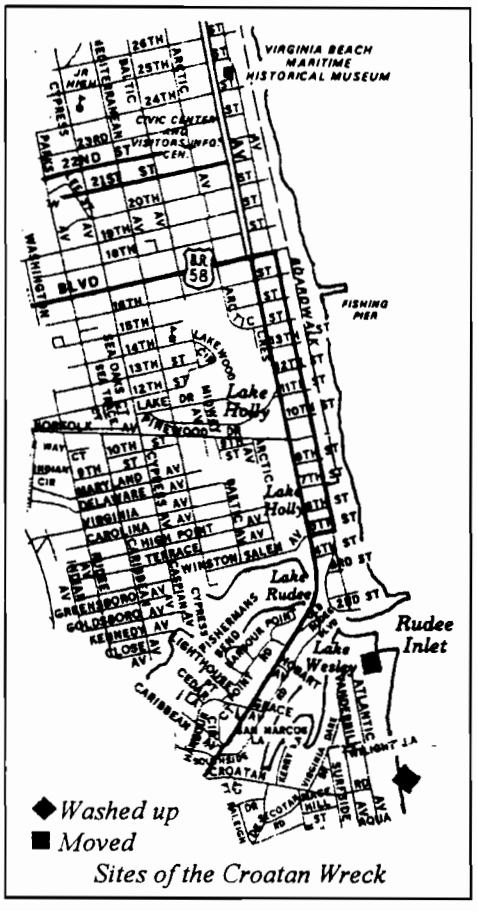
PROJECT CROATAN

A Joint Project of the Maritime Archaeological and Historical Society and the Life-Saving Museum of Virginia, under the tutelage of John Broadwater, NOAA

I Introduction, Background and Site Description

On 20 November 1994 Hurricane *Gordon* produced massive waves that uncovered the inverted 42-foot bow section of a large wooden vessel and deposited it in the surf line at Croatan Beach about a quarter mile south of Rudee Inlet, Virginia Beach VA. The next day Croatan resident Linda May contacted the Life-Saving Museum of Virginia to report the wreck.[1] Museum Director Fielding Tyler and Education Director Ann Dearman visited the site and photographed the remains. They also found a 47-foot long probable keelson consisting of three one-foot-square timbers fastened together, as well as other disarticulated "odd" pieces washed ashore in the same general area. The keelson was located on the beach at the US Navy Fleet Combat Training Center.



Sites of the Croatan Wreck

On 9 December MAHS members George and Jill Montgomery visited the Life-Saving Museum and met Tyler, who described the wreck and showed them photographs taken by Dearman. The Montgomerys took copies of the photos and newspaper reports to the December MAHS membership meeting where it was agreed that they would contact NOAA's John Broadwater (archaeologist in charge of the Monitor Project and working out of the Tidewater area) about the possibility of using MAHS volunteers to survey the wreck under his direction. Fortuitously, Broadwater is an advisor to both MAHS and the Life-Saving Museum.

At the time, the wreck lay keel-up in the surf line, and Tyler believed that the remains would be carried back to sea or buried in the sand. He contacted Virginia National Guard officials at the State Military Reservation, still known as Camp Pendleton. US Marine Corps Reservists volunteered to help move the wreck, but with only light equipment could not budge it. On 19 December Air National Guard civil engineers were able to right the wreck and move it with a Caterpillar tractor to a point higher up on the beach and to the southern tip of Rudee Inlet (see map). The odd pieces were moved to the Virginia National Guard State Military Reservation to keep them from possible pilfering, but the keelson section was washed back out to sea by a storm on 24 December.

Tyler then contacted Broadwater who visited the site on 21 December and made preliminary measurements. Meanwhile, Julie Pouliot, co-author of Shipwrecks on the Virginia Coast and the museum's Administrator and Registrar, put together a list of possible shipwrecks based on research into Life-Saving and Coast Guard records (the latter began in 1915). She laid out an area from the North Carolina border to the mouth of Chesapeake Bay and listed two dozen more likely wreck candidates as well as a number of other recorded wrecks in the area. MAHS Education Director Tom Berkey further annotated this list with size and origin information plus a few other candidates (see attached table). The overall list is based on tonnage (200 to 700) and the likely period of the wreck (1850-1910) assumed from its general appearance. It is recognized that there are many unrecorded wrecks which might also account for the remains. Broadwater, when contacted by MAHS, agreed to serve as Project Archaeologist to oversee a survey and recording of the wreck site during the weekend of 21-22 January 1995. Overall direction was provided by the Life-Saving Museum of Virginia—the trustees of the wreck. George and Jill Montgomery were project managers, Tom Berkey coordinated the survey teams, Bill Utley the diagnostics, and Townie Burden the dive team. J "COZ" Cozzi from Texas A & M University directed the goniometer operations.

[1] The Life-Saving Museum is Virginia Beach's first museum. The former US Coast Guard Station focuses on the history of sea rescue in the area from breeches buoys to helicopters and has extensive shipwreck exhibits.

II Historical Background

The waters off the Virginia shore are a graveyard for countless ships that have been sunk by acts of war or nature during the past few hundred years. Many of the ships are known, but many others went down unseen and alone during the age of sail. From time to time, the same sort of storms that sank many of these ships wash up portions of their remains.

III The Survey

The objectives of the survey were as follows:

- Record the wreck's dimensions
- Record and describe diagnostics such as tool marks, the fastener scheme, shipbuilder's marks, graffiti, etc.
- Take wood samples for analysis
- Deploy a dive team to find and recover, if possible, the keelson that had washed back out to sea
- Examine disarticulated pieces found, describe them, and determine their relation (if any) to the bow section
- Identify the wreck, if possible
- Draft a Project Report.

Broadly speaking, the Project's primary objective was to describe the wreck thoroughly, particularly any unique characteristics that might add to the knowledge of shipbuilding. We hoped there would be sufficient diagnostics that could allow characterizing the wreck by size, origin, date, and type, and which could be matched to the historical record to possibly identify the wreck.

A Recording the Hull Berkey, Director of MAHS' maritime archaeology courses, coordinated the survey team. The team laid a baseline atop the 3-timber keelson and triangulated positions of the forward remains of the 15 surviving frames and other significant hull parts. Although ceiling planks covered most of the frames, sufficient ceiling was missing to allow many of the frames to be plotted as they passed between the keel and the keelson. Part of the lower exterior hull was concealed in the sand, but many exterior planks above the sand line were plotted. Most of the hull aft of frame 15 (30 feet aft of the zero point on the baseline) was missing except the keelson and keel which ended at about 40 feet. The team left the hull intact. There were sufficient floor timbers and keel exposed to make measurements except under the forwardmost part of the hull.

The Virginia Air National Guard brought in four sets of prism range poles to establish datum points, one for each corner of the wreck, which Dave Kerr, Beth Johnson, and Mike Dougherty used to double-check the triangulated plots.

In addition to exterior and ceiling plank measurements made by the team, Cozzi measured frame curvature at frames 3, 5, 8, 11 and 15 with a "Cozziometer"--an updated (digital electronic) version of the bevel gauge goniometer.[2] Bill Rutkowski and Kerr also took curvature measurements with their own home-made goniometers fashioned to Cozzi's design. Hera Konstantinou took extensive photographs and video tapes of the wreck and the procedures used to record the wreck, while Utley took a second set of slides concentrating on diagnostics. Additionally, two local TV stations covered the project and made their coverage the feature presentation of their evening newscasts, providing welcome publicity to the techniques of nautical archaeology.

B Recording Diagnostics Jill Montgomery and Alison Shanck plotted one-to-one tracings of starboard hull interior and exterior planks on clear plastic sheeting with colored Sharpie pens. Plots were provided immediately to George Montgomery at the plotting table in a fire department mobile command unit at the scene, provided by the City of Virginia Beach. Ceiling planks were plotted from bow to frame 10, and exposed exterior planks from bow to frame 5, including location of treenails and the few metal fasteners. Numerous small nail holes, closely spaced but in no discernible pattern, indicated the hull had been copper- or Muntz metal-sheathed, probably several times. A few copper nails but no sheathing survived. Utley examined the hull for other diagnostics, recording scarf joints, mortises, the mast step and some possible shipwright marks and graffiti.

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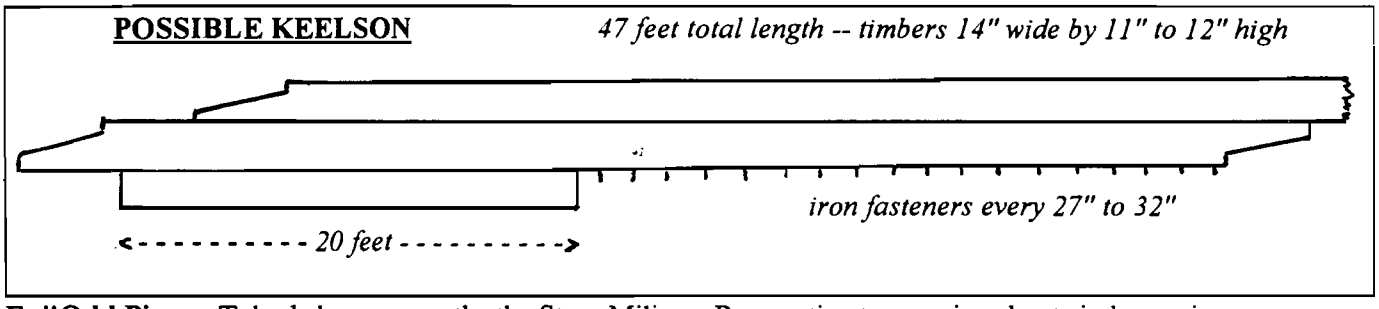
[2] A detailed description of these goniometers is contained in MAHSNEWS Vol & No 1, Jan/Feb 1995

C Hull Pieces At the end of the survey, Utley and Broadwater took wood samples from the keel, keelson, floor, ceiling and exterior planking for further examination. No spars or spar remnants survived.

D Dive Team Burden led a four-person dive team to search for the probable keelson that had washed back out to sea some weeks before. A number of storms had passed through the area since the keelson was last seen and, with insufficient landfalls to mark water entry, the dive search was called off. This piece as sketched by the preliminary observers is illustrated below. It was 47 feet long and consisted of three timbers each 14" wide and about 12" thick fashioned together with metal pins. Two of the timbers had flat scarf joints about 4 to 5 feet long. In all these features, the piece resembled the wreck's keelson. There was insufficient time to make more than rudimentary measurements before this piece was again washed out to sea. We judge, because of the similiarities of this piece with the wreck and its appearance at the same time and nearby, that it is probably from the original wreck, and therefore the original keel/keelson was probably no less than 90 feet long.



E "Odd Pieces Tyler led a group to the the State Military Reservation to examine about six large pieces of wreckage. One piece, a two-foot-long tree trunk with unusual saw cuts about 26 inches in diameter, was the right size for a foremast at midlength and partner (where it passes throught the main deck) for a 700-ton 4-masted schooner.[3] Four other pieces appeared to be three futtocks and a floor timber. The most interesting piece was about 5-feet long with ornamental grooving, numerous iron pins and two eye bolts 18-inches apart with copper sheathing in between, likely a caprail with a fitting for a Jacob's ladder. Tyler also found nearby and preserved a 6" by 12" piece of copper sheathing similar to those used to sheathe wooded ships. The only tie between these pieces and the Croatan wreck was that they had washed up in the same area during the same storm.

On 7 May 1995 one of the Virginia Maritime Science Museum trawl nets caught a common swivel arm anchor similar to a Trotman type of the following dimensions in 15 feet of water about 200 yards offshore from the location where the wreck had washed ashore:

- shank 43"
- stock 37"
- fluke 21" wide
- ring 5 1/4" diameter
- weight ±100 lbs

Trotman anchors were in use by the mid 19th Century, so it could relate to the Croatan wreck, but it is too small except for use as a possible kedge anchor. Without further information, we cannot associate it with the wreck.

IV Findings

A Component Dimensions (Scantlings)

The **wreck** is the bow section of a wooden vessel characteristic of construction between 1850 and 1910. The 3-timbered keelson appears to have broken off at a mast step cut 6 inches deep into the top rider keelson (KN3) coincident with a keel scarf joint 40 feet from the bow. The keel, 15 frames, and the exterior and ceiling planks to a height of about 6 feet above the base of the keel survive. The widest remaining portion of the ship is 22 feet. (See centerfold for scale drawings.)

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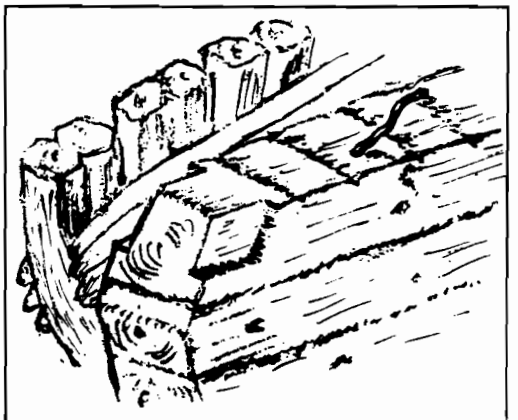
[3] Sam Manning, noted illustrator of books dealing with wooden ships, kindly brought this to our attention. Among his more recent works is The Schooner *Bertha L Downs* with Basil Greenhill, available from US Naval Institute Press 410 224-3378.

The **keel** is 12 inches wide and 16 3/4 inches thick at frame 15. **Keelson** timbers are untapered, about 13 1/2 inches wide and about 12 inches thick (KN1 11 1/2", KN2 12 1/2", KN3 11"). There is one flat **scarf joint** on keelson 1 beginning at 19 feet and ending at 23 1/2 feet. There are no scarf joints in the surviving portions of keelsons 2 or 3. The keel has a **scarf joint** beginning at 39 feet and ending at 44 feet. The aft keel timber of this scarf joint did not survive. There are five **mortises** cut into keelson 3. Four are about 3" wide x 12" long x 3" deep, beginning at 13 feet aft and at 6-foot intervals thereafter. These are likely seats for lower deck stanchions. The top rider keelson ends in a large unraked rectangular mortise, probably a **mast step**, 8" wide x 6 1/2" deep x unknown" long (the aft end of the keelson was abraded).

The **garboard strake** is 12 1/2" by 4 3/4", **exterior** planks average 3 5/8" by 14" and **ceiling** planks 3 1/4" by 12". Planks tapered in width toward the bow to accommodate hull narrowing and also narrowed in thickness toward the bow.

Frames 1 through 15 survive. They are all uncanted (square) double frames consisting of a floor timber aft attached to butted first futtocks forward. Arrangement appears regular, with all floor timbers being the aftmost sister of the pair, and first futtocks butting to the forward frame sister at about 5 feet from the keel. Frame interval is 22 inches for the first four frames and 28 inches thereafter.



Keelson details at the bow

B Diagnostics

•Timbers and Planking

--The **Keel** has no shoe, no rabbet, and the scarf is not coaked.

--The **Keelson** has two riders but no sisters and no apparent deadwood. The scarf joint has no stopwater. The uppermost keelson displays imprints in the forward four feet of four apron seats, as well as a tenon cut into the most forward portion (see illustration). The keelson also show circular saw markings of approximately 4-foot radius in the forward port area.

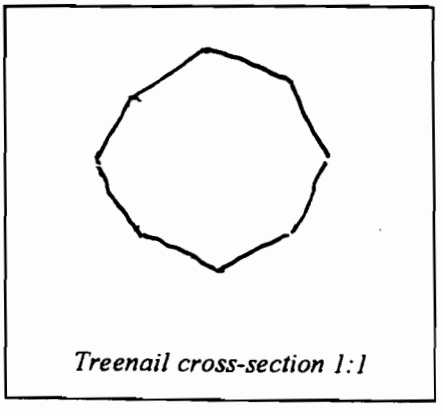
--**Frames** are paired and untapered with butt joints to first futtocks. Only the ends are pitted with worm holes.

--**Planking**. The **garboard strake** is unrabbeted. Exterior strakes are carvel-planked. **Ceiling planks** extend to the keelson. The forward ends of **bilge stringers** and most ceiling planks are **split sawn** for about half their length, resembling wooden clothespins in longitudinal cross section, no doubt to facilitate bending the planks to fit increasing curvature toward the bow. No team members could recall having observed this precise feature in planking on similar ships, but Cozzi noted that some futtocks had been fashioned in this manner on the Burlington Horse Ferry in Lake Champlain, excavated by MAHS advisor Kevin J Crisman of Texas A & M. In addition, Cozzi later received from Crisman a citation describing this method of bending large timbers in England as early as 1813[4] Nonetheless, this may be a distinctive diagnostic in ceiling planks and bilge stringers helping to narrow the provenance of the wreck. Planking is in good condition without worm holes.

•Fasteners. Five kinds of fasteners are evident:

--**Nail** holes and a few surviving copper nails are indicative of copper or Muntz metal sheathing over the entire surviving outer hull. No sheathing remains. Nail patterns indicate that the hull had been covered more than once and therefore likely had a decade or more usage prior to foundering.

--**Treenails** are the fastener of choice. They are found in regular but inexact patterns (Approximately one per plank per frame) attaching both floor and ceiling planks to the frames as well as being rarely used to connect keelson timbers and frame pairs. Treenails are **one inch in diameter,** with longitudinal striations characteristic of **die-cutting** with an **octagonal cross-section** (see illustration), and all exposed ends are split with wedges aligned athwartships. Lengths depend upon application.

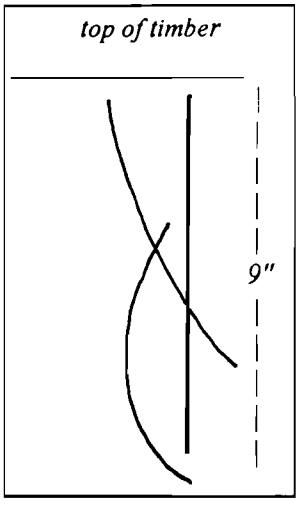


Treenail cross-section 1:1

[4] The Repretory of Art, Manufacture, and Agriculture, Volume XXVIII, Second Series, London 1816. This journal of selected patents provides on pages 37-41 a description of a machine and methodology for making horizontal cuts in ship timbers to facilitate bending them into place. The article is entitled Improved Method of bending Timber for building large Ships of War by William Hookey of Woolwich

--**Iron driftbolts** are used to join keelson riders, sister frame members and frames to the keel. They are used sparingly elsewhere, apparently at points where extra strength was required, such as at the turn of the bilge. **Iron driftbolts with roves (washers)** are occasionally found, but clench rings and rivets are not evident.

--**Bronze driftbolts** are less common,used in the ceiling and stringers at irregular intervals.. A couple have collars, but most are now missing. The driftbolts are less than an inch in diameter, but are so eroded that exact measurement was not possible.



◆**Other diagnostics.** Utley found two distinctive **markings** on the interior port side, one on a frame, and the other on the top rider keelson at 4' 11" on the centerline (see illustration).

--There is **no rabbet** evident on the keel, as the garboard strake butts directly to the keel.

--**Limber holes** are evident in the floor and first futtock timbers but there is no evidence of limber floss that might be used to ream the holes.

--Two **Chocks**, both below keelson 1 on the center line fill the space between frames 13 and 14 and frames 9 and 10. There is a gap of two inches at the bottom of the chocks to allow water passage. The function of the chocks is unclear.

--A **wedge** of unknown function was let into a mortise in keelson 1 on the starboard side between frames 7 and 8.

--**No artifacts or ballast** remains survive.

C. Use of Ship Identification Aids

◆Length to Tonnage Ratio

In an attempt to size the ship, a number of wreck identification aids was consulted. The most useful relationship was found in the Record of American and Foreign Shipping[5] which provides the formula:

length (main deck) X brea[d]th (widest) X depth (hold) X.0075 equals tonnage

We will apply this formula to estimated Croatan wreck dimensions in Part V.

◆Other Identification Aids

We used an 1878 American source providing Rules for the Construction of Wooden Vessels[6] that equated sizes of ship timbers, planks and fasteners to tonnage. We augmented this with Lloyd's Register for features surviving in the wreck but not cited in the American source. Further, we obtained after the survey an excellent guide on ship artifacts and measurements from the Underwater Archaeological Society of British Colombia that was most useful.[7] We believe that the time period for these sources is optimal, that is, the most likely period of the Croatan wreck: the 1889 Lloyds used a table from 1871, and the Rules source of 1878 did not differ for characteristics we used from the same source updated to 1896. Further, these American and British publications differed little from each other. There is also a likelihood that any moderately-sized ocean-going vessel plying American waters in the latter part of the last century would comply with the general scantlings these publications assigned for its tonnage so that it could be certified and insured. The tables in these publications also included many other measurement equations for portions of our wreck which did not survive (beams, knees, clamps, etc.).

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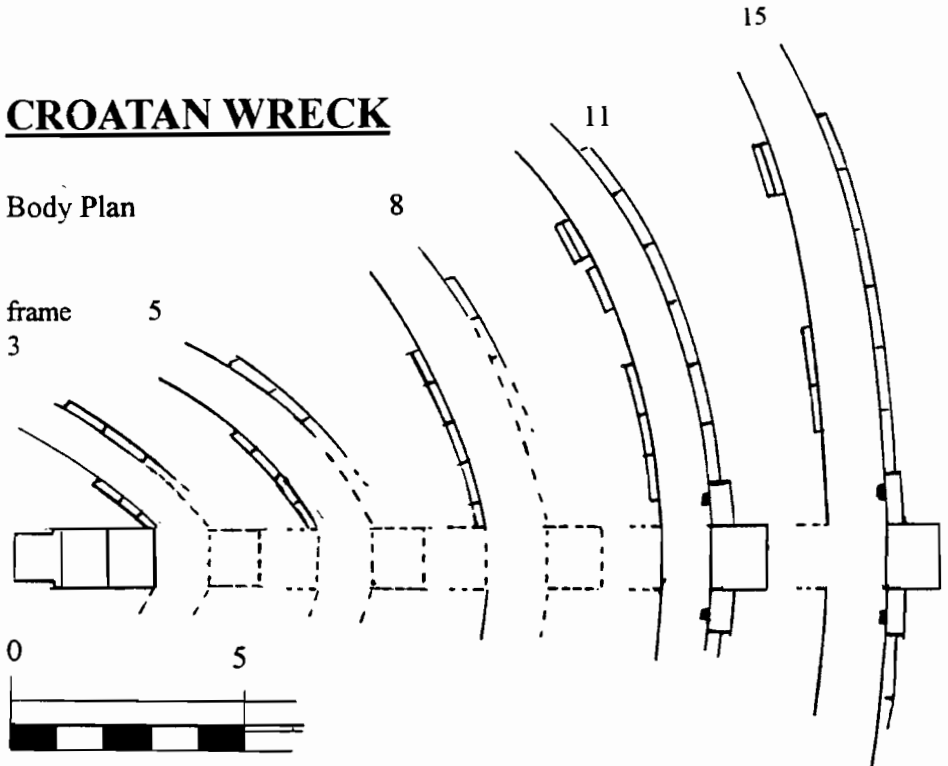
[5] Rules of the Classification of Wooden Ships, American Bureau of Shipping, 1878 and 1896, contained in the Record of American and Foreign Shipping. The American Shipmasters Association, New York, 1878 and 1896.

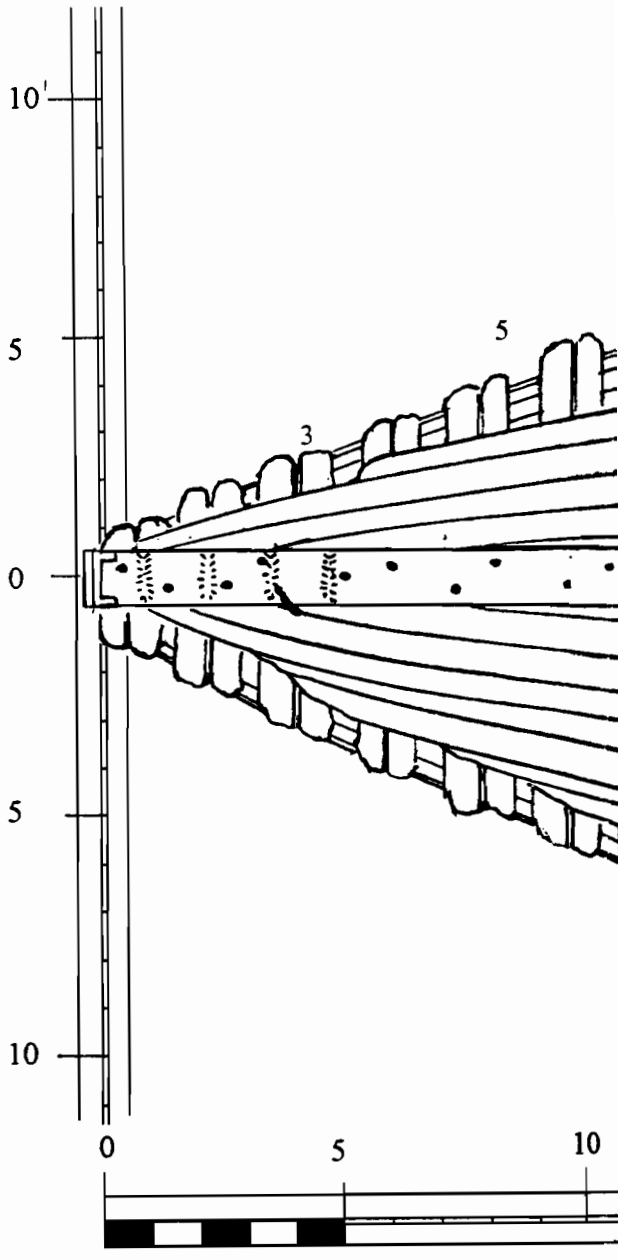
[6] Ibid

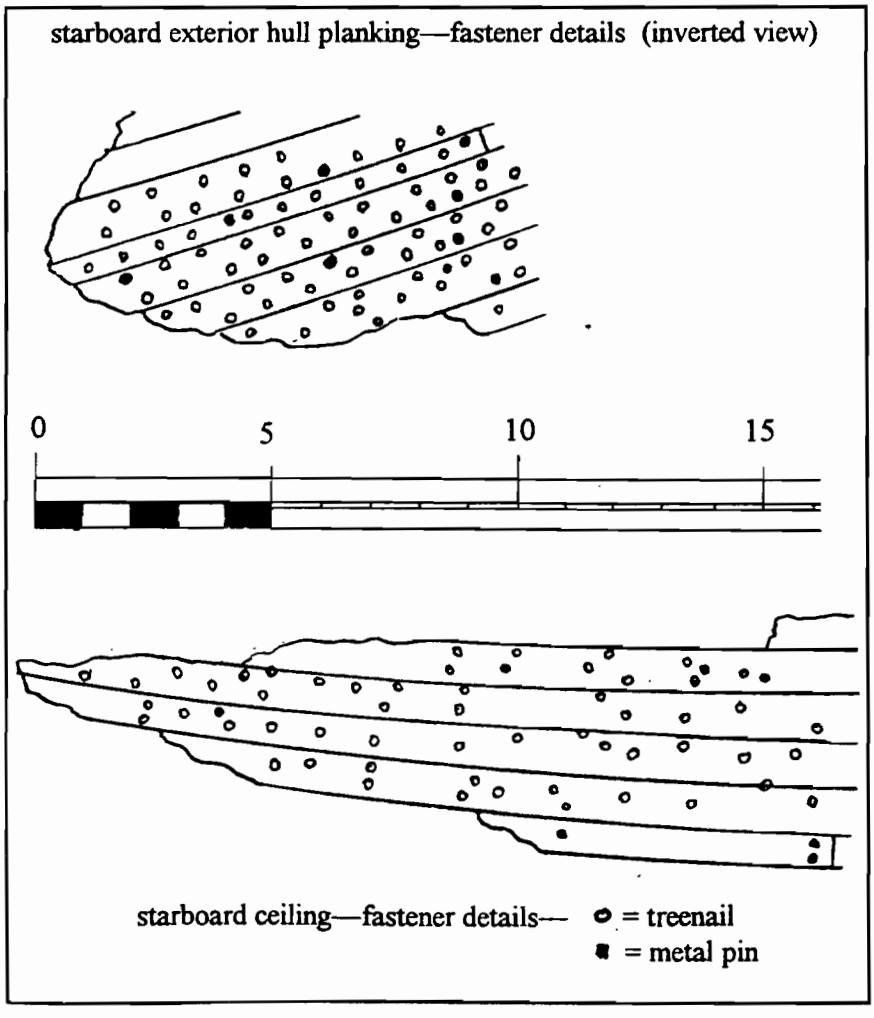
[7] The Wreck Diver's Guide to Sailing Ship Artifacts of the 19th Century (see bibliography).

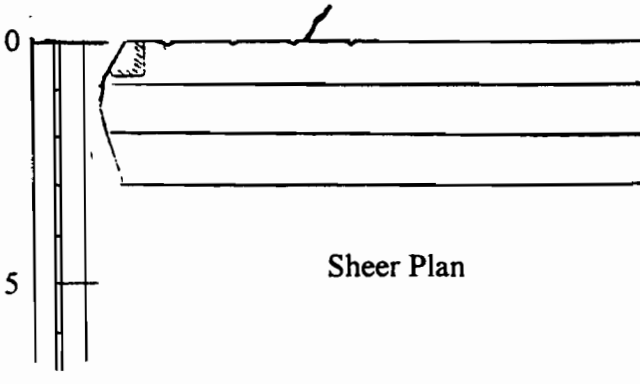
CROATAN WRECK

Body Plan

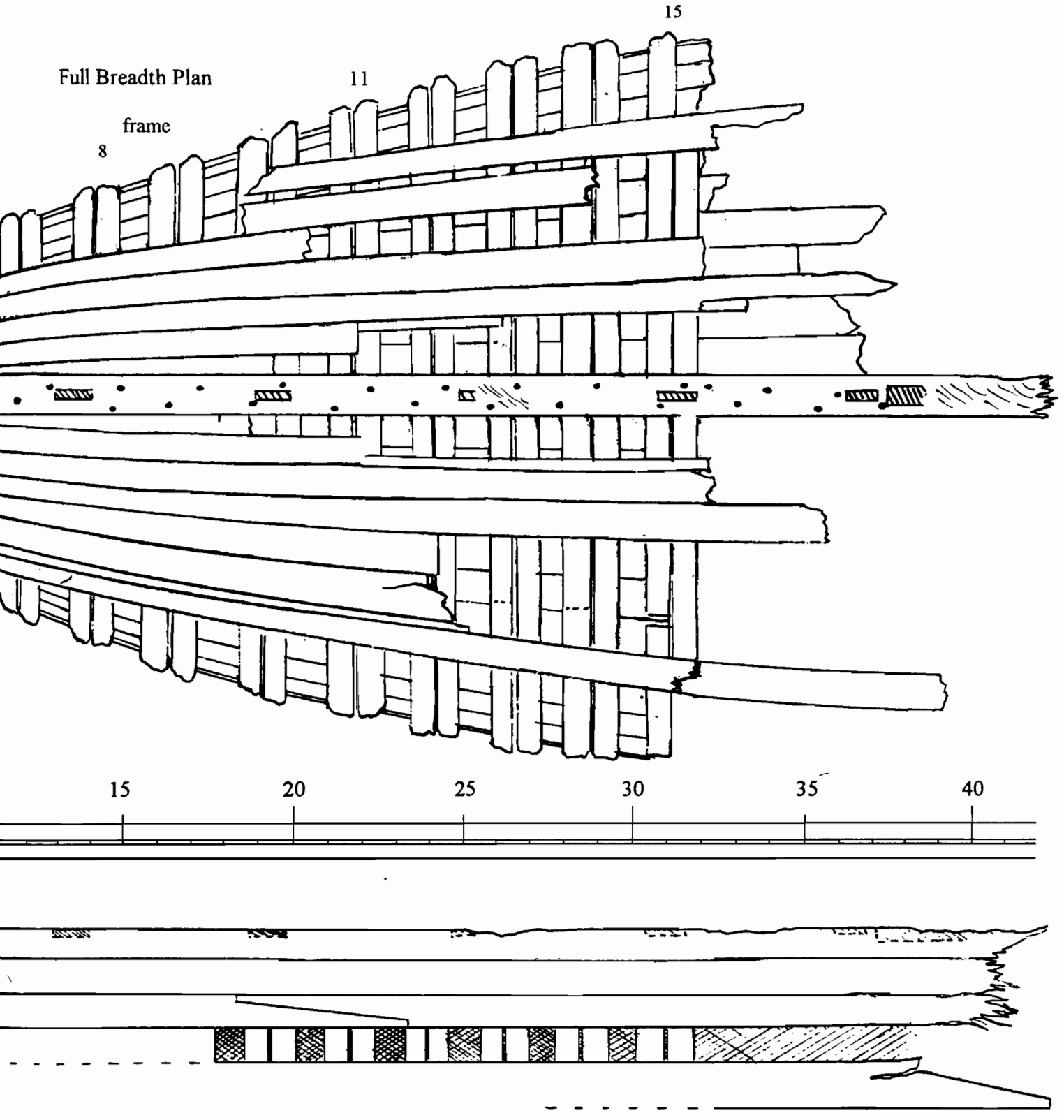








Sheer Plan



Views of the Croatan Wreck

21-22 January 1995

All drawings are to the same scale (1/4 inch to one foot or 1:48)
These drawings are based on measurements taken by Townie Burden, Mike Dougherty, Beth Johnson, Dave Kerr, Jill Montgomery, Bill Rutkowski, Alison Shanck and Bill Utley under the supervision of Tom Berkey (MAHS), J. "COZ" Cozzi (Texas A&M) and John Broadwater (NOAA)
Drawings by George Montgomery

The table below plots source dimensions against tonnage (from Rules unless annotated with "L" for Lloyds) for ship features that were available for our measurement The heavily shaded individual boxes show the findings for the Croatan wreck. Measurements are in inches rounded to nearest tenth unless otherwise indicated and interpolated if the indicated tonnage was not provided:

SHIP FEATURES TONS	100	200	300	400	500	600	700	800	900
Keel	10x11	11x12	12x13	12x14	13x15	14x16	14x17	14x18	14.5x18
Scarf of keel (feet) L	4.25	4.75	5.2	5.5	6	6	6	6.3	6.3
Keelson and riders	10x11	11x22	12x24	12x28	13x30	14x32	14x36	15x38	15.5x40
Scarf of keelson with riders (feet) L	4.25	4.75	5.2	5.5	6	6	6	6.3	6.3
Floor timbers	8x10	9x11	9x11	9.5x12	10x12.5	10.5x13	10.5x13.5	11x14	11x14
First futtocks sided & molded sq'red L	6.5	7.8	9.3	10.5	12	12.3	12.5	12.8	13
Double floors sided & molded sq'red L	6.5	7.8	9.3	10.5	12	12.3	12.5	12.8	13
Timber & space (frame interval) L	19	21.5	24.5	27.3	30	30.5	31.3	31.8	32.5
Ceiling on flat of floor	2	2.5	3	3	3	3.5	3.5	3.5	4
Planks - garboard to wales	2.5	3	3	3.5	3.5	3.5	3.5	3.5	4
Keelson bolts (thru keel at floor) L	.8	.9	1	1.1	1.1	1.1	1.2	1.2	1.3
Bilge & timber butt bolts L	.6	.7	.8	.8	.9	.9	.9	1	1
Hardwood treenails L	1	1.1	1.1	1.3	1.4	1.4	1.4	1.4	1.4

V Conclusions and Recommendations

The primary purpose of the project was to describe the wreck. Ideally, the goal was to narrow the wreck as to size and perhaps to the type of the original ship and even, under the best circumstances, to name the vessel. Success in this endeavor would greatly enhance the value of the remains as a museum exhibit. Unfortunately the limited remains of the hull make it difficult to arrive at definitive conclusions. The shape of the remains indicates well that less than 1/10 of the original hull survives, perhaps a quarter of the length and a quarter of the height above keel. Yet it is hoped that the remains are sufficiently characteristic so that further research and comment from knowledgeable contributors can narrow the ship's origin to decade of construction and general location of the constructing shipyard, as well as its probable class, length and tonnage. Authoritatively naming the ship remains an ultimate but unlikely goal.

A Speculations on Ship Size

- **Planking Size.** At frame 15 **exterior planks** averaged 15" by 3 1/2" or equivalent to 400- to 800-ton ships, while **ceiling planks** averaged 13" by 3", more suitable for ships of 300 to 500 tons.
- **Fasteners.** Metal driftpins are consistent in size with a ship of 500 to 600 tons. Treenails at 1 inch diameter, however are more suitable for a 100-ton ship.
- **Timber Size.** These features all approximate one-foot in cross section, indicating a ship of moderate size, two- or three-masted, probably not larger. Sided and molded dimensions, if squared, (9"x12"=108"), track nicely with 10 1/2 inch futtock or double floor size allotted to a ship of 400 tons.
- **Timber and Space** (or frame interval) is, after the first five frames, consistent in this forward portion of the wreck. It consists of frame pairs each 9 inches thick followed by a space of 10 inches for an interval of 28 inches, equating again to a ship of 400 tons..
- **Height.** Curvature of the 6-foot-high (from bottom of keel) bow section shown in the body plan cross sections indicates that only the lower bottom portion, well under the waterline, survives. By continuing this curvature in conformance with hulls of the period, we estimate that the draft would have been from 8-12 feet and freeboard another 10 feet, accounting for a height from keel to main deck of approximately 15 to 20 feet, and a depth of hold of about 10 to 15 feet.

•**Length.** About 40 feet remain with the keelson broken off at the first evident mast step. Based on the fact that this mast step appears to be well forward of the mast position of a typical single-masted ship it is likely that at least two and possibly three masts were installed. Comparing normal foremast placement, we then arrive at a minimum length of main deck of 120 feet--perhaps well over 150 feet if all masts reached the keelson. However, on some units of the same vintage (latter 19th C), only the mainmast reached the keelson. If such were the case on this wreck, the length on deck would be about 100 to 120 feet for a 3-master. The resultant difference in tonnage would be considerable. A length on deck of 110 feet equates to about 400 to 600 tons, and a length of 150 feet to over 1000 tons. Judging by timber and fastener size, we believe the former is much more likely.

•**Width.** At 22 feet, the widest extant cross section of hull shows no indication of lessening curvature. Not only would the hull widen considerably before any tumblehome, but it also ends well forward of maximum width. This appears to be a beamy ship. Beam is estimated at between 30-40 feet.

•**Tonnage.** Following the formula mentioned previously and taking mean dimension estimates, we calculate a rough tonnage of the original wreck as follows;

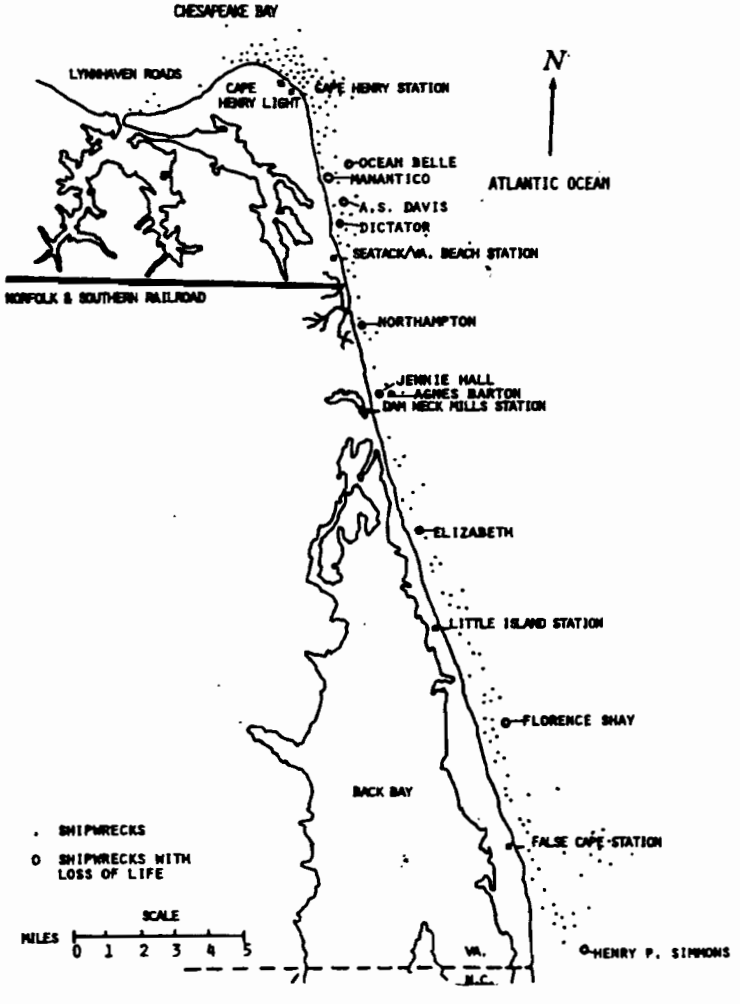
110' (length) X 35' (breadth) X 12.5' (height--depth of hold) X .0075=**360 tons**.

B Speculations on Place of Origin, Date and Type

The construction noted in the remaining part of the Coatan wreck is typical of an American merchant wooden sailing ship of the latter half of the 19th century. Diagnostics are insufficient and research not yet complete to pinpoint the decade or state of construction, nor to establish firmly the ship type, but we will hazard some guesses in Part D.

C Wreck Location

A further consideration is the location where the wreck was found and the location where it foundered. Ocean storms can move wrecks many miles along the coast, particularly if they float once freed from the bottom.[8] All in all however, the odds of a match favor ships lost near a reappearing wreck. The map from Pouliot's book shows wrecks lost from the North Carolina border to the mouth of Chesapeake Bay based of Life Saving and Coast Guard records. Without much worm damage overall, it is unlikely that the Croatan wreck traversed the coast or lay uncovered on the bottom for any extensive period.



Wreck Locations off Virginia Beach (1874-1915--J Pouliot)

[8] Beached Shipwreck Dynamics by Leslie S Bright

Vessel Name	Vessel Type	Signal Letters	Official Number	Gross Tonnage	Net Tonnage	Length	Breadth	Depth of Hold	Date Built	Where Built	Builder	Comments	Data Source
C. E. Scammel	Schooner			254.00								Schooner C. E. SCAMMELL stranded 3 miles N of False Cape Life Saving Station, VA 1/8/1875	Pouliot
Arleville H. Peary	3 M Schooner		105436	311.00	249.00	130.50	29.50	11.60	1874	Athens, NY		Schooner ARLEVILLE H. PEARY, previously stranded near Assateague Beach Lifesaving Station,VA 8/16/1907, stranded 3.25 miles S of False Cape Lifesaving Station, VA(Total loss) 10/31/1908	Pouliot, Berman, Bowker, MVUS 1905
Lewis A. Rommell	3 M Schooner			334.00					1874	Somers Pt., NJ		Schooner LEWIS A. ROMMELL stranded 2 miles N of Little Island Lifesaving Station, VA, cargo phosphate rock(Total loss) 1/15/1884	Pouliot, Shomette, Bowker
Carrie Holmes	3 M Schooner	HDTC	4946	374.88	356.14	126.00	31.80	10.60	1866	Westfield, NY		Schooner CARRIE HOLMES stranded 1 mile N of Cape Henry Lifesaving Station, VA, cargo phosphate.(Total loss) 10/31/1887	Pouliot, Berman, Bowker, MVUS 1886
Albert C. Paige	3 M Schooner	JGRT	1795	379.41	360.44	123.00	30.00	10.50	1869	Chester, PA		Schooner ALBERT C. PAIGE stranded 2.25 miles N of Dam Neck Mills Lifesaving Station, VA, cargo phosphate rock.(Total loss) 1/26/1884	Pouliot, Shomette, Bowker, MVUS 1885
City of Philadelphia	3 M Schooner	KDCF	126298	386.61	367.28	137.00	34.00	10.20	1885	Bath, ME		Schooner CITY OF PHILADELPHIA, 1885 homeport Philadelphia, PA, stranded 25 miles NE of Little Island Lifesaving Station, VA, cargo phosphate rock.(Total loss) 11/29/1896	Shomette, Pouliot, Bowker, MVUS 1895
Agnes Barton	Brig	JKQB	1998	399.76	379.77	130.90	30.00	14.90	1871	Baltimore, MD		Brig AGNES BARTON stranded .25 miles N of Dam Neck Mills Lifesaving Station, VA(Total loss) 3/14/1889	Shomette,Pouliot, Berman, MVUS 1885
Florence Shay	3 M Schooner	JDVB	9732	405.35	385.09	127.00	30.80	15.30	1867	Port Jefferson, NY		Schooner/Schooner barge FLORENCE SHAY, 1905 homeport New York, NY, stranded 3.5 miles S of Little Island	Shomette,Pouliot, Berman, Bowker, MVUS 1885&1905
Jennie Hall	3M Schooner	KBSF	76454	412.38	391.77	121.80	32..1	10.50	1883	Columbia Falls, ME		Schooner JENNIE HALL, 1895 homeport Machias, ME, stranded .25 miles NE of Dam Neck Mills Lifesaving Station, VA, cargo asphalt.(Total loss) 12/21/1900	Pouliot, Bowker, MVUS 1895
Bessie Morris	3 M Schooner	JGQS	2684	425.08	403.83	129.20	31.60	15.90	1869	Philadelphia, PA		Schooner BESSIE MORRIS stranded 2.5 miles SSE of False Cape Lifesaving Station, VA, cargo guano.(Total loss) 11/17/1887	Pouliot, Berman, MVUS 1885
Nipote	Barkentine			428.00								Barkentine NIPOTE stranded 3 miles N of Dam Neck Mills Lifesaving Station, VA 3/28/1878	Pouliot
Gray Eagle	Bark	HGVP	10023	442.40	420.28	140.10	31.40	15.10	1851	Philadelphia, PA		Bark GRAY EAGLE, 1885 homeport Baltimore, MD stranded 2.75 miles S of Little Island Lifesaving Station, VA 2/12/1888	Pouliot, Berman, MVUS 1885
Carpione(Ital.)	Bark			474.00								Bark CARPIONE stranded 1.25 miles N of Dam Neck Mills Lifesaving Station, cargo lumber. 1/17/1877	Pouliot
Nettie	Brig	JQFV	130009	502.58	477.45	135.00	32.40	17.00	1874	Tottenville, NY		Brig NETTIE, 1885 homeport New York, NY, stranded 1.25 miles S of Little Island Lifesaving Station, VA, cargo salt. 1/7/1894	Pouliot, MVUS 1885
Ada P. Gould	Bark	JPLR	105377	521.15	495.10	131.60	31.20	17.50	1874	Addison, ME		Bark ADA P. GOULD abandoned near Cape Charles Lightship, VA 1891	Berman, MVUS 1885
D. M. Anthony	3 M Schooner	JNQB	6798	555.91	528.12	146.70	36.40	15.50	1873	Fall River, MA		Schooner D. M. ANTHONY stranded 1.5. miles N of False Cape Lifesaving Station, VA(Total loss) 2/3/1905	Pouliot, Bowker, MVUS 1885
Carrie A. Norton	3 M Schooner	JWCH	126024	559.44	531.47	158.00	33.00	12.00	1882	Bath, ME		Schooner CARRIE A. NORTON stranded 2 miles N of False Cape Lifesaving Station, VA(Total loss) 2/6/1910	Pouliot, Berman, Bowker, MVUS 1886
Edward R. Smith	3 M Schooner	LCFJ	209252	565.00	492.00	158.20	34.50	14.10	1911	Phippsburg, ME		Schooner EDWARD R. SMITH stranded off Virginia coast. 1/24/1943	Berman, Bowker, MVUS 1925
Helen G. Moseley	3 M Schooner		95777	566.00					1883	Belfast, ME		Schooner HELEN G. MOSELEY abandoned 20 miles E of Cape Henry, VA 1/26/1908	Berman, Bowker, MVUS 1908
Ada Gray	Bark(schooner-Berman)	JBPH	1391	566.26	537.95	129.30	30.30	18.60	1867	Westbrook, ME		Bark ADA GRAY stranded 2.75 miles SE of Little Island Lifesaving Station, VA, cargo iron ore.(Total loss) 1/1/1888	Pouliot, Berman, MVUS 1885
Nellie W. Howlett	3 M Schooner	KCPD	130303	568.27	539.86	148.50	35.10	15.10	1884	Dorchester, NJ		Schooner NELLIE W. HOWLETT, 1885 homeport Mauricetown, NJ, stranded 3 miles S of Dam Neck Mills Lifesaving Station, VA(Total loss)10/10/1903	Pouliot, Bowker, MVUS1885
Southern Belle	Bark			582.00								Bark SOUTHERN BELLE stranded 1.5 mile S of Dam Neck Mills Lifesaving Station, VA, cargo marble 1/23/1878	Pouliot
Daniel S. Williams, Jr.	Schooner	JSMD	6940	628.65	-	161.50	36.50	16.50	1877	Wilmington, DE		Schooner DANIEL S. WILLIAMS, JR stranded 2.25 miles WNW of Cape Henry Lifesaving Station, VA 3/30/1884	Pouliot/Shomette, MVUS 1885
Henry(Harry) P. Simmons	3 M Schooner	KCPG	95812	647.65	615.27	151.80	35.20	18.00	1884	Camden, NJ		Schooner HENRY P. SIMMONS, 1885 homeport Philadelphia, PA, foundered 1.5 miles NE of False Cape Lifesaving Station, VA, cargo phosphate rock.(Total loss)10/23/1889	Shomette,Pouliot, Berman, Bowker MVUS 1885
Saxon	Brig			?								Brig SAXON stranded 2.25 miles SSE of False Cape Lifesaving Station 9/4/1905(Total loss), no US brigs named SAXON listed in MVUS 1905 or 1895	Pouliot,
Admiral(Nor.)	Bark			?								Bark ADMIRAL stranded 1 mile S of False Cape Lifesaving Station, VA(Total loss) 3/2/1879	Pouliot
Hannah Morris	Sailing ship			?								Sailing ship HANNAH MORRIS stranded 1 mile N of False Cape Lifesaving Station, VA, cargo barrels and salt. 4/16/1880	Pouliot

D Conclusions and Recommendations

Based on the above information, we believe it is premature to try to identify this wreck. We elicit the assistance of our readership to help in this endeavor either through the use of the attached Delphi Survey or phoned, faxed or posted comments to MAHSNEWS.

The lack of definitive diagnostic information does not keep us from hazarding a few preliminary guesses as to the wreck's identity. We believe that the Croatan wreck was:

- about 110 feet long (main deck), about 35 feet in beam, with a depth of hold of about 13 feet--based on the ship features table
- about 400 tons in capacity--based on the table and the above estimated dimensions
- a 3-masted schooner--based on size, beamy hull, the position of the mast step, and comments on a draft of this report from knowledgeable reviewers. This type was the most common American coaster of the period.
- built in America--based on construction methods and reviewers' comments
- covered with bottom sediment shortly after foundering and refloated and beached at Croatan for the first time since her original sinking--based on the excellent condition of the hull surface and and the location of worm holes only on the upper surfaces.

The above conclusions range from probable to highly speculative. Note particularly that the second and third conjectures are contingent upon the first. Nonetheless we will preliminarily propose a few candidates for the wreck's identity from the attached table:

- *Jennie Hall*--"right" size, type, and location
- *Agnes Barton*--"right" size and location
- *City of Philadelphia*--"right" size and hull shape

It is recognized that the wreck could have come from any number of unrecorded sinkings along the coast.

The Project Managers would appreciate commentary from readers of this Project Report. MAHSNEWS will publish appropriate remarks, and credited comments will be acknowledged in the final version of this Report. Experienced respondents are asked to use the attached Delphi Survey.

The Life-Saving Museum has assumed custody of the Croatan wreck. It is too large to be incorporated into regular museum exhibits, and it cannot be protected at Rudee Inlet. Perhaps a portion of the bow can be detached and moved to the museum grounds to serve as a teaching tool in shipbuilding techniques. The remainder might be of a size that could be moved to one of the local military installations for protection and later study. Readers with suggestions concerning appropriate methods of display, curation, or uses for the wreck are invited to contact the Life-Saving Museum of Virginia, PO Box 24, Virginia Beach VA 23458.

VI Acknowledgments

The following personnel were engaged in this project:

Project Croatan Team Members:

Fielding Tyler, Ann Dearman, Julie and Dick Pouilot from the Life-Saving Museum of Virginia
John Broadwater, Archaeologist (NOAA)
Tom Berkey, Townie Burden, Mike Dougherty, Beth Johnson, Dave Kerr, George and Jill Montgomery, Bill Rutkowski, Alison Shanck, and Bill Utley from MAHS.
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Berkey, Utley, Tyler, Julie Pouliot, Cozzi and Broadwater greatly assisted in reviewing and revising the report. Authors Donald Canney and Sam Manning provided valuable advice. Any errors remain the responsibility of the Project Managers.

Others

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Submitted to the Boards of MAHS and the Life-Saving Museum of Virginia by:

Jill and George Montgomery
Project Managers

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Delphi Survey

A Delphi Survey is one taken by the polling of experts in a given field in an attempt to obtain meaningful data from minimal information. It is usually used for forecasting, but there is no reason not to use it for the reverse, that is, looking backwards instead of forwards.

We solicit readers experienced in the study of wooden sailing ships who believe that the above report provides enough evidence to make an educated guess or other commentary regarding aspects of the original ship to fill out following table and send it to MAHSNEWS, 8421 Magruder Mill Ct, Bethesda, MD 20817

length	breadth	depth (hold)	tonnage	# masts	type	origin	age

Comments _____

_____

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Best candidates for ship identity are: _____

_____

_____

Name, Address and Phone _____

_____

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Comments are on/off the record