborough seems to be chiefly employed in shipbuilding for the West India and coasting trade". The fledgling shipbuilding industry, however, was hampered by the natural tendency of shoaling in the channels and inlets, limiting the draft of the vessels. Tatham reported that "a ship built here [in New River], and towed out to sea as light as she could

be floated, [still had] difficulty ... passing a shifting shallow bar." The bar, like many others in the area, "seldom admit[ted] six feet of water ... [was] ... a great prohibition" to navigation (Still 1983). The Coles and Price chart of 1806 shows Bogue Inlet with an eight foot channel. Cedar Point at the confluence of Bogue Sound, as well as Swansborough appear on the map.

The beginnings of Swansboro's shipbuilding industry may go back as far as 1787. In that year the North Carolina Gazette of New Bern carried the following advertisement: "For sale and now ready to be launched at Bogue [apparently the old names for Swansboro did not fall out of use for some time] a new vessel, built of live oak and cedar, of the following dimensions -- 48 or 49 feet keel, 19 feet beam, 7 feet 10 inches hold with double ends . . . for terms apply to Titus Ogden." By 1812, at least twenty-three ocean going vessels had been built in Onslow County. Two-thirds of these ships, including all of the large ones, were built in Swansboro (Still 1983).

During the War of 1812 the British Navy imposed another blockade of the American coast. This blockade led to a decline in trade and ship construction. American privateers countered the British move by harassing the British merchant trade. A Swansboro native, Otway Burns, became North Carolina's most famous privateersman during the conflict. When war was declared, he sailed to New York and purchased a fast vessel named the ZEPHYR for \$8,000. The 147 ton vessel, renamed the SNAPDRAGON,

was armed with five twelve-pounders, fifty muskets, and four blunderbusses. The SNAPDRAGON cruised the South American coast, the West Indies, the Caribbean Sea, and as far north as Greenland in search of British merchant vessels. Captain Burns and his crew had great success, netting on one cruise an estimated \$2.5 million in British prizes.

After the war, Captain Burns began shipbuilding on the Swansboro waterfront. In 1818, he built the PROMETHEUS, the first steamboat constructed in North Carolina. The following year he sold his shipyard to William P. Ferrand. Then he served in the state legislature, and ended his career as lifeboat keeper at the Brant Shoals Lightship near Portsmouth, North Carolina (Barbour 1976; Brown 1960:43-45; Littleton 1983:2; Sharpe 1958:972).

Between 1800 and 1861 William P. Ferrand, Charles H. Barnum, Cyrus B. Glover, and Robert Spence McLean were the town's chief exporters of naval stores. After 1840, Daniel L. Russell, Jr. became Onslow County's foremost cotton producer and exporter. Agricultural products became increasingly important in Swansboro's maritime trade after the War of 1812 and reached their peak before the Civil War. Products such as peanuts, corn, hickory staves, wheat, oats, potatoes, and cotton were shipped from the port's wharves. Beginning around the 1860's, Chesapeake Bay bugeyes were quite often used to transport cargo. The bugeye's design was copied by local Swansboro shipbuilders and adapted to fit the local waters.

Like numerous other southern towns, Swansboro was greatly effected by the Civil War. To help feed Confederate forces, it reestablished its salt making industry. The works, owned and operated by C.H. Barnum, consisted of one large copper boiler and eleven iron vats. They were housed in two buildings on Deer Island. The saltworks were destroyed during a Union raid led by Lt. Benjamin H. Porter in August of 1862. A fort built on Huggin's Island to guard Bogue Inlet was also burned by the Union forces that year. Twice captured by Federal forces in 1862 and once again in 1864, Swansboro's commerce was severely crippled by the war's end.

From 1865 to the early 1900's the town's maritime activity slowly recovered. Exported products included naval stores, lumber, farm produce, hogs, beef, corn crackers, corn, and fresh salted fish. These were sold to consumers in Baltimore, Philadelphia, and even Great Britain. The lumber industry and commercial fishing became the nucleus of the town's economy during these years. Swansboro's shipbuilding industry, however, did not recover. This was particularly true for the construction of ocean-going sailing vessels. The nearby inlets, particularly Bogue, silted up and without dredging stifled shipping activities. More detailed maps of the area emerged in this period. The 1876 U.S. Civil Engineer's map shows the inlet, the channel with soundings, Dudley's and "Hoggin's" Islands, and Swansboro. Twenty-five structures were located in Swansboro at this time.

In the 1870's and 1880's the need for railroad and steamboat transportation was a popular topic among the farmers, fishermen, and businessmen in Swansboro and along the White Oak River. They were bitterly disappointed that the railroad being built from Wilmington to New Bern crossed the river at Maysville, some five miles above where navigation on the White Oak River ended. Despite efforts, no railroad linked that part of the county with the inland areas. In 1883 the steamer TARBORO, built in Washington, North Carolina, was sold to a transportation company in Swansboro and put in operation on the White Oak River. A second steamer, the MINNIE B, was built at Stella and plied the White Oak by 1887. These steamers began a new age in transportation for the Swansboro and White Oak River basin. Steam and gasoline powered vessels came into use for the freight and passenger trade between Morehead City and New Bern. From 1882 to 1925 the area was serviced by at least twenty of these boats. Not all were locally constructed, but some were. The Swansboro Land and Lumber Company, Swansboro's largest mill, initiated considerable growth and prosperity until the Great Depression of 1930. In 1897 this company built the steamer NINA in Swansboro (Still 1983).

By the turn of the century, Onslow County's timber supply began to diminish. Tobacco became the county's new money crop. The fishing industry also flourished. By the beginning of World War II there were more than twenty-five trawlers in the county, many of them locally constructed (Still 1983). In the early

1920's, the Interstate Co-operate Company operated a circular saw mill on Deer Island. In addition to turning out board lumber, the mill manufactured barrels and kegs. The mill was short-lived and fell into disuse during the Great Depression.

After World War II, and the growth of the nearby U.S. Marine Corps base at Jacksonville, Swansboro's economic base shifted to civil service employment, tourism, and the development of the town as a retirement community (Littleton 1983:2; Brown 1960:228-229, 350-351; Sharpe 1958: 958-960; Williams and McEarchern 1973:50, 71-72).

THE SUBMERGED CULTURAL RESOURCES OF SWANSBORO AND VICINITY

There are four distinct geographical areas in the survey, each requiring slightly different survey techniques (see Figure 1 and page 8). Time was allotted to each area according to their supposed quantity of submerged cultural resources.

The magnetometer survey of Swansboro harbor started on June 28, 1983. A baseline was established to serve as a controlling reference for magnetometer targets (see Figure 4). Dredging of the Intercoastal Waterway and seasonal weather related fluctuations with attendant shoaling in the inlet channel tends to cover and uncover cultural remains. The magnetometer, able to detect magnetic anomalies not only under the water but under the bottom sediment as well, is an ideal remote sensing device for the harbor environment. To coordinate the survey, a detailed map of the harbor was started June 29. All magnetic targets in Swansboro Harbor were plotted according to the magnitude of magnetic force.

The magnetometer on the survey boat was used in conjunction with a land transit station for mapping the location of magnetic anomalies. The transit station was located on the western terminus of the baseline. This station was equipped with an electronic distance measuring device and a two-way radio. From the vantage point of the transit station, the boat towing the magnetometer could be guided by radio, and distances from the transit station could be relayed to the boat. The magnetometer recorded anomalies as the boat moved toward the transit station

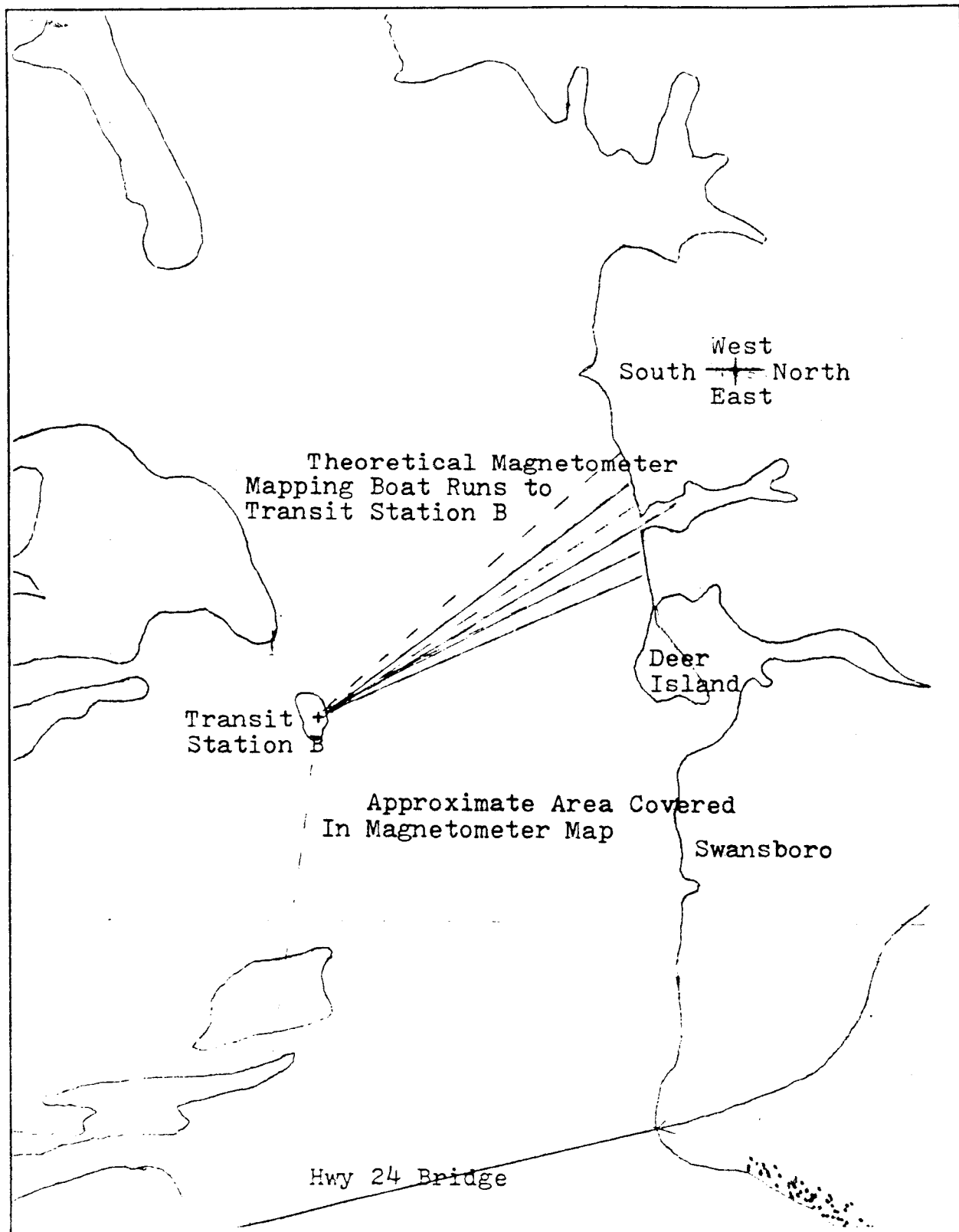


Figure 4 Swansboro harbor survey

on a pre-arranged bearing controlled by the transit station. In this way a survey map was drawn that looked much like the spokes of a wheel with the hub being the transit station. Magnetic anomalies were then plotted to await a visual observation by divers. The magnetic survey of the harbor was completed on July 14.

The second step in the magnetic survey was to physically investigate the positive magnetic readings. Using the transit station to control the location of the survey boat, buoys were dropped where magnetic anomalies were recorded. Divers then explored the harbor bottom near the buoys. The visual inspection of the harbor bottom began July 14 and continued until July 19.

The transit survey method was only used in Swansboro harbor. It was not practical in the river or inlet channels. On July 7, 8, 11, and 13, exploration of Bogue Inlet took place. The inlet channels were narrow enough so that a few passes with the magnetometer were sufficient enough to establish the presence of anomalies. These anomalies were then marked with buoys and inspected by divers. Seven positive magnetometer readings on the northeast side of Huggin's Island that were marked on July 13, were investigated by divers on July 20. A water jet was used to remove silt for visual inspection of the bottom. One survey run was made outside of Bogue Inlet on July 11. Also, several nearshore dives took place in Swansboro harbor on the 15, 19, and 22 of July. The visual observations were made just off Main Street and near the State Highway 24 bridge. The reconnaissance

by divers was required as the areas were too shallow or magnetic interference was too great for remote sensing by the survey boat.

Explorations upstream on the White Oak River took place on July 4, 5, 8, 20 and 21. This survey proceeded from the bridge to Haywood's Landing, nearly eight miles upstream. Areas with gentle banks and deep water or areas having cultural debris on the banks were inspected by divers. The magnetometer was used upstream where depth of water was sufficient for the survey boat.

The description of the magnetometer targets and visual observations are presented in the Appendix. This information concerning submerged cultural resources is considered to be base line data for the purpose of the management of the submerged cultural resources in the Swansboro area, including any conservation and preservation of artifacts.

THE DEER ISLAND WHARF INVESTIGATION

In conjunction with the harbor, stream, and inlet channel surveys an excavation was conducted at a potential wharf site from June 18 to July 14. The purpose of the wharf site investigation study was to research the design of the wharf and compare it with other excavated wharves of similar vintage. Essentially, a comparative study was made of the technological details found in this wharf with data obtained from several New England examples from the late eighteenth century. The investigation was in response to the growing interest by maritime historians and archaeologists in the similarities and dissimilarities of structural design elements found in early wharves. At the same time, the project provided an opportunity to add to the historic background of the town of Swansboro.

To date, only sixteen to twenty pre-nineteenth century wharves have been unearthed and archaeologically excavated. Most were investigated during urban construction activities in littoral areas. However, of this number, only a handful have been documented in structural detail. The excavation of the Deer Island Wharf sought to analyze the following:

- (1) To what extent could the date of the wharf be ascertained from an inventory of artifacts found within it?
- (2) Could a method of construction be determined from the extant portion?
- (3) Could a basic wharf design be determined and how did this compare with other designs found along the Atlantic seaboard?
- (4) How unique or common were the structural materials in this wharf as compared to other wharves?
- (5) In what manner was the wharf fastened

- together?
- (6) What method was implemented to secure or anchor the wharf into the shoreline or beach front?
 - (7) What was the lasting quality of the chosen wood in this warm water environment and what measures, if any, were taken to extend the life of the wood or the wharf?

Deer Island, approximately three acres in size, is situated just south of Swansboro at the junction of Hawkin's Creek and the White Oak River (Figure 5). The creek and an unnamed tributary, which separates Deer Island from the mainland by a narrow channel, is spanned by a private, one-lane bridge. The island's owners in the summer of 1983 were Burwell and Peggy Jackson. Though the Jacksons didn't buy the property until 1953, Mr. Jackson has been visiting the island since the 1930's. During extreme low tides, Mr. Jackson has observed up to thirty feet of the length of the wharf exposed.

The wake created by passing watercraft on the Intercoastal Waterway and the scouring effects of the daily tides and occasional hurricanes have continued to erode the shoreline around the wharf fronting the waterway. Mr. Jackson estimates that as much as ten to twenty feet of land has eroded from the property since he first started visiting the island. Filling in with bricks and blocks and other debris as well as bulkheading in recent years has slowed down the erosional effects of the constant wave action to some extent, but not stopped it.

The estimated date of wharf construction was not ascertained from the archival records or information gathered by Tucker



Figure 5 Location of Deer Island

Littleton, the local historian. It was first thought that the wharf might date from the American Revolution, when the first salt work was operated on the island. Artifacts, however, excavated in and around the wharf timbers indicated a beginning date for the extant structure from about 1820 to 1850.

Deed records first mention Deer Island in 1730 when Jonathan Weeks mortgaged the island to Richard Russel for non-payment of debts. The island exchanged hands a number of times in the next eighty-four years and was finally passed from Richard Stevenson's family to the Dudley family in 1814. They in turn sold the island to William P. Ferrand in 1830 who kept the property for twenty-two years. It is during these years that this particular wharf is thought to have been constructed.

A baseline was set up on June 28 to coordinate the mapping of the excavation. The first test trench across the wharf was started on June 29, and continued until July 6. The changing foreshore environment required a variety of tools, from terrestrial archaeological tools to scuba equipment and a suction dredge for the underwater work.

A second test trench was started offshore from the first trench on July 6. Dredging, sifting and mapping of this trench was finished on the 8th. A test core was dug in this trench on July 12.

Terrestrial test excavations, inland from the first trench, were started on July 11. The excavation unit was mapped on the 13th and backfilled on the 14th.

A contour map of the Deer Island site was made on July 12, using a transit set up on the baseline. An approximation of the site's underwater perimeter was made on the same day.

A contour map was drawn of the point of land from which the wharf extended, and wharf remains were drawn from as much as could be seen at low tide. Remnants of the wharf were not very extensive. The most visible elements of the structure were two of the headers, or timbers running lengthwise, which were exposed at low water. An extensive pile of large cobbles and ballast rock followed the line of the timber headers into the water from the gently sloping shore.

The first excavation section, 30 feet 4 inches long by 4 feet wide, was set up at the outside of two headers and included one width-spanning stretcher (see Figure 6). The delineated section was placed to: (1) ascertain whether other timbers lay beneath those exposed, (2) determine the joinery method used to build up the wharf, (3) obtain a least-disturbed sample of artifactual material from within the wharf structure. This latter consideration offered an excellent opportunity to sample material from a part of the wharf exposed by wave action and erosion in the last 50 years. Located in shallow water, this section did not require the use of dive gear and proved relatively easy to excavate.

The area to be excavated was delineated with a line strung between four firmly placed corner rods. A plan view was completed of the wharf as viewed at low tide. Ballast rock was

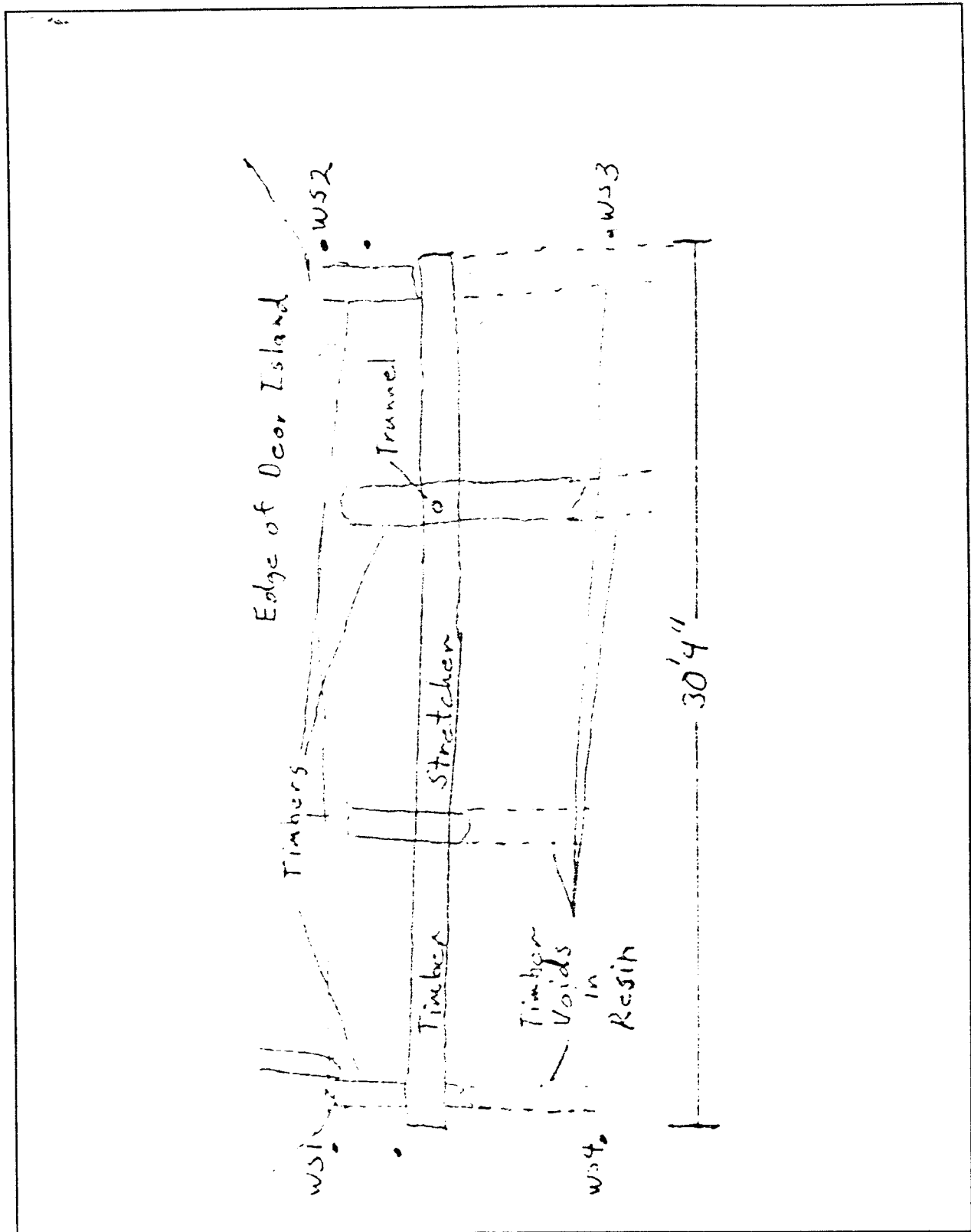


Figure 6 Sketch of Wharf Remains

then removed to expose the rough timber structure beneath. At this time, intersecting timbers were found to be held in place by trunnels, which are tapered, hand-hewn wooden pegs. A solid mass of hardened pine resin was found spread throughout the cavity of the wharf and around the wharf timbers. The resin was bubbly and cracked, and was molded around the timbers where it had come into contact with the wood. Mixed into the resin were great quantities of discarded wooden barrel hoops and some barrel heads. Removal of ballast rock from other sections of the wharf outside the delineated section revealed the same concentration of rosin buried in the sand, or exposed at low water, wood was completely devoured by the prolific teredo worm which infests the warm saline water throughout the area. In some sections of the wharf where timbers were covered with a layer of resin, the teredo worms had burrowed in from the exposed end of the logs and had eaten out the log from within the resin sheath. Clues as to where logs had once been were evident from the resin casings left behind.

The rough timbers were of long-leaf pine with bark still covering the wood. Studies pertaining to marine structures, their deterioration and preservation, have shown that of the soft woods, those with good heart wood used in marine structures were the least susceptible to decay by worms. This is not to say that soft woods with good heart wood are the longest lasting of any type of wood. Obviously, the owner in this instance used the most readily accessible quality timber to build the wharf.

After the first level of timbers were exposed to their base, excavation progressed deeper. At this juncture, excavation occurred primarily below the low tide level and a gasoline powered water dredge was employed to excavate below the base of the second level of wharf timbers. When the tide was up, the water depth increased to three feet above the bottom of the excavation floor and snorkels and masks were used to continue the excavation. Fill material below the resin layer consisted of anaerobic clay of a very elastic consistency mixed with dense concentrations of wood shavings and wood chips. The wood shavings and chips demonstrated that a saw mill may have been located on Deer Island as early as the Revolutionary War when kegs and barrels were manufactured, presumably to ship salted products to the continental troops.

A wet screen located at the other end of the suction dredge collected the material siphoned through the hose. This material was then hand-sorted in an effort to glean artifacts. Except for a couple of fragments of early creamware, diagnostic material predominantly consisted of nineteenth century ceramic and bottle glass fragments along with a few clay pipe stems. Some of the other cultural material included gray slat-glazed stoneware, fragments of pharmaceutical bottles, and underglaze whiteware.

Excavation continued into culturally sterile sand with no evidence of a third layer of timbers. The base of the wharf was apparently all that remained, with the greater portion of the superstructure having been rotted or swept away. The presence

of enormous amounts of wood shavings and chips under the last level of timbers would seem to indicate that the wharf was constructed on top of a variety of discarded material formed on main channel side of the island. It would have been impossible for the shavings and chips to have been used as fill, but rather for surface material, as this wharf with the open work of the wharf design, commonly called a cobb type of wharf, allowed finer material to be leached by water activity.

At the end of the excavation on this section, a profile and plan view were drawn. The profile depicts the ballast rock pile in the central portion of the wharf and two timbers loosely laid across the width section of the structure. Of the two headers in the wharf, one lay at the clay level and had been half consumed by worms, while the other one remained in its entirety, located above the clay line. Hand-hewn notches in the lower timbers were indicative of the joinery used in the second level of timbers. Also trunnel holes were evident and easily distinguished in the extant structural members.

At the completion of this section of the wharf, divers conducted a reconnaissance offshore into the channel, following the line of ballast stones into the water. Approximately forty feet from the shore the ballast pile became extremely dispersed and ill-defined in its boundaries. At thirty feet out from the first delineated and excavated section, and in line with the previously exposed wharf timbers, a second excavation section of the same dimensions was established. A plan view was drawn of

the delineated section, and once completed, surface material of ballast rock, brick fragments and loose lumps of resin were removed from the study area. It was assumed here that the removal of timbers by erosion or dredging, or the settling of material along with the effects of sea level rise, can account for the submergence of the wharf or the existing shore.

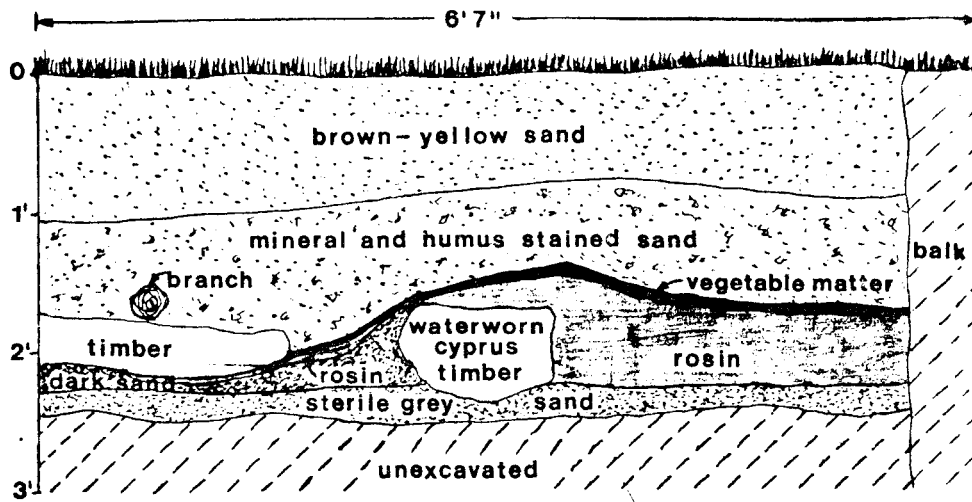
The water dredge was once more employed to excavate this outward section. Divers used extreme care not to disturb large pieces of worm-eaten timber found in the excavation area. The water depth at this location ranged from four feet to seven feet between low and high tide. Debris siphoned through the dredge and into the screen at the other end was carefully hand sorted for evidence of cultural material. Little artifactual material was retrieved, with the exception of pieces of Rhenishware, an early black bottle glass lip, and some whiteware fragments located just under the gray sandy bottom close to the margins of the wharf and associated timbers. This was not surprising due to the known history of this particular area being dredged almost regularly by the U.S. Army Corps of Engineers to maintain a navigable channel depth along the Intercoastal Waterway. When the culturally sterile channel bottom was reached, the wharf timbers were missing or nearly destroyed by the ravages of the teredo worm.

The final portion of the wharf examined was located by digging two test units in Mr. Jackson's yard where a timber header was thought to continue from a portion of the wharf

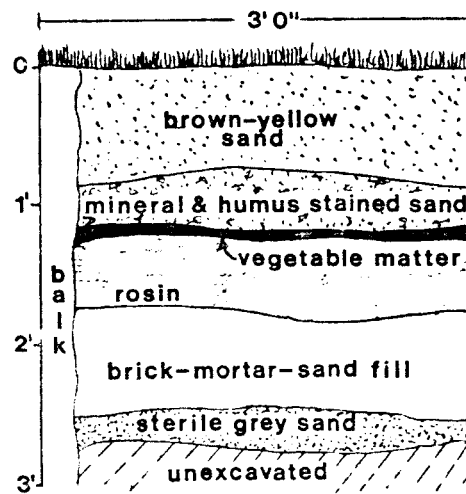
exposed on the beach (see Figure 7). The test units were undertaken to ascertain the manner in which a wharf may have been secured into the shoreline, and to determine how far inland the wharf headers were buried.

The test units were located approximately ten feet back from the beach line and from the disappearance of one wharf header into the grassy shoreline. At approximately two feet below the ground level in test unit one, a horizontal timber was found in the same plane and approximately in the same parallel alignment as those of the main wharf structure. The timber, however, was waterworn and not of long-leaf pine but of cyprus. The surface about the timber was also covered by a thick layer of hardened resin as had been the case at the first large wharf section excavated. A profile drawn of a section of the test unit clearly indicated that the original ground level, as marked by a thick humus layer, was at least a foot lower than that which exists today.

The second test unit was opened immediately next to and northeast of the first unit in the hope of finding a stretcher running crosswise. The unit, however, did not yield any evidence of a timber. The thick resin layer seemed to continue through the unit and was laid on top of a thick layer of rubble consisting of broken pieces of mortar and brick mixed with sand. Due to the limitations of time, further testing in the lawn to trace the tie-in of wharf timbers with that of the shoreline was not undertaken.



Profile of Test Unit 1 in lawn.



Profile of Test Unit 2 in lawn.

Figure 7 Profile of Test Units 1 and 2 in Lawn

As mentioned previously the wharf was built exclusively of long-leaf pine, and was fashioned in the cobb style. Cobb style simply means that the cribwork is not plastered, but left open. The construction of the cribwork was very similar to that of a log cabin style. The ends of the timbers were notched and then placed on top of each other at right angles. The interior of the cribwork was then filled with cobble stone and ballast, and then covered in resin.

The timbers were joined together with trunnels. This was apparently the only fastening method used, as not a single metal fastener was found in the site area.

Excavation of a large quantity of wood shavings and chips from beneath the lowest level of timbers suggest that the wharf was constructed on top of or part of an accumulation of discarded material. Numerous barrel hoops and heads were detected within the construction of wharf. Some of the barrel hoops and heads were used as fill, while others were mixed into the resin deposit. It has been suggested that they were used to cover spilled resin.

Perhaps the most intriguing aspect of the entire wharf excavation was the discovery of pine resin in the wharf structure. The area of resin covered the wharf's width and extended the wharf's length from the lawn area to where the wharf timbers disappeared below the low water mark. The extent of the resin layer indicates that colonial manufacturing processes, similar to modern manufacturing, was concerned with production

and not aesthetics. Indeed, the sawdust layers may have been a periodic necessity in order to keep the sticky resin off the shoes of the workers. It can also be theorized that the resin was spread purposefully in order to secure the filled contents of the wharf or to preserve the wharf timbers themselves. These hypotheses, however, cannot be tested on the basis of this single wharf excavation.

The Deer Island Wharf shares numerous characteristics with historic wharfs excavated in New England. The distance between its stretcher timbers, six feet, is similar to both a 1760's wharf excavated in New London, Connecticut and the documented design of a 1750's wharf in New Haven, Connecticut. Its cobb style construction was very popular and has been found in historic wharves in New London, Connecticut; Strawberry Bank, New Hampshire; Boston, Massachusetts; as well as New York City, New York. The Deer Island Wharf's lack of metal fasteners was consistent with the construction techniques of other documented historic wharves.

In summary and of extreme importance, the Deer Island Wharf was the first wharf to have been archaeologically excavated in the state of North Carolina. While it was first thought to date from the American Revolution, analysis of artifacts from the site suggest a terminus ante quem of the early part of the nineteenth century. The State of North Carolina should seriously consider the Deer Island wharf as a significant historic site.

CONCLUSIONS

The submerged cultural resources in and near Swansboro are largely covered with bottom sediments or there are very few. Only a few submerged artifacts were observed during the survey (see Appendix). Of the sixteen targets located in Swansboro Harbor, six were associated with modern debris. Eight targets were found to have no associated artifacts. Three of the targets with no associated artifacts had multicomponent magnetic signatures and the other five were short duration monopolar anomalies where signatures were similar to those of modern debris. The two remaining targets, SH-1 and SH-5, may be some sort of wreckage, though nothing more than brick, ballast stone and a small amount of unidentifiable rotted wood were observed.

Thirteen possible landing sites were explored in the White Oak River (see Appendix). Six of these sites had no associated artifacts. Three landings contained artifacts associated with nineteenth century logging operations. These were target numbers WO-10, WO-12 and WO-13. Of the remaining four sites, WO-1 and WO-2 may be associated with several saw mills located near Stella in the late 1800's. WO-11 was possibly a plantation site with associated nineteenth century artifacts and ballast stones. WO-6 had one significant associated artifact, that being an eighteenth century bottle fragment. A careful search revealed no other associated artifacts except a modern, half submerged rowboat. No conclusion can be made regarding WO-6. A detailed study of nineteenth century logging sites on the White Oak River would

have reveals much about logging as five of the thirteen sites explored were readily identified with nineteenth century logging operations. Unfortunately, time constraints did not allow any further observations during the survey.

Five magnetic anomalies were explored in the Southwest Channel to Bogue Inlet (see Appendix). Four of these targets had no associated artifacts visible on the bottom or within a probe reach of two feet beneath the bottom. At Target SW-2 a modern multi-stranded metal cable was found.

Of the seven targets located in the West Channel near Huggin's Island, six had no associated artifacts. Target HI-3 was associated with a burlap or cloth bag of a solidified material. It is unlikely that the bag and its content caused the magnetic anomaly, however it was the only artifact located on the bottom.

The Deer Island wharf site revealed much about nineteenth century wharf construction and augmented historical accounts of the naval stores industry in the Swansboro area. The site was extensively studied and many questions were answered. In order to answer the remaining question of how the wharf is anchored to the shore, it would be necessary to excavate further into Mr. Jackson's yard. The expenditure of further effort could not be made during the time allowed. In some ways, the work at the wharf site can be considered the most significant of the survey.

No conclusion can be reached on the single brass navigation light found near the Highway 24 bridge. No other artifacts were

located near it. The lantern appears to be of late nineteenth or early twentieth century design and construction.

Eighteenth century or colonial cultural remains are not readily visible in the areas surveyed. Since many of the magnetic targets are buried it cannot be concluded that there are no submerged colonial remains, but only that they would be highly difficult to recover.

RECOMMENDATIONS

Of the forty-one magnetic anomalies detected by the magnetometer, nearly sixty percent had no visible cultural remains. This is undoubtedly due to burial via natural sand shifts and dredge spoils from the U.S. Army Corps of Engineers and possibly by smaller dredges used for oystering. A great deal of time, effort, and money would be required to remove this overburden of sand to discover the nature of the magnetic anomalies. Even more funding would be required to ascertain the significance of the landing sites on the White Oak River.

It would be a good idea to make visual observations of the identified submerged cultural resources sites from time to time as channels and channel bottoms shift to allow artifacts to be uncovered and observed, or allowed to be damaged or collected by salvors.

Lastly, the historical significance of the Deer Island wharf should not be questioned. There is a good possibility that the wharf is a rare find for North Carolina, perhaps even the Atlantic seaboard. The wharf should be researched in detail at the earliest possible moment.

BIBLIOGRAPHY

- Barbour, Ruth P., 1976, The Cruise of the Snap Dragon. Winston Salem, N.C.: John F. Blair.
- Brown, Joseph P., 1960, The Commonwealth of Onslow: A History. New Bern, N.C.: Owen G. Dunn Co.
- Darby, William and Theodore Dwight, Jr., 1836, Gazetteer of the United States. Hartford, Connecticut: Edward Hopkins Publishing Co.
- Dulin, Paul, 1976, Spatial Aspects of Water Quality in the White Oak River, M.A. Thesis, Department of Geography, East Carolina University, Greenville, N.C.
- Hargrove, Thomas H., 1980, A guide to research papers in the archaeology of North Carolina on file with the Archaeology Branch of the North Carolina Division of Archives and History.
- Kovich, Richard., 1983, The Heritage of Onslow County. Winston-Salem, N.C.: Onslow County Historical Society, Hunter Publishing Co.
- Littleton, Tucker R., 1941, A Civilian History of the Camp Lejeune Area.
- Littleton, Tucker R., 1983, A Day to Honor the Founding Fathers of Our Nation and the Founder of Our Town. Swansboro, N.C.: Swansboro's 200th Anniversary Celebration Committee.
- Littleton, Tucker R., 1983, Along the Path of History: A Self-guided Walking Tour of the Old Port Town of Swansboro, with an Introduction to Its Maritime History. Swansboro, N.C.: Swansboro's 200th Anniversary Celebration Committee.
- Littleton, Tucker R., 1983, An Old-Fashioned Brush Arbor Service. Swansboro, N.C.: Swansboro's 200th Anniversary Celebration Committee.
- Littleton, Tucker, R., 1983, Late Laurels for a Local Hero: The Ceremony for the Unveiling of the Otway Burns Statue. Swansboro, N.C.: Swansboro's 200th Anniversary Celebration Committee.
- McCulloch Lemmons, Sarah., 1960, Frustrated Patriots; North Carolina and the War of 1812. Chapel Hill, N.C.: Owen G. Dunn Co.
- North Carolina Archaeological Council, 1981, Addendum I, Item 14 and 1982, Addendum II.

Phelps, David Sutton, 1974, Anthropological Bibliography of North Carolina. Reprint 1981.

Sharpe, Bill, 1954, A New Geography of North Carolina. Raleigh, N.C.: Sharpe Publishing Co.

South, Stanley, 1962, An Archaeological Survey of Two Islands in the White Oak River Near Swansboro, N.C., North Carolina Division of Archives and History.

Stephenson, Richard A., 1991, Comparative Cartography and Coastal Processes: Four Hundred Years of Change on the Outer Banks of North Carolina, TERRAE INCOGNITAE, Vol. 22.

APPENDIX A

DESCRIPTION OF TARGETS IN SWANSBORO HARBOR (SH)

SH-1

Target Type: Dipolar magnetic anomaly, 55 gammas maximum distortion.

Location: 9 degrees 30 minutes from baseline, 2200 to 2300 feet from transit.

Identification: Brick and ballast stone visible.

Bottom: Sand

SH-2

Target Type: Dipolar magnetic anomaly, 20 gamma maximum distortion.

Location: 13 degrees 30 minutes from baseline, 2700 feet from transit.

Identification: Bricks, tire rim, one foot square metal block, and small anchor.

Bottom: Sand

SH-3

Target Type: Dipolar anomaly, 30 gamma distortion.

Location: 14 degrees 30 minutes to 15 degrees 30 minutes from baseline, 2325 to 2375 feet from transit.

Identification: Nothing visible on bottom.

Bottom: Sand

SH-4

Target Type: Multicomponent magnetic anomaly, 90 gamma maximum distortion.

Location: 21 degrees 30 minutes from baseline, 2300 to 2400 feet from transit.

Identification: Modern metal debris, nineteenth century jug.

Bottom: Sand and silt

SH-5

Target Type: Multicomponent magnetic anomaly, 50 gamma distortion.

Location: 24 degrees 30 minutes to 27 degrees from baseline, 750 to 800 feet.

Identification: Small amount of wood debris visible.

SH-6

Target Type: Multicomponent magnetic anomaly, 50 gamma maximum distortion.

Location: 24 degrees 30 minutes to 27 degrees from baseline, 700 to 800 feet from transit.

Identification: Discarded modern rifle cartridges.

Bottom: Sand

SH-7

Target Type: Dipolar magnetic anomaly, 80 gamma maximum distortion.

Location: 28 degrees 30 minutes to 31 degrees 30 minutes from baseline and 1050 feet from transit.

Identification: Nothing visible.

Bottom: Sand and silt

SH-8

Target Type: Monopolar magnetic anomaly, 100 gamma distortion.

Location: 43 degrees 30 minutes to 49 degrees 30 minutes from baseline and 675 to 700 feet from transit.

Identification: Nothing visible.

Bottom: Sand and silt

SH-9

Target Type: Monopolar magnetic anomaly, 100 gammas.

Location: 52 degrees 30 minutes, 850 to 950 feet from transit.

Identification: Nothing visible.

Bottom: Sand and silt

SH-10

Target Type: Multicomponent magnetic anomaly, 30 gamma maximum distortion.

Location: 61 degrees 30 minutes to 70 degrees 30 minutes from baseline, 400 to 450 feet from transit.

Identification: Nothing visible.

Bottom: Shell and sand

SH-11

Target Type: Multicomponent magnetic anomaly, 30 gamma maximum distortion.

Location: 61 degrees 30 minutes to 70 degrees 30 minutes from baseline, 450 to 475 feet from transit.

Identification: Nothing visible.

Bottom: Shell and sand

SH-12

Target Type: Monopolar magnetic anomaly, 60 gamma maximum distortion.

Location: 82 degrees 30 minutes from baseline, 1200 to 1325 feet from transit.

Identification: Unidentified light metal object of modern origin.

Bottom: Silt

SH-13

Target Type: Monopolar magnetic anomaly, 100 gamma maximum distortion.

Location: 98 degrees from baseline, 600 to 675 feet from transit.

Identification: Dredge pipe, engine block, railroad tie.

Bottom: Mud

SH-14

Target Type: Monopolar magnetic anomaly, 10 gamma maximum distortion.

Location: 117 degrees from baseline, 275 feet from transit.

Identification: Nothing visible.

Bottom: Shell and sand.

SH-15

Target Type: Multicomponent magnetic anomaly, 120 gammas.

Location 153 to 161 degrees from baseline, 450 to 550 feet from transit.

Identification: Nothing visible.

Bottom: Target partially in dredge channel.

SH-16

Target Type: Multicomponent magnetic anomaly, 120 gamma maximum distortion.

Location 153 to 161 degrees from baseline, 475 to 550 feet from transit.

Identification: Piece of dredge pipe.

DESCRIPTION OF TARGETS IN SOUTHWEST CHANNEL TO BOGUE INLET (SW)

SW-1

Target Type: Monopolar magnetic anomaly, 10 gamma maximum distortion.

Location: 34 degrees 40 minutes 8 seconds north latitude by 77 degrees 7 minutes 20 seconds west longitude, 4500 feet upstream of market number 45.

Identification: Nothing visible on bottom.

Bottom: Silt

SW-2

Target Type: Multicomponent magnetic anomaly, 170 gamma distortion.

Location: 34 degrees 38 minutes 45 seconds north latitude by 77 degrees 7 minutes 22 seconds west longitude.

Identification: Multi-stranded metal cable.

Bottom: Sand

SW-3

Target Type: Multicomponent magnetic anomaly, 130 gammas maximum, distortion.

Location: 34 degrees 38 minutes 38 seconds north latitude by 77 degrees 7 minutes west longitude.

Identification: Nothing visible.

Bottom: Sand

SW-4

Target Type: Multicomponent magnetic anomaly, 100 gammas maximum distortion.

Location: 34 degrees 38 minutes 44 seconds north latitude by 77 degrees 6 minutes 15 seconds west longitude.

Identification: Nothing visible.

Bottom: Sand

SW-5

Target Type: Dipolar magnetic anomaly, 40 gammas maximum distortion.

Location: 34 degrees 38 minutes 49 seconds north latitude by 77 degrees 6 minutes 12 seconds west longitude.

Identification: Nothing visible.

Bottom: Sand

DESCRIPTION OF TARGETS IN WEST CHANNEL; HUGGIN'S ISLAND (HI)

HI-1

Target Type: Dipolar magnetic anomaly, 30 gammas.

Location: 34 degrees 40 minutes 54 seconds north latitude by 77 degrees 7 minutes 13 seconds west longitude.

Identification: Nothing visible on bottom.

Bottom: Sand

HI-2

Target Type: Monopolar magnetic anomaly, 20 gammas maximum distortion.

Location: 34 degrees 40 minutes 31 seconds north latitude by 77 degrees 7 minutes 9 seconds west longitude.

Identification: Nothing visible.

Bottom: Sand

HI-3

Target Type: Multicomponent magnetic anomaly, 170 gammas maximum distortion.

Location: 34 degrees 40 minutes 31 seconds north latitude by 77 degrees 6 minutes 50 seconds west longitude.

Identification: Only a bag of solidified material visible.

HI-4

Target Type: Monopolar magnetic anomaly, 30 gamma maximum distortion.

Location: 34 degrees 40 minutes 15 seconds north latitude by 77 degrees 6 minutes 34 seconds west longitude.

Identification: Nothing visible.

Bottom: Sand

HI-5

Target Type: Monopolar magnetic anomaly, 60 gamma maximum distortion.

Location: 34 degrees 40 minutes 18 seconds north latitude by 77

degrees 6 minutes 33 seconds west longitude.
Identification: Nothing visible.

HI-6

Target Type: Monopolar magnetic anomaly, 60 gammas maximum distortion.
Location: 34 degrees 40 minutes 25 seconds north latitude by 77 degrees 6 minutes 47 seconds west longitude.
Identification: Nothing visible on bottom.

HI-7

Target Type: Monopolar magnetic anomaly, 40 gamma maximum distortion.
Location: 34 degrees 40 minutes 30 seconds north latitude by 77 degrees 6 minutes 49 seconds.
Identification: Nothing visible.
Bottom: Sand

DESCRIPTION OF TARGETS NEAR NC ROUTE 24 BRIDGE;
SWANSBORO HARBOR (HW)

HW-1

Target Type: Visual; revealed by underwater reconnaissance.
Probing revealed no additional targets.
Location: 34 degrees 41 minutes 12 seconds north latitude by 77 degrees 6 minutes 57 seconds west longitude.
Identification: Brass navigation light.
Bottom: Hard packed sand and shell.

DESCRIPTION OF TARGETS IN THE WHITE OAK RIVER (WO)

WO-1

Target Type: Visual; underwater reconnaissance.
Location: West bank of first river bend downstream of Stella, North Carolina. 34 degrees 46 minutes 45 seconds north latitude by 77 degrees 9 minutes 40 seconds west longitude.
Identification: Bricks and wooden planks.
Bottom: Silt-covered sand.

WO-2

Target Type: Visual
Location: Stella, North Carolina. 34 degrees 46 minutes 30 seconds north latitude by 77 degrees 9 minutes 20 seconds west longitude.
Identification: Bricks and log scabs.
Bottom: silt-covered sand

WO-3

Target Type: Visual inspection
Location: 34 degrees 46 minutes 30 seconds north latitude by 77

degrees 9 minutes 40 seconds west longitude.
Identification: Nothing visible

WO-4

Target Type: Visual inspection
Location: 34 degrees 46 minutes 44 seconds north latitude by 77
degrees 9 minutes 16 seconds west longitude.
Identification: Nothing visible
Bottom: Silt-covered sand

WO-5

Target Type: Visual inspection
Location: 34 degrees 46 minutes 44 seconds north latitude by 77
degrees 9 minutes 16 seconds west longitude.
Identification: Nothing visible

WO-6

Target Type: Visual inspection
Location: Trantrough Landing, Hunter's Creek. 34 degrees 47
minutes 34 seconds north latitude by 77 degrees 8 minutes 40
seconds west longitude.
Identification: Top half of a rectangular bottle of thin green
glass, modern rowboat half submerged near river bank.

WO-7

Target Type: Visual inspection
Location: 34 degrees 46 minutes 45 seconds north latitude by 77
degrees 10 minutes 16 seconds west longitude, near Freeman's
Creek.
Identification: Nothing visible.

WO-8

Target Type: Visual inspection
Location: 34 degrees 47 minutes 26 seconds north latitude by 77
degrees 10 minutes 20 seconds west longitude, across the river
from the junction with Caleb's Creek.
Identification: Nothing visible.

WO-9

Target Type: Visual inspection
Location: 34 degrees 47 minutes 26 seconds north latitude by 77
degrees 10 minutes 30 seconds west longitude.
Identification: Nothing visible

WO-10

Target Type: Visual inspection
Location: 34 degrees 47 minutes 56 seconds north latitude by 77
degrees 10 minutes 49 seconds west longitude, at Long Point.
Identification: Logs and iron log dogs from nineteenth century
logging activities.

WO-11

Target Type: Visual inspection

Location: 34 degrees 48 minutes 26 seconds north latitude by 77 degrees 11 minutes 38 seconds west longitude.

Identification: Ballast stone and a nineteenth century brown glass bottle were found. On shore, a pier was visible, as well as a chimney standing in a clearing.

WO-12

Target Type: Visual inspection

Location: 34 degrees 49 minutes 5 seconds north latitude by 77 degrees 11 minutes 44 seconds west longitude, at Haywood's Landing.

Identification: Logs, log dogs, bricks, ballast stone, and a pipe stem were located.

WO-13

Target Type: Visual inspection

Location: 34 degrees 49 minutes 32 seconds north latitude by 77 degrees 10 minutes west longitude, at Holston's Landing.

Identification: Logs, log dogs, and a pipe stem were located.

DESCRIPTION OF THE DEER ISLAND WHARF SITE (DI)

DI-1

Target Type: Visual inspection, test excavations

Location: 34 degrees 41 minutes north latitude by 77 degrees 7 minutes 42 seconds west longitude. The area examined extended thirty feet into the water from the high tide mark and twenty feet inland from the high tide mark.

Identification: Wharf of probable nineteenth century date.

Artifacts excavated included two bottle necks, a pipe stem, glass bottle sherds, ceramic sherds, barrel staves, and wooden cask heads.

Bottom: Sand, scattered rock

A DEDICATION TO TUCKER R. LITTLETON

Swansboro's 200th anniversary celebration could not have taken place without Tucker Littleton. A life long resident of Swansboro, he took it upon himself to make Swansboro's history alive and interesting. As the 200th birthday approached Tucker settled in as chair of the celebration committee. He made numerous written contributions and was instrumental in having a submerged cultural resources survey accomplished for the area. It is indeed unfortunate that Tucker passed on, and did not realize the fruits of his many efforts.

ACKNOWLEDGEMENTS

Since 1983, when the submerged cultural resources survey was completed, a number of students in the program have made contributions to this publication. The field school staff and students contributed initially to this effort, particularly the students when they submitted their field reports. They are listed on page 3. The other students since that time know who they are, and the editors thank all of them for their efforts.