THE EAGLE:

AN AMERICAN BRIG ON LAKE CHAMPLAIN DURING THE WAR OF 1812

A Thesis

by

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ABSTRACT

The *Eagle*: An American Brig on Lake Champlain During the War of 1812

(December 1984)

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The United States Navy brig *Eagle* was built at Vergennes, Vermont, and constituted the final addition to Commodore Thomas Macdonough's War of 1812 naval squadron on Lake Champlain. The 117-foot-long hull was constructed and launched by master shipwright Adam Brown in only 19 days during the summer of 1814. Outfitted with two masts and 20 cannon, and manned by a crew of 150 men, the brig participated in Macdonough's defeat of an invading British naval fleet at the Battle of Plattsburgh Bay. The *Eagle* was maintained for several years after the war, until her timbers became decayed and she was abandoned by the Navy in 1825.

The submerged and partially-dismembered wreck of the *Eagle* was discovered in 1981 near Whitehall, New York. A two-year archaeological study of the vessel was sponsored by the Champlain Maritime Society, during which time the dimensions of the hull timbers were documented by divers. Archival research was also conducted on the history of the warship.

Wreck plans were prepared from the measurements recorded by the divers, and the techniques of hull construction employed by Adam Brown were examined. The wreck plans and contemporary construction information were then used to reconstruct the original appearance of the brig. The design and assembly of the Eagle were graphically depicted in the form of hull lines, construction plans, and rigging plans. The hull of the brig was compared to other War of 1812 warships on the oceans, and on Lakes Erie, Ontario, and Champlain.

The evaluation of the hull and the comparison with contemporary vessels have led to the conclusion that the Eagle was specially designed for accelerated construction and a career on the shallow, protected waters of Lake Champlain.

Dedicated
with
many happy memories
to

WILSON T. CRISMAN

"Uncle Bill"

ACKNOWLEDGMENTS

The three-and-a-half-year-long archaeological and historical study of the Eagle could not have been carried to completion without the support of many people and organizations. It is with great pleasure that I take this opportunity to acknowledge the contributions of time, information, and money that made it possible for me to resurrect the nearly-forgotten Eagle from the oblivion of musty archives and the mud of the Poultney River.

First and foremost, I would like to recognize Arthur B. Cohn of Fairfield, Vermont, my partner in Lake Champlain research, the co-director of the Whitehall Project, and a good friend in general. The field and archival studies of the Eagle greatly benefitted from his sound judgment and phenomenal organizational abilities.

The research into the history of the brig was immeasurably aided by Morris F. Glenn of Alexandria, Virginia. Morris directed me to important record collections in the U.S. Archives, and did a considerable amount of voluntary document hunting there himself. He and his wife Ellen are also thanked for generously inviting me to stay at their house during my frequent excursions to Washington.

The analysis and reconstruction of the Eagle's hull would not have been possible without the instruction

and assistance provided by the Chairman of my thesis committee, Mr. J. Richard Steffy of the Nautical Archaeology program at Texas A&M University. I would also like to thank the other members of my thesis committee, Dr. D.L. Hamilton of the Nautical Archaeology program, and Dr. Lawrence Cress of the History Department.

The hull of the Eagle was reconstructed from thousands of detailed measurements and drawings made by divers during six weeks of field work. These friends get a special thanks for the long hours they spent measuring in the murky water and recopying notes late into the evening hours.

1981 season - Ken Cameron, David Day, Anne Erwin, Mike Janson, Scott MacDonald, William Noel, Lincoln Ross, E. Jan Warren.

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TABLE OF CONTENTS

CHAPTER		PAGE
I	INTRODUCTION	1
II	"WE ARE USING EVERY EXERTION"	18
III	"A BRIG OF TWENTY GUNS"	34
IV	THIRTY-ONE DAYS	60
V	"A RAKING AND MOST DESTRUCTIVE FIRE"	93
VI	"CERTAIN INACTIVITY"	116
VII	IN ORDINARY AT WHITEHALL	140
VIII	THE WHITEHALL PROJECT	160
	Preliminary Research	160
	The Site	163
	The 1981 Survey	168
	1982 Fieldwork	174
	1983 Fieldwork	188
IX	THE CONSTRUCTION OF THE EAGLE	197
	The Keel	197
	The Stem	200
	The Stern	203
	The Frames	207
	The Keelson	216
	The Clamp	218
	Deck Beams	221
	The Waterway	221
	The Gunports	225
	External Planking	230
	Ceiling Planking	232
X	THE RECONSTRUCTION OF THE EAGLE	237
	Evidence for Reconstructing	237
	Hull Lines	242
	The Interior of the Hull	253
	Deck Fittings	260
	Masts, Yards, and Rigging	265

CHAPTER		PAGE
XI	THE EAGLE AND WAR OF 1812 NAVAL CONSTRUCTION	274
	Naval Construction on the Atlantic Coast	275
	Naval Construction on Lake Erie	283
	Naval Construction on Lake Ontario	294
	Naval Construction on Lake Champlain ...	305
XII	CONCLUSIONS	318
BIBLIOGRAPHY		320
REFERENCES AND NOTES - CHAPTER I		324
REFERENCES AND NOTES - CHAPTER II		324
REFERENCES AND NOTES - CHAPTER III		325
REFERENCES AND NOTES - CHAPTER IV		327
REFERENCES AND NOTES - CHAPTER V		328
REFERENCES AND NOTES - CHAPTER VI		329
REFERENCES AND NOTES - CHAPTER VII		330
REFERENCES AND NOTES - CHAPTER VIII		332
REFERENCES AND NOTES - CHAPTER X		332
REFERENCES AND NOTES - CHAPTER XI		333
APPENDIX A -	A Partial Muster Roll of the United States Navy Brig Eagle	335
APPENDIX B -	The Log Book kept on board the United States Sloop of War Surprise of twenty guns. Robert Henley Esqre Commander Kept by Daniel Records Acting Sailing Master	338
APPENDIX C -	A List of Stores Sold at Whitehall, June 19, 1825	348
APPENDIX D -	Wood Species Identified in the Hull of the Eagle	350

CHAPTER PAGE

APPENDIX E - Artifacts found on the Eagle 353

APPENDIX F - Principal Dimensions and Scantlings of the United States Navy Brig Eagle 375

APPENDIX G - A Glossary of Ship Terms 377

APPENDIX H - Letters of Permission 383

VITA 388

LIST OF FIGURES

FIGURE		PAGE
1	The Champlain Valley, 1812-1814	2
2	A pivoted gun	7
3	William Jones	9
4	The Growler in the Richelieu River	12
5	The burning of the Essex	15
6	Row galley	19
7	Otter Creek and Vergennes	21
8	Row galleys under construction	25
9	Stephen Cassin	28
10	The carronade and the long gun	30
11	The Ticonderoga under sail	33
12	The new brig on the stocks	46
13	Order of anchorage	48
14	Sailing orders	49
15	The Saratoga	51
16	A Hidden gunlock	54
17	A section of the brig's hull	56
18	Outfitting the brig in Vergennes	63
19	Robert Henley	64
20	Gun equipment	72
21	The Eagle and the Ticonderoga at anchor ...	78
22	Downie's battle plan	96
23	The battle of Plattsburgh Bay, 9:40 a.m. ..	100

List of Figures (Continued)

FIGURE		PAGE
24	The Eagle in action	102
25	The Eagle shifting her position to the south of the Saratoga.....	108
26	The Battle of Plattsburgh Bay, 11:30 a.m...	112
27	The Eagle under sail	135
28	Roberdeau's map of Whitehall	147
29	The Eagle in ordinary	150
30	Lower Poultney River	164
31	A section view of the Eagle at the midship frame	172
32	Detail plan, Lower Poultney River	178
33	The water dredge in use	193
34	The stem of the Eagle	201
35	The stern of the Eagle	204
36	Schematic view of a square frame	210
37	A section view of frame M, view aft	211
38	A section view of frame H, view aft	211
39	A section view of frame ⊕, view aft	212
40	A section view of frame 22, view aft	212
41	A section view of frame 32, view aft	213
42	Method of securing deck beams	223
43	Gunport sills	227
44	Two gunports	229
45	Hull remains	236

List of Figures (Continued)

FIGURE		PAGE
46	The original design for the Peacock	239
47	Hull sections	244
48	Stempost rake	246
49	Eagle (ex-Surprise)	252
50	Inboard arrangements of the Peacock	255
51	The inboard profile and deck, Eagle	266
52	Tops, caps, and crosstrees	270
53	Masts and spars	271
54	Rigging profile	272
55	The Peacock, as built	276
56	Midship sections of the Peacock, top and the Eagle, bottom	282
57	Chapelle's reconstruction of the Niagara	286
58	The stern of the Niagara	288
59	Interior of Niagara after raising, view aft	289
60	The Niagara gunport	291
61	The Oneida	296
62	A Jones gunport	302
63	The Saratoga	307
64	The stern of the Ticonderoga	311
65	Brig to be built at Isle aux Noix	314

LIST OF PLATES

PLATE		PAGE
1	Thomas Macdonough	5
2	Macdonough's victory	110
3	The Eagle watercolor (above), and a close-up (below)	133
4	The launch of Fulton the First	136
5	The squadron in ordinary at Whitehall	152
6	The hull of the Ticonderoga in 1981	162
7	A view of the confluence of the Poultney River and Lake Champlain, facing northwest	165
8	The confluence of the Poultney River and Lake Champlain, facing south	166
9	The sonar picture of the Eagle on the bottom of the Poultney River	185

CHAPTER I

INTRODUCTION

On June 18th, 1812, the United States government formally declared war on Great Britain over the issues of free trade and the impressment of American sailors. Both problems stemmed from Britain's life-or-death struggle with the French dictator Napoleon during the early years of the 19th century. The Royal Navy had swiftly acquired control of the waters around the European continent, and had effectively curtailed nearly all French maritime trade, but their blockade had one major leak. Merchant ships from the neutral United States continued to carry grain and other non-military cargoes into French ports. As the Napoleonic Wars dragged on the British increasingly interfered in this traffic, and as a further insult to American neutrality, the hard-pressed Royal Navy resorted to kidnapping sailors from American ships to man its warships. Exasperated by the inflexibility and arrogance of Britain and its navy, President James Madison and the United States Congress resolved to go to war. It was an ill-considered action.

The style and format of this thesis are those followed by the Mariner's Mirror.

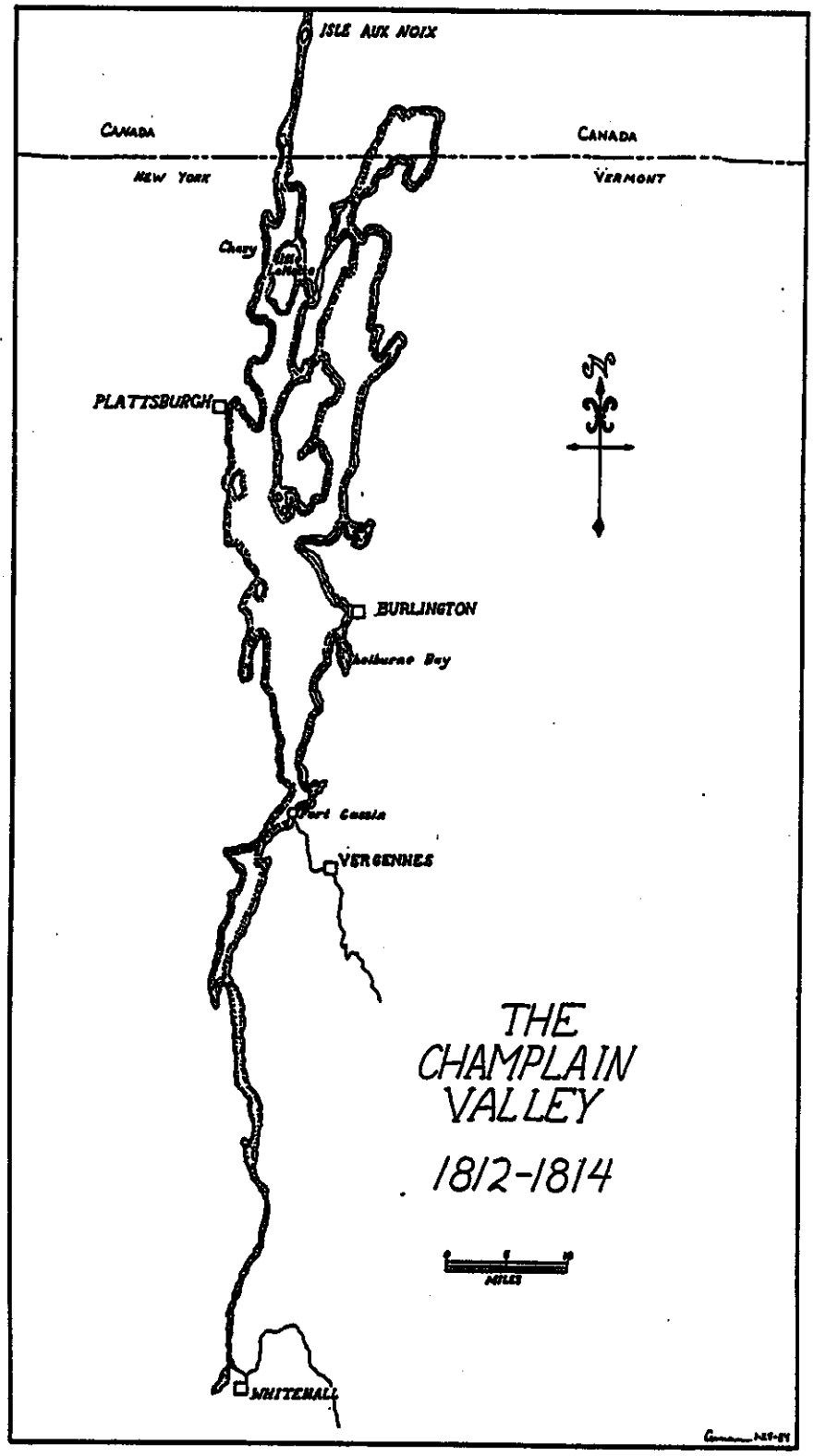


Figure 1. The Champlain Valley, 1812-1814.

Although hostilities had long been in the offing, the United States had done little to prepare its military forces for active service. Its small army was poorly trained and equipped, and despite an unfounded optimism was wholly unprepared for its appointed mission of conquering Canada. The American Navy, which could be expected to bear the brunt of the fighting against the British, was in a similarly neglected state. It consisted of only a handful of frigates, sloops of war, and coastal gunboats, while most of the navy yards required to service these vessels were shut down. On the Great Lakes, the U.S. Navy had only one warship to oppose the enemy, the 16-gun brig Oneida at Sackets Harbor, Lake Ontario.[1] Rarely has a nation voluntarily entered a war as disorganized and unequipped as the United States in 1812.

The declaration of war had special significance for Lake Champlain, the 118-mile-long freshwater body between Vermont, New York, and Quebec (figure 1). During the 17th and 18th centuries the lake had frequently served as a north-south invasion route and battle ground. The first competitors for the Champlain Valley had been the French in Canada and the British colonies to the south. Their struggle, which continued intermittently for a century, finally culminated in the British conquest in 1760. Peace lasted for only a few

years, until the outbreak of the American Revolution in 1775. During the early years of this war the lake again became an invasion route, this time between the British in Canada and the rebelling American colonies. In 1776 naval control of the lake was contested at Valcour Island, where Benedict Arnold's makeshift squadron fought a superior fleet of invading British ships. Arnold's warships were destroyed, but the action bought valuable time for the American colonies, which succeeded in regrouping and defeating a second British invasion attempt the following year at Saratoga.

The War of 1812 placed Lake Champlain on the border of two belligerent nations for a third time, and its potential as an invasion corridor again made control of its waters a matter of the greatest strategic importance. Both sides were slow to recognize this fact and act upon it.

Lieutenant Sydney Smith, the only naval officer assigned to the lake before the outbreak of hostilities, took steps to improve the U.S. Navy's forces after he received news of the declaration of war. There were only two vessels at his disposal, gunboats built at Basin Harbor in 1809. They were clumsy craft in a sadly deteriorated condition, but Smith managed to get at least one of the boats refurbished and armed with a 9-pounder cannon by the end of the summer of 1812.[2]

In the fall the slow-moving Navy Department took its first step to improve the situation on Lake Champlain by assigning Lieutenant Thomas Mcdonough to command that station (plate 1). Macdonough was an intelligent and active officer with an admirable record of experience for his 29 years. Born in Delaware in 1783, Macdonough

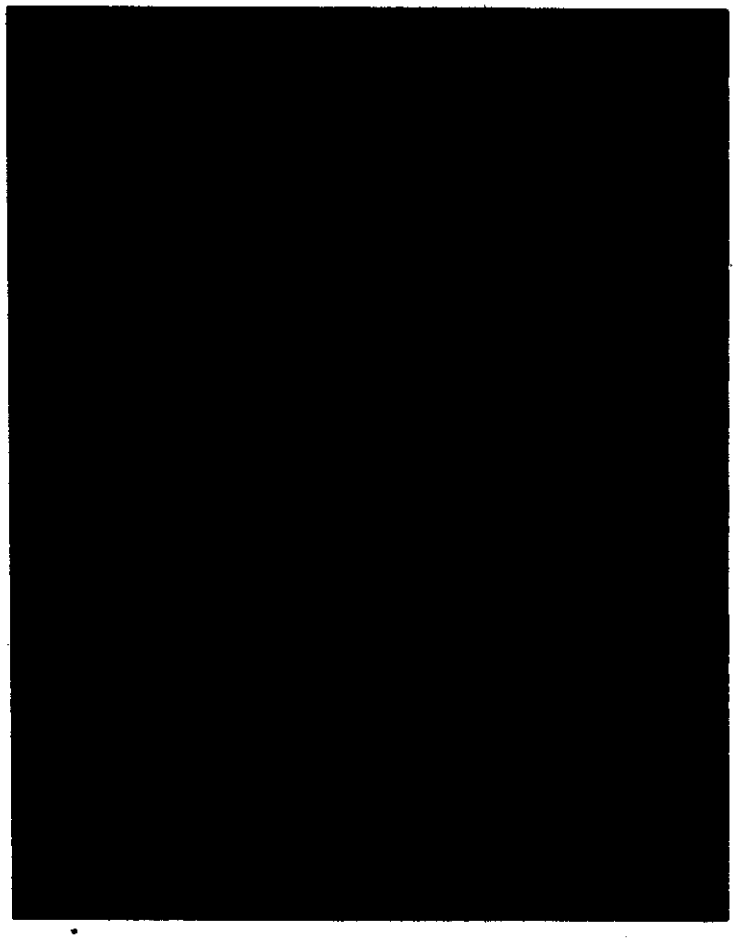


Plate 1. Thomas Macdonough.

(Courtesy of the National Museum of American History, Smithsonian Institution)

joined the Navy as a Midshipman in 1798 and served on the frigate Philadelphia in the Mediterranean. The Philadelphia was seized by the Tripolitans in 1803, but Macdonough had the good fortune to be in command of a prize vessel and absent from the vessel at the time of her capture. He joined Stephen Decatur on the hazardous Tripoli raid the next year, when the American gunboat Intrepid boldy sailed into the harbor at night and burned the Philadelphia under the noses of her captors.

Macdonough received his lieutenant's commission in 1807, and at the declaration of war was serving as first lieutenant on the frigate Constitution. He was re-assigned to the navy yard in Portland, Maine, and from there was ordered by the Secretary of the Navy Paul Hamilton to proceed to Lake Champlain. He assumed command on October 8th, 1812.[3]

Upon his arrival Macdonough worked diligently to prepare a naval force that would carry more guns than Smith's flotilla of two gunboats. The army had purchased six small merchant sloops to transport its troops, and three of them, Hunter, Bulldog, and President, were commandeered for the use of the Navy. The sloops were taken to a shipyard in Whitehall, New York and strengthened to carry guns. The Hunter was given two long 12-pounder cannon and a long 18-pounder on a pivot, while the Bulldog mounted long 6-pounders and a

pivoted 18-pounder (figure 2). The two gunboats were

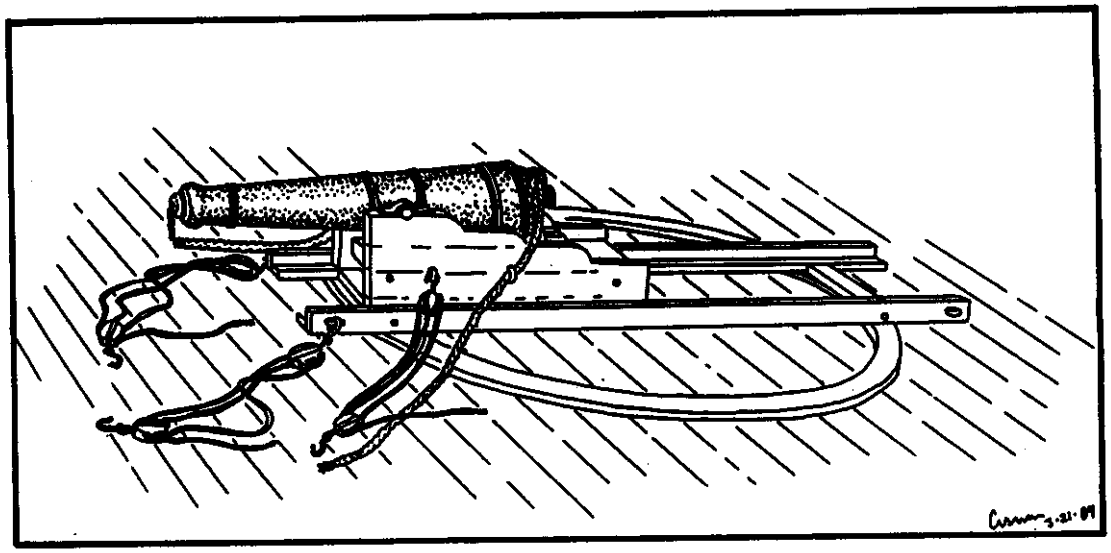


Figure 2. A pivoted gun.

upgraded to carry a single 12-pounder each. The President's hull was strengthened to carry eight guns, and she became Macdonough's flagship.[4] Because he commanded a squadron of ships, Macdonough acquired the courtesy title of Commodore, although he never actually attained that rank.

The diminutive U.S. Navy squadron was far larger than anything the British had managed to assemble, and for the remainder of the 1812 sailing season Macdonough patrolled the lake unchallenged. The onset of winter weather and ice forced him to lay up his vessels in Shelburne Bay.

Significant improvements were made during the winter of 1812-1813, to the armed sloops in Shelburne Bay, and in the Navy Department in Washington, D.C. The major improvement in the latter was the forced retirement of Navy Secretary Paul Hamilton in December. Hamilton, a politician from South Carolina with no experience of any kind in naval matters, had shown himself to be a singularly uninspiring leader since his appointment in 1809. Before the war his tightfisted financial policies allowed the Navy to degenerate into a shocking state of unpreparedness, and when the war was declared his contribution to navy policy was to suggest that the few existing frigates be dismasted and turned into floating batteries for harbor protection. Hamilton distinctly lacked the aggressive attitude necessary for his position. He also drank heavily, generally becoming incoherent by the second half of the day.[5]

Madison replaced the ineffectual Hamilton with an altogether different sort of man, William Jones (figure 3). Jones, a native of Philadelphia in his early 50's, had a background both varied and impressive. He fought in the U.S. Navy during the Revolutionary War, involved himself afterwards in the merchant shipping service, and so had acquired a great deal of practical experience in maritime affairs. During his lifetime Jones was also a congressman and a successful merchant, thus he knew

something about managing government and finances. One historian said of Jones: "He was no naval strategist, but ... just what the nation needed during the war -- a competent and conscientious administrator."[6]

Figure 3. William Jones.
(Courtesy of Morris F. Glenn)

Unlike many of his contemporaries, Jones quickly recognized the strategic importance of Lake Champlain and -- with two notable exceptions -- did everything he could to help Macdonough maintain control of its waters.

Macdonough used the inactive winter months to improve the fighting qualities of his warships. Cannon, naval equipment, and fifteen shipwrights were sent up

from New York City in February and March, and the three sloops were modified and strengthened to carry extra guns. Growler and Eagle (formerly Hunter and Bulldog) were each equipped with eleven guns, and President was given twelve. Considering that none of the sloops exceeded 65 feet in length, this was crowding on an astounding amount of artillery. The stability of the three vessels must have alarmingly deteriorated with this added weight above their waterlines. Macdonough's improved, if somewhat topheavy, squadron could now boast 36 guns -- seemingly an impressive deterrent to any British endeavors on the lake.[7]

Macdonough soon discovered that extra cannon were no guarantee of success, for the year 1813 contained nothing but a series of disasters for the U.S. Navy on Lake Champlain. Early in the sailing season the flagship President was accidently run aground near Plattsburgh and considerably damaged. While repairs were being effected, Macdonough ordered the commander of the Growler, Lieutenant Sydney Smith, to sail his vessel and the Eagle to the foot of Lake Champlain. The British had hauled three gunboats up the Richelieu River to their base at Isle aux Noix, and they were now threatening to enter the lake and attack shipping. Smith was cautioned to stay on the American side of the border and not to venture into the river.

Smith arrived at the border on June 2nd, after reinforcing the sloops with a company of infantry on loan from the Army. Early the next morning he decided to seek out the British and, contrary to Macdonough's advice, ordered the Growler (figure 4) and Eagle into the Richelieu River. The pilot of the Growler, Abraham Walters, assured Smith that it was safe to proceed down the narrow channel. Smith and his command were a considerable distance inside of Canada when they were discovered by the British Army at 6:30 a.m. The three gunboats were sent to attack, and army units were deployed along the river banks to fire on the American warships. Belatedly realizing the danger he was in, Smith attempted to sail out of the river, but a strong current and contrary winds hampered the progress of the Growler and the Eagle. The sloops were caught in a trap of their own making.

The battle, begun about 7 o'clock in the morning, continued for four hours, as the sloops attempted to simultaneously engage the gunboats and tack out of the channel. Whenever they approached the river banks they were met by musket volleys that discouraged the gun crews from staying on deck. As the fighting continued, the recoil of the sloops' guns began pulling breeching tackle out of the fragile bulwarks, making the weapons unuseable. When the supply of ammunition was nearly

exhausted, Smith decided that the only option was a boarding attempt on the British gunboats.

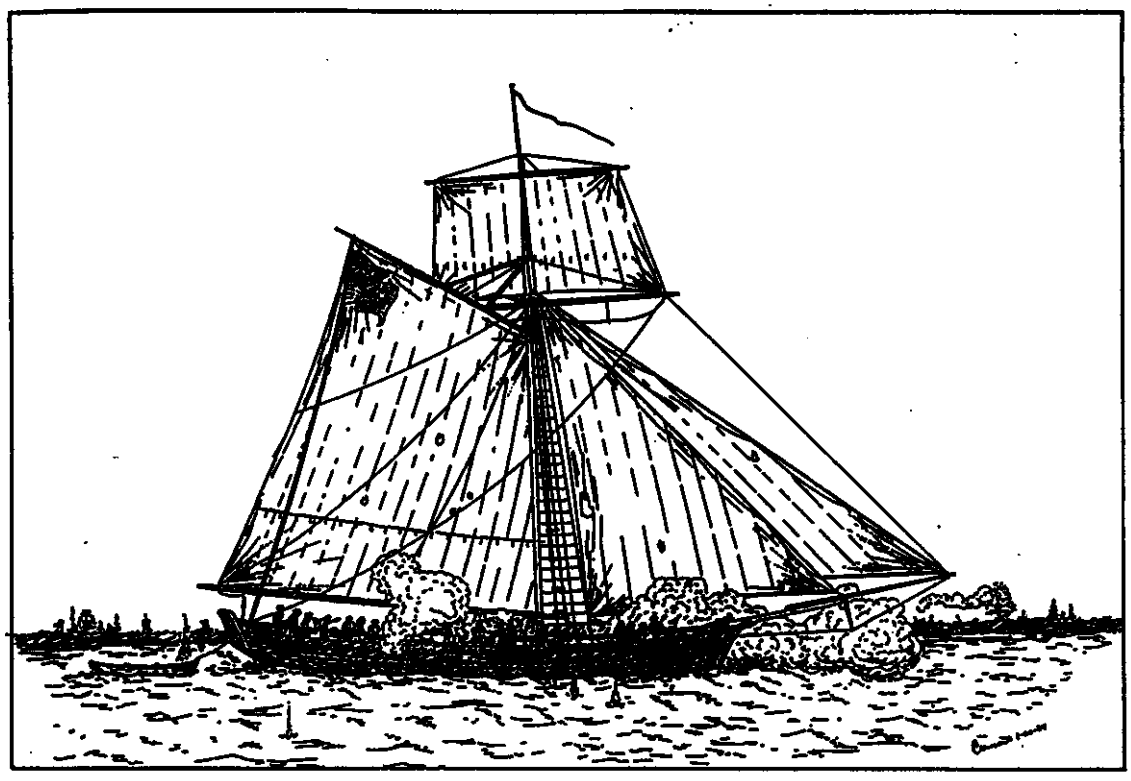


Figure 4. The Growler in the Richelieu River.

At eleven o'clock, while approaching the enemy's boats, the Eagle was struck by a shot on the waterline, and quickly settled to the bottom in shallow water. The Growler lasted a few minutes longer until she lost some of her rigging and the gaff boom, ran aground and surrendered at 11:15 A.M.[8] Macdonough's naval supremacy, so carefully built up during the preceeding months, was thus handed over to his foes in one brief action. The British

recovered the two warships and began preparations for a raid on the now-unprotected Champlain Valley.

On the 29th of July the British squadron sailed out of the Richelieu River and into the lake. The force consisted of the captured sloops, re-named Broke and Shannon, three gunboats, and 47 batteaux transporting a raiding party of nearly 1,000 troops.[9] The naval squadron was under the temporary command of Captain Thomas Everard, while the overall command of the expedition belonged to army Lieutenant Colonel John Murray. The attack would be recorded in history as "Murray's Raid".

The first objective was the town of Plattsburgh, New York. The squadron anchored before the town on the afternoon of July 31st, and Murray's soldiers were landed on the waterfront. They swiftly went to work, burning an arsenal, a blockhouse, storehouses, and several U.S. Army barracks; the troops also carried away large amounts of government stores, primarily foodstuffs. When the wholesale destruction of public property was complete, the invaders next turned their attention to looting private homes. The American Army and Navy were conspicuously absent from the proceedings, and the local militia were reluctant to interfere, since they were clearly outnumbered by highly-trained British infantry.

At ten o'clock the next morning, the landing party re-embarked and the British squadron set out for new

conquests. The force split up, two of the gunboats and all of the troops turning north to burn a U.S. Army cantonment in Swanton, Vermont, as the remaining vesels continued up the lake to seek out the American squadron and bombard Burlington, Vermont. The latter flotilla arrived off Burlington at noon on August 2nd, where they found Macdonough's vessels moored under the protection of shore batteries. The U.S. Navy had commandeered two more commercial sloops, Preble and Montgomery, but they were not yet outfitted with guns and sailors, and only the President and the gunboats were available to oppose the British. For half an hour the two sides exchanged fire at extreme range, with no noteworthy damage resulting. Tiring of this diversion, and hopeful of drawing Macdonough out from his position, the British squadron stood off to the southward to prey on merchant shipping.

They discovered and captured four or five lake vessels without interference by the President and her consorts. One of the prizes was the 50-ton sloop, Essex. She had sailed north out of Whitehall on July 30th, against the better judgment of her captain Archibald Ferris, carrying 19 U.S. Navy sailors under the command of Sailing Master Samuel Keteltas. Keteltas was anxious to deliver his reinforcements to Burlington, and had persuaded Ferris to transport them, despite the rumors of

an impending raid. The passage to the north was safely completed, and the sailors were unloaded at their destination on the 31st. Ferris crowded on all the sail he could find to get safely away to the south, but the sloop's progress was hampered by light winds.

Essex was only twelve miles from Burlington on August 2nd when a British gunboat overtook her and boarded. Ferris and his crew were sent ashore in a rowboat while the captors of the sloop attempted to make off with her, but they found that she would not move on the becalmed lake, and instead set the Essex afire (figure 5). The sloop -- valued at $1,200 -- and her cargo of salt and nails went up in smoke.[10]

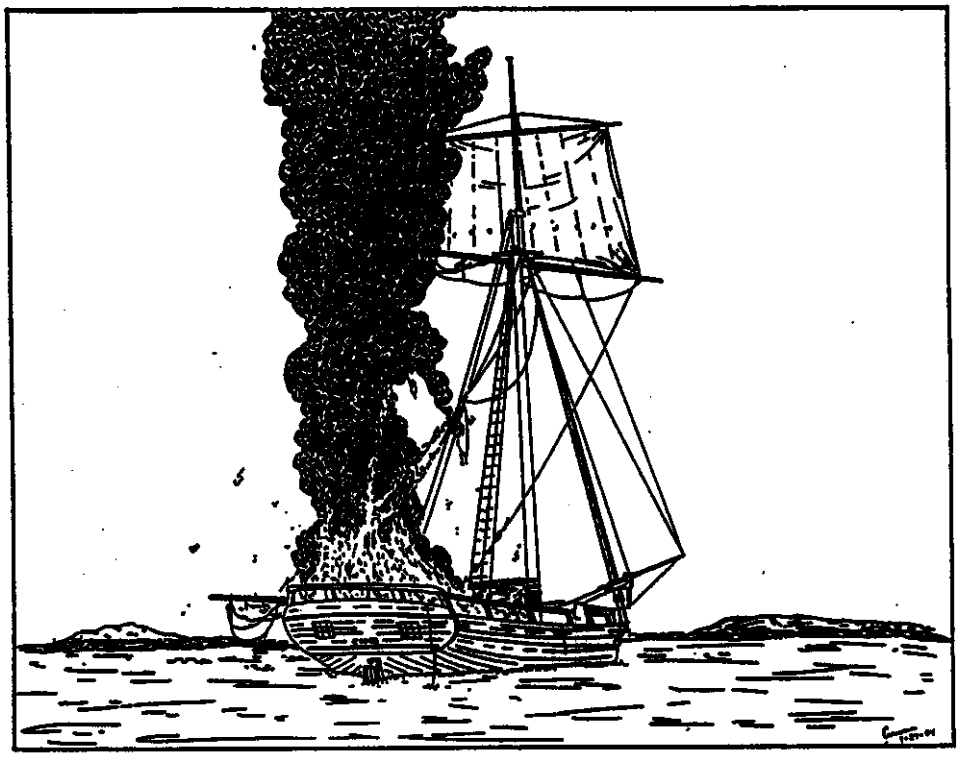


Figure 5. The burning of the Essex.

By the 4th of August the British were back in Canada, laden to the gunnels with the spoils of war. For the officers, soldiers and sailors at Isle aux Noix, the week's work was entirely satisfying: U.S. Government buildings were destroyed at Plattsburgh and Swanton, vast quantities of public and private property had been sacked, eight lake vessels were taken as prizes or burned, and the population of the Champlain Valley had lost all faith in the abilities of the United States Army and Navy. The American war effort had been dealt serious setbacks in both materials and morale.

Macdonough, promoted to the rank of Master Commandant, redoubled his efforts to strengthen his squadron and again control the lake. The Preble and Montgomery were armed with eleven guns apiece, and two additional sloops were taken into the service and armed, the Francis with six guns and the Wasp with three guns. Two more gunboats were constructed and equipped with cannon. The rebuilt and re-equipped squadron carried plenty of artillery, but was entirely unsuited to fights upon the open lake. The Wasp and Francis in particular were cumbersome, and Macdonough characterized them as being "miserable sailers."[11] The British attempted several more forays onto the lake during the fall of 1813, but the appearance of Macdonough and his mismatched collection of warships was sufficient to send them back into the Richelieu River.

As winter approached and ice began to form on the lake, Macdonough sailed his vessels up the Otter Creek and moored them below the town of Vergennes, Vermont. While this position was considerably less vulnerable to surprise attacks over the ice than the previous winter's quarters at Shelburne Bay, Macdonough had other reasons for selecting an anchorage near Vergennes. His intelligence network informed him of renewed gunboat construction at Isle aux Noix; it appeared that further destructive raids were being planned for the Champlain Valley during the summer of 1814. Macdonough determined that the British would not have the opportunity to repeat their performance, and to this end he and Secretary of the Navy Jones were preparing to build and equip an overwhelmingly superior squadron of warships. Vergennes, safely removed from the lake and possessing abundant timber resources, was the logical choice for a naval shipyard. Lake Champlain, virtually ignored by both sides during the first two years of hostilities, was about to become the scene of the most decisive naval campaign of the War of 1812.

CHAPTER II

"WE ARE USING EVERY EXERTION"

As the winter of 1813-1814 settled on the Champlain Valley, Macdonough began preparations for the construction of a respectable squadron of row galleys (also called gunboats). Row galleys had many advantages: they could be quickly and inexpensively constructed, they moved swiftly under oars regardless of wind direction, and since they were shallow draft vessels, they could go practically anywhere on the lake. Finally, gunboats were the best means of combating the increasing number of row galleys in the British squadron. They did have a few drawbacks, however, for they were badly outclassed if pitted against anything larger than an armed merchant sloop, and they required large numbers of men to row them. To meet the latter problem, Macdonough would have to depend on his recruiting stations to supply him with an immense quantity of sailors.

On the 7th of December Secretary Jones sent Macdonough his orders, and under separate covers included plans for the new vessels:

> I wish early preparations to be made, for building fifteen galleys, for which plans and draughts will be forwarded to you, similar to those now constructing here, and at Baltimore for the flotilla of the Chesapeake.

> The first class, 75 feet long and 15 wide, to carry a long 24 and a 42 pound carronade, row 40 oars, and drawing but 22 inches of water, with all on board. [Figure 6.]
>
> Large supplies of naval and ordinance stores are ordered to Albany, before the close of the Hudson, for the lake service.[1]

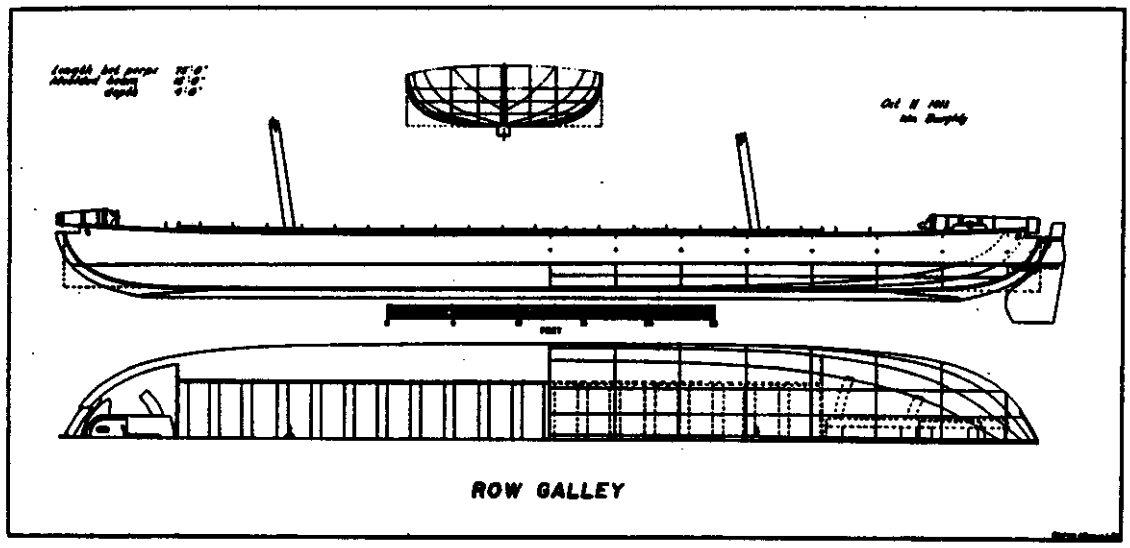


Figure 6. Row galley.

(Adapted from The History of American Sailing Navy, by H.I. Chapelle. Courtesy W.W. Norton & Co., Inc., New York)

Early in 1814 Macdonough's spies brought alarming information to him concerning construction taking place at Isle aux Noix. It appeared that the Royal Navy was planning to build a vessel larger and far more dangerous than simple row galleys. To counter the threat of a genuine warship, and because it was questionable if a sufficient number of sailors could be found to man the gunboats, Jones gave Macdonough permission to build a

ship-rigged sloop of war and three or four gunboats. He reminded the Commodore that whatever he built, "The object is to have no doubt of your commanding the lake and the waters connected, and that in due time. You are therefore authorized to employ such means and workmen as shall render its accomplishment certain."[2]

Macdonough could scarcely have chosen a better place than Vergennes for his shipyard. Several years earlier an association of Boston merchants had invested in an iron foundry at the base of the falls in Vergennes. The venture, called the "Monkton Iron Works", had not been overly profitable, but it was still in full operation when Macdonough took up winter quarters in the Otter Creek. Among the industries established in the town were eight forges, a blast furnace, an air furnace, a rolling mill, a wire factory, and grist, saw, and fulling mills.[3] The iron company agreed to supply Macdonough with the iron work he would need to complete his vessels, and in addition they provided the Navy with a tract of land on the north bank of the river for a shipyard (figure 7).[4] The forests surrounding Vergennes promised a plentiful supply of oak and pine for ship timbers, so Macdonough had everything he needed for shipbuilding except a competent shipwright and laborers.

On the 14th of February the Navy contracted two of the finest shipwrights in North America to build the

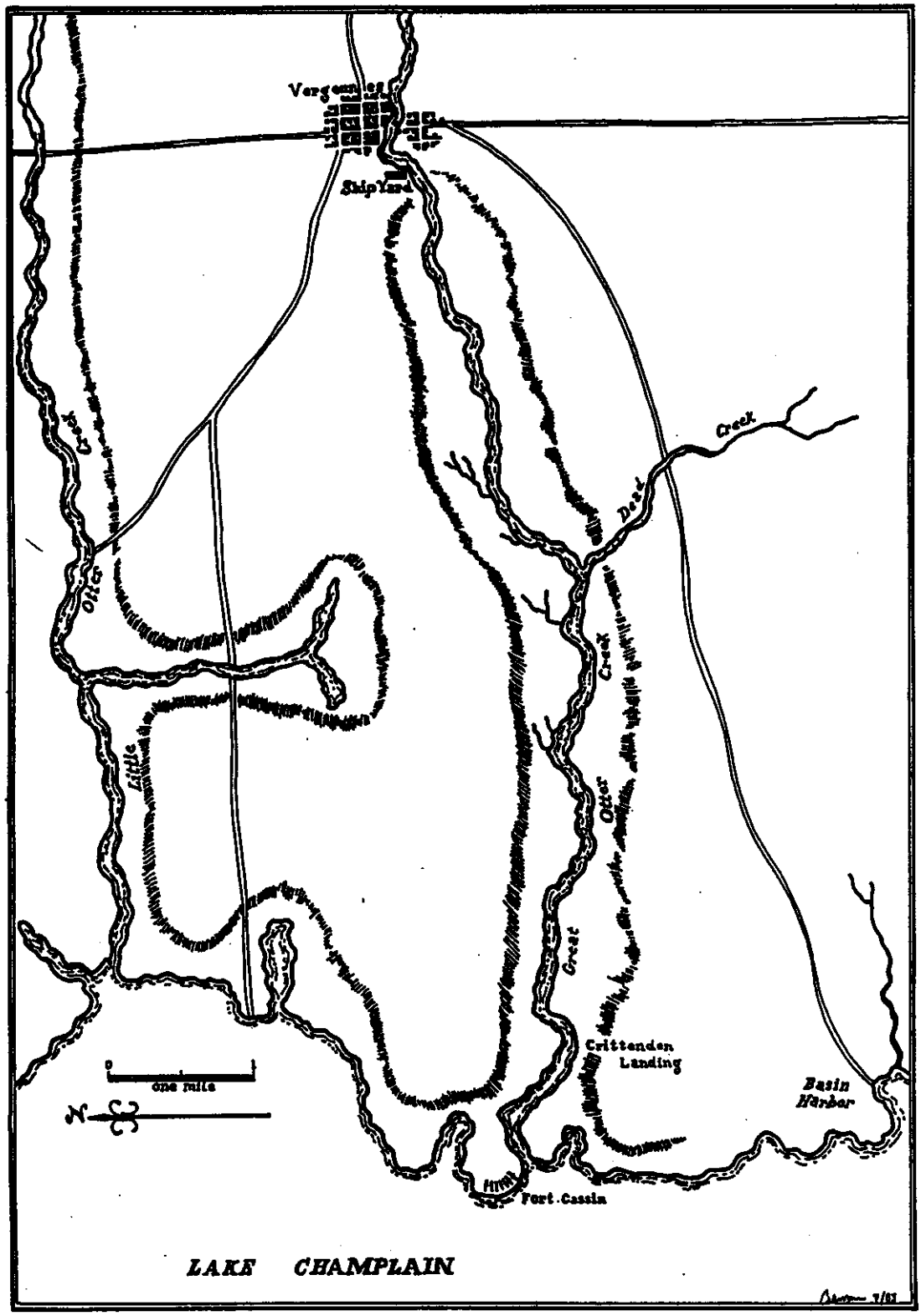


Figure 7. Otter Creek and Vergennes.
(Adapted from a map by Benjamin Tanner.
Courtesy of Morris F. Glenn).

squadron on Lake Champlain, the brothers Adam and Noah Brown of New York City. The two shipwrights had a great deal of experience in running up all types of ships, and by 1814 they were renowned for their ability to build sturdy warships on short order.

The Browns began their careers working as itinerant shipbuilders during the first few years of the 19th century, but by 1808 they had accumulated enough wealth to establish their own yard in New York City, where they built merchant ships and an occasional U.S. Navy gunboat. The declaration of war in 1812 brought the Browns into their element. During the first year of the war they turned out a succession of well-designed topsail-schooner-rigged privateers, including the Paul Jones, the General Armstrong, and the phenomenally successful Prince de Neufchatel. The Browns also razeed a merchant ship and fitted her out as the privateer Yorktown.

During the winter of 1813 Noah Brown was hired to build Lieutenant Oliver Hazard Perry's Lake Erie squadron. He arrived at Presque Isle in late February, set up a shipyard, and quickly framed two brigs and two gunboats. There were no shipbuilding supplies on hand except green wood, and practically no provisions for the 200 shipwrights engaged in the work. Despite shortages of iron, near mutinies by his half-starved men, and the ever-present threat of British incendiary raids, by June

Brown completed the 20-gun brigs Lawrence and Niagara, three gunboats, and a sharp-hulled dispatch schooner. A few months later, on September 10th, Perry led his warships into a battle that resulted in the capture of the entire British squadron on Lake Erie.[5]

Back in New York during the summer of 1813, Adam and Noah constructed for the Navy the 20-gun sloop of war Peacock, considered to be one of the finest vessels of her class ever built.[6]

Jones informed Macdonough of the terms of Noah Brown's contract on February 22nd:

> He engaged ... to launch a ship of 24 guns on Lake Champlain, in 60 days, and presuming that the alleged fact of the enemy having a ship of that class in great forwardness, to be substantiated, I urge the propriety of building a ship without delay.

Jones had other ideas for expanding the squadron:

> Lt. Cassin [Macdonough's second in command] says there is a new boat, 120 feet long, near Vergennes, intended for a steamboat, if she will answer, you are authorized to purchase her for the use of the Navy.[7]

Brown wasted no time in getting down to business after his arrival at Vergennes in late February. He set some of his men to work cutting wood, and others were employed in building the stocks for the new shipyard. By March 7th he had fashioned the keel for a large ship, and on that date Macdonough reported to Jones:

> I have the honor to acknowledge receipt of your letter of 22 Feby. Mr Brown having laid the keel of a ship to carry 26 guns, and nearly

> all her timber being on the ground, we have concluded to go on with building the ship. This, Sir, will be agreeably to your wishes, as the enemy is certainly building a vessel to carry 20 guns or upwards. Persons from Canada say, the enemy is building also four or five galleys.
>
> I have commenced building five gallies, which gallies, with the ship, and the force we already have, I calculate will be sufficient; but should it not be, the Steam Boat can then be purchased, finished and fitted.

Macdonough concluded this letter with a complaint about the dismal returns from his recruiting stations in New York, Newport, and Boston. The lack of volunteers was a problem that would constantly plague the Commodore, and the Navy Department did little or nothing to help make up his shortfall of sailors. Naval commanders were expected to use their own resources to find and enlist the seamen necessary to man their ships. This meant that most of Macdonough's best officers were absent on recruiting duty, and not on the lake where they were most needed.

Service on the lakes was shunned by most experienced saltwater sailors, despite substantial enlistment bonuses the Navy offered to recruits. The climate was considered unhealthy, the discipline was harsh, and worst of all, there was little prospect of prize money for captured enemy merchant vessels. Seagoing privateers, with their easy discipline and profitable voyages, were a far more attractive alternative to a sailor bent on going to war. Macdonough suggested that a transfer of men be made from

one of the Navy's blockaded ships, for, he noted, "I much fear when I get my vessels in other respects, ready for service, there will be a great want of men."[8]

Work at Vergennes proceeded apace, as Brown drove himself and his men to complete the ship and five galleys ahead of schedule (figure 8). Characteristically, he chose to construct more than was required and ran up the frames for a sixth galley, thereby rounding out the gunboat flotilla. With unlimited quantities of iron and timber on hand, the seven vessels rapidly took shape on the stocks, and on April 11th, only 40 days from the start of construction, the 26-gun sloop of war slid down the ways into the Otter Creek.

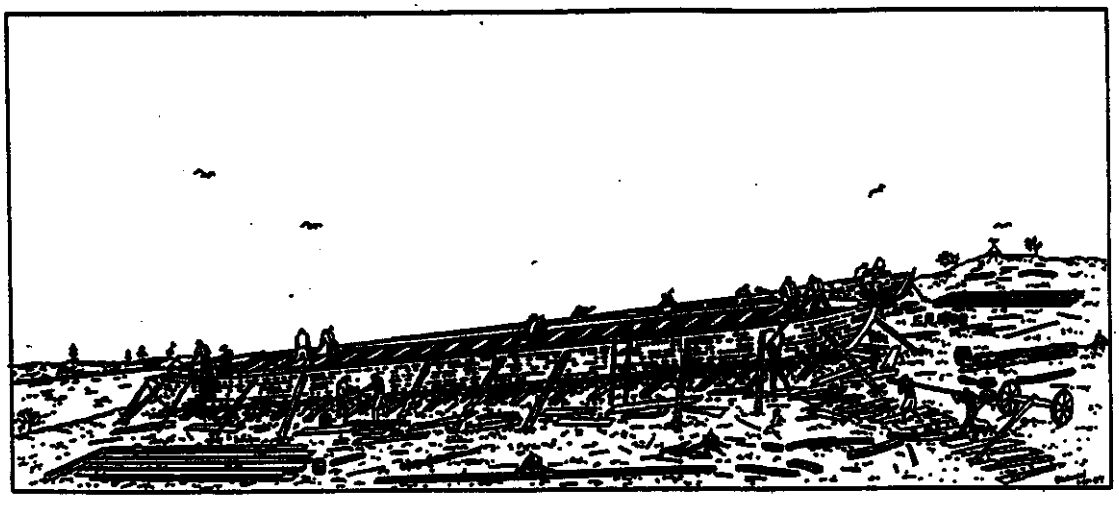


Figure 8. Row galleys under construction.

Macdonough intended to name her Jones in honor of the Secretary of the Navy, but he was instead persuaded to call her Saratoga, after the American victory over the British 37 years earlier. The outfitting of the Saratoga continued as guns, shot, anchors, rigging, and other essential equipment began trickling into Vergennes from the south. Deliveries of supplies had been seriously delayed by transportation problems, since the lake was frozen and heavy materials could only be shipped by ox teams over muddy roads.

The gunboats were launched in April, and by the 30th Macdonough could report to Jones:

> The Saratoga is rigged, her sails are made, and will be bent on immediately; she is ready below to receive her officers and men, and has her provisions stowed, her gun carriages at the ports, ready for the guns, part of which have arrived, which we are mounting, the others expected daily. The new gallies are also finished and some of their guns have arrived, which we are also mounting; the other guns are daily expected, and will be mounted immediately upon their arrival. All the powder is expected to be here in two or three days, and all my other supplies of every kind are on, with few exceptions.

After Brown had fulfilled his initial order of the ship and six gunboats, he and Macdonough turned their attention to the unfinished steamboat on the stocks of Vergennes. They decided that an extra vessel would only improve the squadron, and made inquiries to the owners of the hull, the Lake Champlain Steamboat Company. The Company, sensing that the military preparations taking

place on the lake would make the upcoming navigation season unprofitable, if not actually hazardous, were willing to dispose of their investment. Noah Brown took over the hull in late April, promising to have the vessel completed, rigged, and in the water in two weeks. Brown appraised the value of the unfinished hull at $5,000, and after examining the dubious steam engine, he and Macdonough decided to complete her as a schooner. If outfitted as originally intended, she would have been the first steam-powered warship in the world, but the practical Macdonough explained: "I have scarcely known the Steam Boat, now running here [the Vermont], to pass through the lake without something happening to her, and they have to send to Albany to replace what was damaged." The armament for the new schooner was to be taken from the four old gunboats and the sloops Francis and Wasp.

In his letter of April 30th Macdonough also passed along to the Secretary of the Navy what he had learned of the mysterious preparations on Isle aux Noix:

> The Enemy's largest vessel from the best information, is not yet ready; my informant says she was rigged, but had not her guns on board three days since, and that they are not fully manned. We are using every exertion to enter the lake before him.[9]

By the middle of May, the U.S. Navy squadron was nearly complete. The steamboat-turned-schooner was launched on May 12th, swiftly rigged, and armed with eight 12-pounders, four 18-pounders, and five 32-pounder

carronades -- 17 guns in total.[10] Macdonough named her Ticonderoga, and turned her over to his second in command, Lieutenant Stephen Cassin (figure 9). The

Figure 9. Stephen Cassin.

(Adapted from The American Navy by Charles J. Peterson)

Saratoga, mounting eight 24-pounders, twelve 32-pounder carronades, and six 42-pounder carronades, was also ready to sortie from the Otter Creek, as were the row galleys, each of which carried a long gun and a carronade. To save on manpower and improve the handiness of the squadron, the motley force of armed merchant sloops was greatly reduced. The clumsy Francis and Wasp were returned to their owners, and the President and Montgomery were turned into transports and dispatch vessels by the removal of most of their guns. Only the Preble with seven guns was kept in active service.

The squadron was ready to proceed but for one major shortcoming: there were simply not enough officers and men to work the guns (figure 10). In spite of Macdonough's repeated requests, Jones firmly refused to send drafts of sailors from the coast, or make other provisions to increase the number of men on Lake Champlain. This shortsightedness on the part of the Navy Secretary was remarkable, particularly in light of his earlier exhortations to Macdonough to complete the squadron with all possible haste. The ice was off the lake, but the warships could only sit at anchor in Vergennes while Macdonough begged soldiers from the Army and anxiously awaited reinforcements from his recruiting station.

The British won the race to take the lake, emerging from the Richelieu River on May 9th and setting sail for the Otter Creek. The flagship of this expedition was the newly-completed brig Linnet of 16 guns, commanded by Captain Daniel Pring. Sailing in company with her were the sloops Chubb and Finch (formerly Broke and Shannon) of 11 guns each, seven gunboats, and two merchant sloops, Canada and Icicle.[11] A detachment of marines was on board these vessels to aid their mission of seizing the mouth of the Otter Creek and blockading or destroying Macdonough's warships. The Royal Navy was further instructed to disrupt all other commercial and military shipping on the lake.

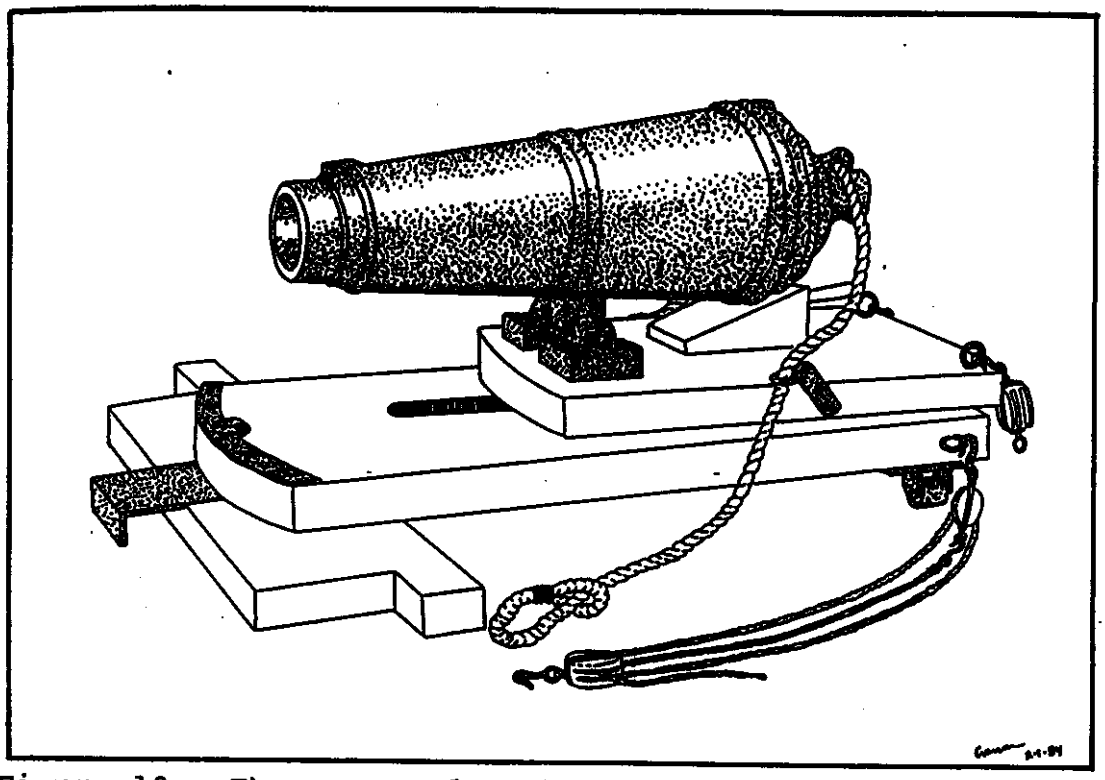
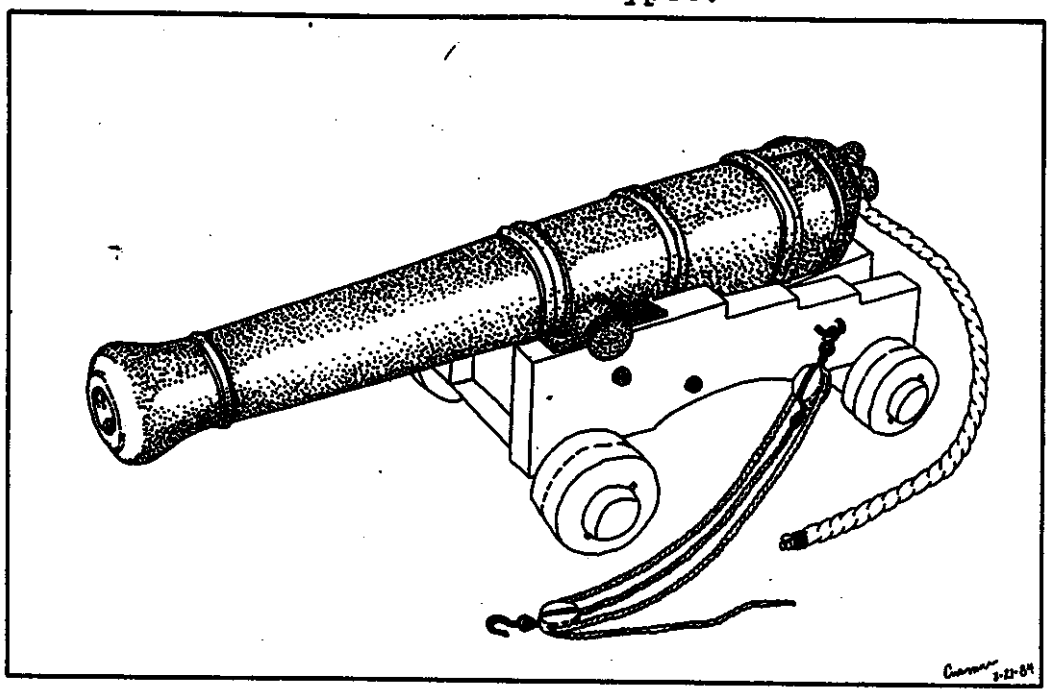


Figure 10. The carronade (above) and the long gun (below).

The carronade, firing a heavy shot for short distances was preferred for close naval engagements, while the long gun, firing a lighter shot greater distances, was suited for long-range duels. Warships of the War of 1812 period often carried a mixture of both types.



The British advance was slowed by contrary winds, and when they arrived at their destination on the 14th of May, they found a warm reception awaiting them. Anticipating the raid, Macdonough had ordered earthworks thrown up on the spit of land where the Otter Creek empties into Lake Champlain (figure 7). Behind the parapets seven long 12-pounder cannon were mounted on naval carriages, and the entire battery, called Fort Cassin, was placed under the command of its namesake and an Army officer. The U.S. Navy gunboats were positioned to provide the battery with supporting fire, and dozens of militiamen gathered in the surrounding woods to help repel any landing attempts.

The British gunboats cautiously approached the mouth of the Creek and commenced a bombardment of the battery that lasted one and one-half hours. Lieutenant Cassin returned a brisk fire with his 12-pounders and forced the attacking flotilla to keep its distance. Pring concluded that a landing or a blockade was unfeasible, recalled his vessels, and the Royal Navy ships stood off to the northward to continue their depredations. Casualties of the action were light, three wounded and a dismounted gun in the fort, one dead and two wounded among the British gunboat crews.[12] Macdonough attempted to bring the Saratoga and the Preble into the fight, but they did not gain the mouth of the creek until after Pring had withdrawn.[13]

The emergence of the British squadron did have a positive side effect for Macdonough. After enduring a week of British control of the lake, General Izard of the U.S. Army agreed to loan the American squadron enough troops to complete the manning of the warships, under the condition that they be replaced as soon as practicable by sailors. On May 26th, twelve days after the skirmish at Fort Cassin, the United States warships finally left the Otter Creek, unfurled their sails, and headed down the lake to Plattsburgh (figure 11). The four old gunboats had to be left behind until enough sailors could be found to row them. Three days later, Macdonough wrote Jones and proudly reported that the squadron was at last on the lake:

> Sir
>
> I have the honor to inform you that I arrived off [Plattsburgh] today & having been informed that the enemy has returned to Isle aux Noix the squadron was brought to anchor. There is now a free communication between all parts of this lake - and at present there is no doubt of this communication being interrupted by the enemy.
>
> I find the Saratoga a fine ship. She sails & works well, she is a ship between the Pike & Madison on Lake Ontario. The schooner is also a fine vessel & bears her metal full as well as expected. The gallies are also remarkably fine vessels. I have not yet my complement of men, but as fast as they come on I shall relieve the soldiers whom I have on board by them.
>
> I have made it known to Major Gen. Izard that the squadron is ready for service.
>
> I have the honor to be
> your servant
> T. Macdonough[14]

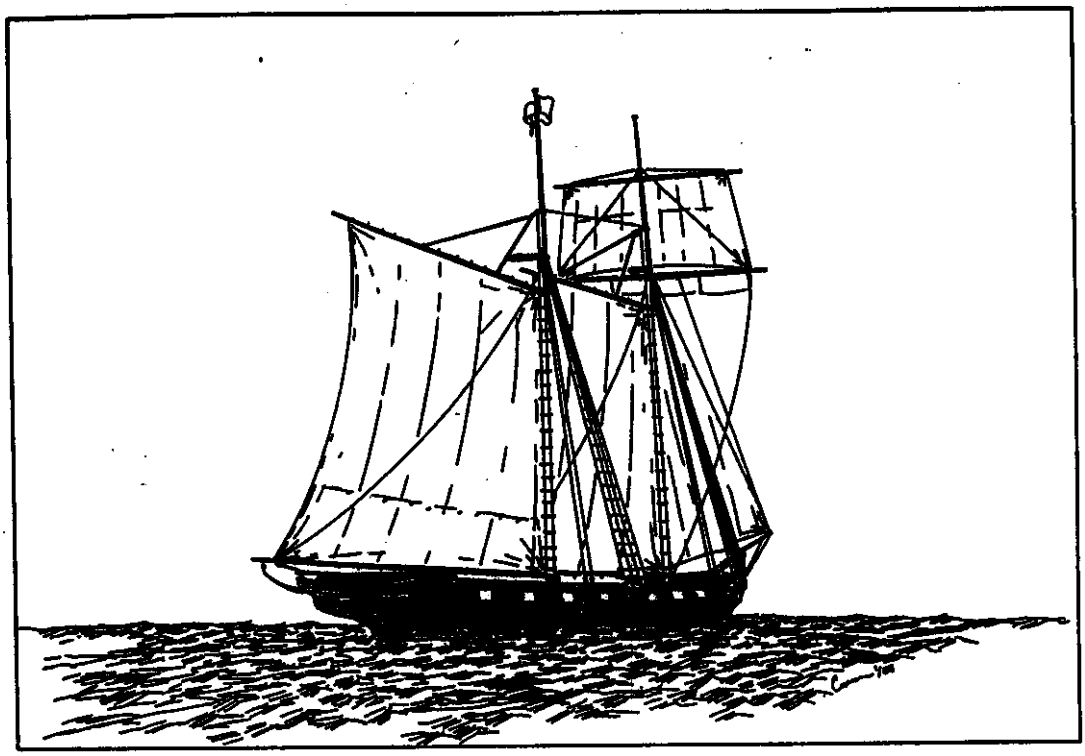


Figure 11. The Ticonderoga under sail.

CHAPTER III

"A BRIG OF TWENTY GUNS."

The image of supreme confidence that Macdonough projected in his letter of May 29th lasted for only nine days and was abruptly replaced by a bleak pessimism that would characterize much of his correspondence during the summer of 1814. On the seventh of June Macdonough received intelligence from his spies concerning renewed British naval construction at Isle aux Noix, and of the arrival in Montreal of four sets of warship frames built in England. Two of these frame assemblies, it was rumored, were intended for Lake Champlain. Macdonough wrote Secretary Jones the following day: "I have the honor to inform you ... that the enemy are again building with dispatch and determination to have the ascendancy on the lake." After relating the meager intelligence that he had, he admonished Jones: "No time should therefore be lost in our either increasing our force on the water or in fortifying the narrow part of the lake."[1]

More definitive proof of the British naval expansion reached Macdonough on the 11th of June, when four deserting British sailors crossed the border and reported that the keel for a ship of 32 guns had been laid at Isle aux Noix. The deserters also talked of recently constructed row galleys being floated up the Richelieu

River from Quebec. Macdonough sent a letter to Jones the same day, passing along this news, and offering his suggestions for the best methods of countering the addition of a new British ship:

> Should it be ordered to increase our naval force, it should be commenced without loss of time & Messrs Brown of New York would be the persons to build such force as might be deemed necessary. Gallies are unquestionably the best description of vessels for the northern parts of this lake, but the number of guns they require is a very serious objection to them. The next best vessels for this service in my opinion are schooners or brigs carrying 16 or 18 long 18 prs. These guns would reach their gallies in their skulking places. The number of men requisite to these latter vessels, in comparison with the gallies, I think would make them the vessels to be preferred. The whole expense of the gallies would exceed the expenses of the larger vessels without being so healthy or comfortable. All of the carpenters have long since gone to New York.
>
> Cannon, rigging, etc... would have to be sent on, which I should like to be getting on immediately - should you order me to build. I hoped a short time since that no increase of our naval force would become necessary, and that the enemy would meet us with what naval force he had completed, which three years ago he would have considered equal to ours, but now, sir, I am sure he intends risquing nothing but will endeavor to outbuild us, and there is no knowing where his building may stop, for ... his acquaintances with our force will enable him to know exactly what force to bring against us, so there is a probability of his not meeting us unless he is pretty confident of being successful.[2]

The U.S. Naval squadron completed manning the vessels, (many of the soldiers on loan from the Army were kept on) additional stores were taken aboard at Plattsburgh, and on the 11th of June the American warships set sail for

the northern end of the lake. The British squadron was anchored just south of the Canadian border, a position they had maintained since their raid in mid-May. Macdonough hoped to bring them into action, but when the two squadrons sighted one another on June 12th, the outclassed and outnumbered Royal Navy vessels promptly retreated to new positions inside the Richelieu River. Here the narrow channel and a series of land batteries provided them with an ample measure of protection. The United States warships assumed stations off Point au Fer, blockading the entrance to the Richelieu and effectively protecting commerce on the lake from further British depredations.

While Macdonough now had complete control of the lake, he realized that it was only temporary; the British clearly intended to build a larger squadron than his own. The letters to Jones became increasingly frantic, and dealt with little other than the rapidly expanding British Navy and the need for an 18-gun vessel to counter the threat. On the 19th of June he wrote a long missive to the Secretary, much of which expounded the virtues of a brig or schooner equipped with eighteen 18-pounder long guns: "Her long guns would reach the gallies of the enemy, and in a breeze she would have a decided advantage over them."[3] On June 26th a further exhortation was sent to the Navy Department:

> My information from the enemy is that the vessel building at Isle aux Noix was nearly ready to plank ...they spoke of having her ready by the last days of August.
>
> The determination the enemy evinces of having command of this lake and the increase of our force necessary to prevent it have made me think it proper to acquaint you with it & await your further orders to build as the increase of our force will have to be so considerable, not less than an 18 gun brig. The ship they are building will undoubtedly be calculated to match the Saratoga, the schooner Ticonderoga will equal their sloops and the brig I propose building will equal if not be superior to their brig built last winter. We have considerable timber at Vergennes and Messrs Browns can soon have an 18 gun brig ready.

This letter concluded hopefully: "I daily expect your order to commence building."[4]

Macdonough also sent word of his peril to Navy Agent John Bullus in New York City, and received from him in reply:

> I have received nothing yet from the Secretary of the Navy, on the subject of building, on Lake Champlain, should he give me any directions on the subject, I will immediately inform you, and use every exertion in my power to affect what you may require.[5]

June passed and the days of July began to disappear with no orders arriving from the Secretary. Macdonough recognized that time was running out for the U.S. Navy squadron on Lake Champlain. If the Browns did not lay down the keel for a brig in the near future, there was every possibility that the powerful new warship at Isle aux Noix would be launched and outfitted before his additional vessel could be completed. The American

vessels would then be forced into an unequal contest against a vastly superior British squadron. Macdonough could only continue his pleas to the Navy Secretary. On July 9th he wrote:

> The enemy are finishing rapidly with their ship which they say will be ready by the first of August ... the ship it is said is to have a frigate's guns on her, brought from Quebec. And, all accounts agree, that he will make a bold attempt to occupy the lake. I am daily expecting orders to build, for the enemy will when he gets his force completed, have one superior to ours. I think the most reasonable vessel would be a brig of 20 18 pr long guns. She could be built in time to prevent, with the force I now have, the enemy continuing long on the lake. I beg you to rest assured that what forces we have shall be employed to the best advantage against the enemy, but he will not I am convinced meet me unless he should come with a force that would not make a contest doubtful.[6]

A final, somewhat more despondent, appeal was made on the 13th of July:

> If an increase of our force on this lake is contemplated we should commence building without delay - as the enemy are very industrious in preparing their additional force, which when completed will, I am sorry to say, exceed ours. Shall I make preparations for increasing our force or is it intended that no addition is to be made?[7]

Secretary of the Navy William Jones was not enthusiastic about building a 20-gun brig on Lake Champlain, because he considered any addition to Macdonough's squadron an unnecessary investment. The optimism that Macdonough had expressed in April and May may have been partially to blame for Jones' attitude. Reassured by the Master Commandant's earlier dispatches,

the Secretary had reported to President Madison on May 6th: "I do not anticipate anything to disturb our complete control on Lake Champlain. Our superiority will not be placed beyond doubt indeed there is good reason to believe the enemy will not venture on the lake."[8] The British raid of mid-May, the unexpected request for another vessel, and Macdonough's bleak predictions regarding future control of the lake must have been a shock and an embarassment for Jones. Not surprisingly, the Secretary increasingly distrusted Macdonough's judgment about the situation on Lake Champlain.

There was also the question of available funds for building yet another warship. The demands of the wartime Navy were severely testing the financial resources of the Navy Department. For Lake Champlain alone, Jones was still struggling to pay off a $29,674.83 debt to the Brown brothers for their work in Vergennes that spring, and the Lake Champlain Steamboat Company was clamoring for the sum of $12,000 for their commandeered steamboat hull.[9] Jones appeared to have been hopeful that the Lake Champlain naval squadron could function on a low budget for the remainder of the year 1814.

News of the British frigate being built, and the petition for an 18-gun brig, undoubtedly gave Jones nightmare visions of another Lake Ontario-style

shipbuilding race. On that lake, the struggle for naval command was see-sawing back and forth, as each side refused to engage in battle until it possessed a superior fleet. The result was a construction "arms race" that was depleting the government treasury and producing an increasingly land-locked United States naval force. Lake Champlain, like Lake Ontario before it, was now threatening to draw off vast quantities of men, money and equipment from the seaboard, where these resources were needed to fight a powerful and effective British blockade.

The Navy Secretary decided that the line had to be drawn here, and that Macdonough would simply have to get by with the existing Lake Champlain squadron. In mid June he gave the Secretary of War "An explicit declaration that he would not add to the naval means on Lake Champlain as suggested by Commodore Mcdonough in his letters of the 8th and 11th ultimo."[10]

For the first and only time during the War of 1812, President James Madison reversed one of Jones' policy decisions. Madison foresaw the disastrous consequences of British military control of the Champlain Valley, and he spoke to the Navy Secretary in late June, ordering him to build the additional brig. Money to pay for the vessel would be found somewhere.[11]

Jones, with many reservations, set about directing the flow of men and equipment to Lake Champlain. One of

his first acts, on July 5th, was to inform the impatient Commodore that his wish had been granted. On the same day, he sent a letter to John Bullus in New York:

> Sir
> It has again become necessary to add to our force on Lake Champlain a brig of 18 guns for which purpose you will engage Mr Brown to proceed instantly to the lake and after consulting with Captain Macdonough commence and complete the work with the celerity which has hitherto acquired him so much reputation.
> Mr Brown will before his departure furnish you with an indent of stores which you will forward with dispatch.[12]

When these communications reached New York City three or four days later, both Bullus and the Browns hurried to perform their tasks. Bullus presumably drafted a contract with the Browns, stipulating the size of the brig, the timetable for her construction, and her cost. The cost of the brig was to be the same as for the Saratoga, $80 per ton.[13] Adam Brown elected to produce the brig, while Noah remained in New York, forwarding materials and shipwrights to the lake. Noah seems to have been content to relinquish this arduous job to his younger brother. He was probably still exhausted by his two previous shipbuilding compaigns on Lake Erie and Lake Champlain.

Although William Jones had failed to recognize the threat posed by a superior British fleet on the lake, and had procrastinated in making the decision to build, the Browns clearly understood the all-important need for haste. Immediately upon receipt of their orders, the two

brothers began assembling carpentry tools, shipwrights, and laborers. Once again the Browns displayed their amazing organizational abilities, for in the space of one night they signed on 200 skilled workers to help build the brig. The next day - less then 24 hours after receiving notification from Washington - Adam Brown and his shipwrights were on their way up the Hudson River for Lake Champlain.[14]

Adam Brown and his scratch shipbuilding crew no doubt took the fastest means of transportation available to them, but even so the journey up the Hudson, overland to Whitehall, and down the length of Lake Champlain consumed well over a week of precious time. Brown probably disembarked most of his workers at the mouth of the Otter Creek before proceeding to a rendezvous with Macdonough. He reached the American squadron at its station near the Canadian border on July 18th.

Until the moment when Adam Brown ascended the side of the Saratoga, Macdonough had remained ignorant of Madison's resolution to build the brig. The Commodore's sense of relief upon seeing Brown must have been overpowering. The two held a brief conference to discuss the particulars of the new brig: her dimensions, armament and rig. Macdonough had earlier contemplated building the vessel in Whitehall, where distance would render it safer from British raiding parties or arsonists, but he

and Brown chose to re-use Noah Brown's shipyard in Vergennes. The Navy had a quantity of cut timber stored there, and the adjacent iron works could again supply all the iron that would be needed. After settling on the details with Macdonough, the master shipwright immediately repaired to Vergennes.

Shortly after Brown's departure, two letters from Jones were delivered to Macdonough which informed him that permission had been granted to build the brig. A reply to the Navy Secretary was sent out the same day: "I have the honor to acknowledge the receipt of your two letters of the 5th Inst a few minutes after Mr Brown had left me for Vergennes to commence the brig." Macdonough wasted no words in moving on to the new problems he faced, mustering a crew and outfitting the vessel with supplies and ordnance:

> I hope the commander for the brig will be ordered immediately to join her as her distance from the squadron will prevent my visiting her but seldom, two Lieutenants, one Sailing Master and a Surgeon will be all the officers wanting for her besides her commander who I should like to be a master commandant. I have sent an officer to Newport, Rhode Island to recruit, a rendezvous is open for me in New York and I have requested Comm. Bainbridge to have one opened for me in Boston. My indent for her stores has gone on to Mr Bullus. I have sent for nine 18s and nine 32s, the 18s at New York, I am informed by Mr Bullus and other persons are not good.

He concluded his letter by reporting that large numbers of British troops were assembling along the border, while, contrary to earlier intelligence, the shipwrights

had not yet begun to plank the new frigate building at Isle aux Noix.[15]

Macdonough continued to receive intelligence from spies, informants, and deserters about the naval preparations taking place at Isle aux Noix. They had also brought ominous news of other military activities occuring just north of the lake. Seasoned British troops, the victorious veterans of the recently completed Napoleonic campaigns, were arriving in Canada by the thousands and were being massed along the Richelieu River. It was increasingly obvious to Macdonough that the Champlain Valley was to become the focus of British offensive maneuvers in 1814, not only on the lake, but on the land as well. British conquest of the Champlain Valley would demonstrate to the war-weary northeastern states their vulnerability, and thereby increase their opposition to the continuation of the war. The seizure and occupation of United States territory would also provide a weighty bargaining chip in the Anglo-American peace negotiations that were beginning in Europe. Both the British and Macdonough were aware that command of the waters of Lake Champlain was essential to the success of the British invasion.

Jones passed Macdonough's letter of July 18 along to James Madison. Even at this late date, the Navy Secretary had some doubts about the need for a new brig on Lake

Champlain. He expressed his misgivings to the President in a cover letter that accompanied Macdonough's report:

> You will perceive by Captain Macdonough's letter enclosed that the enemy at the Isle aux Noix had not on the 13th Inst begun to plank their ship (Col. Gardner says she is a 16-gun brig).
>
> I almost regret commencing the new ship at Vergennes - God knows where the money is to come from! You will also observe that the account of one of the frames [of the four sets shipped from England] having been received at Isle aux Noix was not true.[16]

At Vergennes, Vermont, Adam Brown was already preparing to spend some of the Secretary's non-existent money. The first four days after his arrival were spent securing quarters for the workers, cutting, trimming, and sorting timber, and contracting with the Monkton Iron Works to provide all of the iron that would be required for fastening the vessel's timbers together. Whether Brown re-used the Saratoga's ways, or built new ones, is not recorded, but it is likely that a considerable effort went into preparing a supportive structure upon which to build the brig.

On July 23rd three timbers - two of hard maple and one of white oak - were scarfed end-to-end to form a 106-foot-long keel. A white oak stempost and sternpost were raised at opposite ends of the keel, defining the length of the vessel. A 34-foot-wide U-shaped frame (or rib) constructed of overlapping timbers was fastened to the keel, one third of its distance aft from the stem. This

frame, the "midship frame", established the maximum beam of the brig, and would serve as a guide for frames erected both forward and aft of this location.

Adam Brown and his 200 shipwrights and laborers then began the difficult job of building the other 55 full frames and half frames that comprised the brig's wooden skeleton (figure 12). Time was at a premium and all possible shortcuts were taken. Strong, durable white oak was not exclusively used for the frame timbers, as it would have taken too long to locate, cut, and transport the wood. Seemingly any tree of adequate dimension adjacent to the shipyard was used in place of the traditional oak; an unusual assortment of woods were incorporated into the brig's frames: white ash, spruce, white pine, elm, and chestnut, as well as red and white oak. It is safe to

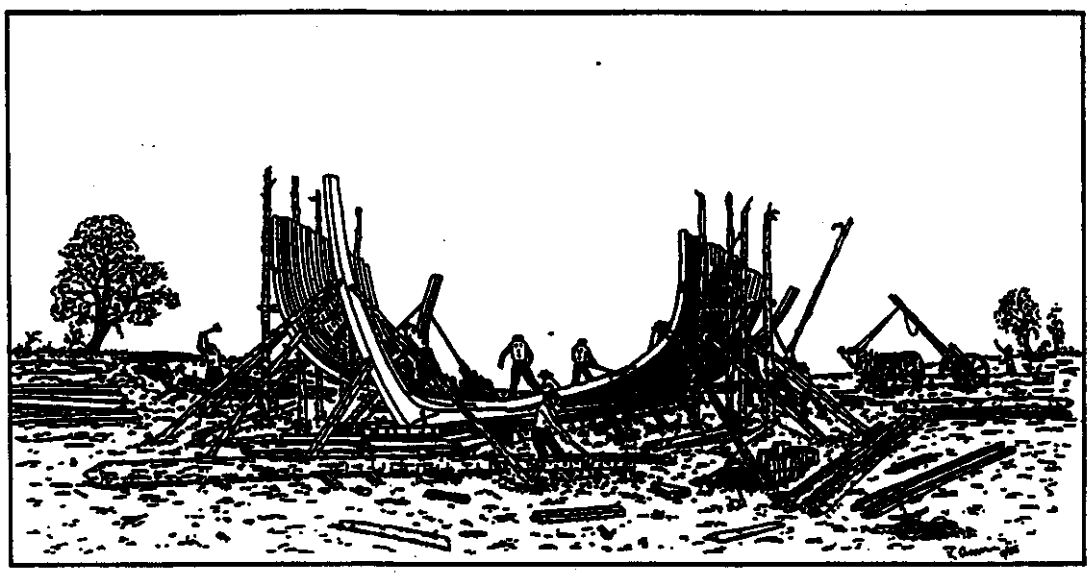


Figure 12. The new brig on the stocks.

assume that many of the timbers may have begun the workday as a standing tree, only to become an integral part of the brig's hull by evening. The use of green timber in shipbuilding is a bad practice, but like his brother before him, Adam Brown realized that speed of construction was of greater importance than long-term preservation. The new warship had to be built and outfitted before the British could finish their frigate. The makeshift shipyard at Vergennes resounded with the steady chopping of broadaxes and adzes.

Macdonough had not allowed his squadron to remain idle at its station near the border. All through the months of June and July the U.S. Navy vessels practiced sailing maneuvers, the sailors and soldiers endured long hours of gun drills, and Macdonough and his officers made plans for dealing with every conceivable situation (figure 13, page 48, and figure 14, page 49). A list of over 300 numerical signals was prepared and a copy was distributed to the commander of each vessel.[17] From the deck of his flagship Macdonough could order his squadron to do everything from "Pipe to dinner" to "Fire slow & sure & throw no shot away." The ships and men of the American squadron were ready for action, but the numerically inferior British squadron inside the Richelieu River declined to test them, preferring instead to await the arrival of the new frigate.

There were other diversions to occupy Macdonough and his sailors. One of these was patrolling the border for smugglers, particularly at night. Since the beginning of the war unpatriotic citizens in Vermont and New York had been supplying the British forces with beef and other products. More disturbing to Macdonough was the increased trafficking in naval supplies. The British shipbuilding operations at Isle aux Noix were plagued by serious shortages of wood and other building materials, a situation which entrepreneurs on the United States side of the border attempted to rectify. A brisk trade in

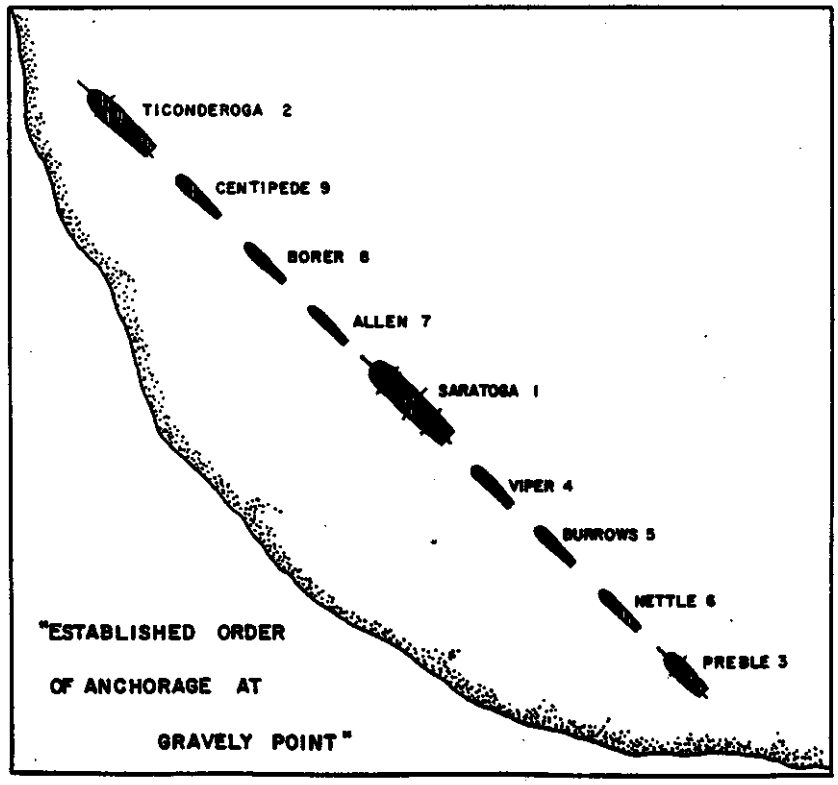


Figure 13. Order of anchorage.

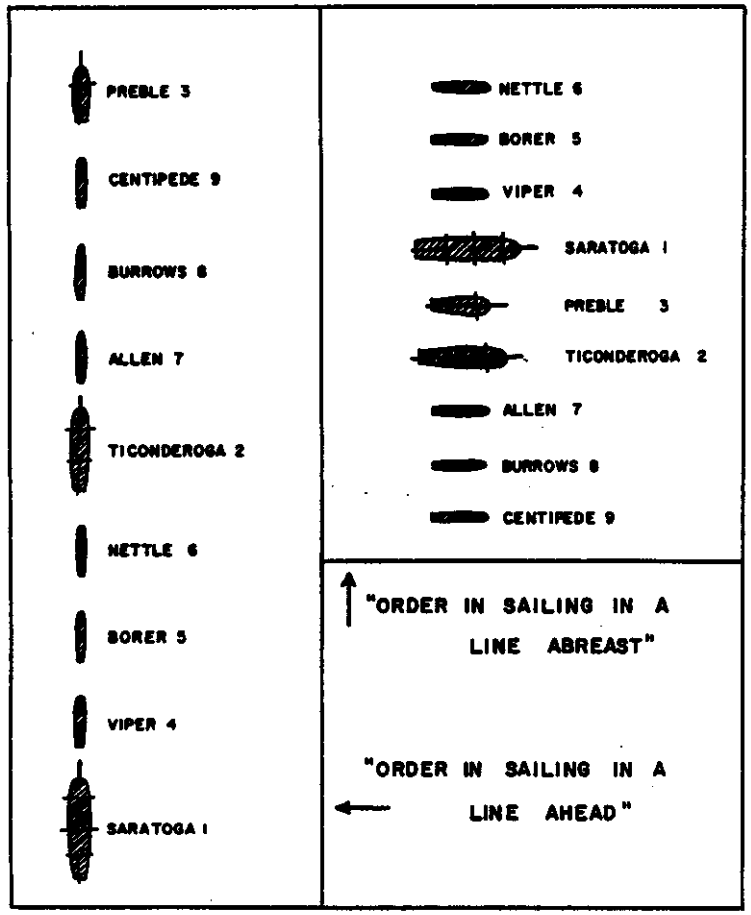


Figure 14. Sailing Orders.

shipbuilding materials developed along the border, utilizing the lake as the primary means of transportation.

Macdonough sent patrols out every night in row galleys and launches to stop the smugglers. Illicit supplies were seized on a regular basis, but large amounts continued to slip past the guards. On June 29th Macdonough reported:

> I had information yesterday that two spars intended for the masts of a ship building at

> Isle aux Noix were on their way to Canada, in charge & under the management of four citizens of the United States. I sent Sailing Master Valette to destroy them, which he did near the lines, the persons who were towing them made their escape on shore. One of the spars was 85 feet in length, the other 80 feet, it is supposed from the size of these spars that one was for the fore the other the mizzen mast, that the main mast may also be on its way which we shall keep a good lookout for.[18]

Despite a careful watch by the Navy patrols, smugglers did manage to sneak the mainmast and three topmasts into Canada. When Macdonough learned of this in early July, he resolved to somehow prevent the use of these items by the British. One of the Saratoga's midshipment, 21 year-old Joel Abbot, volunteered to lead a mission to destroy the spars. The task was extraordinarily hazardous, and Macdonough made a point of this by asking the Midshipman if he were willing to die for his country. "Certainly, sir, that is what I came into the service for," was Abbot's reply.

Abbot left the squadron at night in command of an armed launch. The raiding party rowed down the lake, skirting past British picket boats, and quietly entered the Richelieu River. The Midshipman hid his boat and men along the banks of the river and proceeded alone and on foot to examine the spars. Disguised as a British officer seeking timber, Abbot bluffed his way past a series of sentries and finally located the yard where the spars were stored, four miles inside the territory of Canada.

After a brief inspection of his quarry, he rejoined the launch and in the dark of night rowed back with muffled oars. The spars were relocated, a line was got around them, and they were towed out into the river where Abbot's sailors cut them to pieces. The entire operation required three days and so exhausted Abbot that upon his safe return to the U.S. squadron, he had to be hoisted up onto the Saratoga[19] (figure 15). In less than two weeks' time the U.S. Navy had destroyed all of the British frigate's

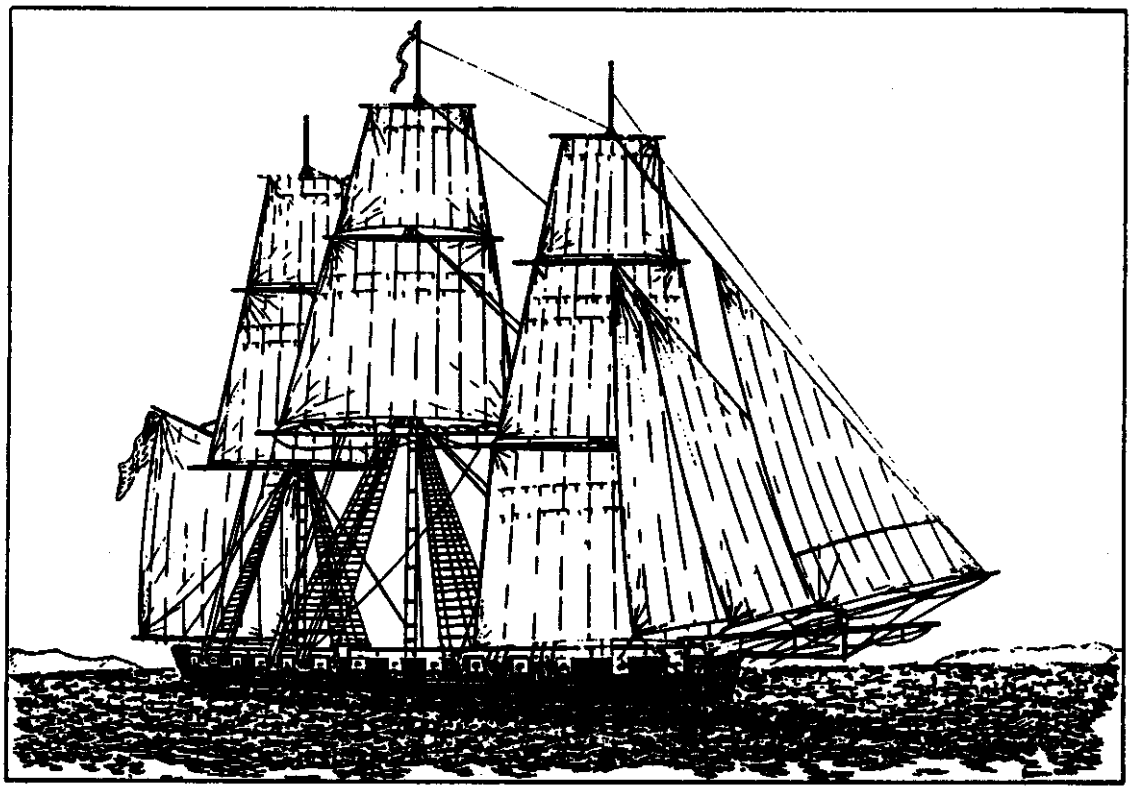


Figure 15. The Saratoga.

lower and top masts, thus seriously hampering the efforts of the shipwrights at Isle aux Noix to complete the vessel. Valuable time had also been bought for Brown to finish and outfit the brig.

On July 23rd yet another seizure was made of materials bound for Isle aux Noix and the unfinished frigate:

> I have the honor to inform you that, yesterday information was received, some persons, citizens of the United States, had a large raft of planks, timber and tar and intended running it into Canada through a narrow and unfrequented passage. I sent Sailing Master Valette in the launch to intercept it, which he did & towed it to the squadron, it consists of about 13,000 feet plank, a quantity of oak timbers and a quantity of tar. It was unquestionably bound to the enemy.[20]

Macdonough kept the tar (27 barrels worth) for the use of the squadron, and sent the captured planking and timbers to Plattsburgh, where their worth was estimated at $5,000 to $6,000.[21]

In New York City, John Bullus spared no efforts to get the brig's equipment transported to Vergennes. Some of these valuable shipbuilding supplies were en route before Adam Brown had met with Macdonough, for on the 14th of July Bullus wrote:

> Sir
>
> Inclosed is a bill of lading for five hawsers, shipped on board the sloop "Lion", Captain Whitney. There were four only required by you, but the ship chandler had shipped five

> by mistake, but as it is of the same size as the one to be made for the new brig, it will answer for her. The rigging and cordage for the new brig will leave here in about 11 days.
>
> P.S. I have heard nothing yet regarding her armament.[22]

Macdonough's intention of arming the brig exclusively with long 18-pounder guns soon fell through, because, as he noted in his July 18th letter, "the 18s at New York... are not good." Instead, he requested nine 32-pounder carronades and nine 18-pounder long guns. Secretary Jones, after grudgingly agreeing to build the new vessel, decided that she might as well have the strongest possible armament. On July 19th he ordered Bullus to add two extra guns to the brig's broadsides:

> Captain Macdonough expressed a wish to have the new brig now building on Lake Champlain armed with long 18s or 24s. The distance necessary to transport a sufficient number to make up the deficiency at New York would create too much delay. You will therefore take 2 long 24s & 8 long 18s from the Navy Yark and 10 of the 32 pdr carronades which will complete her battery and for which you will have the iron work prepared accordingly.[23]

The long 24-pounder guns at New York appear to have also been "not good", because the ordnance that Bullus sent to Macdonough on July 26th consisted of twelve 32-pounder carronades and eight 18-pounder long guns:

> Sir,
>
> Inclosed is a bill of lading for cannon, etc ... shipped on board the sloop "Western Trader" Captain Wandall for Albany. Mr Walton will immediately forward them to you.

> I have received your letter of the 19th Inst. The cables had been ordered before the receipt of it. One of the cables is at the Navy Yard, the other two, I will endeavor to have made, the lengths you request. I shall purchase a camboose [an iron cook stove], and send it with the other things.
>
> This morning received a letter from Mr Brown inclosing the dimensions of the spars of the brig, for the sail makers, who will immediately commence making the sails.[24]

On July 28th Secretary Jones instructed Bullus: "You will furnish Capt. Macdonough with gun locks out of the parcel now making by Mr Hidden."[25] In May, the Navy had contracted gunsmith Enoch Hidden of New York to manufacture

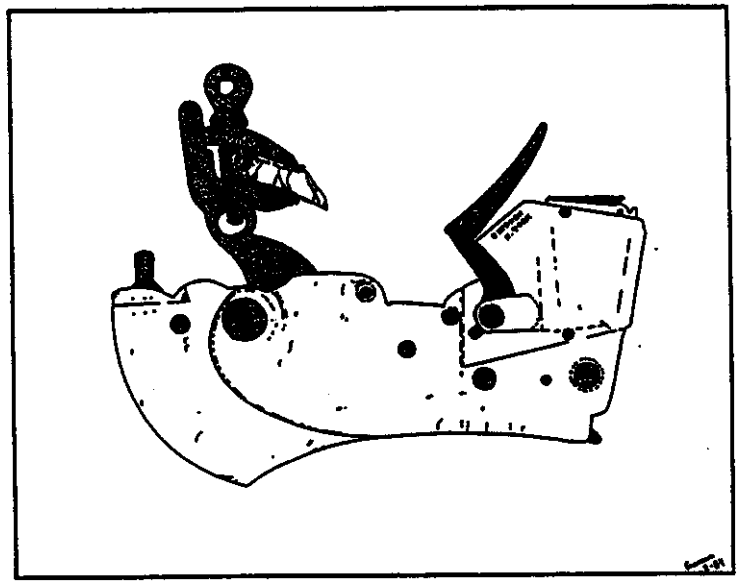


Figure 16. A Hidden gunlock.

(Courtesy of the United States Marine Corps Museum, Washington, D.C.)

a total of 500 brass locks for cannon, 300 for long guns and 200 for carronades (figure 16). These locks were "To be made of the best metal & in the most perfect and

workmanlike manner," and they were to be delivered to John Bullus in quantities of 100 per month. The cost per lock of $8.75 was to be paid on the delivery of each parcel.[26] Gun locks were the most efficient means then available to discharge muzzle-loading cannon, and they considerably lessened the time between aiming and firing, an important consideration on a moving warship. Mr. Hidden's new locks would improve the accuracy and effectiveness of Macdonough's broadsides.

The final item of equipment to be sent to Vergennes was a camboose, or cast iron cook stove, on which the meals of the brig's crew were to be prepared. Many of the Navy's blockaded ships inside New York harbor contained cambooses, and Bullus decided to remove one from the Essex Junior, a 20-gun privateer captured in the South Pacific the previous year by the U.S. frigate Essex. For reasons now unknown, Secretary Jones ordered Bullus to substitute the camboose of the Alert, a Royal Navy ship-sloop captured by the Essex at the beginning of the war. The iron stove was soon crated and shipped along with the remainder of the brig's gear.[27]

At Vergennes, the construction of the brig's frames was proceeding quickly, and by the end of the first week in August, the last frame had been drift bolted into place. A one-foot-square keelson, composed of four pieces of oak, was bolted on top of the frames and keel

to strengthen the hull's spine (figure 17). The shipwrights then began attaching planking to the interior and exterior of the hull, first dubbing the frame faces smooth to insure a tight fit. In cases where the moulded dimensions of the frame timbers were inadequate, wedges, chocks, or other thin wooden spacers were nailed to the floors and futtocks to obtain a secure seating for the planking. As soon as the exterior planking was in place, caulkers went to work with their mallets and irons, driving tarred hemp - "oakum" - into the seams to make them watertight.

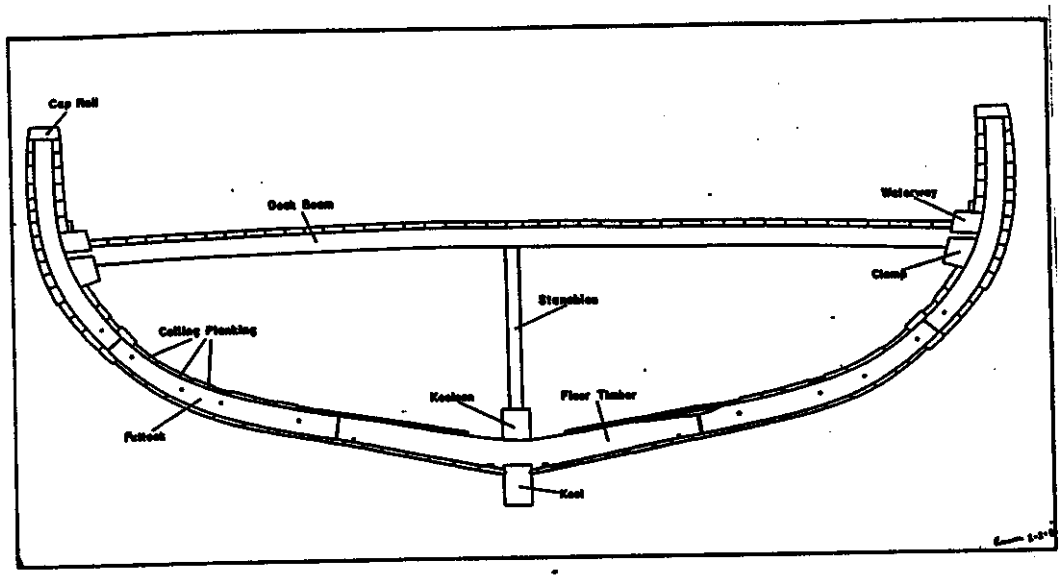


Figure 17. A section of the brig's hull.

Other shipwrights busied themselves with the preparation of the two shelf clamps. Each shelf clamp

consisted of a row of enormous one-foot-square timbers, scarfed end to end, and notched on their top surfaces to seat the ends of the deck beams. One shelf clamp was drift-bolted to the interior faces of the frames on the port and starboard sides of the vessel, about five feet below the frame tops. Over thirty oak and pine deck beams were passed into the hull and set into place on the shelf clamps. To save both time and wood, no timber knees were used to reinforce the juncture of the clamps and the deck beams. A second row of timbers, the waterway, was set atop each of the shelf clamps and drift-bolted into place. Hatch coamings were installed, stanchion posts were fitted between the deck beams and the keelson, and the deck was planked. Gunports were cut into the hull's sides, gunport sills were spiked to the insides of the frames, and the thick cap rail was spiked to the frame tops. Under Adam Brown's skilled supervision, the 200 shipwrights and laborers thus completed a 20-gun warship in record time.

Macdonough informed Secretary Jones on the 9th:

> Mr Brown writes me that he has begun to plank the brig & that he will launch her on the 15th of this month. It is much desired that the commander & officers for the brig be immediately ordered on, the stores are arriving and for the present I have directed Lieutenant Francis Mitchell to attend to her equipment. I have not much faith in his abilities, all of my officers are young, but his services can best be dispensed with.

> The enemy ship is about half planked and I am in hopes to have the brig ready as soon as she is. Will you be pleased to give a name for the brig or may I call her the Eagle?[28]

On August 11th, four days ahead of schedule, Adam Brown pronounced the brig ready for launching into the narrow Otter Creek. Brown and his workers had upheld Noah Brown's reputation for speed and quality of warship construction, for the sturdy hull slid into the water only 19 days after her keel was laid.

The actual launching was complicated by dry mid-summer conditions, as recorded in the Vermont Mirror six days after the event:

> A Launch
>
> The new brig, building at Vergennes, was launched on Thursday last. We understand that, oweing to the shallowness of the water, she stuck in the mud as she passed from the ways. She was however got afloat without much difficulty.[29]

The shipwrights had done their part, and the much-needed addition to Macdonough's squadron was in the water. The warship was far from ready for action, however, since her masts and rigging had yet to be installed, and much carpentry work was required both above and below her gun deck. Most of her equipment, including guns, gun carriages, shot, powder, ballast, sails, and camboose had yet to arrive from the south. With the exception of the incompetent Lieutenant Mitchell and a few early arrivals, none of her officers and crew

were on hand to begin their duties. The race to beat the British frigate onto the lake was only half over.

CHAPTER IV

THIRTY-ONE DAYS

Macdonough wrote the Secretary of the Navy the day after the brig's launching:

> I have the honor to inform you that Mr Brown wrote me a few days since that he should without fail launch the brig on the 11th Inst., hence I conclude she went into the water yesterday, by my advises from the transporting agents in Albany all her stores have left that place for Vergennes.
>
> Can Master Commandant Creighton be spared from the sea board to command this brig? All of my officers are very young and many of them inexperienced.
>
> The recruiting service is dull and I am advised of but fifteen men being entered for the brig although three rendezvous are opened for her, one at New York, one at Newport and its vicinity and Commodore Bainbridge has ordered one to be opened in Boston. The brig will be ready to enter the lake before she gets her crew unless a transfer of men could be made from some vessel or station on the sea board. The Enemies ship is now caulking and from my last information will be ready for service by the first of next month, by which time our brig could be easily got ready had she her officers and men. The enemy has collected in considerable numbers near the lake and threatens an attack by both land and water. We keep in readiness to receive him as we cannot without unpardonable imprudence go to him, because he lies under strong batteries and the water is extremely unfavorable. Their circumstances have long since given him confidence of security in his station. It was with great reluctance that Gen'l Izard furnished me with men from the ranks, but I presume he will spare me about forty more marines for the brig.[1]

General Izard was indeed very reluctant to supply Macdonough with more men since he felt, quite justifiably, that the Navy was shirking its recruiting responsibilities.

There was already a large contingent of Army troops aboard the Navy vessels, and with the massive British army poised along the border, Izard was loath to weaken his command by sending off still more "acting marines". When Macdonough requested forty more soldiers for the new brig, Izard morosely replied: "I cannot but be surprised that supplies of sailors have not been provided, and that instead of restoring the men lent to the Navy there should be an application for more at this late hour." [2]

Shocked and disturbed by Izard's attitude, Macdonough referred the matter to a higher authority, writing Jones on August 16th:

> I have the honor to send you ... a letter from Maj. Gen'l Izard by which it appears not even the forty men to act as marines on board the brig are to be supplied. In my letter to you of the 12th Inst. I mentioned that I expected these men. The brig will be in Plattsburgh by the 20th Inst. where she will be moored until men arrive to man her, in the meantime, should the enemy come out with his additional force, any movement by the Army on the lake and the transportations for the Army also, would become unsafe, because the enemy's force would unquestionably be far superior to ours without our new brig.
>
> I have in the squadron about 200 men from the ranks of the Army & this I think, should not be considered a great proportion as they are so immediately employed for the benefit of the Army in crossing all its transportation etc over water. By my last advises from the rendezvous no more than thirty men can be entered for the brig. Had she her officers and men in a short time she could be ready for use. The enemy's ship will be launched in a few days. I do not, however, think she will be ready before the next month.[3]

The new brig now lay tied along the riverbank at Vergennes, while Brown and his men completed a multitude

of final, but necessary tasks on the vessel. On shore, shipwrights constructed gun carriages, masts, yards, and other vital equipment for the brig. Carpenters inside the hull built a rudimentary lower deck - the "birth deck" - and over this they added partitions. Compartments in the hold probably included officers and crews quarters, a powder magazine, a galley, and areas for the stowage of provisions. Around the mainmast step tall wooden shot lockers were assembled to contain the 18- and 32-pound round shot. Within the shot lockers, two suction pumps were installed to remove water from the bilges. Companionway stairs were built and positioned at several of the hatches. Carpenters and caulkers toiled over the main deck, water proofing the seams with tar and oakum, and scraping the pine planks smooth. A windlass for raising the anchor was fastened to the deck, and two catheads were attached to the hull at the stem to assist in the handling of the anchors. Wooden hammock rails were bent around the top of the bulwark and spiked to the cap rail.

As some of the carpenters completed the joinery work inside the hull, others prepared the rigging by fastening wooden channels and iron chainplates to the outside of the hull where they would secure the mast shrouds. When all of the supporting fittings were in place, the bowsprit and masts were stepped. The emplacement of the bowsprit,

bowsprit cap, and jibboom was a relatively easy task, but raising the enormous lower masts perhaps presented more of a problem. The riggers may have moored the hull along the riverbank, below a tall tree fitted with tackle for raising the spars. The masts would then have been stepped on the keelson, and wedged tightly to the mast partners on the main deck. After the lower masts were steadied with shrouds and forestays, topmasts and topgallant masts were hoisted into position, secured, and similarly steadied by the addition of standing rigging (figure 18).

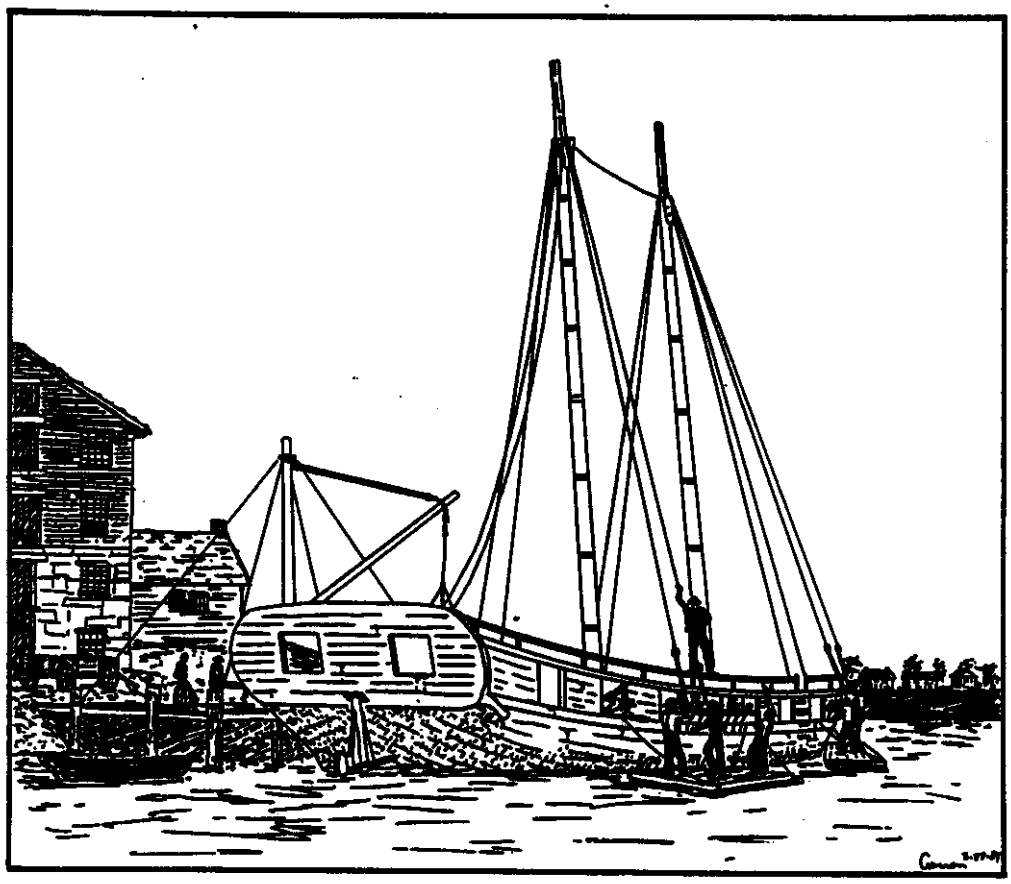


Figure 18. Outfitting the brig in Vergennes.

The brig had been in the water one week and was approaching completion when her new commander arrived in Vergennes, on the 18th or 19th of August. Macdonough had hoped to obtain an experienced and cooperative captain for the newest addition to his squadron. William Jones sent him Master Commandant Robert Henley (figure 19).

Henley was born and raised in Williamsburg, Virginia. His parents had intended a career in the field of law for him, but the call of adventure from the sea proved stronger for young Henley, and he applied for a midshipman's warrant in the Navy, which he obtained in

Figure 19. Robert Henley.

(Adapted from The American Navy by Charles J. Peterson)

1799 at the age of 16. He served under Commodore Truxten on the frigate Constellation during the Quasi-War with France. Henley's first chance to distinguish himself came in 1800, when the Constellation engaged the French frigate La Vengeance. His behavior during the battle received Truxten's approbation and the compliment: "That stripling is destined to be a brave officer." [4] At the conclusion of the war he obtained a leave of absence for several years and studied navigation and naval science. This was followed by a lieutenant's commission in 1807 andassignment to the Norfolk, Virginia Navy Yard for the next seven years.

Besides the action with La Vengeance, Henley had tested his courage and fighting skills in one other naval engagement, when in June of 1813 three British frigates sailed into Hampton Roads and attempted to capture the blockaded Constellation. Henley led one of two divisions of 15 gunboats in a counter-attack that halted the British foray and saved the American frigate.

Thus, the commander for the new brig did have some fighting experience, and was junior to Macdonough by only a few months. Henley seems to have been well-regarded by the Navy Department, and he was popular with many of the officers and men who served under him. A reasonably competent leader, Henley was also conceited and a glory-seeker, character defects that would seriously affect his relationship with Macdonough.

From the time of his arrival at Vergennes, Henley was reluctant to accept his subordinate status to Macdonough, and he regarded the new brig as an independent command. Instead of permitting Macdonough to be the sole spokesman for the squadron with the Secretary of the Navy (as Lieutenant Cassin of the Ticonderoga did), Henley opened a correspondence directly with William Jones:

August 19th, 1814

Sir

> I have the honor to inform you of my arrival at Vergennes, and that I have the pleasure to find the new brig in a state of much greater forwardness than I expected. She was launched in the astonishingly short period of 19 days from the laying of her keel. Fifty-two of her crew having arrived we only want for her sails, which I learn are on their way, to enable us to proceed to Plattsburgh to complete her equipment. I shall tommorow dispatch an officer to hurry them on.
>
> Should you not have already appointed the officers for this vessel I should be pleased to hve Sailing Master Middleton, who is upon the Norfolk station, as one of them. I know him to be a good officer & one in whom I should have confidence.
>
> The brig has not yet received a name. I beg to suggest Surprise as a suitable name for her.[5]

Henley's selection of Surprise as the name for "his" vessel was appropriate considering the speed of her construction and also suggests that the Master Commandant had a sense of humor. It was not, however, the name Macdonough had chosen for the brig.

Surprise was now nearly ready to leave Vergennes and begin her career on Lake Champlain. Ballast,

provisions, and sails were not aboard, nor were her guns mounted, since these heavy items could not be loaded until she was in deeper water. The brig's complement of 52 men were too few in number to effectively work the guns, but they were sufficient to navigate the vessel down Lake Champlain. There was also a shortage of qualified officers and Henley had to temporarily promote some very junior officers. Midshipman William Spencer became the acting First Lieutenant of the Surprise, an astounding jump in position and responsibility for a young midshipman. Daniel Records volunteered to serve as acting Sailing Master and Abraham Walters became the brig's pilot. Walters may not have inspired a great deal of confidence among those who were acquainted with his past, for it was he who had advised the advance into the Richelieu River the previous year that resulted in the capture of the sloops Growler and Eagle. He had escaped from the British soon after his capture and returned to Lake Champlain.

Also assigned to the Surprise were three "Young Gentlemen", Midshipmen William Machesney, William Chamberlain, and Henry Tardy. Chamberlain was a useless addition to the vessel, for he suffered from a severe lung ailment and was bedridden. Lesser officers, such as Master's mates, a Quartermaster, a Boatswain, a Carpenter, and a Gunner were selected from among those present. Isaac Stoddard, an Army surgeon on loan to the Navy, was sent by

Macdonough to tend to the sick and wounded aboard the brig.

With these officers and a mixed crew of experienced seamen and inept landsmen, the Surprise departed from Vergennes on Sunday, August 21st, ten days after her launching. Also on board were many of Brown's carpenters and riggers, and probably Brown himself, since there were many small details to be completed before the brig would be ready for service. The vessel was towed downstream for one and one-half miles and then moored in the center of the river.

That night acting Sailing Master Daniel Records sat down with a quill pen, an inkwell, and a large hardbound blank book which he had purchased in Vergennes. He opened the book to its first page, lightly pencilled several parallel lines, and then wrote neatly in ink upon them:

> The Log Book kept on board the United States Sloop of War Surprise of Twenty Guns. Robert Henley Esqre Commander. Kept by Daniel Records Acting Sailing Master

Records turned the page and continued:

> Occurances and Remarks on Board the United States Sloop of War Surprise. Robert Henley Esqre Commander in Virgennes or Otter Creek Vermont

1814 Sunday August 21	These 24 hours moderate winds and pleasant weather at about 11 a.m. cast off from the Bank at Vergennes and proceeded down the Otter Creek about 1 1/2 miles over the first bar in said creek and moored in the stream.

Once over the shallow bar in the Otter Creek the Surprise could begin to take on some of her heavier

stores. She remained there for a day and a half:

Monday August 22nd	All these 24 hours fine weather Crew employed in getting on board ship stores and other necessary Articles the Riggers and Carpenters at work on board and all hands preparing the brig for the service of the lake.
Tuesday August 23rd	First part of these 24 hours squally with some rain middle and latter part fine weather the Riggers and Carpenters still at work as before At about Meridian let go the moorings and perceeded down the Creek as far as Crittington landing [Crittenden Landing] there made fast and took in some ballast.

The ballast that the Surprise took in was chunks of high-grade iron ore -magnetite- purchased from iron mines in Crown Point, New York. The ore was nearly as heavy as pig iron ballast, although not as easy to transport and stow. It was certainly much cheaper, and the insolvent Navy Department was looking for all the bargains it could get. The ballast was piled on the ceiling planking beneath the birth deck, and carefully arranged along the length and breadth of the hull to give the brig her optimum trim for sailing.

Two more days were spent at Crittenden Landing, completing the outfitting of the Surprise:

Wednesday August 24	First part of these 24 hours some light rain middle and latter part fair weather Riggers and Carpenters employed in the Boats and receiving and taking on board the spare rigging and blocks from the rigging loft and the remainder of the ballast at Crittington landing and receiving on board three hundred and fifty eighteen pound shot and one hundred twenty four pound shot.

Thursday August 25	All this day strong winds from the northward and fair weather, received the sails from the sloop Washington and bent them likewise received eleven cases containing one caboose [camboose] and iron work for gun carriages. One case said to be gunlocks and one small coil of rigging and one half Teirce [teirce: a 42 gallon cask]. Received on board from Vergennes two sails for the Saratoga and fifty twenty four pound shot some hooks thimbles and other blacksmiths work for the brigs use. The Riggers and Carpenters still working on board.

Above and below deck, the Surprise was the scene of frantic activity. Dozen's of Brown's men labored on the brig, assembling gun carriages, chiseling out shot garlands, attaching carronade pivot plates to the gunport stills, driving breeching bolts through the brig's bulwarks, and otherwise putting the finishing touches on the warship.

The few sailors that Henley had likewise worked without pause to prepare their vessel for active service. Besides loading and packing several tons of iron ore ballast, the sailors took in five tons of 24- and 18-pound shot cast for the Navy at the Monkton Iron Works.[6] The 18-pound shot were probably intended for the Surprise's eight long guns, while the 24's were being freighted down the lake to the guns of the Saratoga and the row galleys. 32-pound shot for the carronades were presumably loaded at this time, although Records said nothing about them in his log. The shot were stored in bins at the base of the mainmast; this was the approximate center point of the

hull, and here their weight would have little affect on the brig's sailing trim.

There were other cumbersome weight lifting feats to be accomplished. Anchors and heavy iron guns had to be hoisted out of the holds of transport sloops and into their positions on the Surprise's deck. Casks of gunpowder were gently lowered into the hold and stowed with care in the brig's magazine. Casks containing provisions were also brought aboard, but in lesser quantities than would be required on an ocean-going vessel of similar rating. As the Surprise would always be within sight of land, she could be re-provisioned at any time by sending sailors ashore in a boat to purchase or requisition supplies. Nor was there need for casks of water, as an unlimited supply of fresh drinking water could be taken from the lake itself.

This must have been a hectic time for Edward Smith, the Gunner of the Surprise. In addition to overseeing the mounting of the guns, and the acquisition and stowage of round, grape and cannister shot, he had to insure that each of the guns was supplied with the necessary implements. Besides the gunlocks furnished by Enoch Hidden, the gun crews required hand spikes for moving the guns, rammers, sponges, sponge buckets, ladles for loading the guns, spiral worms for extracting unfired cartridges, powder horns of priming powder and priming

irons, sheet lead covers (aprons) to keep the cannons' touch holes dry, and passing boxes to carry powder charges from the magazine to the guns (figure 20). The carronades also required short hand spikes called monkey tails to shift and aim the carronade bed on its slide. Bolts of flannel cloth were taken in to be sewn into cylindrical powder cartridges.

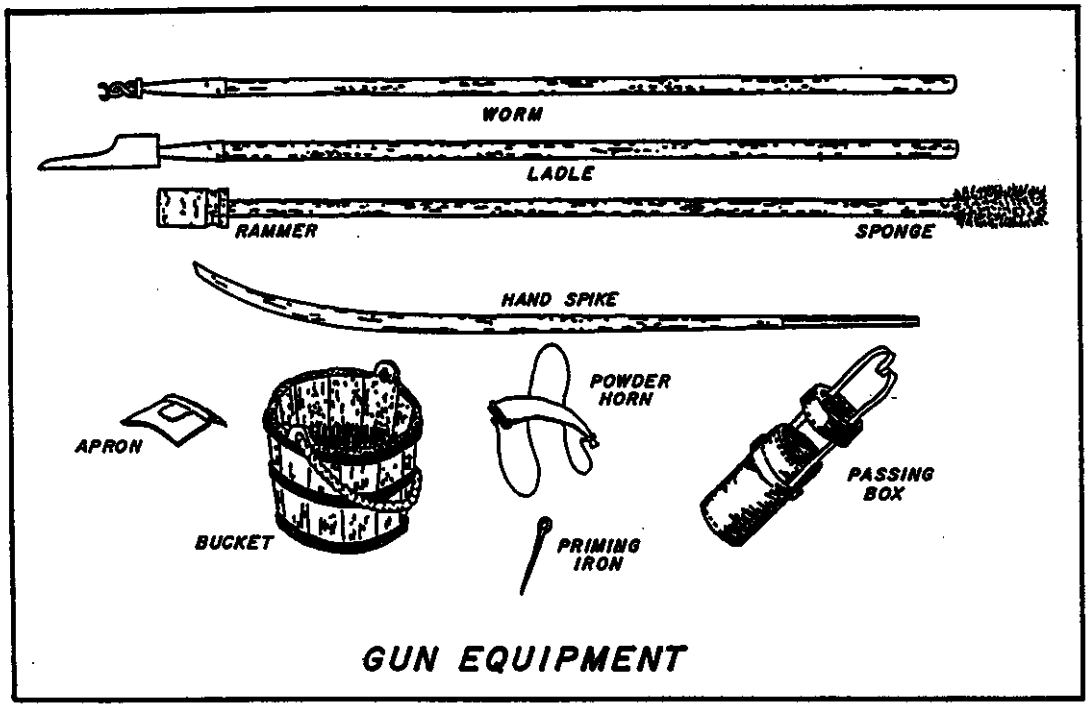


Figure 20. Gun equipment.

Smith was also responsible for the collection of small arms needed for hand-to-hand combat should the Surprise come alongside an enemy warship. Besides several stands of muskets and bayonets, Smith maintained a variety of lethal edged weapons, such as cutlasses,

boarding axes, and spear-tipped boarding pikes. Most of the higher-ranking officers were armed with pistols. Cartridge boxes, shoulder belts, flints, and musket cartridges rounded out the Gunner's small arms stores.

The outfitting of the Surprise in the Otter Creek was at last completed on August 25th. Two months after William Jones had declared his unwillingness to build her, the 20-gun brig Surprise was nearly ready to take her place in the U.S. Navy's Lake Champlain squadron.

The brig was still perilously short of men to work her guns, and for this reason was incapable of fighting. Sailors continued to arrive from recruiting stations, however, and there was at least a possibility that the vessel would be sufficiently manned before the Royal Navy sortied from the Richelieu.

Unfortunately for Henley, some of the brig's sailors, quickly tiring of Navy life, slipped over the side of the vessel and ran. Seaman John Lewis and Ordinary Seaman James Seitch deserted at Vergennes on August 20th, only three days after their arrival. The next day, Seaman John Brown followed the example of Lewis and Seitch and also took to his heels. On August 25th Seaman Horace Lane took advantage of the confusion attendant to the Surprise's fitting out, and he too disappeared.[7] The sooner Henley could join the squadron, the better off he would be as far as desertion was concerned, since it was difficult for

disgruntled sailors to leave the vessel when she was anchored in the middle of the lake.

The Surprise left the Otter Creek for the first (and last) time on August 26th:

Friday August 26th	All these 24 hours light variable wind and pleasant weather at Daylight cast off the mooreing and perceeded down the Mouth of the Otter Creek and received some ballast then made sail and perceeded out on the Lake Bent the Top Gallant sails and crossed the Yards and stood down the Lake.

Adam Brown and his shipwrights, their shipbuilding marathon at last completed, gathered up their tools and started back to New York. Before leaving, Brown presented the Monkton Iron Works with a promissory note for $993.30 to cover the iron taken for the brig's construction. The note was drawn on the U.S. Government, and must have caused some concern among the owners of the Iron Works, since the U.S. Treasury was known to be nearly bankrupted by the war.[8] In addition to its debts to the Iron Works, the Government also owed approximately $40,000 for the labor and materials used to build the Surprise, and thousands more for the expenses incurred during the transportation of the guns and stores from New York City to Vergennes. As Secretary Jones had gloomily foreseen, Macdonough's extra warship had cost the citizens of the United States a great deal of money. Whether or not this vessel was an unnecessary luxury remained to be seen.

The winds were favorable for the Surprise's maiden voyage, and she made swift progress down the lake to the Canadian border, where the American squadron continued to lay at anchor:

Saturday August 27th	First part moderate breezes from the southward and fair weather Steering down the Lake all sail set. Middle and latter part fresh breezes and cloudy. At about half past 9 a.m. came to anchor off Chazy near the Commodores Ship.

Macdonough was no doubt delighted as well as relieved to have his squadron reinforced by this smart new brig and her battery of twenty heavy guns. The squadron was now capable of meeting the British upon nearly equal terms. All the same, Macdonough probably had some doubts about the brig's commander when he was apprised of Henley's flippant choice of name for the vessel. The Master Commandant from the Norfolk station had presumptuously selected a name for the warship without first consulting with Macdonough.

If Macdonough felt any resentment about the name Surprise, he seems to have concealed it during his first meeting with Henley, when the latter reported the successful outfitting of the Surprise. Henley also detailed the serious shortage of men that prevented the brig from being considered battle-ready. In return, Macdonough briefed him on the military situation and the signals used by the squadron.

Macdonough composed a letter to Jones that evening, reporting the arrival of the brig, and requesting extra officers. He temporarily side-stepped the question of the brig's name:

> Sir,
>
> I have the honor to aquaint you of the arrival, at the squadron, of the U.S. Brig lately built at Vergennes, under the command of Capt. Robert Henley.
>
> From late advises from the different Rendezvous I may expect men on in the course of a fortnight to man the vessel; none of her officers have yet arrived. I suppose they are, however, on the way.
>
> Subjoined is a statement of our forces, and that of the enemy's, as correctly as I have been able to ascertain it, & which may be relied upon as very correct.

Our Force		Enemy Force	
Ship Saragota	26 guns	Ship -------guns	30 or over
Brig	20 guns	Brig Linnet	18
Schr Ticonderoga	17 "	Sloop Shannon	11
Sloops Preble	7 "	Sloop Broke	11
Montgomery	6 "	Seven Gallies each 2 guns	14
Six Gallies each 2 guns	12 "	Ten Gallies each 1 gun	10
Four Gunboats each 1 gun	4 "		
Total	92 guns	Total	94 guns[9]

Macdonough's hopes for reinforcements of experienced officers were in vain; Jones had decided not to transfer any Navy personnel from the coast, as he believed that Lake Champlain had already taken more than its quota of men and equipment. The Secretary of the Navy's short-sighted policy threatened the loss of everything the Government had already invested in the defense of the region.

On the morning following her arrival, the Surprise weighed anchor, sailed into the squadron's line of battle, and let go her best bower anchor with a spring line (figure 21). The spring line was an elementary precaution, allowing Henley to turn his anchored vessel to face an attack from any quarter. Macdonough's squadron would continue its watch of the border for the next four days, until the 31st of August.

The short-handed crew of the Surprise was kept busily employed preparing the brig for action, drilling at the guns, and off-loading the shot and bosuns stores taken aboard at Crittenden landing for the other vessels in the squadron. In return, some of the deficiencies in the Surprise's stores were corrected by borrowing equipment from the other warships. The re-shuffling of material must have created a considerable amount of boat traffic between the anchored vessels.

Henley needed a capable first lieutenant to assist him in his duties, and he obtained upon request the second lieutenant of the Saratoga, Joseph Smith. Smith found that his services were much needed on the brig:

> The [Surprise] required a good deal of work, to get her in good fighting trim, as she was a new vessel, mounting 20 guns. I worked hard, fitting rigging and sails, working early and late, - frequently with palm and needle myself -, until she was tolerably well fitted out.[10] But we were very short of men to work the guns.

Figure 21.

The Eagle and the Ticonderoga at anchor.

The scarcity of men for the brig constituted an extremely hazardous situation, for the British threatened to emerge from the Richelieu at any time, and when that occurred, the Surprise would be unable to properly defend herself. Smith had a plan to at least partially remedy the situation:

> I got Captain Henley's permission to urge the Commodore to let us have some of the crew of his flagship. [The Commodore] agreed to give me forty men, twenty to be selected by me from volunteers and the other twenty to be selected by his first lieutenant. As almost everyone volunteered, I picked out twenty good men; and, of course, the first lieutenant gave me the twenty he considered least desirable. Still there were not enough to work the guns properly.[11]

The military situation on Lake Champlain was deteriorating rapidly for the United States. Despite the well-publicized build-up of British troops just north of the border, in mid August the Army high command ordered General Izard to take 4,000 of his best troops and march westward to join the fighting near the Canadian frontier at the Niagara River. Izard protested, but to no avail, and in late August the greater part of the U.S. Army in the Champlain Valley was withdrawn at the precise moment when it was most needed. Responsibility for the defense of northern New York fell to General Alexander Macomb, who could count among his meager forces only 3,000 regulars and militia.[12] These few troops and Macdonough's undermanned squadron were the sole defense against the imminent British invasion. Macomb concentrated his small

force in Plattsburg and set the troops to completing earthwork fortifications just south of town.

Portions of the British Army crossed the border on August 31st, and were followed on the next day by the bulk of the force, 10,000 veteran troops under the command of the governor general of Canada, Sir George Prevost. The British land forces had been waiting for the Royal Navy to complete the new frigate before taking the offensive, but the unexpectd withdrawal of Izard and most of the American army left the route to Plattsburgh wide open. Prevost began a cautious advance without the benefit of naval support, counting on the Royal Navy to catch up with him at Plattsburgh.

The British irruption along the western shore of the lake threatened to leave Macdonough's squadron isolated and exposed to the hazard of shore batteries firing heated shot, and he wisely chose to retreat to a position inside of Plattsburgh Bay. Here the squadron could also lend support to Macomb's defense of the town. Finally, there was a possibility of finding at Plattsburgh more sailors and soldiers to man the Surprise. On the afternoon of August 31st Macdonough gave the order to get underway and proceed southward. Daniel Records noted the event in his log:

Wednesday August 31	First part of these 24 hours moderate breezes from the northward and pleasant weather Latter part variable winds and calms at 4 P.M. weighed Anchor and made

> sail up the Lake sent up the top gallant yards cross'd them and set the top gallant sails steering up the Lake all sail set. At 5 P.M. calm three galleys towing the Brig At 6 P.M. came to with the stream Anchor in eight fathoms of water in company with the Fleet being of the S.W. end of the Isle of Mott [Isle LaMotte].

The row galleys were useful not only for patrol work in shallow water, but were handy for towing the large warships on occasions when the wind was unfavorable. This was frequently the case on Lake Champlain. Duty in the low, exposed gunboats meant exhausting hours at the oars, and the work must have been particularly oppresive when several hundred tons of wooden warship was being towed astern. It is a small wonder that the row galleys were not very popular with their crews.

The squadron could not wait for the wind to change, and the next day continued on to Plattsburgh, still under tow. The Surprise experienced her first casualty while en route:

Thursday Sept 1st	First part of these 24 hours Calms still at Anchor off the S.W. end of the Isle of Mott. Latter part light winds and variable At 20 minutes after the Meridian a preparative Signal was made on board the Commodores Ship At 20 minutes before 1 P.M. a signal was made for getting underway At 15 minutes after 1 P.M. weighed the Anchor and proceeded up the Lake the Gallies a head towing the Wind being ahead and very light At 1/2 past 1 P.M. James Willis Seaman fell from the Main top sail yard on deck and expired 20 minutes before

> 4 P.M. At 9 P.M. came to Anchor with the Stream in Plattsburgh Bay before the village in 8 fathoms water the Cantonment bearing about west and furled sails. This day Lieutenant Joseph Morrison came on board and took his station.

Lieutenant Joseph Morrison was on loan from the 33rd U.S. Infantry Regiment, and would command the contingent of U.S. Army soldiers on board the Surprise. The troops themselves would not be taken on until the 3rd of September.

Robert Henley continued to treat the Surprise as a command semi-independent of Macdonough, and maintained his separate correspondence with Secretary of the Navy Jones. On the first of September he sent a copy of the brig's muster roll to Jones, noting a severe deficiency in officers and men, although the vessel was otherwise in good fighting order.[13]

Macdonough apprised Jones of the squadron's withdrawal from the lower end of the lake to Plattsburgh, and of the probable intentions of the British:

> I have the honor to acquaint you with the arrival of the squadron at [Plattsburgh]. As an attack on this place is threatened by a land movement of the enemy and their fleet evincing no immediate signs of coming out Brig Gen'l Macomb and myself considered movement of our vessels proper and necessary. The enemy say, when their ship is finished, which will be in a few days he will come out, and it is supposed Plattsburgh will be attacked by land + water at the same time, and that their army at Champlain is waiting only for their fleet.[14]

The first few days following the arrival of the squadron in Plattsburgh saw the completion of preparations aboard the Surprise. There were also a number of casualties to be dealt with. On the morning of September 2nd the broken body of Seaman James Willis was taken ashore and buried, a grim reminder of the axiom for sailors working on mast yards: "One hand for yourself and the other for the ship." Four seriously ill sailors were also taken ashore to the Army hospital; their illnesses were not specified in the log book, but they were all probably suffering from "lake fever" the generic term for ailments of the digestive tract that were spread by the consumption of contaminated food and water. The crowded, damp warships made ideal homes for a host of infectious digestive and respiratory diseases, and part of a ship's crew could generally be counted on to be sick at any given time.

Five more men for the brig were recruited from among the convalescents at the hospital, and so the officers of the Surprise were able to make good their losses to sickness and death. That afternoon Macdonough stripped the armed sloop Montgomery of 16 of her complement to further bolster the brig's gun crews. Lieutenant Jarvis Loomis was transferred to Henley's command and became the acting master of the Surprise. Loomis had been the commander of the sloop Eagle during the ill-fated

Richelieu River expedition of the previous year; he returned to the lake after being exchanged from a British prison in May.

On the 3rd of September the Surprise received additional reinforcements of 21 acting marines who were to serve under Army Lieutenant Morrison. The log book reported that a quantity of old boards and canvas were requisitioned from Plattsburgh and taken aboard the brig; their purpose was not specified, but they were probably intended for repairing damage by enemy shot.

During the afternoon of September 4th Henley exercised his men at the sails by taking the brig out of the bay and into the open lake. He had had little opportunity to train the crew in handling the large square sails, and many of the recent arrivals to the brig may never have handled a sail in their lives. The officers were also probably anxious to test the sailing qualities of the Surprise before the upcoming battle with the British. The shallow, beamy Surprise no doubt handled in a manner far different from the ocean-going ships that Henley and his officers were accustomed to sailing. Unfortunately, Daniel Records did not record his opinion of the brig's sailing characteristics, although as acting sailing master he must have been keenly interested in her behavior that afternoon. After four hours of practice Surprise returned to Plattsburg Bay and anchored for the evening.

On the afternoon of September 5th, Macdonough ordered his squadron to anchor in a line ahead inside the bay, and at 2 P.M. the Surprise weighed anchor and warped into line, dropping her stream anchor with the precautionary spring cable bent on.

The British Army had been moving slowly but steadily upon Plattsburgh since the first of September, and on the fifth they began approaching the outskirts of the town. Macdonough directed his row galleys to a position along the shore at the northern end of the bay, where one of the roads to Plattsburgh paralleled the side of the lake.

At ten o'clock the next morning a rapidly advancing column of British troops was sighted along the road, and the galleys loosed a fire that checked its progress considerably. Their success was brief, for a short time later the British brought a battery of field artillery into action against the exposed galleys. Macdonough decided it was time to withdraw the boats, but before this could be accomplished, the British artillerymen found the range of the crowded gunboats and swept them with shot. Acting Lieutenant Silas Duncan lost an arm to a round shot and four other seaman were wounded in the artillery duel.[15]

Tuesday the 6th of September was also a significant day for Commander Henley and his brig, for the name of the vessel suddenly and without explanation changed to Macdonough's original choice, Eagle. Henley may have

recognized his faux pas and changed the brig's name to Eagle on his own volition, but from what we know about Henley's character, it seems more likely that the name changed only after a painful conversation between he and the Commodore. Whatever the reason for the switch in names, we can be sure that the touchy Henley considered himself to be somehow dishonored. His later activities suggest that he had acquired a deep and enduring grudge against the commander of the squadron.

Records duly noted the name change in that day's log entry:

Occurrences and Remarks on board
the United States Sloop Of War Eagle
Robert Henley Esqre Commander lying
in Plattsburg Bay on Lake Champlain
The name of the Brig was this day changed to the Eagle

Tuesday Septr 6th	All these 24 hours fresh breezes from the Southward and fair weather At about 8 P.M. weighed Anchor and warped to the southward about half a mile and came to Anchor in eight fathoms of water At about 10 A.M. of this day the Enemy commenced an attack on Plattsburgh the Enemy in large force they succeeded in gaining the Northern part of the village and burned several buildings the Galleys of the fleet assisted to repel the attack the action continuing on shore until the end of these 24 hours

The British Army rapidly overran the village of Plattsburg on the 6th of September and began the investment of Macomb's fortifications to the south. Although clearly possessing superior force, Prevost withheld from a full-scale attack on the American positions. Both Macomb and

Macdonough recognized that he was waiting for the British naval squadron, and that its arrival would signal the commencement of a two-pronged attack on the American ships and land fortifications. The capture of these defenses would swiftly terminate all organized resistance to the British invasion of the Champlain Valley. The dilatory Royal Navy squadron and Prevost's inaction gave the two American commanders the gift of extra time for preparing their positions.

The day after Provost's sacking of Plattsburgh, Macdonough moved his squadron southward in the Bay and formed a north-south oriented line of battle. The Eagle was anchored at the head of the line, about two miles north northeast of Crab Island. Stationed at intervals south of her were the flagship Saratoga, the Ticonderoga and the Preble. The entire line extended one mile. Macdonough positioned the ten row galleys west of the line, where they would be protected by the larger ships, yet capable of bearing their guns on the enemy. Macdonough had each of his large vessels drop a series of anchors with spring lines, thereby allowing them to turn their broadsides in any direction that the enemy might choose to attack from.

By anchoring his ships in selected positions, Macdonough was opting to fight a static battle inside of Plattsburgh Bay. In doing so, he eliminated the uncertainties and complicated maneuvers attendent to a

naval action fought while under sail, and, simultaneously, he guaranteed that all of his vessels were in a position to fully participate in the upcoming battle. Macdonough may have based his decision to thus array his ships upon the previous year's battle at Lake Erie. In that action, Commodore Perry led his flagship Lawrence into the midst of the British squadron while the rest of his vessels lagged behind. The Lawrence was cut to pieces, and it was only by extraordinarily good luck that Perry survived to bring the rest of his squadron into battle. At Plattsburgh Bay, only the British would have to concern themselves with sailing conditions, while the American crews would be free to concentrate on their gunnery.

On September 7th, the Eagle's resourceful first lieutenant Joseph Smith obtained from the Army yet another large draft of men for the brig. Smith later recalled:

> A few days before the fight, I got permission to go on shore to see if I could get any of our soldiers to help us out. The Commodore gave me a note to General Macomb, commanding our army; but Macomb would not let me have any men, saying he had not enough soldiers to defend the place and he was expecting an attack at almost any time.
>
> "Well, General," said I, "haven't you got a lot of prisoners that you would like to be rid of?"
>
> "Yes, indeed," he said, "you may have all my prisoners, if you want them", and he gave me a note to the officer in charge.
>
> These prisoners were soldiers who were undergoing punishment for various offenses. They were all at work with ball and chain, digging trenches in a kind of red loam. They were sent for, and came in with their faces and cloths - what few cloths they had - covered with red dirt. I told them I had come to take them to the Eagle to fight.

> The prisoners were delighted at the prospect; so I had their irons knocked off and marched them down to landing. Although I had a good sized boat, it took two trips to get them aboard the Eagle. I think there were about forty of them. They were then scrubbed, had their hair cut and their beards trimmed, and their dirty old cloths exchanged for pursers clothing.
>
> I stationed them at the guns, and drilled them morning and night until the fight came off.[16]

Reinforced by the rough by serviceable gang of petty thieves, deserters, and other sundry convicts, the Eagle was at last approaching a state of complete readiness for combat. Macdonough in particular must have been pleased to observe how his persistence, combined with the legendary celerity and skill of the Brown brothers, had resulted in this vital addition to his squadron. The Eagle insured that the U.S. squadron would fight the British on nearly equal terms when the two navies met in Plattsburg Bay.

The British were delighted to learn of Macdonough's dearth of sailors, and the unusual recruiting measures taken to correct the problem. Prevost wrote Captain George Downie, commander of the Royal Navy squadron, on the 9th of September:

> I am happy to inform you that I find from Deserters who have come over from the Enemy that the American Fleet is insufficiently manned, and that a few day ago, after the arrival of the New Brig they sent on shore for the Prisoners of all descriptions in charge of the Provost to make up a Crew for that Vessel.[17]

The Royal Navy, in turn, was experiencing some troubles of its own. The entire Lake Champlain squadron had spent a frustrating summer bottled up inside the

Richelieu River while waiting for the frigate to be completed. Deliveries of crucial building materials from Vermont and New York had been consistently thwarted by Macdonough's vigilant gunboats, and most other essential naval supplies in Canada were reserved for the unrestrained shipbuilding race on Lake Ontario. The frames for two 18-gun brigs shipped from England that spring were found to have too deep a draft for Lake Champlain, and were therefore useless as reinforcements for the British squadron.

To compound these annoyances and setbacks, Sir George Prevost and his huge army had been waiting near the border since midsummer, reluctant to descend upon the Champlain Valley without the support of the Royal Navy. Prevost saw the autumn rapidly approaching, and with it the end of the best season for campaigning. He urged the Navy officers at Isle aux Noix to complete the frigate with the utmost haste, and then to seek out Macdonough's squadron and destroy it.

It was not until August 25th that the long-awaited frigate of 36 guns, the Confiance, finally slid down the ways at Isle aux Noix. Outfitting the frigate required more time, and men and equipment could be found only in small quantities. To further compound the Royal Navy's difficulties, there was a last-minute change in commanders. The Captain for the frigate, and the new commander of the

squadron, Captain George Downie, arrived at Isle aux Noix on September 1st, as Prevost was commencing the invasion of New York. Downie replaced Captain Peter Fisher, who in June had replaced Captain Daniel Pring as commander on Lake Champlain; Fisher and Pring were considered too inexperienced to command a vessel the size of Confiance. Downie was a brave and intelligent officer, but he was totally unfamiliar with his warships and conditions on the lake, and the hectic pace of events gave him little time to learn much about either.

Despite the multitude of problems that beset him, Downie succeeded in emerging from the Richelieu on September 8th, but his squadron was forced to pause at Isle LaMotte while carpenters labored to finish the Confiance. The delay also proved to be an opportune time to familiarize the frigate's crew with their guns, but it was hardly long enough to mold them into teams that were truly proficient at their work. Relations between Downie and Prevost in the meantime chilled to a low point, as the latter sent a continuous stream of messages communicating his impatience. On September 9th Prevost wrote:

> I need not dwell with you on the Evils resulting to both Services from delay, as I am well convinced you have done everything that was in your power to accelerate the Armament and Equipment of your Squadron, and I am also satisfied nothing will prevent it coming off Plattsburg, the moment it is practicable.[18]

The U.S. Navy squadron continued to wait in a line inside of the Bay, anticipating the arrival of its foe. One of the Eagle's officers, probably the tireless Joseph Smith, found at this late hour a few more reinforcements for the brig. The new additions to the gun crews consisted of half a dozen of the Army's band musicians, one of whom insisted on bringing his wife aboard with him.

On the evening of September 10th, Daniel Records logged the day's activities succinctly, writing: "the Crew employed in necessary preparations." On the land and on the lake, all of the combatants waited only for the arrival of the British squadron to begin the struggle for the Champlain Valley. The next day, the 11th of September, would be an anniversary of sorts for the Eagle, since it was exactly one month after the date of her launching.

CHAPTER V

"A RAKING AND MOST DESTRUCTIVE FIRE"

The first warning that the long over-due naval engagement was about to begin came at five o'clock in the morning of Sunday, September 11th. The sun, tinting the eastern horizon and dimly illuminating the Champlain Valley, revealed to Midshipman William Boden of the Ticonderoga an impressive but not unexpected sight. Boden, aboard one of the U.S. Navy's picket boats, observed a procession of warships bearing up the lake, their white canvas sails filled by a steady breeze from the north.[1] The tardy British naval squadron was at last ready to contest control of the lake.

Boden appears to have loitered for a time before informing the squadron of his discovery, since, according to the Eagle's log, it was two hours later, at seven a.m., when the guard boats signalled the appearance of the British. The Eagle beat to quarters with the other warships of the U.S. squadron. The gun crews assembled around their long guns and carronades, clearing tackle, ramming powder and shot into the guns, and running the muzzles out of the ports. Powder boys fetched round, grape and cannister shot from the shot lockers at the foot of the mainmast and placed the ammunition in garlands alongside the guns. Boarding axes, cutlasses, and pikes

were distributed around the deck, close at hand for boarding or repelling borders.

Below the main deck, gunners in the magazine stacked dozens of flannel powder cartridges, preparing them for swift distribution to the powder boys. Nearby, in the area designated for receiving the wounded, United States Army surgeon Isaac Stoddard unpacked his crude amputating instruments and prepared to deal with an influx of maimed bodies. Unlike gunners and surgeons on most ocean-going warships, the men working in the hold of the Eagle would be as vulnerable to round shot as the gun crews a bove them; the shallow draft of the brig put much of her lower deck above the waterline.

Even with a new and inexperienced crew, clearing the Eagle for action probably required only a few minutes. After putting their vessel in fighting order, Commander Henley and his men went back to waiting, with the rest of the U.S. squadron and the land armies, for the arrival of the British ships.

As the Royal Navy squadron drew near Plattsburgh Bay, the frigate Confiance began firing her cannon at regular intervals. This scaling of the guns was the pre-arranged signal to the waiting British Army, indicating that the joint attack by land and water was about to begin. The first view the two squadrons had of one another were mast tops, showing above the intervening land of Cumberland

Head. Captain Downie, aboard the flagship Confiance, ordered his ships to heave-to before rounding the point, to permit the off-loading of 25 carpenters still on board the frigate. Downie also disembarked from the Confiance and had himself rowed out in her gig to observe Macdonough's line of battle inside the bay.[2]

After inspecting the size and position of the U.S. Navy vessels, Downie settled on a plan of attack and returned to his flagship to issue orders to his officers (figure 22). The Eagle, at the van of the American line, was to be attacked by the brig Linnet, Captain Pring, and the sloop Chub (ex-Shannon), Lieutenant McGhie. These two vessels were to sail past the American brig, cross her bow, and anchor; from this nearly invulnerable position they could rake the Eagle's deck from stem to stern, destroying her crew and guns. The Confiance was to follow closely behind the Linnet and Chub until she, too, was above the Eagle's bow. The frigate would then come sharply about and - yardarm to yardarm with the American brig - fire a single broadside from guns that were double-shotted and topped off with a tin of anti-personnel cannister shot. This treatment was certain to transform the Eagle into a splintered and utterly disabled wreck.

After incapaciting the Eagle, the Confiance was to turn hard to starboard, cross the Saratoga's bow,

anchor, and fire her port broadside down the length of the American flagship's deck until Macdonough was forced to strike his colors.

The 13 gunboats of the British squadron, under the command of Lieutenant Raynham, were to advance upon the Ticonderoga under oars, fire their guns once, and then board the American schooner "with the greatest expedition."[3]

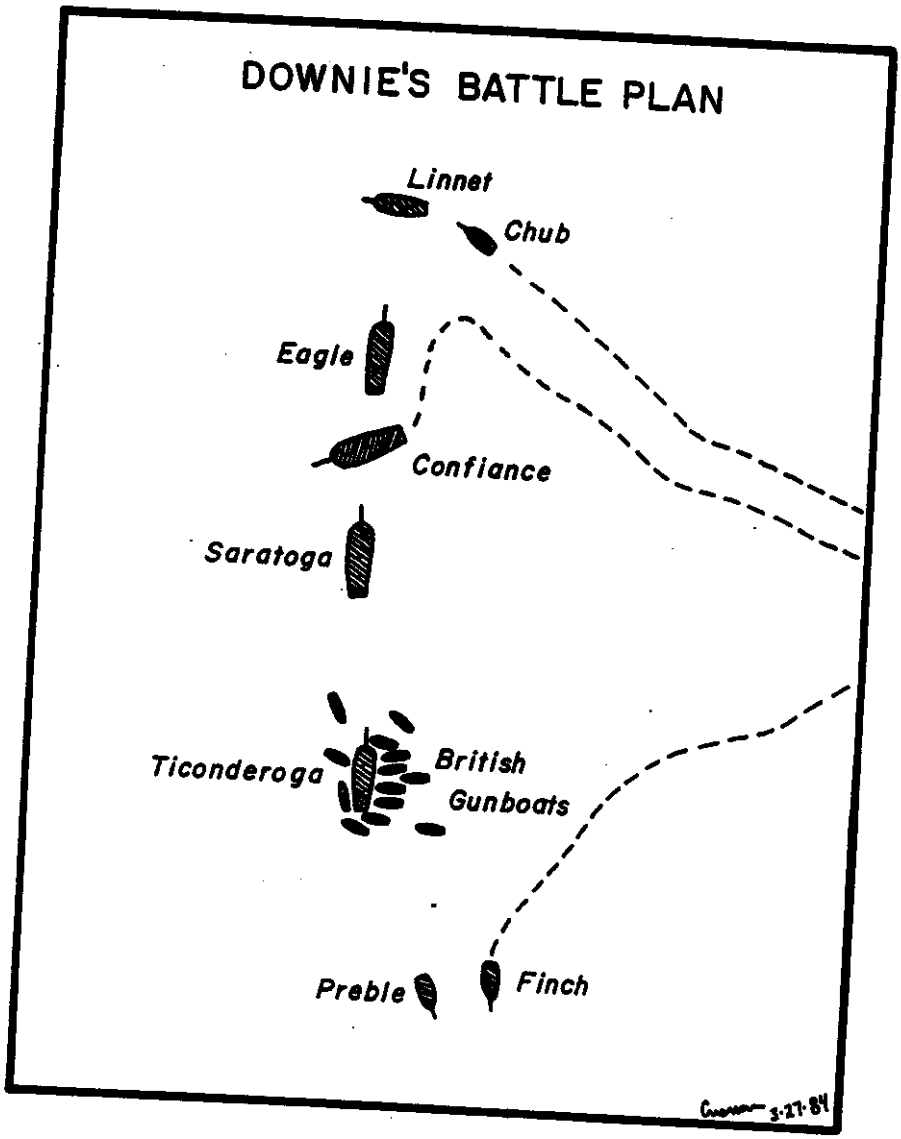


Figure 22. Downie's battle plan.

The sloop Finch (ex-Broke), Lieutenant Hicks, was to support this endeavor by providing the gunboats with covering fire. After the Ticonderoga had been carried by the gunboat flotilla, the Finch was to proceed with an attack upon the American sloop Preble, anchored at the southern end of the United States Navy's line of battle.

This, then, was Captain George Downie's plan; a swift, decisive assault upon Macdonough's squadron, an attack that would leave the American officers and sailors too dazed and confused to effectively resist. So confident was Downie in the invincibility of the British ships and sailors, that he publicly declared prior to the battle that he would be aboard Macdonough's flagship within 30 minutes of the first fire.[4]

There were several major flaws in Downie's plan of battle. He failed to understand Macdonough's primary reason for anchoring inside the bay: the prevailing wind was from the north, almost directly against the British line of attack. Not only were the intricate maneuvers envisioned by Downie impractical given the wind conditions, they would give the anchored American warships ample opportunity to rake the advancing British squadron.

Perhaps because they were inconspicuous behind the anchored American ships, or perhaps because he had no warships to spare, Downie made no provisions to deal with

the ten row galleys of Macdonough's squadron. The row galleys were a powerful, highly mobile force, with the combined fire of one of the Eagle's broadsides.

Downie must have been aware that the American squadron carried a greater number of heavy-caliber, short-ranged carronades than his own, but he did not choose to stand out of range of these guns and batter Macdonough's ships to pieces with his superior number of smaller-caliber, longer-ranged guns. Downie may have felt that the gunnery skills of his crew were not adequate for long-range shooting, but by sailing into the bay in a head-on, point-blank attack, he was fighting the battle on Macdonough's terms and not his own.

The British rounded the point of Cumberland Head at nine o'clock in the morning and stood in towards their adversaries in a "line-abreast" formation. The same north wind that had aided the British ships in advancing up the lake was now blowing in from their starboard bows, and the progress of the British squadron, as it entered the bay, became slower and more uncertain. Officers in both of the squadrons had been cautioned to hold their fire until they could be sure of hitting the enemy, and thus the final few moments before the battle were relatively quiet. On the deck of the Saratoga, Macdonough took advantage of this lull to lead his officers in a moment of prayer. To inspire all of the squadron's sailors, and to remind them

of what they were fighting for, the Commodore had a signal raised to the Saratoga's peak, containing a message reminiscent of Nelson's before Trafalgar: "Impressed seamen call on every man to do his duty."[5]

Henley, undoubtedly anxious to be known as the officer who initiated the battle, opened the action prematurely shortly after nine o'clock. The four 18-pounder long guns on the Eagle's starboard side fired upon the advancing British, but the shot all splashed into the water far short of their targets.[6]

The Linnet likewise loosed an ineffective broadside as she sailed past the Saratoga. According to popular legend, one of the 12-pounder shot from the British brig did reach the Saratoga's deck, where it destroyed a chicken coop and released a gamecock. The startled bird flapped across the deck, hopped up on a carronade, and began crowing. This was viewed by the apprehensive gun crews as a favorable omen, and they joined the fowl in a loud cheer.[7] Shortly after this, the Saratoga opened fire on the Confiance with her long 24-pounders. Macdonough himself sighted one of the guns and sent a round shot crashing the length of the British frigate's crowded deck.

"At 9:40 A.M.," Daniel Records later reported, "the Action became general" (figure 23). The Linnet obtained the position north of the American line that Downie had

ordered, the only British warship to do so. Here she anchored and commenced what Henley later described as "A raking and most destructive fire" on the bow of the Eagle.[8] Henley, perceiving the Confiance to be the greatest threat to the American squadron, ordered only the two forwardmost

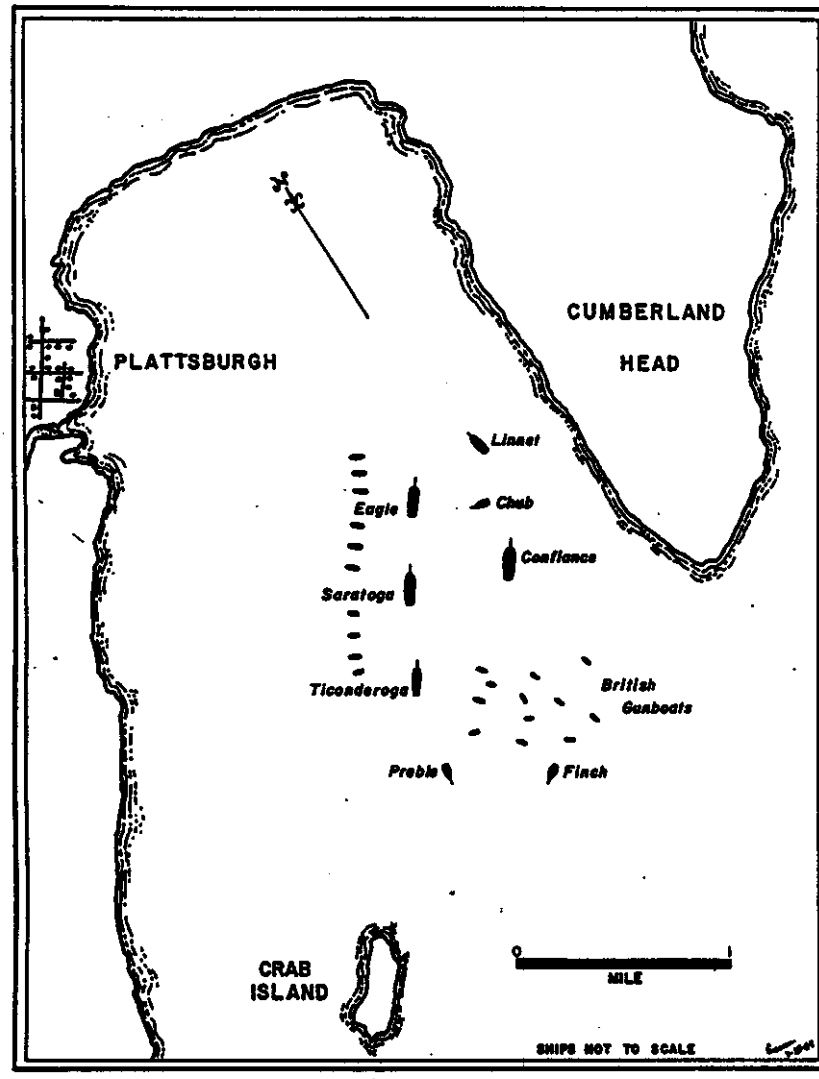


Figure 23. The Battle of Plattsburgh Bay, 9:40 a.m.

18-pounders to return the Linnet's fire, and he concentrated the remainder of the Eagle's starboard broadside on the British frigate (figure 24).

The Confiance encountered severe difficulties from the start of the action. Not long after he entered the bay, Downie was forced to drop his optimistic plan of crossing the Saratoga's bow. The combination of uncooperative winds and heavy, raking gunfire from the American squadron induced him to anchor parallel to Macdonough's flagship, at a distance of approximately 300 yards. The cable and spring for the Confiance's small bower anchor were immediately shot away, and when the British frigate dropped her best bower anchor, the spring for this was quickly cut in two. Once in position, the Confiance gave the Saratoga a murderous broadside from her double-shotted guns, shaking the sloop-of-war from stem to stern and disabling 40 men, or nearly one-fifth of her crew. The stunned American sailors rallied after a few minutes, returned to their guns, and the two flagships began to hammer steadily away at one another.

The fire of six 32-pounder carronades and two 18-pounder long guns from the Eagle must have appreciably worsened conditions on the Confiance. Henley later claimed that all of Confiance's guns were leveled on his brig "for a great length of time after the action commenced."[9] This statement was patently untrue, although

the Eagle did receive some shot from the forwardmost guns of the British frigate.

The small British sloop Chub, detailed to assist the Linnet in attacking the Eagle, struck her colors 15 minutes after the battle commenced, a victim of the Eagle's heavy guns. The Chub failed to cross the Eagle's bow, and instead attempted to obtain a raking position under her stern. Henley observed the sloops' maneuvers, correctly interpreted her intentions, and briefly diverted the whole of his broadside to deal with the menance.

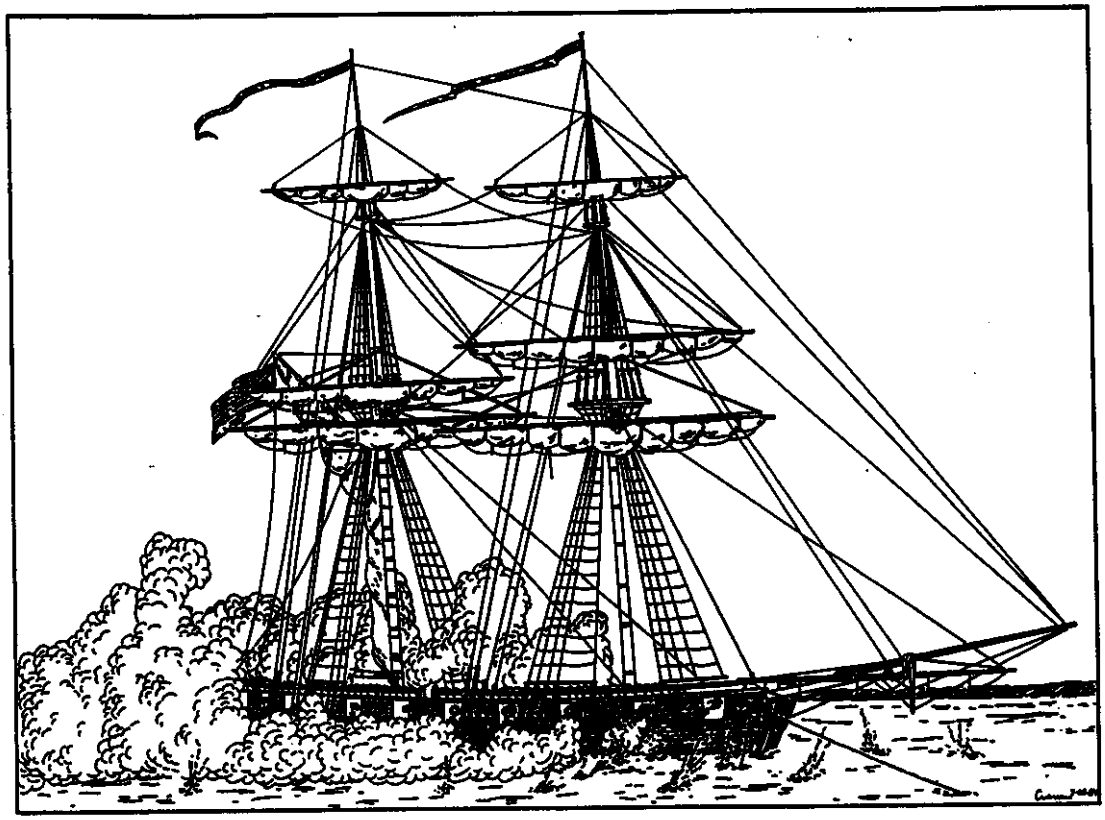


Figure 24. The Eagle in action.

The Chub was merely an armed merchant vessel, and nothing in her construction was designed to withstand the impact of 32-pound iron shot. Pieces of the sloop flew in all directions as broadside after broadside impacted on her frail sides. Her sails, spars, and rigging were cut to pieces, her hull was shattered by 34 round shot, and over half her complement were wounded or killed. The commander of the Chub, Lieutenant James McGhie, lost two of his fingertips to the Eagle's second broadside, and was carried below after he received a nasty splinter wound on the thigh. Command of the disintegrating sloop devolved upon young Midshipman James Bodell, who attempted to move the vessel to a safer position by means of sweeps, but the blades of these were shot away as fast as they could be run out of the ports. Terrified by the shot and splinters howling around their heads, all but six of the crew deserted their stations and sought shelter below deck. Lieutenant James McGhie sent for Bodell and ordered him to surrender. The Chub's flag came down and, battered and unattended, the sloop drifted south between the two flagships, causing a momentary lull in the Confiance's fire. One of the American gunboats later took possession of the Chub and towed her out of the action.

The fight continued uninterrupted for 45 minues after the Chub's demise. At the southern end of the American line of battle, the Ticonderoga held fast against the 13

British gunboats. Downie's bold plan of boarding the American schooner with the gunboats fizzled early in the action, when Lieutenant Raynham, the commander of the gunboat flotilla, lost his nerve and fled, although not before ordering the rest of the flotilla to proceed with the attack. Four of the gunboats did attempt to board the Ticonderoga, but they stood little chance of success against the schooner's concentrated fire. After sustaining severe damage, the gunboats abandoned their enterprise and retreated.

The British sloop Finch failed to assist the gunboats in their boarding attempt. She briefly exchanged fire with the Ticonderoga and the Preble, causing the latter to cut her cable and seek shelter inshore. The Finch then continued southward, out of the battle, and ran solidly aground upon a rocky shoal off Crab Island. The British attack on the southern end of the American line was a complete failure.

The Saratoga and Eagle continued firing into the Confiance, aided by the six row galleys supporting the northern end of the American line. The carnage aboard the British frigate was appalling, as shot and splinters did their deadly work among the close-packed gun crews. The dead piled upon on the deck until they began to impede the operation of the guns, making it necessary to jettison some of them overboard. Early in the fighting Captain

Downie had the misfortune to be standing behind a cannon when it was struck on the muzzle by a shot. The heavy barrel jumped off its carriage and landed upon him, crushing him to death.

Commander Henley and his officers kept tight control over the Eagle's unusual crew of sailors, soldiers, musicians, and criminals, and they labored faithfully over their guns, despite choking clouds of powder smoke and constant volleys of round and grape shot from the Confiance and Linnet. Forty of the brig's crew were struck by shot, or by splinters from their own ship sent flying by glancing hits. The dead were dragged out of the way of the guns, while the seriously wounded were carried below to be attended to by Isaac Stoddard and his surgical instruments. One of those killed at the guns was the army musician who had brought his wife aboard. Lieutenant Smith had stationed the woman near the magazine prior to the battle, but she later left this questionable refuge below the deck and took the place of a powder boy who had been killed. While carrying cartridges to the guns she had to step over a number of dead, among whom she recognized her husband.[10]

The officers of the Eagle led charmed lives as they strode among the guns and directed their loading and firing, for none of them were killed, although several did receive minor injuries. First Lieutenant Joseph Smith was wounded not long after the action began: "As our springs

had been shot away, we could not use them as we intended, so I sent a midshipman in a boat with a kedge anchor and line, hoping to wind the ship. While superintending this work, I was knocked off a gun on which I was standing, by a shot that tore my coat badly. My head struck the deck, and I was carried below senseless; but as soon as I came to, I went on the deck again." [11]

Acting Lieutenant Spencer was wounded in the face, probably by a splinter, but he also returned to the deck before the engagement terminated. Every officer was needed to supervise the gun crews and Midshipman William Chamberlain - despite his debilitating lung condition - managed to maintain his station on deck for the duration of the battle.

At 10:30 the Eagle's starboard anchor spring was shot away, and the wind turned the vessel on her anchor cable until her guns could no longer bear on the British vessels. As a number of her starboard side guns were disabled, Henley elected to make use of this hazardous situation to bring his portside guns into action.

At this time Henley made a decision that would cement for all time the enmity between he and Macdonough, and would cast a shadow of doubt over the Eagle's performance in the Battle of Plattsburgh Bay. Instead of repositioning his brig at her station north of the Saratoga - as Macdonough believed he should have been capable of doing -

Henley chose to move the Eagle to a location south of the flagship. This was an advantageous place for the Eagle, since here she would be rid of the Linnet's raking fusillade, but by the same measure it would shift to the Saratoga the full force of the Linnet's broadside. Intentionally or unintentionally, Henley was, in effect, going to use Macdonough's ship as a protective shield.

Henley ordered the Eagle's bow anchor cable cut, while retaining the portside anchor spring. The north wind slowly turned the vessel about in a half circle, until her bow pointed southward. The port side guns now faced the Confiance and with some skillful anchoring, the Eagle might have remained in this position and resumed firing. Instead, Henley ordered the remaining anchor spring cut and the top sails unfurled. The brig gathered headway and sailed past the Saratoga's unengaged port side (figure 25).

To the British officers and sailors on the Confiance and Linnet, it appeared that the Eagle was permanently retiring from battle, and for a brief moment they were considerably cheered. Macdonough, on the other hand, was quite distressed when the unanticipated move suddenly left his ship and men the focus of British gunfire. The Linnet immediately turned her 12-pounder cannon on the Saratoga's unprotected bow, and began raking the beleaguered American flagship. The Eagle, meanwhile, anchored off the Saratoga's

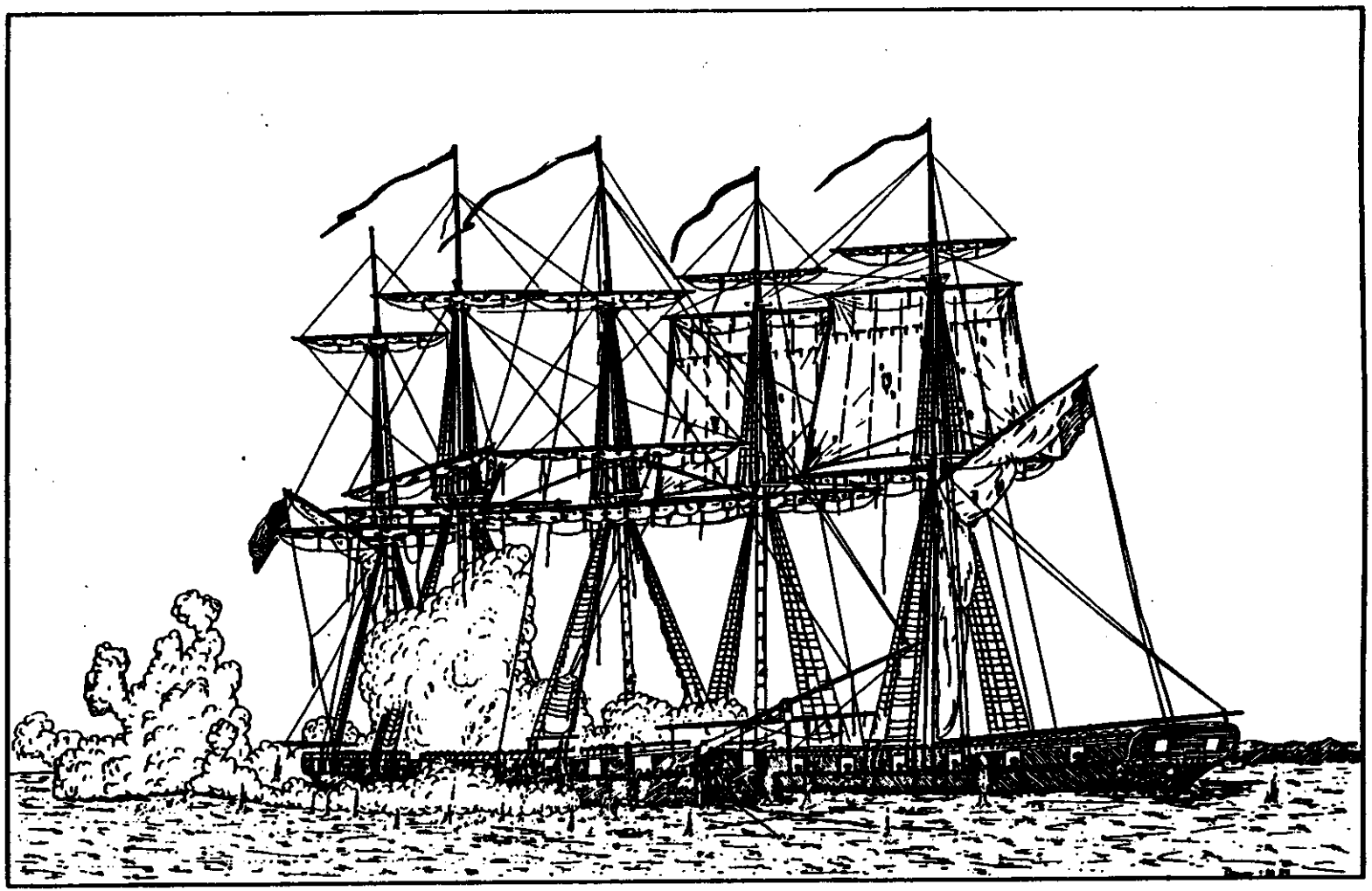


Figure 25. The Eagle shifting her position to south of the Saratoga.

stern and commenced cannonading with her intact portside battery. Neither of the two large British vessels could bear any guns on the American brig, while she could sustain a withering fire on the Confiance's stern.[12]

Not long after the Eagle shifted her position, the battle neared its conclusion, for the flagships of the two squadrons had pounded each other into wrecks. The Confiance was left with only four operable guns on her engaged port side, and these could scarcely be moved over the torn up deck. The Saratoga's entire starboard battery had likewise been rendered useless. To bring his portside guns into action, Macdonough made use of the pre-arranged anchors and spring lines, ordering his crew to haul away on the springs. The ship slowly swung around until her intact port battery bore on the Confiance, and the gun crews re-opened a devastating fire on the British frigate.

The crew of the Confiance bent a spring line on their remaining anchor cable, and attempted to emulate the Saratoga's move. They succeeded only in turning their frigate head-on to the American flagship, where she got stuck and refused to move any further. As the Saratoga's shot came crashing down the length of the deck, the surviving sailors and soldiers of the Confiance decided they had experienced enough for one day, and the majority of them abandoned their stations and sought shelter in the

hold. The British frigate was in a desperate situation: half her crew were injured or dead, no guns could be brought to bear on the Saratoga, and the masts were incapable of bearing the strain of a single sail. There were twelve shot holes between wind and water, one of which had sprung a seven-foot length of plank; water was rapidly filling the hold. Worst of all, the two most powerful ships of the American squadron had both winded, and were pounding away with fresh rows of guns. They appeared capable of sustaining the battle far into the afternoon. The surviving officers of the Confiance

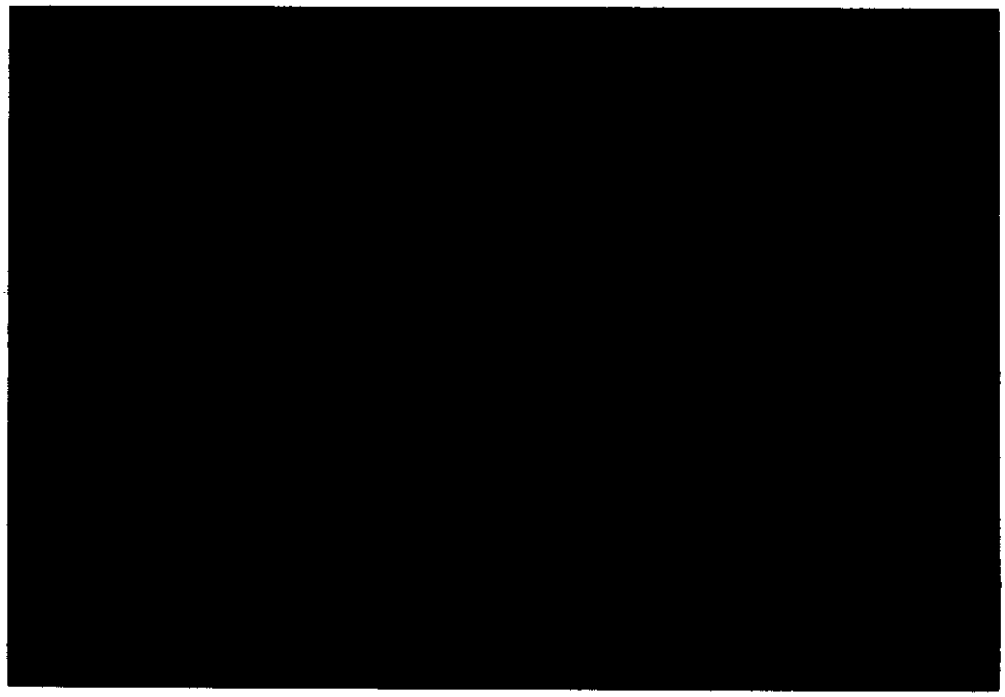


Plate 2. Macdonough's victory.

(From American Naval Broadsides by E.N. Smith
Courtesy of Clarkson N. Potter, Inc., New York)

briefly held council and decided to surrender the vessel, as further resistance seemed futile. Her flag came down shortly after 11 a.m. (plate 2).

Macdonough wasted no time turning the Saratoga's guns on the pesky Linnet, and meeting the annoying fire of her 12-pounders with the sledgehammer blows of 24-, 32-, and 42-pound shot. The two warships waged a brief, very unequal, contest. According to Henley's official report of the action, The Eagle also turned and blasted the British brig, although the intervening bulk of the Saratoga must have interfered somewhat with her fire. Captain Pring of the Linnet held out for a few minutes, hoping the British gunboats would come to his aid and tow his vessel out of the action. The gunboats were reluctant to get involved in any more hazardous duty, and Pring was forced to strike the brig's colors at approximately 11:20 a.m.[13]

The British sloop Finch, aground off Crab Island, observed the general surrender and followed suit, while the 13 gunboats, already well out of the battle, banded together and began rowing back to Canada. Macdonough signalled for the row galleys to pursue them, but soon cancelled this order and instead set the galley crews to work keeping the devastated British ships afloat (figure 26).

The first word of the Navy's triumph was a hastily scribbled message sent to the embattled General Macomb in Plattsburg:

Sir,

Will you if possible send us surgeons, as we are much in want of them. The Almightly has been pleased to grant us victory.

T. Macdonough[14]

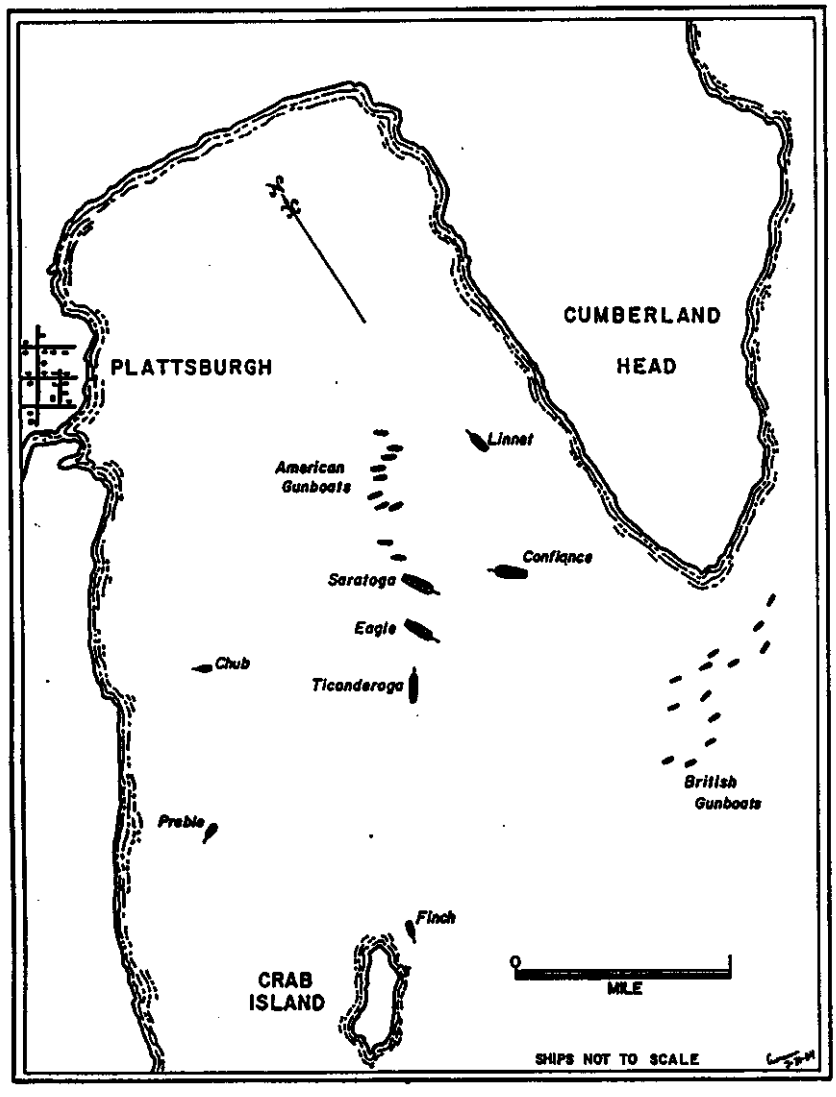


Figure 26. The Battle of Plattsburgh Bay, 11:30 a.m.

Macdonough's confirmation of victory was unnecessary, for the two armies in Plattsburgh had had a nearly unobstructed view of the entire action. Despite his

complaints about being delayed in Plattsburgh for a week, Prevost was not sufficiently prepared to coincide his storming of Macomb's fortifications with Downie's attack, and the fight on the lake had been raging for over an hour when the British troops finally debouched from their positions and began to advance. As they did so, the roar of cannon across the bay lessened and then ceased, the smoke cleared away, and a horrified Prevost viewed the full extent of the British naval debacle.

Instantly demoralized by the threat to his own-open eastern flank - although Macdonough's shredded squadron was not much of a threat - the timorous Prevost immediately cancelled the assault on Macomb's positions, and ordered a retreat to Canada. The great British offensive in the Champlain Valley, begun with such promise less than two weeks earlier, quickly collapsed into a disorderly rout, as the retreating troops abandoned equipment, ammunition, and wounded in their stampede to get safely across the border. In the confusion dozens of British regulars dropped their muskets and deserted to the American side.[15]

For the remainder of the day, the stunned survivors of the naval battle worked to evacuate the worst of the wounded to a crude hospital on Crab Island, stopper the worst of the shot hole, and clear the decks of debris.

In two hours and twenty minutes of point-blank shooting, the two squadrons had inflicted terrible

casualties upon one another. The United States squadron suffered 52 killed and 58 wounded, a total of 110. 170 British soldiers and sailors were counted as casualties, of whom 54 were killed and 116 were injured; the total number of British casualties was probably higher, since many of the dead heaved over the side during the action went uncounted.[16]

The vessels of both squadrons had taken unbelievable damage during the engagement. The Confiance had between 250 and 300 shot holes in her hull, and hundreds more grape shot embedded in her outer planking. In addition, 17 out of her 37 guns were dismounted or otherwise out of commission, her masts and yards were in splinters, her boats were destroyed, and her deck was spattered from end to end with parts of her hapless crew. In short, the new British frigate had been blasted into a shambles. Survivors of the carnage had little time to reflect upon their luck; everyone was kept busy long after the surrender pumping and bailing the hull to keep the wounded in the hold from drowning. The situation was much the same on the Linnet, which had between 30 and 50 shot holes in her lightly-built hull.[17]

In the heat of the battle the inexperienced British gun crews had neglected to re-set the gun-elevating coigns after each shot, and as the battle wore on, the coigns had gradually loosened, allowing most of the British shot to

pass just above the Saratoga and Eagle. There were fewer than 20 whole hammocks on the Saratoga's rails at the end of the action, and the lower rigging, "being nearly all shot away, hung down as though it had been just placed over the mast heads."[18] Because of the poor British gunnery, the hulls of the American warships escaped with considerably less damage than those of the British squadron. The Saratoga received 55 shot holes in her hull, while the Eagle took 39. It was clear that extensive repairs would be necessary before any of the vessels could again set sail on the lake.

That afternoon, Macdonough penned a brief note to Secretary William Jones, sending word of the naval victory to the man who had contributed no small part to its occurrence: "The Almighty has been pleased to grant us a signal victory on Lake Champlain in the capture of one frigate, one brig and two sloops of war of the enemy."[19] Against all odds, the northern frontier at Lake Champlain had withstood the British invasion.

CHAPTER VI

"CERTAIN INACTIVITY"

1814 Monday Septr 12th	These 24 hours variable winds and weather some times fair and sometimes squally with showers of rain still at anchor off the village of Plattsburgh, This day employed in repairing the damage sustained in the action of yesterday the 11th of September and taking care of the wounded prisoners and prizes taken yesterday.

The Eagle's log entry for September 12th described a routine that would continue with little variation until the end of September, as repairs were affected on hulls, masts, and spars, and hundreds of feet of cut rigging was replaced.

Funeral ceremonies for the fallen took place on the 13th, when dead British and American officers were taken ashore and buried with considerable ceremony in a Plattsburgh cemetery. Deceased soldiers and sailors from both squadrons were interred with considerably less fanfare, being consigned to the ground en masse in long trenches dug on Crab Island. Additions were made to the Crab Island cemetery for the next few days, as many of the wounded succumbed to shock or infection. One of these was Purnall Boice, an ordinary seaman from the Eagle, who died of his wounds three days after the action. Bodies continued to surface in the lake, and as late as ten days after the fight the crew of the Eagle retrieved and buried the decomposed remains of a sailor.

Also requiring attention were the more than 400 prisoners taken from the captured British ships. On the 15th of September Captain Daniel Pring of the Linnet signed his parole and was sent back to Isle aux Noix, along with 47 severely wounded British prisoners. The remaining prisoners were shipped south to Whitehall and from there marched to prisons, where they were held until the conclusion of the war.

Battle reports were composed by the U.S. Navy commanders the day after the action, acknowledging the officers and sailors who distinguished themselves, and listing the damage to their respective vessels. Henley submitted a brief report to Macdonough, as a cover letter for a longer missive. Perhaps in an effort to forestall criticism of his shift of position in battle, Henley emphasized the extent of damage to the Eagle:

> United States' Brig Eagle
> Plattsburgh, Sept. 12, 1814
>
> Sir:
>
> I am happy to inform you that all my officers and men acted bravely, and did their duty in the battle yesterday, with the enemy.
> I shall have the pleasure of making a more particular representation of the respective merits of my gallant officers, to the honorable the Sec'y of the Navy.
>
> I have the honor to be,
> Respectfully, Sir,
> Your most obedient servant
> Robert Henley
>
> P.S. We had 39 round shot in our hull (mostly 24 pounders), four in our lower masts, and we were

well peppered with grape. I enclose my boatswain's report.[1]

Henley's complete battle report overflowed with wholesale praise for the Eagle's officers, and, in all, was quite a literary accomplishment:

Sir,

I have the honor to inclose a report of the killed and wounded on board of the brig Eagle under my command in the action of yesterday. And while performing this painful part of my duty, Sir, permit me to proffit [sic] of the occasion in performing a more gratifying task in representing to you for the information of the Secretary of the Navy [to] have, and [illegible] good conduct of my officers and crew, all of whom I am proud to say did their duty, they all performed the part of true Americans.

During the severest shock of the action they continued undaunted and unshaken, nothing could supress their coolness and deliberate firing with which every officer and man performed his respective part. Early in the action I was deprived of the services of that excellent officer Lieut. Joseph Smith who was wounded and carried below, but returned to his duty before the action closed. He went into action in that cool, and deliberate mannèr which marks the truely brave man. The gallant Acting Lieutenant Wm. A. Spencer received a severe wound in the head, and was also carried below, but before the action passed, resumed his station. Acting Sailing Master Daniel Record was slightly wounded but did not leave the deck. Acting Lieut. Jarvis Loomis [,] Midshipmen Chamberlain, Machesney and Tardy behaved with great spirit, in short Sir, every officer and man and much to my satisfaction.

The zealous and able attention of Acting Surgeon Isaac Stoddard to the unfortunate officers and men that were wounded entitles him to my warmest thanks and I should be most gratifyed [sic] to see him served by an appointment as surgeon in the Navy. Mr Loomis a volunteer was very active and useful and to you I beg leave to commend him to the [illegible] the honorable Secretary, for a Lieutenant of the Marines and earnestly request that Acting

> Lieutenants Spencer and Loomis may be confirmed in their appointments. Mr Records who I appointed as acting Sailing Master at Vergennes has shown himself a good and faithful officer and if it would please the Hon. Secretary to confirm his appointment I should be most gratified also [illegible] Edward Smith as gunner, Charles B. Johnson as Carpenter and John Wilson as Boatswain, they behaved well and are [illegible] warrents in the Navy.
>
> Respectfully your
> Obt. Serv.
> Ro. Henley [2]

Macdonough's report was more restrained and technical in its composition. He applauded the steadfastness of the Saratoga's crew and Lieutenant Cassin's gallant handling of the Ticonderoga. His only comment on Henley's handling of the Eagle, although not outright condemnation, distinctly lacked the tone of approval. Macdonough obviously did not intend to forgive the ill-turn that Henley gave the Saratoga and her crew during the battle.

> At half past 10 o'clock, the Eagle, not being able to bring her guns to bear, cut her cable, and anchored in a more eligible position, between my ship and the Ticonderoga, where she very much annoyed the enemy, but unfortunately leaving me exposed to a galling fire from the enemy's brig.[3]

As a further insult to Henley, Macdonough reduced the Eagle's list of wounded from 27 to 20, a clear indication that he considered the figures to have been padded. Daniel Records' log entry for the day of the battle - "we had ... 27 wounded some slightly" - suggests that this may have been the case. Only eleven of the Eagle's twenty casualties required hospitalization ashore, and Macdonough later sent his surgeon Dr. Briggs to the Eagle to further

examine the nine wounded who were not hospitalized. Briggs reported that only one of the nine had a truly serious injury, implying that only twelve of the Eagle's crew could justifiably be termed "wounded".[4]

The official reports of the action were sent from Plattsburgh on September 13th, the courier for the documents being none other than Lieutenant Cassin. Cassin was also given the honor and distinction of bearing the captured British naval flags to the Secretary of the Navy. Macdonough included a cover letter with his dispatches:

> The squadron under my command now lies at Plattsburgh - it will bear of considerable diminution, and leave a force sufficient to repel any attempt of the enemy in this quarter. I shall wait your order what to do with the whole or any part thereof, and should it be consistent, I beg you will favor me with permission to leave the lake and place me under the command of Commodore Decatur, at New York. My health (being some time on the lake), together with the almost certain inactivity of future naval operations here, are among the causes for this request of my removal.[5]

Henley's glowing commendation of the officers and men of the Eagle was not included among the reports carried by Cassin, for it had been lost, through design or accident, by Macdonough.

The victory at Plattsburgh Bay was greatly needed by the Madison government, since the war, now in its third year, was going very badly for the United States. Critics of Madison and his administration were increasingly vocal,

and public support for the war, always lukewarm, was on the wane. The abdication of Napoleon had allowed the British to bring the full array of their naval might down on the United States, with destructive results. The entire eastern seaboard was gripped by a paralyzing blockade that left naval and merchant vessels rotting at their moorings. Worse yet, the naval superiority maintained by the British allowed them to raid coastal towns with impunity, particularly in the Chesapeake, where town after town was sacked and put to the torch. This culminated in the August 24th raid on Washington, when the government was put to flight and most of its principal buildings were burned. The cost of the war, and the accompanying loss of revenues to the British blockade, had bankrupted the treasury. The Navy, too, had experienced a particularly bad year. The spectacular frigate actions that had humiliated the British during the first two years of the war had largely disappeared by 1814, as the Royal Navy increasingly concentrated its strength in the western Atlantic. The American Navy was now barely able to defend its own harbors, let alone attack British warships and merchant vessels on the high seas. On the Canadian frontier the situation was a little better. The United States had taken pride in Perry's brilliant victory on Lake Erie in 1813, but by 1814 the naval contest on the other lakes had become a costly stalemate. Captain

Chauncey on Lake Ontario had built and launched a series of massive ships at great expense, but control of that lake was still very much in doubt. The situation on Lake Champlain had not appeared any more promising.

Macdonough's decisive victory over an equal, if not superior squadron, following close behind the news of the successful repulse of a British attack on Baltimore, proved to be a tonic to the morale of both the government and the public of the United States. The outcome of the battle also greatly strengthened the position of the American ambassadors who were negotiating a peace with the British at Ghent, Belgium. While the British still possessed the upper hand militarily, the victories at Baltimore and Lake Champlain showed that the Americans, even when outnumbered, were still capable of repelling their enemy.

The nation unleashed itself in a display of gratitude to the young naval officer who had masterminded the defeat of the Albion foe. Macdonough was presented with gifts of land, gold-mounted pistols, swords, and numerous other expensive tokens of gratitude and esteem. Banquets were held to honor him. Congress presented medals to Henley, Macdonough and Cassin, struck with their profiles and the date of the victory. Commemorative swords were ordered made for all the officers of the Lake Champlain squadron. Upon receiving word of the victory, Secretary of the Navy

Jones sent a joyful, if somewhat lyrical, commendation to Macdonough:

> Sir
>
> With the highest gratification which noble deeds can inspire, I acknowledge receipt of your letter of the 11th Instant, announcing the glorious victory which your skill and valor aided by the intrepidity and discipline of your gallant associates had achieved over a confident, vigorous, and powerful foe. Our lakes hitherto the objects only of natural curiosity shall fill the pages of future history with the bright annals of our country's fame and, the imperishable renown of our naval heroes
>
> 'Tis not alone the brilliancy of your victory in a naval view, but its important and beneficial results that will fix the attention and command the gratitude of your admiring country.
>
> Accept, Sir, the assurance of the highest respect and warm appreciation of the President of the U.S. which I am commanded to present, and my sincere congratulations.
>
> Very Respectfully
> Your Obt Servt.
> W. Jones[6]

Henley quickly became jealous of Macdonough's laurels and he was further embittered by the loss of the Eagle's report and the lack of distinction granted the Eagle and her commander in Macdonough's report. It was self-evident that Plattsburgh Bay was going to be remembered as one of the great battles of American history, and Henley perceived that Macdonough was attempting to appropriate all the glory for himself. In an effort to set the record straight, as he saw it, Henley sat down five days after the battle and composed a second report to the Secretary of the Navy. The result was a fantastic document, for by

its description the Eagle won the battle almost single-handedly. Henley also took the opportunity to air his grievances about Macdonough's failure to give recognition where it was due:

U.S. Brig Eagle off Plattsburgh
Sept 16th 1814

Sir

I beg leave to acquaint you with a few particulars of the action of the 11th Instant, as they particularly respect the vessel which I have the honor to command and as they may not appear within official reports of Captain Macdonough whose duty it is to give general and impartial representation of the action. We were anchored in the harbor of Plattsburgh in a line north and south at about the distance of one hundred yards, the Eagle north the Saratoga in the center and the Ticonderoga south. The enemy approached in a line abreast having a favorable wind, that enabled them to chose there [sic] position. The enemy brig took a station off the starboard bow of the Eagle at about one mile distance, the ship about one point abaft our beam, and the sloop Linnet [Chub] of 11 guns, made an effort to obtain a raking position under our stern, perceiving his intentions, however I ordered a broadside be fired into her, which caused her to strike her colours.

As soon as the enemy approached within point blank distance this brig commenced a most destructive fire upon there [sic] ship and continued to direct her whole broadside excluding the two 18 pdrs forward which were occasionally firing at the brig, who [illegible] her as occasion required, and kept up a raking and most destructive fire upon this vessel. I was confident that it was of the greatest importance to endeavor first to engage the enemy's ship to insure us of success. For a great length of time after the action commenced, the enemy ship leveled her whole force upon the Eagle dealing destruction after having sustained the severest of the [illegible] space of one hour, having my springs shot away and many of the starboard guns disabled, it was out of my powers to bring a gun to bear upon the ship or brig, consequently I

> ordered the cable cut and cast off. The brig taking an advantageous position a litle south of the Saratoga, bringing my larboard broadside to bear upon the ship which was shortly obliged to strike her colors, our fire was then directed to the brig and in the space of eight minutes she [surrendered] and the victory terminated in our favor, we then turned our attention to the galleys, some of which it is believed sunk and the remainder made their escape, the Eagle was in too shattered a condition to pursue them.
>
> I inclose the surgeons report of the killed and wounded by which you will perceive that I had thirteen killed twenty-seven wounded most of them severely.
>
> I also have the honor to inclose a copy of a report which I made to Captain Macdonough, for your information of the meritorious conduct of my officers and crew, which he had since informed me had been lost.
>
> I have the honor to be
> I'm with highest respect
> Your Ob't Serv't
> Ro. Henley[7]

Secretary Jones could only have been nonplussed upon receiving this self-flattering report. He certainly would not have wanted to get involved in a feud between two naval officers, particularly two who had recently been elevated to the status of heroes, and his reply was appropriately non-commital:

> Sir,
>
> I have received your letter of the 16th Instant with its enclosure, and view with great satisfaction and a just sense of the importance of the services rendered, the brilliant and effective share you had in the glorious victory of the 11th Inst. off Plattsburgh.
>
> I am Respectfully, Sir
> W. Jones[8]

Two days after writing his second report, Master Commandant Henley turned his command over to acting

Lieutenant William Spencer and debarked from the Eagle for the last time. He had captained her for exactly one month, probably the most hectic and dangerous month he would ever experience. From Lake Champlain he proceeded directly to Washington, to obtain another assignment and, no doubt, to lodge further complaints against Macdonough. News of Henley's letter and the backbiting comments contained therein returned to Macdonough, who wrote on October 9th:

> I am very much surprised at the conduct of Lt. Henley. His statement is unquestionably very erroneous and will, I fear, ultimately be injurious to himself. He is assuredly wanting in magnanimity in detracting from the merits of his brother officers by giving his vessel a greater share than she is entitled to. I consider Lt. Henley a brave man and he had brave officers and men with him, yet he did not fight the whole of the battle and previous to his leaving the lake he expressed himself satisfied with what I said of his vessel in my letter to the Department and it is in substance and nearly in the words of his report to me of the services of his vessel.[9]

In an effort to get Henley's mind off insults real or imagined, Jones quickly found him a new position and presented him with orders on October 3rd. He was to assume command of the gunboat flotilla at Wilmington, "for the defense of the coast and waters of the state of North Carolina."[10] It was the official end of Henley's sojourn on Lake Champlain, and for the most part it ended the controversy over the contents of Macdonough's battle reports. Henley continued to complain that his role in the Battle of Plattsburgh was understated, and Henley

family tradition would maintain that it was he, not Macdonough, who was the mastermind behind the victory.[11]

Macdonough, for his part, continued to regard Henley's behavior during and after the battle as dereliction of duty. In later years he wrote:

> The Eagle, Capt. Henley, quitted the station assigned her and took another where she kept up her fire upon the enemy. As regards this act of this vessel I am decidedly of the opinion her duty was to remain in the station assigned her as long as it was possible for her to maintain it. Her list of killed and wounded would show what necessity she was under to change her station, and even that evidence of her disability was made up of the names of wounded men, in part, who had only been so scratched or slightly hurt as not to merit the name of wounded, among whom was Lt. Spencer, who had a bit of skin by some means torn off his face. Mr. Loomis (I believe acting master) earnestly requested that his name not be included among the wounded. Had the Saratoga been beaten, as, during the latter part of the action she had the fire of the brig which had been opposed to the Eagle upon her, as well as that of the Confiance, the day in all probability would have fallen to the enemy.[12]

Following the departure of Henley, the Eagle remained idle for two weeks in Plattsburgh Bay under the command of acting Lieutenant Spencer. The crew had little to do but continue to repair damage to their vessel, go on firewood-gathering expeditions to Crab Island, and loose and air the sails to prevent the canvas from rotting. A detachment of the Eagle's sailors was put to work in the boats, sweeping the bay for anchors lost during the battle.

Most of the soldiers and bandsmen borrowed from the Army were returned to their regiments, but no further

mention can be found of the forty convicts taken aboard at the last minute by Lieutenant Smith. It is likely that most of them, if given the choice, opted to remain in the Navy.

The period of recovery and repair in Plattsburgh Bay ended on the 29th of September, when Macdonough began the dispersion of the squadron. Transferring his flag to the smaller and less damaged Eagle, he ordered the other large warships south to Whitehall. The log of the Eagle ended on the same day:

Thursday Septr. 29th	All this day moderate breezes and fair weather. This day an order came from Commodore Macdonough for me and part of crew to go on board the prize Ship Confiance and proceed to Whitehall which order was obeyed So ends my account of Occurences and Remarks on board the United States Sloop of War Eagle PLATTSBURGH BAY on LAKE CHAMPLAIN 29th septr. 1814 Daniel Records Acting sailing master

The voyage up to Whitehall was accomplished in the first few days of October. Confiance, Saratoga, Linnet, and Ticonderoga were moored in the channel below the town, and a steady guard was mounted over the vessels by sailors both aboard and ashore. With the Canadian border one hundred miles distant there was only a slight possibility of a British surprise attack by water, but the risk of an incendiary raid by small parties of spies was ever present. Until the end of the war, Macdonough would live in constant fear that the squadron,

built and fought for at such expense, might be reduced to ashes through the lack of vigilance on the part of his sentinels.

The end of operations on Lake Champlain also meant that many of the station's officers and sailors could be sent to other, more critical, stations. At the end of September, the Eagle's former first lieutenant, Joseph Smith, was given the task of escorting 250 sailors west to reinforce Chauncey's fleet at Sackett's Harbor.[13] Those officers not immediately transferred from Lake Champlain commenced to deluge the Secretary of the Navy with requests. The Eagle's sickly midshipman William Chamberlain sent a petition to Jones on September 15th:

> Respected Sir,
>
> Being now in a very bad state of health, oweing principally to this climate which has a bad effect on me and not haveing done any duty except in the action of the 11th for a month previous I take the liberty to request you would order me to the seaboard until I can regain my health and if you would grant me the priviledge to return to my home until I can be able to return to my duty you will confer a very great favor on me. I shall ever feel grateful for your kindness if Sir, you will give me orders for the Navy Yard at Portsmouth, N.H. where I can be taken care of by my parents. I am now Sir declining very fast and the surgeon says I am rapidly approaching on to a consumption which will no doubt soon terminate my days. And I wish to live to be of some service to my country, at this distressing period. My constitution being broken and my health very much impaired induce me to make this request to you. Capt Henley who left here this morning for Washington can give you the most flattering proofs of my good

behavior in the action of the 11th which sir I hope tend to your granting me this priviledge.

I am Sir respectfully your
Obedient and Humble Servant
Wm. L. Chamberlain [14]
Midshipman U.S. Navy

Still other officers wanted off the lake because, in this hour of national emergency, it no longer offered prospects of action and glory. Midshipman Hiram Paulding, transferred to the Eagle from the Ticonderoga after the dissolution of the squadron, was one of these. During the fall of 1814 he sent one letter after another to Jones, pleading for orders to proceed to the sloop of war Peacock, or any seaboard ship.[15] Acting Lieutenant William Spencer also submitted a series of requests. The first few expressed a desire to be sent to North Carolina to serve under Henley, but he later broadened his solicitations to include any ship that was putting to sea.[16] Despite his best efforts, Spencer would remain at the station until the end of the war. Midshipmen and Lieutenants were not the only officers angling to get off the lake, for Thomas Macdonough, perhaps more than any other person, desperately wanted to leave. His three-year campaign on Lake Champlain had culminated in an unqualified triumph, but the effort of building and maintaining the squadron had ruined his health. His letters to the Secretary continually repeated the request for a new assignment.

The Secretary of the Navy had to attend to other cheerless petitions that fall, as the bankrupt Navy's

mounting debts came home to roost. One of the dissatisfied creditors was none other than Enoch Hidden, manufacturer of the Eagle's gunlocks:

> New York Sept 24th 1814
>
> Sir
>
> I have delivered to the Navy Agent at New York a considerable number of cannonlocks in pursuance of a contract entered into May last. As my means are quite limited it would be a very great accomodation to receive the money from the Navy Agent on delivery of the locks, as it retards my work very much in not receiving it at that time. I presume the U. States must feel satisfied with the locks I make Comm. McDonaugh had them in his two large vessels. If it can be properly done I should be very much accomodated could the money be paid on delivery.
>
> I am your most humble
> Enoch Hidden[17]

Those two great allies of the Navy Department, Adam and Noah Brown, were also financially injured by the government's insolvency. The Browns had paid for the construction of the Eagle out of their own pockets, and during the autumn work at their New York City shipyard nearly came to a standstill when the Navy did not make good its debt. This was particularly unfortunate, since they were in the process of building the Navy's first steam-powered vessel, a formidable block ship designed by Robert Fulton and called Fulton the First. The Browns were partially underwriting the cost of this warship, too.[18] Clearly, there could be no doubts about the Brown's loyalty to the American cause.

On the 15th of October Macdonough apprised Jones of the squadron's situation:

U.S. Brig Eagle
Plattsburgh Bay

Sir

I have the honor to inform you that I have sent the U.S. vessels Saratoga, Confiance,Linnet, and Ticonderoga to winter quarters at Whitehall, and have retained and kept prepared for service the brig Eagle and the ten gallies with the sloops Preble, Growler, Eagle [former Chub and Finch], and Montgomery for the men attached to the gallies to live in and for provision vessels, as the contemplated attack on New York appears to have ceased. I should be much gratified by receiving your permission to proceed to Washington for the purpose of settling my accounts of this station, as they extend to a considerable amount. I should like a settlement of them at an early period, and as naval operations are considered at an end on this lake I hope you will be pleased to release me in this command, from Lt. Cassin's knowledge of the lake I think he would be a suitable person to succeed me.[19]

The squadron lingered at Plattsburgh until the end of October, when Macdonough decided to take it on a brief expedition to the northern end of the lake. At Chazy Macdonough put his sailors to work recovering six tons of eight-inch shells thrown into the lake by the retreating British. A British transport sloop, accidently sunk off Isle LaMotte during the retreat in September, was also raised and repaired.[20] An unknown artist painted a watercolor portrait of the Eagle and her accompanying flotilla at this time, the only authentic contemporary view of the brig that has yet been found (plate 3). The British gunboats displayed no interest in coming out of the Richelieu to challenge the American command of the lake, and so Macdonough sailed the squadron back to

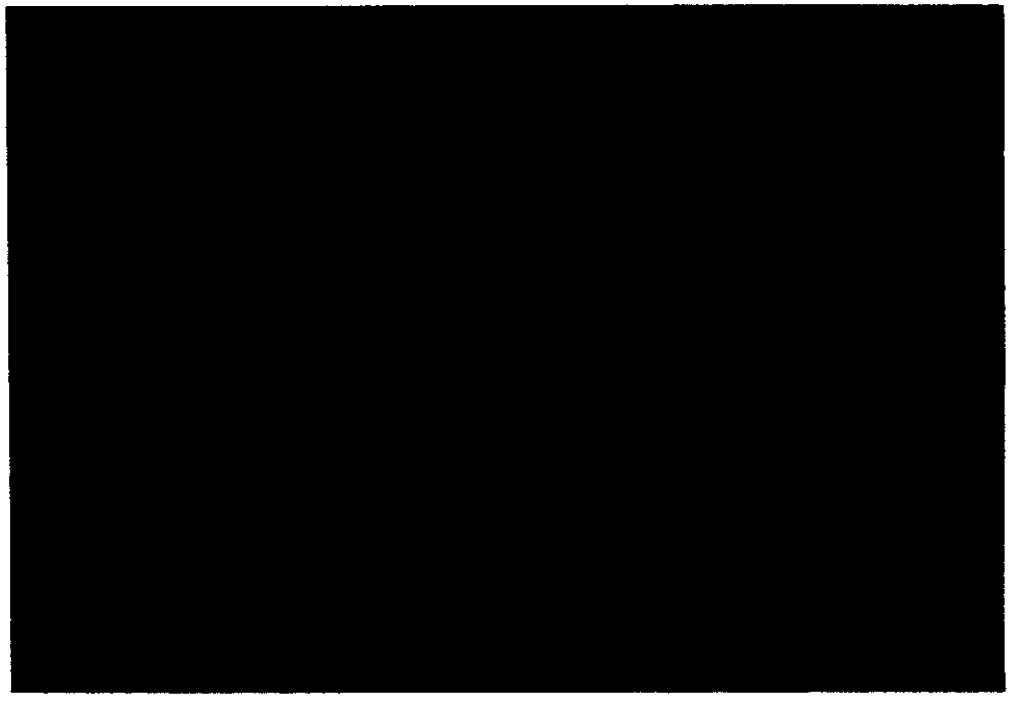
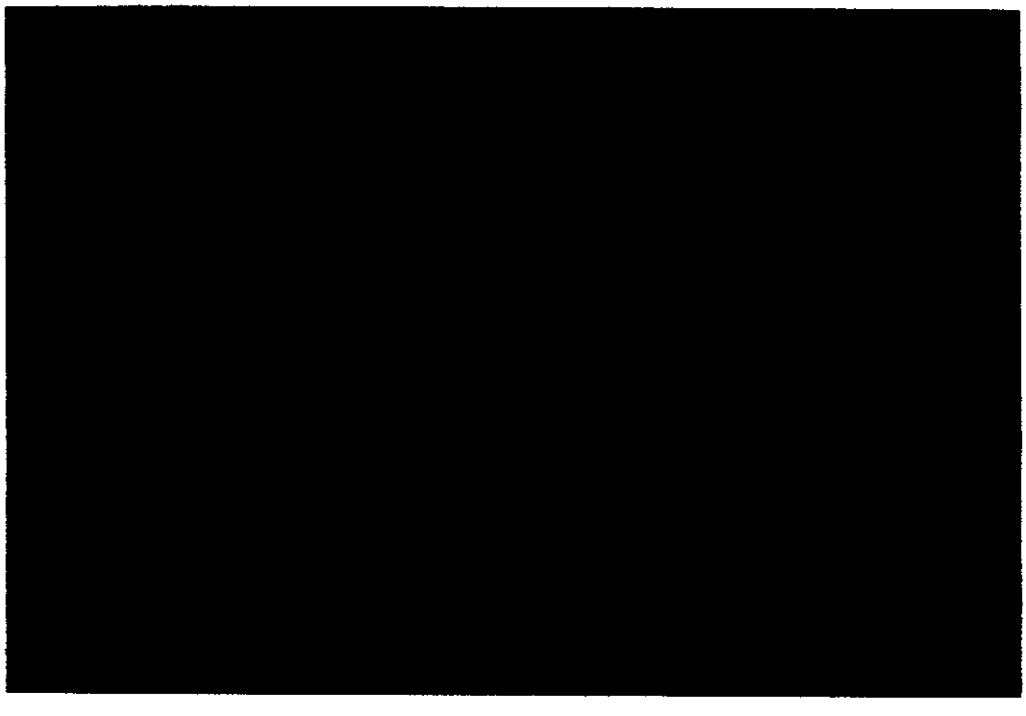


Plate 3. The Eagle watercolor (above), and a close-up (below). (Courtesy of the Shelburne Museum, Shelburne, Vermont).

On either side of the Eagle are the sloops that served as quarters for the sailors of the row galleys, while in the foreground are the row galleys themselves. The Indians in the canoe presumably were not part of the naval squadron.



Plattsburgh Bay before the 10th of November.

He found a dispatch from Jones awaiting him, at last granting him permission to turn his command over to the next in rank and leave the lake. Lieutenant Charles Budd, formerly of the Preble, took charge of the Eagle and the squadron on the 10th, receiving from Macdonough a long list of orders and suggestions regarding its operation. He was cautioned not to go north of Point Au Fer under any circumstances. Macdonough added:

> The time will arrive in the course of a few days to lay the squadron up for the winter as the season is far advanced, the men are suffering considerably from the severity of the weather, and the enemy at present evincing to my knowledge no intentions to come out from his stronghold with his galleys, the only naval fource he at present possesses. It is absolutely necessary... that you get to Whitehall before the ice makes, as you will there have all the vessels together and farthest from the enemy's land forces during the winter.[21]

On the 12th of November Macdonough advised Jones that he had given Budd his orders, although he decided to remain at Whitehall until the squadron was safely secured for the winter.[22] He proceeded there on the 18th of November and took up quarters on the Confiance.

Budd kept the Eagle and her consorts in Plattsburgh Bay only a few days longer, and then sailed southward (figure 27). Although those on board couldn't have known it, their passage to Whitehall was the last voyage that the brig would ever make on Lake Champlain. Less than four months after her launching, the Eagle's active career in the

United States Navy had come to a close, and from this time onward she would be nothing more than an empty, inanimate hull "in ordinary" at Whitehall.

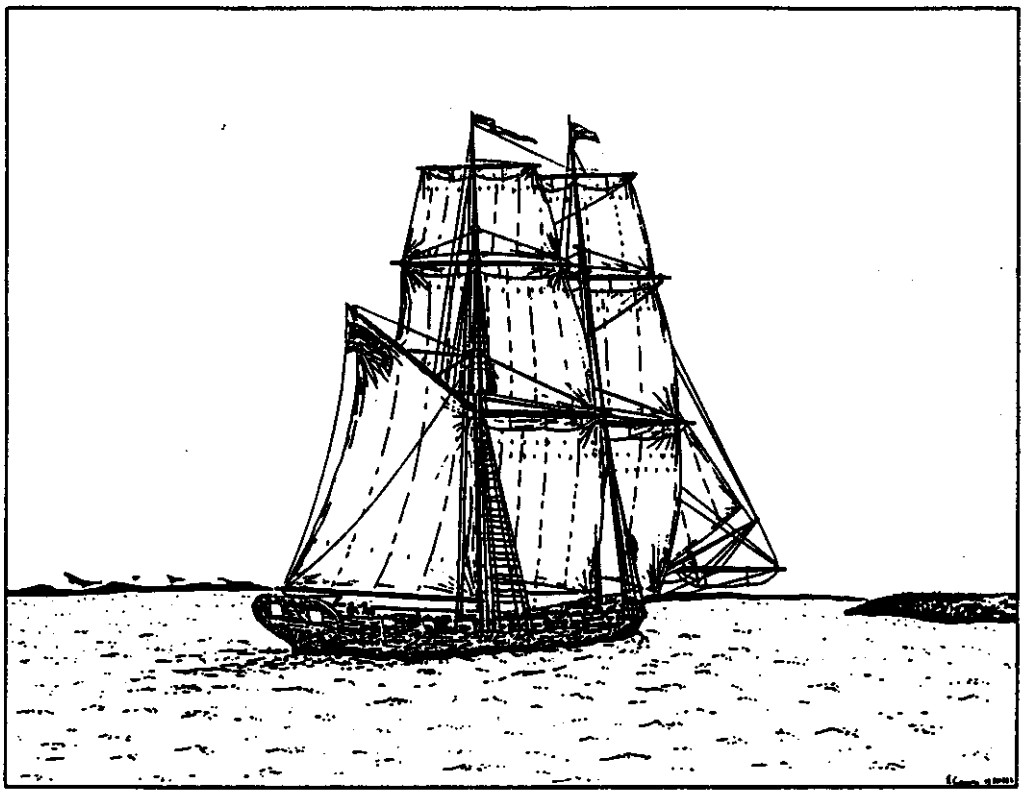


Figure 27. The Eagle under sail.

Macdonough was promoted to the rank of Captain, retroactive to the date of his battle with the British, and on November 30th he was ordered to New York City. Here he was to assume command of Fulton the First, which despite their pecuniary difficulties the Browns had succeeded in launching on October 29th[23] (plate 4). These were William Jones' last orders to Macdonough, for on the 1st of December, 1814, he resigned his position in the Navy Department to attend to his disorganized personal finances.

Plate 4. The launch of Fulton the First .

(From American Naval Broadsides by E.N. Smith
Courtesy of Clarkson N. Potter, Inc., New York)

Macdonough was away from the lake less than one month when he was ordered back on December 27th by Benjamin Homans, the acting Secretary of the Navy. Rumors had been circulating that the British were considering an incendiary attack on the squadron, and the Navy wanted him on hand to organize the defense of the warships. Captain Macdonough reported to Benjamin Crowninshield, the new Secretary of the Navy, on January 18th:

> I have the honor to report my arrival at this place and to give you such information relative to the enemy as I have been able to collect. It does not appear that an attack on the vessels is contemplated by the enemy...
>
> The climate for this latitude is moderate with but little ice in the lake and no ice in what is called the broad lake, a distance from

> forty to sixty miles and many of the old inhabitants think the broad lake will not close this winter. The militia of Vermont [display] their willingness to meet the enemy should he invade us & I believe we are in a tolerable state of preparation.[24]

Macdonough went to the northern end of the lake to better determine the British intentions. He found no evidence of preparations for an immediate attack, but did learn of renewed ship construction at Isle aux Noix. The Royal Navy, humiliated by the defeat in September, was determined to build a superior squadron and again make an attempt on the lake. Macdonough received intelligence that four frigates and fourteen galleys were on the stocks at the British base.[25]

Macdonough remained on Lake Champlain through February, alert for a raid (which still showed no signs of materializing), and concerned about the new British shipbuilding effort. He reported his findings regularly to Crowninshield, and despite the possibility of renewed fighting on the lake, again asked to be transferred to the seaboard. On the 14th of February Master Commandant John Creighton was ordered to replace Macdonough as commander on Lake Champlain, but before the orders could be carried out news arrived of the signing of a peace treaty between the United States and Britain.

The treaty, signed on December 24th in Ghent Belgium, made no mention of the principles of free trade or sailors rights, America's declared reasons for going to war. On

the other hand, there were no territorial concessions to the British, an issue that had stalled the talks for months. Macdonough's sweeping victory and the disgraceful retreat of Prevost were instrumental in the British decision to accept pre-war borders and an end to hostilities. Thus the War of 1812 ended in a draw, with no really concrete results except thousands of dead, millions of wasted dollars, and a slightly strengthened sense of national identity on the parts of the United States and Canada.

On February 28th, Crowninshield instructed Macdonough to place the warships at Whitehall in ordinary:

> You will immediately dismantle the fleet at Whitehall, land all their stores, sails, cordage, etc. and deposit the same safely until it shall be determined where to transport them.
>
> You will be pleased to suggest to the department the best manner in your opinion of laying up the public vessels at Whitehall.[26]

Macdonough replied to this on March 12th:

> I have the honor to acknowledge the receipt of your letters ... and to inform you that the squadron on Lake Champlain is completely dismantled with all the guns, sails, ballast, powder, shot + stores on shore and stored.
>
> The best manner in my opinion of laying up these vessels will be to keep them afloat, and have them whitewashed on the in sides and out and everything cleared away below so to admit a free circulation of air, and to be roofed over with rough boards, all of which can be done for about three hundred dollars and the vessels to be placed as much as can be out of the sun. Feeling assured of your assent to this cheap mode of laying up the fleet and to anticipate in the transmission of orders I have commenced it & expect the men who remain will be able to get all the vessels thus laid up in a fortnight.[27]

Not long after the posting of this letter, Macdonough and most of the remaining Navy personnel left Lake Champlain for new stations on the seaboard. The Navy's three-year struggle for the narrow, mountain-bound lake was finally over.

CHAPTER VII

IN ORDINARY AT WHITEHALL

Whitehall continued to serve as Lake Champlain's naval station after the departure of Macdonough and the majority of the naval personnel in March of 1815. The town was well suited to host the squadron and there is no indication that the Navy Department considered keeping the ships anywhere else. Besides Whitehall's obvious advantage of being far removed from the Canadian end of the lake, (in the event that hostilities had been renewed), it was also nearer to the important urban centers of supply and communication to the south. The lake at Whitehall is narrow and more resembles a river channel; the anchored warships were considerably more protected there than they would have been in other harbors to the north, where powerful squalls in the summer and shifting ice in the winter could have torn the vessels from their moorings. Finally, Whitehall had an advantage that greatly appealed to the budget-conscious Secretary of the Navy: the squadron was already there. It would have been expensive to move the warships to a new location.

In May of 1815, Navy Secretary Crowninshield ordered Captain James T. Leonard to Whitehall, to assume command of the naval station.[1] Leonard had led an interesting and somewhat checkered career in the Navy, and Whitehall was

to be his final command. He began as a midshipman in 1799, serving on the frigates Constellation, President, and General Greene. Leonard received his lieutenant's commission in 1807, and for a short time in 1809 he commanded the bomb ketch Vesuvius. When the War of 1812 began Leonard temporarily commanded a gunboat at New York, was promoted to Master Commandant, and in November of 1812 was posted to the Lake Ontario naval station at Sackets Harbor. Here he attained the zenith of his career, when Commodore Isaac Chauncey gave him command of the newly-constructed sloop-of-war Madison, of 20 guns. She was then the largest U.S. Navy warship on Lake Ontario, and the appointment to be her captain was an obvious compliment to Leonard's abilities.[2]

It was a short-lived triumph for Master Commandant Leonard. On the night of April 12th, 1813, Leonard left the Madison anchored in an unsafe position outside of the harbor and went ashore to stay with his mistress. During the night a strong wind arose, and the ice on the lake broke up, pulling the Madison free of her mooring and nearly dashing her on the shore. The officers and men on board the vessel labored through the night and only by the narrowest margin prevented her from being completely wrecked. A carefree Captain Leonard returned to the ship at 10:00 a.m. the next morning, and left again that afternoon without taking further precautions to ensure

the safety of his vessel. Chauncey, infuriated by Leonard's cavalier attitude, relieved him of his command and immediately preferred charges against him, which included: "disobedience of orders", "neglect of duty", and "dissolute and immoral practices". The final charge dealt with Leonard's open cohabitation with his mistress, a practice which Chauncey believed "set a bad example to the officers generally, and the young midshipmen in particular.[3]

The court martial was held in December of 1813. Leonard was found guilty on nearly all counts and was suspended from duty for twelve months and publicly reprimanded by the Secretary of the Navy. The results of his court martial were ordered read aloud on every ship and at every station belonging to the U.S. Navy. Leonard spent the rest of the war sitting in New York City, and by August of 1814 was reduced to begging for the command of a corps of militia, certainly not a respectable position for a high ranking naval officer.[4]

Leonard was promoted to Captain in February of 1815, and in the spring he was assigned to Whitehall. The Lake Champlain station was now a backwater, and thus a convenient place to dispose of an officer who had become an embarrassment for the Navy.

Two experienced officers were assigned to assist Leonard, Lieutenant Charles Budd, Macdonough's second-in-

command during the fall of 1814, and Sailing Master Joseph Lindsay, formerly of the Ticonderoga. Ten ordinary seaman and landsmen were recruited and sent to Whitehall to guard and maintain the vessels and stores of the squadron.[5] A guard of marines for the base were considered an unnecessary expense, and none were transferred to the lake.

The Navy Department underwent an organizational change in February of 1815, when a Board of Navy Commissioners, composed of three high-ranking officers, was established to aid the Secretary of the Navy in his duties. The Commissioners were to oversee the maintenance and equipping of the vessels and shipyards, while the Secretary was to direct vessel movements and the appointments and assignments of Navy personnel. The division of duties between the Secretary and the Commissioners was not very clearly defined and it must have given Leonard some headaches, since he was required to send copies of correspondence to both offices throughout his time at Whitehall.[6]

On May 20th, 1815, Purser George Beale was instructed to dispose of the sloops and galleys owned by the Navy on Lake Champlain (Leonard had not yet arrived to assume his command):

> Sir,
> You will immediately advertise and sell at auction the following vessels, viz. sloop Preble
> " Montgomery
> " President
> " Chubb
> " Finch
> The ten barges or row galleys with all the

> small boats, cutters, etc. excepting the two boats of the Saratoga and the boat of the Ticonderoga ... without their armament and stores; but including their spars, sails, rigging, cables, anchors etc ... and make arrangement to dispose of the whole as you may deem best for the publics interest.[7]

The armed merchant sloops had performed steady service throughout the war, but they proved to be ineffective fighting vessels, and the Navy was happy to be rid of them. Unlike the galleys and the large warships, the sloops had a relatively high resale value, since they could be easily converted back to their intended commercial uses. This no doubt gave the strapped Navy Department an added incentive to auction them off.

The sale of the sloops took place in July. The durable Chub and Finch, which had received a considerable number of round shot while serving under different aliases in both the United States' and Royal Navies, sold for $840 and $805 respectively. The President, also active since 1812, sold for $1,750, while the Montgomery was purchased for $1,900 and the Preble went for $2,430. The four older gunboats, Ludlow, Wilmer, Alwyn, and Ballard all sold for under one hundred dollars, the Alwyn going for the paltry sum of $42.[8] The six large row galleys built by Noah Brown in 1814 did not fetch a price suitable to their worth and Leonard cancelled their sale.[9]

Leonard received detailed orders in August of 1815, instructing him to take further measures to ensure that

the dismantled squadron remained in the best possible condition. He was to sink the six row galleys on the side of the lake channel; under the cold, fresh water the hulls would preserve indefinitely. Canvas sails and other perishable boatswain's stores were to be removed and stored ashore, along with the dismantled gun carriages. Less perishable items, such as the numerous mast tops, spars, and small boats, were to be placed in the holds of the large warships. Those small boats which did not fit into the warships were to be sunk with the row galleys.[10]

Once the squadron and its equipment were mothballed, there seems to have been little to occupy the small naval garrison. Watches were set on the empty, moored hulls for the purposes of pumping out accumulations of bilge water, inspecting the anchor cables, and keeping the on-board stores safe from thieves. Leonard, concerned about the possibility of fire, permitted no fires or lights on board the vessels. Other duties which occupied the station's sailors included periodic inspection, maintenance and inventory of the ordnance and naval gear, and repair of the roofing that covered the five large warships. Besides directing all of these activities, Leonard was required to fill out weekly report sheets, which were forwarded once a month to the Secretary of the Navy and the Board of Commissioners. At least once a year, a complete list of the military gear and the vessels and their conditions was

sent to Washington to be included in the Navy's annual register of ships.

Two government surveyors, Isaac Roberdeau and John Anderson, were sent to Lake Champlain in 1816 to prepare maps of the valley and take depth soundings of the lake. To assist the latter operation Leonard had one of the submerged row galleys raised and equipped in July of that year. The galley spent part of August cruising the lower portions of the lake, no doubt giving the naval station sailors who manned her a welcome escape from the heat and swarms of stinging insects at Whitehall.[11] Roberdeau's map of Whitehall (figure 28) details the position of the squadron in the channel below the town. The barrack buildings and the powder magazine of the station are shown on the island directly across from the moored ships. The solitary building on the east side of the Whitehall basin functioned as the warehouse for the squadron's ordnance and equipment.[12]

The first few months of 1817 proved to be a busy time for Leonard. In March, the powder magazine and other buildings had to be moved when the owner of the island they were situated on, Gideon Taft, presented the Navy Board with a $260 bill for two years back rent. Included in the bill was rent for December 1814, one month <u>before</u> the Navy built its facilities on his island. Leonard was instructed to hire an arbitrator and settle the matter

with Taft: "from the time of removing the powder from the magazine on Mr Tafts Island, Mr Tafts claim for rent must cease & you will so inform him."[13] The Navy's powder was installed in another magazine in Whitehall.

The anchored warships began showing the first signs of deterioration at this time. Leonard wrote the Navy Board on March 7:

> The fleet at this station ... will require caulking from the waterline to the bends, their seams are very much open, if any casualty such as to cause a careen, to bring their seams in the water, would make it scarcely possible to keep them afloat, it has required much care to keep them on an even keel.[14]

The letter from the Board authorizing Leonard to repair the vessels was sent on March 24th; it was followed two weeks later by another:

> Sir
> You will be pleased to reply as early as possible to the following queries:
>
> 1) what is the situation of the Publick vessels at Whitehall, and do they lay aground at any time?
> 2) whether they interruput or embarass the passage of other vessels on the lake, or in any way interfere with the commerce of the place in their present situation?
> 3) whether they can conveniently be moved to any other situation, without much expense, & where they will be equally safe?[15]

Leonard responded promptly on April 19th:

> 1) The situation of the public vessels at Whitehall is as eligible for their preservation and safety as any position on Lake Champlain...
> They do not lay aground at any time, the depth of water is sufficient for vessels of greater draft than the 'Confiance' which is the largest of the fleet.

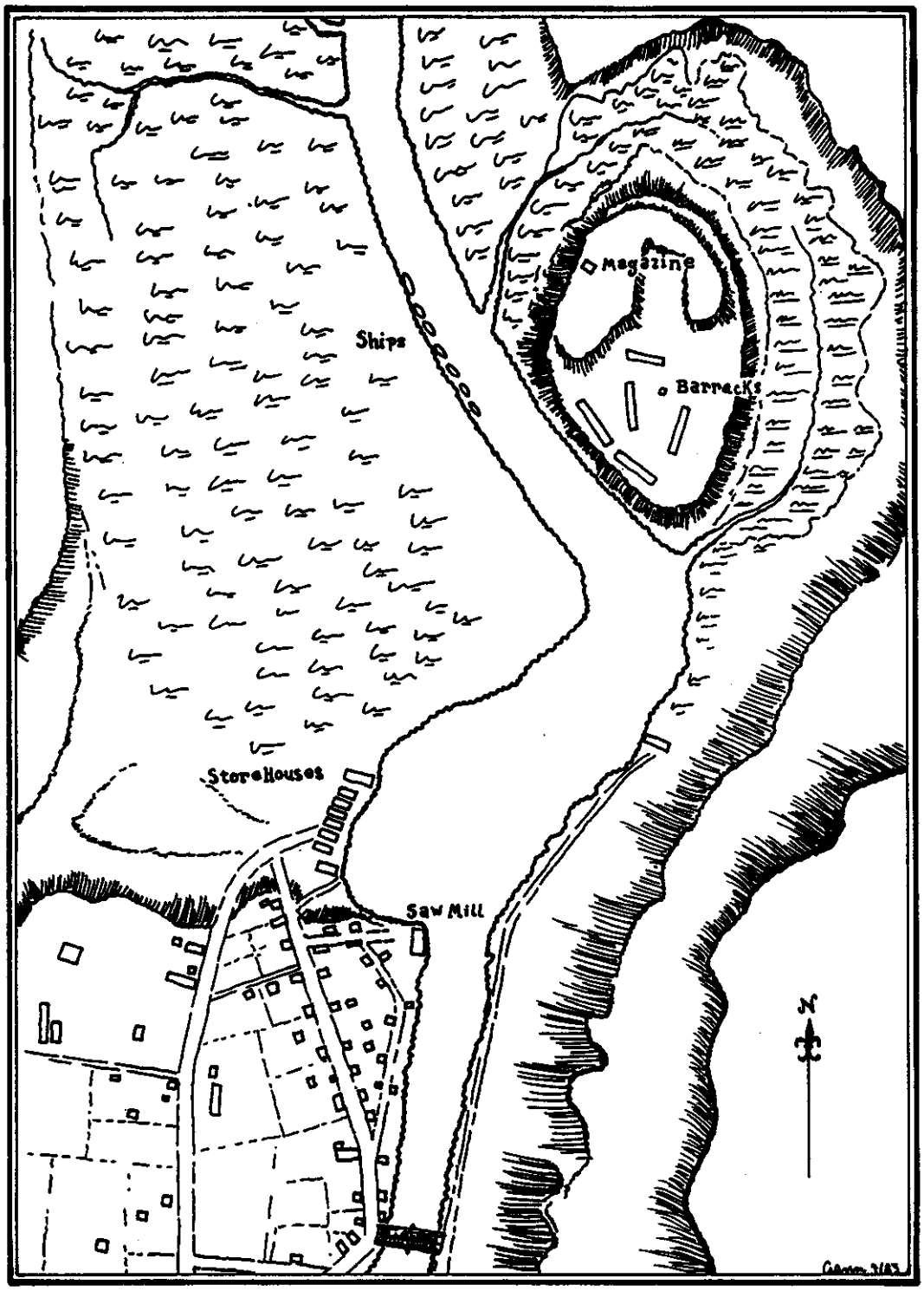


Figure 28. Roberdeau's map of Whitehall.

(Courtesy of Morris F. Glenn)

> The late extraordinary dry season reduced the water of the lake lower than had occurred to the memory of the oldest inhabitant, yet the fleet had enough water to have received all their armament and stores on board & to have proceeded into the main lake.
>
> 2nd The present position of the fleet does not interrupt, or embarass, the passage of other vessels on the lake, in passing to & from Whitehall, nor do they interfere with the commerce of the place in their present situation.
>
> 3rd They can conveniently be removed about one mile from where they now lye (viz. East Bay a branch of the lake) without any expense, and where they will be equally safe.[16]

In May of 1817, the Navy Board ordered Leonard to prepare one row galley for the purpose of patrolling the lake, as permitted under the terms of the Rush-Bagot treaty with Britain. This Leonard did, arming the galley Allen with one twelve-pounder cannon; he also submitted a request for a lieutenant or sailing master and 30 sailors to man the vessel. Leonard elaborated on the condition and situation of his command:

> The condition of the fleet is good, they are perfectly sound in their hulls and two of them only would require new masts, with some other spars to prepare for service.
>
> The upper works are now getting caulked by good, faithful workmen...
>
> The hulls are housed from stem to stern so as to keep them from sun and weather, and secured at a suitable distance, half cables lengths apart, free from accident by fire of any one vessel extending to the other.
>
> They are moored in a line ahead on the border of the lake about 400 yards below the harbour of Whitehall; they are entirely free from any interference with its navigation, and in a depth of seventeen water, through the whole line, the draft of the largest vessel at a deep load water line being nine feet.

The harbour where moored is safe from all possibility of injury by gales of wind, and also from ice and its breaking up in the spring season, also at their present moorings they are exempt from a danger which in any other place near this vicinity would require some vigilence to guard against, that of the woods getting on fire, as they extend over the neighboring mountains & even to the waters edge; the fleet is surrounded by a morass of 400 yards extent, which at certain seasons being overflowed secures it effectively from that risque[17] (figure 29).

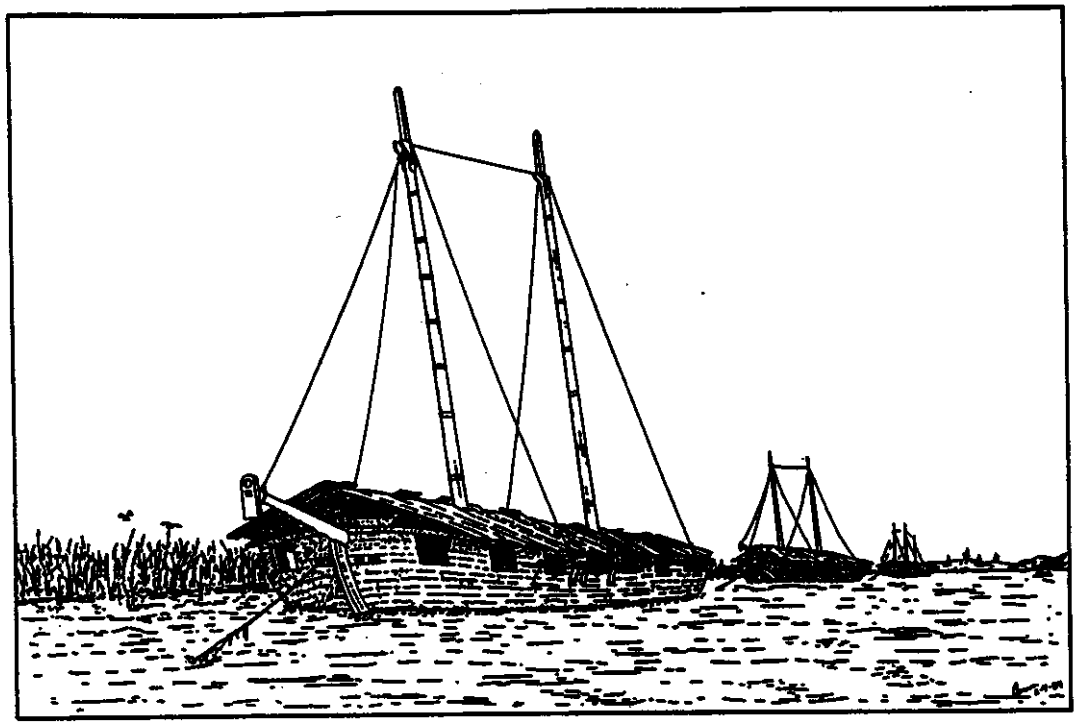


Figure 29. The Eagle in ordinary.

On January 1st, 1818, Leonard submitted to the Secretary of the Navy his yearly report on the condition of the fleet:

The hulls of the fleet consisting of the
"Confiance
Saratoga
Linnet
Eagle
Ticonderoga &

the galley Allen" have been caulked & pay'd from the waterline up so as to put them in fit condition for service as respects the hulls; this duty has been performed by the ships companies, free of any other charge except that of tar and pitch.

The five galleys are sunk for their preservation & are in good condition except caulking which is not required while in that state.

The galley "Allen" mounting one twelve pounder gun Sailing Master Lindsay has been kept in commission "for occasional service".[18]

Confiance	32 guns	hull in good order captur'd 1814 wants a few spars
Eagle	12 guns	In good order wanting a spritsail yard
Linnet	16 guns	In good order captur'd 1814 wanting a mainmast
Saratoga	22 guns	In good order excepting spars
Ticonderoga	14 guns	Sunk [A typographical error. The Ticonderoga was still afloat.][19]

With the war over and commerce again moving freely on the lake, shipping activity increased in Whitehall, although trade to the south was still somewhat hampered by the necessity of transporting freight overland to the Hudson River. Whitehall also resumed its role as a terminal for persons travelling between the United States and Canada via Lake Champlain. In addition to sailing craft, passenger-carrying steamboats began frequenting the harbor in increasing numbers. The weathered U.S. Navy

squadron arrayed just north of the busy port undoubtedly presented a noteworthy display to passers-by (plate 5). Professor Benjamin Silliman of Yale, travelling the length of the lake on the steamboat Congress in 1819, penned this eloquent description of what he saw:

> The channel through which we passed is for miles so narrow that the steamboat could scarcely put about in it, and there seemed hardly any room for the passage of the little sloops which we met going up to Whitehall. At the very head of this natural canal lie moored at the bank, stem and stern, the flotillas of Macdonough and Downie, now by the catastrophe of battle united into one.
>
> As we passed rapidly by, a few seamen showed their heads through the grim portholes from which the cannon fire poured fire and death ... sparless, black and frowning, these now dismantled ships looked like coffins in the brave and will remain, as long as worms and rot allow them, sad moments of the bloody conflict.[20]

Plate 5. The squadron in ordinary at Whitehall. (Courtesy of the Shelburne Museum, Shelburne, Vermont)

The decay of the ships' timbers, a process that had started from the time the warships were launched in 1814, began manifesting itself in 1819. Late in that year, on November 13th, Leonard advised the Board of Navy Commissioners that he was removing the spars, cables, and cordage from the ships' holds, due to the increasing number of leaks. The Confiance, in particular, was succumbing to dry rot, "her frame, etc. being of the very worst timber for building ships."[21]

The year 1820 started inauspiciously with the sinking of the squadron's largest vessel at anchor:

> Sir, January 10th, 1820
>
> As the Confiance had become much decayed and hogged, and within this two or three months considerably leaky, we had endeavored to keep her free, until the spring, in order to remove her to some suitable place, as it was expected we could not long keep her afloat.
>
> However, with all our exertions she began to settle in the water on Saturday noon, and went down as far as the bottom would let her, close along side the bank where she has been laying, in about six feet of water, and lodged on the shoal, upon an even keel, with her gun deck out of the water and free of all interruption to the channel of the lake.
>
> The Saratoga, Eagle, Linnet and Ticonderoga are free of leaks, their timbers upon inspection appear yet to be good, but each lately exhibits considerable spots of dry rot along the waterline and on the outside planking.[22]

Shipping activity continued to increase in Whitehall, and the scheduled completion in 1823 of a new canal between Whitehall and the Hudson River promised to multiply the traffic in ships even more. To prevent the lake channel

above the town from becoming choked with submerged ship hulls, Leonard began moving the squadron one-half mile north to a new anchorage inside the mouth of the Poultney River (known locally as East Bay). The Eagle, Linnet, and Ticonderoga were repositioned during the summer of 1820. In October Leonard requested and received permission to tow the Saratoga and Confiance to the same location. The Confiance was pumped out for the duration of the move, and then allowed to again settle on the bottom. Leonard's letters to the Navy Department indicate that the Saratoga (whose main deck had been turned into a barracks for the crew of the row galley Allen), was threatening to join the Confiance on the bottom of the lake.[23]

Leonard wrote on August 29th, 1821:

> The decay of the vessels on this lake, and the consequent increase of leaks, will make it necessary, to either let them go down (as one or two of the smaller vessels already have), or to increase the men for the purpose of freeing them and keeping them afloat.
>
> The situation at the present moorings is very suitable, and the hulls are cleared out ...
>
> The Saratoga which leaks very considerably ... may be placed so as to lodge on the bottom, well merged in water, & continue as quarters without inconvenience.[24]

Unbeknownst to Leonard, the Board of Navy Commissioners declared the Lake Champlain squadron unworthy of repairs on January 20th, 1821, and suggested to Congress that the Whitehall Naval Establishment be dispensed with entirely.[25] Improved relations with Britain rendered the Great Lakes warships obsolete, and

the Navy saw no future in maintaining, at great expense, a landlocked fleet. While Leonard was to retain his command until his death, from 1821 onwards his duties increasingly concerned the removal or sale of the accumulated ordnance and naval stores.

The first major sale of Navy property at Whitehall resulted in a minor scandal for Captain Leonard. This event occurred early in 1821, when the Navy Board inquired about the quantity and value of the iron ballast stored in the warehouse, and the feasibility of selling it to merchants and shippers on the lake. Leonard assured the Board that because of the high demand for this commodity, the 100 tons of pig iron from the squadron could be sold for a minimum of 25 dollars a ton; there was a lesser quantity of quality iron ore ballast, that was worth at least five dollars a ton.[26] On the basis of this information, an auction of all the iron was approved.

The sale of the ballast in the spring of that year turned out to be a total disaster, for the pig iron and iron ore went for only a fraction of the original estimate. Leonard was commanded to stop the delivery of the iron, but by the time this order reached him it was too late.[27] The Navy had practically given away ballast that had cost a great deal of money during the war. Leonard subsequently sent to Washington a series of letters explaining the auctions dismal results, each of which totally contradicted

his earlier optimistic statements about the price of iron. The entire affair could not have improved Leonard's reputation in the Navy Department.

By 1821 the Saratoga had settled to the bottom, but available records suggest that the Eagle, Linnet, and Ticonderoga were kept afloat. The frigate Confiance had been entirely written off, and some of the sailors at the station were kept busy removing iron bolts, chainplates, and other hardware from her exposed upperworks.[28] Occasional sales of Navy stores took place; luckily for Leonard, no more misunderstandings occurred regarding the value of the Navy's equipment.

In July of 1824 the hull of the Confiance washed out of the Poultney River and into the lake channel. There she hung up, and according to Leonard constituted "an inconvenience to navigation" in and out of Whitehall. The Navy Commissioners ordered the wreck removed from the bar and placed where she could best be broken up.[29] This was accomplished, and the destruction of the Confiance continued at an accelerated rate. Large sections of the hull were removed by Navy workers and hauled up on the river bank, where iron and copper fastenings were extracted.[30]

A major reorganization plan was adopted by the Navy in 1824, and included in the plan was the termination of the Whitehall and Lake Erie naval stations.[31] The

Secretary of the Navy and the Navy Commissioners travelled to Whitehall in August of 1824, to inspect the decayed squadron and the paraphernalia stored in the arsenal and storehouses.[32] The purpose of their visit seems to have been to determine what materials were to be kept and shipped via the new canal to the naval yard at New York City. Items in this category included most of the squadron's cannon, carronades, and shot, in addition to all of the gunpowder, small arms, and surgical instruments. The remaining ordnance, tools, naval gear, and assorted leftovers were to be sold, with the remains of the warships, at public auction.

When the auction took place on June 19th, 1825, the collection of surplus equipment sold with litle difficulty (Appendix C). This was not the case with the ships, however. One of the conditions placed on the sale of the water-logged vessels was that they be removed by the purchasers, and a $1,000 bond had to be posted for each of the hulls to ensure that this requirement was met. Captain Leonard reported on the unsuccessful attempt to auction the squadron:

> The warships were put up separately except the Confiance and the Saratoga (the latter ship being sunk was put with the former, so as to obtain her removal, too, if it should be required in the future) and the six galleys being joined in one offer, as it supposed the sums of each would be small should there be different purchasers.
>
> There was no offer made for them ...

> The obligation of removal being too considerable for any advantage that might arise from the iron they contain with the difficulty of getting it from under water.
>
> At present where they lie no complaint by any inhabitants has been made to me, or any request for their removal.[33]

The Commissioners of the Navy Board took the hint offered in the last sentence of Leonard's letter, and revised his orders:

> If you cannot sell the vessels with the condition of removing them, if it should be required, you will sell them without that condition. There not having been any complaint of the vessels in their present situation, it is presumed their removal will not be required.[34]

The second warship auction occurred on July 19th, and was entirely successful. Unfortunately, records do not indicate who the purchasers were, but it is safe to assume that they were local merchants or shipbuilders who intended to salvage the iron fittings contained in the hulls. On September 13th, 1825, the General Accounting Office in Washington received from Leonard $6,632.83, "being the amount of sales of vessels and stores on Lake Champlain."[35] This sum was not much of a return to the Navy for the warships built at such expense in 1814.

The removal of the remainder of the Navy's property was completed in October of 1825, thereby ending Whitehall's decade as a naval base.[36] Although he was stationed in New York City, Leonard remained the "Commander on Lake Champlain" until his death in 1832.

Probably not long after her sale to the salvagers, the Eagle filled with water and settled to the bottom. The ropes that moored her to the riverbank may have held her upright for a while, but before the wreckers could begin their work, the brig heeled over steeply into the river, and her portside gunports disappeared under the surface. The starboard side of the vessel and half her main deck were left exposed to the depredations of her new owners. For the next few decades salvagers pried off planks, beams, and futtock timbers, removing the iron contained therein. Safe from further destruction, the submerged port side remained intact under the fresh water of the Poultney River, a tangible relic of Adam Brown's shipbuilding skill and Macdonough's military genius.

CHAPTER VIII

THE WHITEHALL PROJECT

Preliminary Research

The archaeological study of Macdonough's sunken warships, an endeavor which came to be known as the "Whitehall Project", had its beginnings in the investigation of a steamship sunk in the northern end of Lake Champlain. This vessel, the Phoenix, was built by the Lake Champlain Steamboat Company in 1815 to replace the hull that Macdonough commandeered and converted into the Ticonderoga. Phoenix was the second steamboat to ply the lake, and she made a profitable bi-weekly passage for four years until a spectacular fire sent her to the bottom in 1819. The charred steamship lay undisturbed under the lake's cold, fresh waters until 1978, when she was accidently discovered by a group of divers. Their find was brought to the attention of the Champlain Maritime Society, a coalition of of archaeologists, historians, divers, and other persons interested in researching and preserving the history of Lake Champlain. In the summer of 1980 the Society launched its inaugural project, the documentation of the existing remains of the Phoenix. The study of the wreck was assisted by the Vermont Division for Historic Preservation, which provided both funding and technical advise.

During the week-long project the steamer's scantlings were recorded by a team of eight divers, and plans of the existing hull were prepared. The Phoenix was one of the earliest steam-propelled vessels constructed in the United States, and her remains contained unusual supporting timbers and plumbing associated with the crude steam engine she carried. The results of the archaeological and archival research on the vessel were published the following year, in a report entitled Phoenix Project.[1]

Continued interest in the construction of early steamboats led a Champlain Maritime Society-sponsored team to Whitehall, New York, and the hull of Lieutenant Stephen Cassin's schooner Ticonderoga. This vessel had remained sunk in the Poultney River for 133 years after her abandonment by the Navy, until 1958 when she was raised and placed on display behind the Skenesboro Museum as part of Whitehall's bicentennial celebration (plate 6).

A study of the steamboat-turned-warship began in January of 1981, when the schooner's timbers were measured and photographed in detail. From this information plans were drafted of the hull structure, and a technical description of the vessel's construction was prepared. The archaeological investigation of the hull stimulated curiosity about the schooner's abbreviated career, and extensive research was undertaken in libraries

and in the National Archives in Washington, D.C., to document the history of the Ticonderoga. The investigation of the schooner was completed two years ago after the initial hull survey, with the publication of a report on the history and construction of the Ticonderoga.[2]

Plate 6. The hull of the Ticonderoga in 1981.
(Photograph by William Noel)

During the early stages of the Ticonderoga research, the existence of other warships from Macdonough's squadron was brought to light through interviews with several Whitehall residents. Carol Senecal, a participant in the raising of the Ticonderoga, recalled locating and

examining at least two other wrecks in the Poultney River. Her observations were confirmed by professional diver Paul Kissinger, who inventoried wrecks in the river for the Whitehall Historical Society in 1978. During a telephone interview he remembered finding one large wreck near the first bend in the river, and two smaller vessels "possibly gunboats", buried up to their gunwales near the confluence of the Poultney River and Lake Champlain. On the basis of this information, a search of the last half-mile of the river channel was begun in the summer of 1981, to determine what remained of Lake Champlain's "War of 1812 Warships."

The Site

The lower end of the Poultney River, known locally as "East Bay", is an unusual area, and merits a brief geographical description before beginning the narrative of the 1981 survey.

The center of the Poultney River channel for its last half mile constitutes the border between West Haven, Vermont and Whitehall, New York. A concrete bridge, located 3,100 feet upstream from the terminus of the river serves as the arbitrarily-chosen eastern boundary for the site area, while the confluence of the river and Lake Champlain provides the western boundary. Within this area the river channel - which averages 150 feet wide - describes one graceful "S" curve (figure 30, plates 7 and

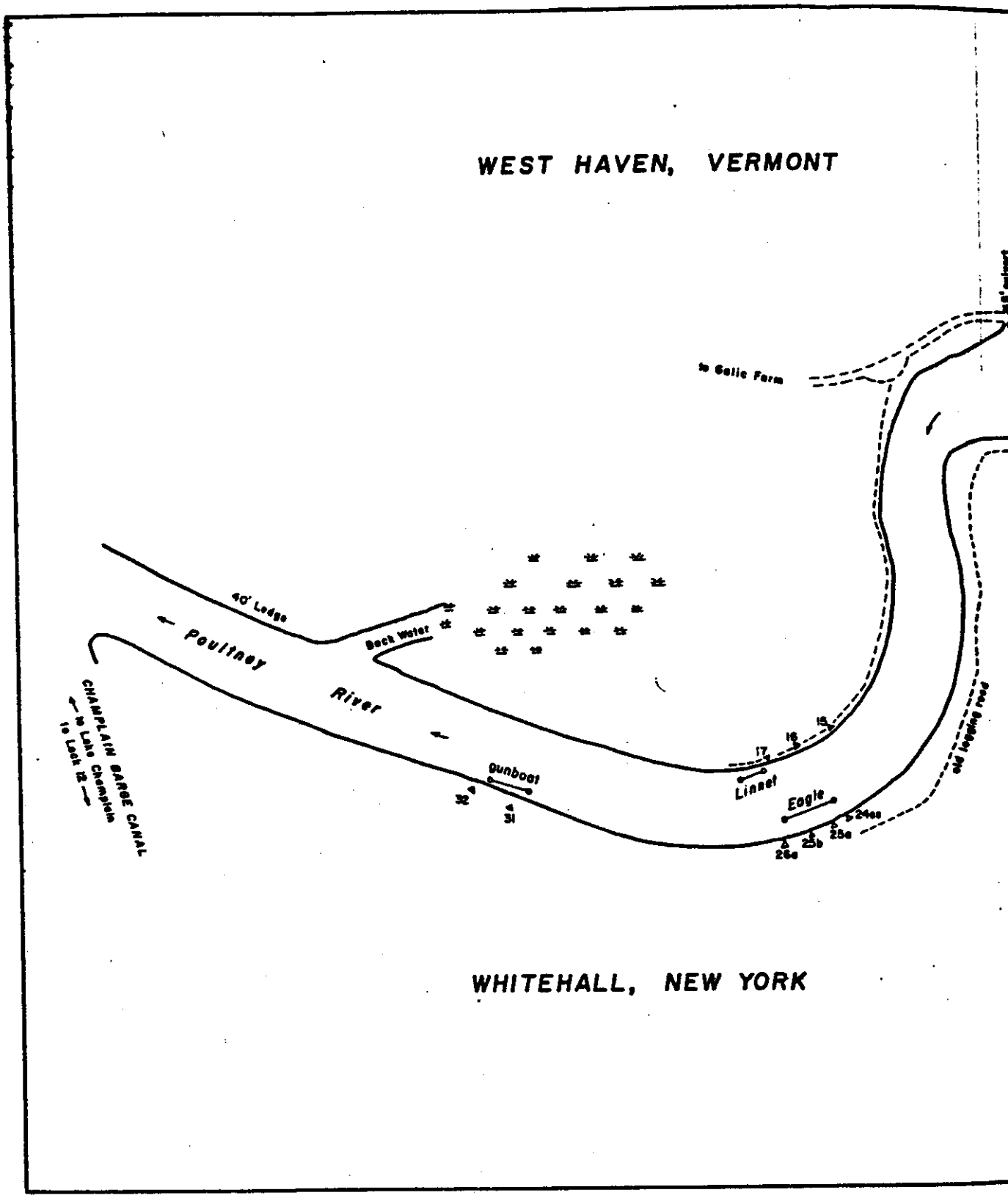
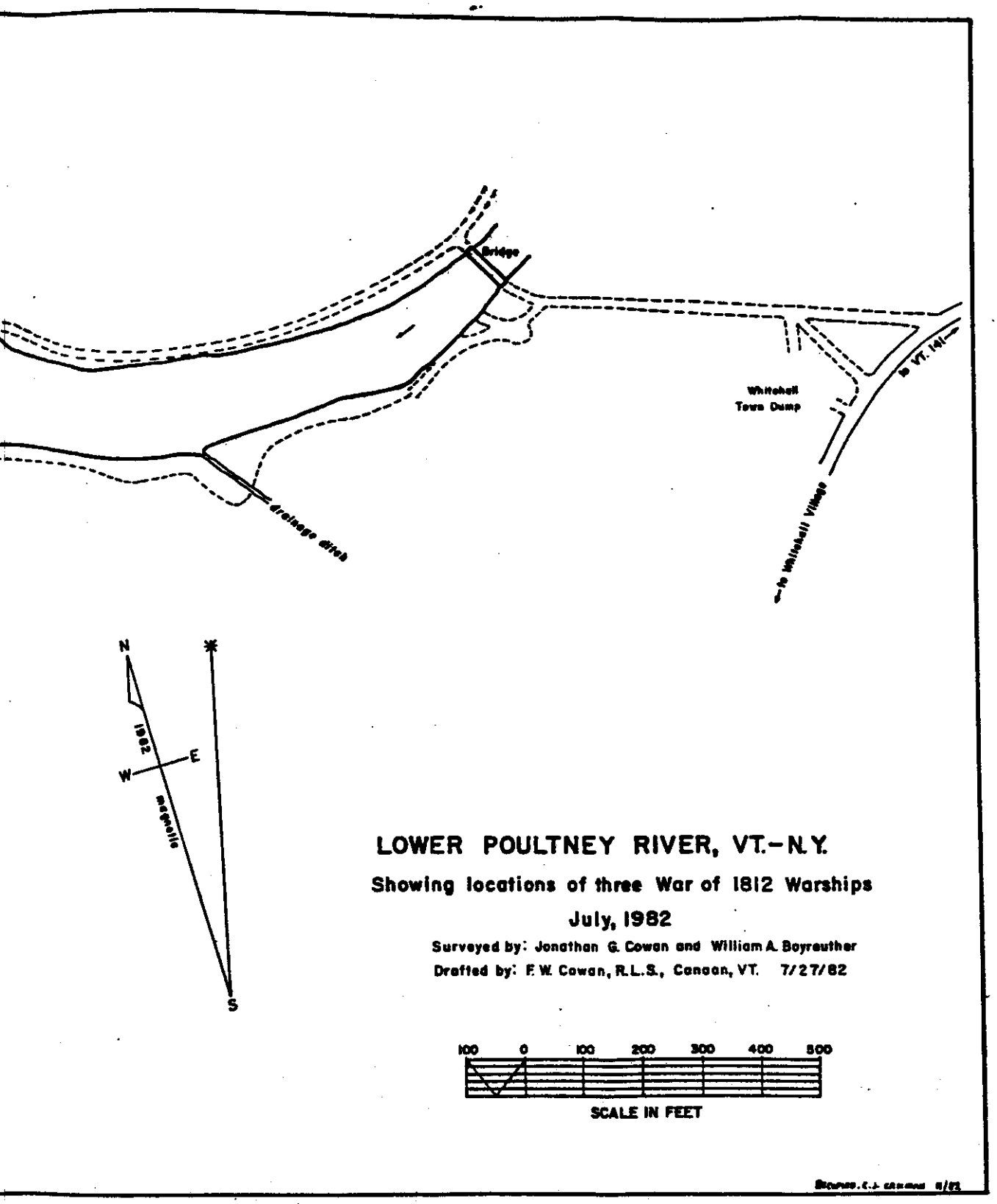

WEST HAVEN, VERMONT
to Gallic Farm
40' Ledge
Back Water
Poultney
River
CHAMPLAIN BARGE CANAL
to Lake Champlain
to Lock 12
Gunboat
32
31
17
16
15
Linnet
Eagle
24a
25a
25b
26a
old logging road
WHITEHALL, NEW YORK

Figure 30.



Lower Poultney River.

8). The river has steeply-sloping clay banks, while underwater it drops off rapidly to a maximum depth of 12 feet. The bottom of the river is a peculiar mixture of coarse sand and fine silt, with detached lumps of riverbank clay.

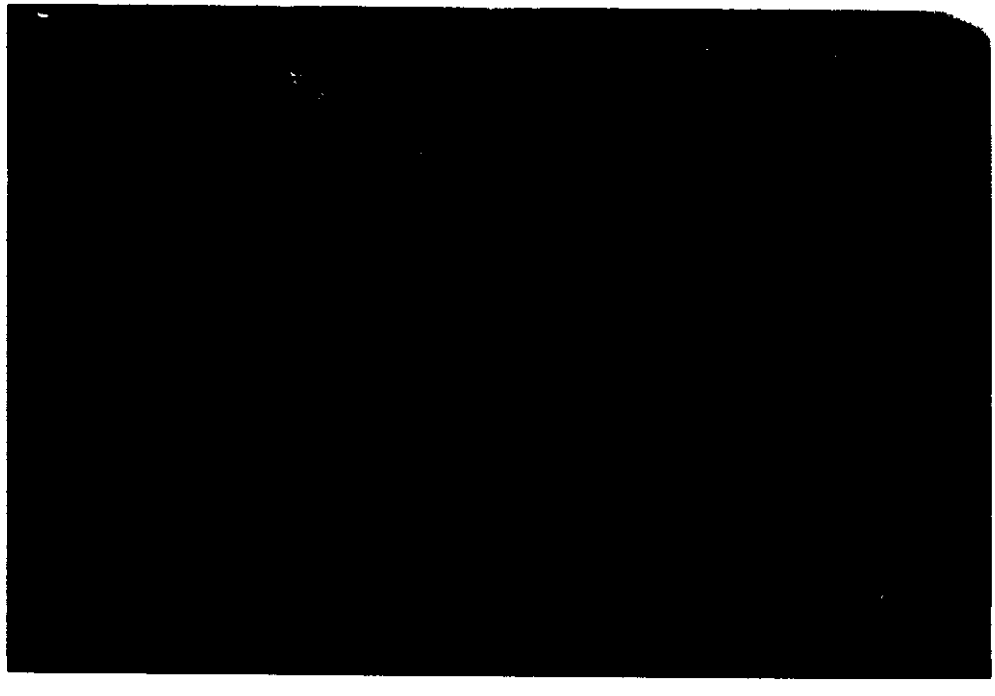


Plate 7. A view of the confluence of the Poultney River and Lake Champlain, facing northwest. The river begins in the lower right hand side of the photograph and converges with the lake in upper center. The area to the right of the river is part of West Haven, Vermont, and the surrounding land is part of Whitehall, New York.

(Photograph by Kevin Crisman)

Vegetation on the sides of the river can be characterized as very thick. It consists mostly of bottomland species, of which elm and silver maple are the

major components, with lesser quantities of black oak, black gum, and sumac. Both sides are liberally covered with hawthorn trees and stinging nettles, making foot passage off the beaten paths a painful experience.[3]

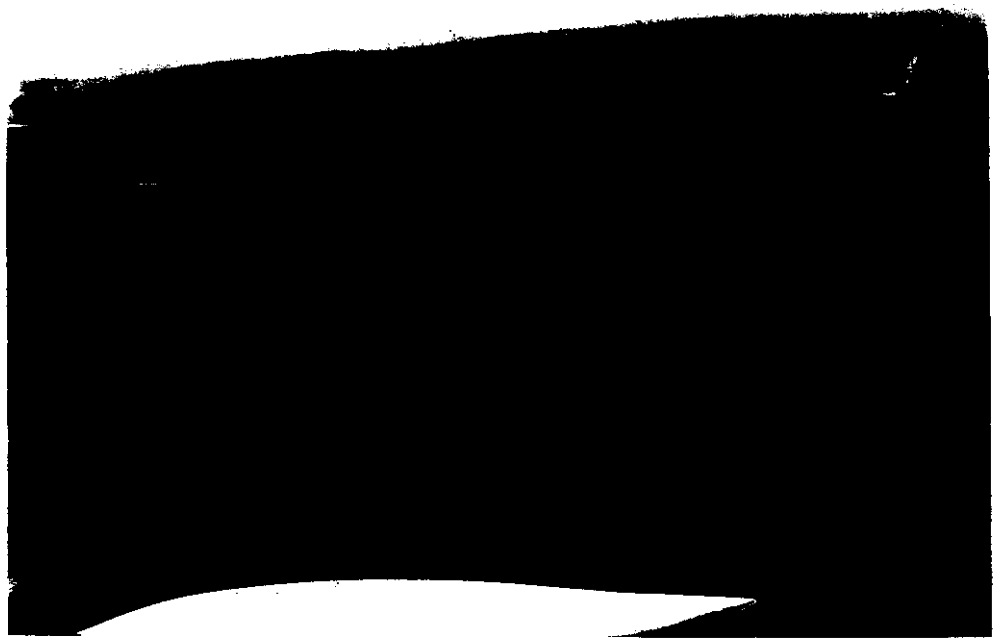


Plate 8. The confluence of the Poultney River and Lake Champlain, facing south. The river extends from the left side of the photograph and enters the lake on the right. The village of Whitehall can be seen in the upper right hand side of the photograph, about one mile away from the confluence of the river and the lake.

(Photograph by Kevin Crisman)

The lands set back from the riverside terraces are generally low-lying and swampy, particularly on the New York side. Below the final bend in the river the Vermont

bank rises gradually towards the northwest, and the final 400 feet of river bank is a rock ledge that rises vertically 40 feet above the river.

The swampland surrounding the final one-half mile of the Poultney River is a perfect breeding ground for insects, and during the summertime, particularly in June, the area is overrun with clouds of black flies and mosquitoes. Deer and horse flies put in an appearance later in the season. Otherwise wildlife includes large numbers of waterfowl and aquatic rodents. The river, which is slow moving, warm, and turbid, contains catfish, sucker, rock bass, perch, and other types of hardy fish.

The low-lying, flood-prone land and the insect population have combined to make the area unsuitable for human habitation, and consequently there are no buildings of any type in the immediate vicinity. The only marked intrusion is a rutted dirt road that begins in Whitehall, crosses over the river to Vermont via the previously-mentioned concrete bridge, and parallels the river westward for 1,000 feet before turning off into the West Haven hinterland. Traffic over the road is light, and consists for the most part of fishermen and beer drinkers seeking secluded places to indulge in their respective hobbies. There are two other activities in this vicinity. On the Vermont side, some of the fields above the swamps are planted in hay, and on the New York side, the Whitehall

town dump is located about 500 feet east of the bridge. Beer drinkers and spillovers from the dump have left deposits of trash along the sides of the dirt road, a considerable amount of which has found its way into the river.

The lower portion of the Poultney River is a scenic region; when entered by the water from Lake Champlain in the summertime, it bears some resemblance to an Amazonian tributary. Broadleaf trees and other bright green vegetation crowd down to the waters edge, kingfishers bob continuously over the river's surface, and beavers and muskrats can often be seen swimming along the banks. The Amazonian aspect changes at the first bend in the river, where the trees on the Vermont shore thin somewhat and a high, rock-sided mountain ridge is visible a mile or two to the north. This is an area of topographical extremes, and there is something new to see at every turn in the channel. The lower Poultney River, while a pleasant location, seems an unlikely graveyard for a War of 1812 naval squadron.

The 1981 Survey

The first underwater exploration of the "Whitehall Project" was a modest endeavor, taking place on an unseasonably cold, overcast June 26th. The diving team consisted of myself and William Noel of Burlington, Vermont. A map drawn by Mrs. Senecal guided us to the

approximate location of the wrecks, where we donned wetsuits and tanks, slithered down the clay banks, and descended under the grey-brown waters of the Poultney River. Submerging was a disquieting sensation, for there was almost no visibility, a condition which neither of us had ever encountered while diving. For one hour and ten minutes we swam back and forth in the channel, optimistically hoping to stumble across a hull. Half an hour into the dive Noel found a large, squared-off timber which appeared to be significant, but upon closer examination it proved to the the cross-tree from a telephone pole. Much to our dismay, large amounts of rusty metal and broken glass littered the bottom, a hazard to unprotected hands. Festooned with weeds and low on air, the two of us finally gave up. That day's search was a failure, but it did provide an idea of what sort of conditions we could expect to work in, if a hull was discovered.

The second expedition to the Poultney, on July 23rd, was considerably more successful. With the aid of Lake Champlain historian and archaeologist Arthur Cohn of Fairfield, Vermont, a team of seven experienced divers was assembled to scan the river bottom for warships. Mrs. Senecal assisted the search effort by accompanying us to the river and indicating where the Ticonderoga was found. One vessel was discovered before the diving began, when a

number of frames were seen near the Vermont bank, their ends extending to just below the surface of the water. We could not immediately identify the hull, and two divers were assigned to measure its scantlings while the other five fanned out across the river to seek additional wrecks.

Within half an hour, Cohn, Anne Erwin, and Jan Warren found the remains of a vessel across the river and slightly upstream of the first discovery. They removed several large branches from the wreck, and a longitudinal measurement was taken along the keelson. From stempost to sternpost, the wreck measured 115 feet. We immediately suspected that this was the United States Navy Brig Eagle, since of the five major warships in the Lake Champlain squadron, only the Ticonderoga had similar dimensions, and the location of her hull was not in doubt. The Confiance and Saratoga were greater in length (147 feet, 5 inches and 143 feet, respectively), and the Linnet was much shorter (82 feet, 6 inches). The Eagle was the only warship of the five whose length and breadth could not be found in historical documents.

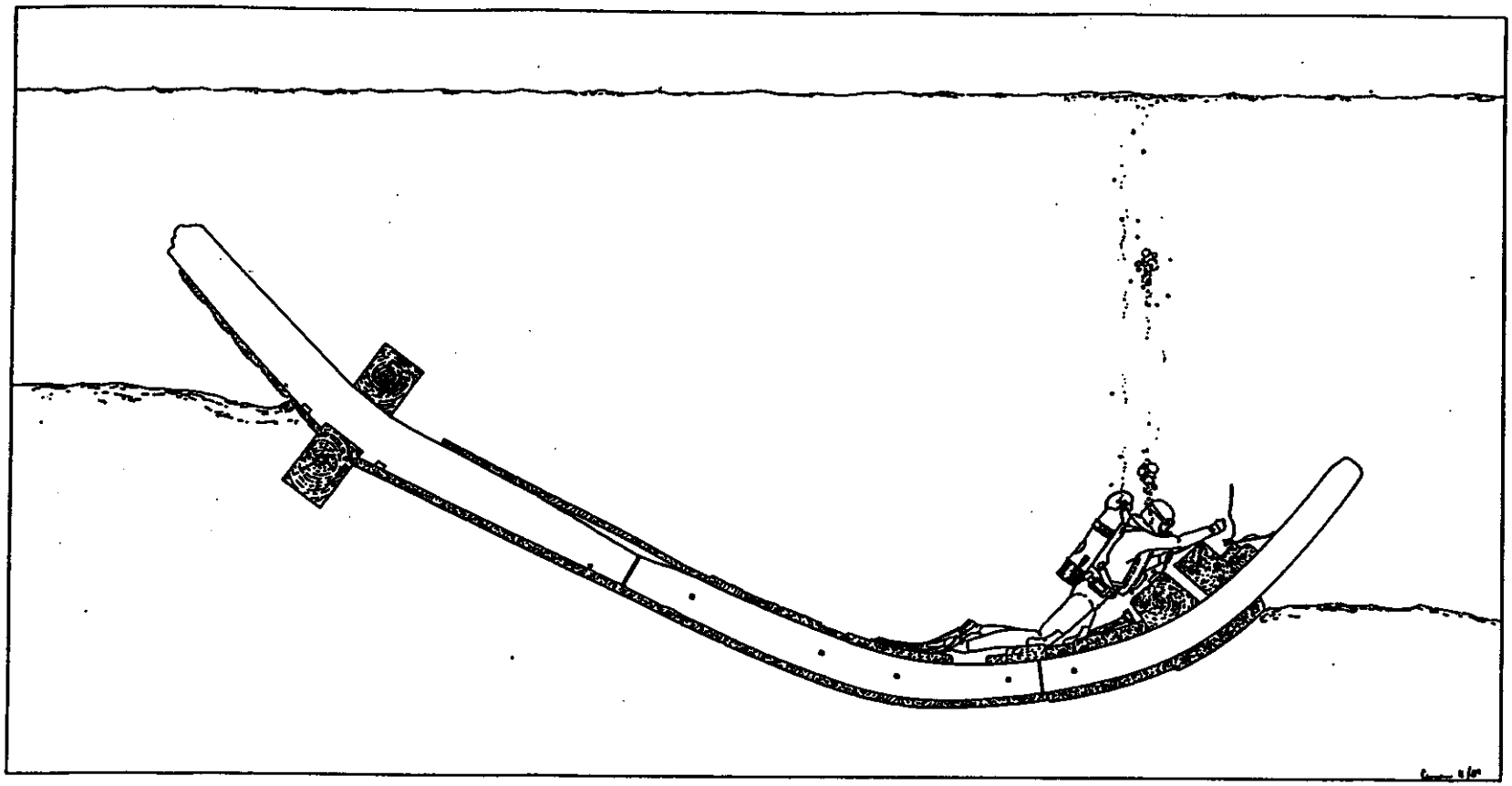
The broken hull section first discovered along the Vermont shore was tentatively identified as part of the Royal Navy brig Linnet, since its scantlings appeared too small to be part of either the Saratoga or Confiance.

A third excursion was made to Whitehall on August

7th to further inspect our finds and search for more hulls. Two divers measured the Linnet's timbers, four examined the Eagle, and two continued the search of the river channel. A third hull was found by Cohn and Ken Cameron, 400 feet downriver of the Eagle. The 75-foot length and 14-foot beam of the vessel identified her as one of the six 2-gun row galleys built by Noah Brown in the spring of 1814.

The full extent of the Eagle's preservation became apparent during the August 7th inspection. Despite very poor visibility - less than one foot - many important features were discovered and noted by the divers. The entire length of both the keel and keelson were found to be intact, although the former was buried for most of its length under the river bottom. Several feet of the stempost and sternpost were fastened to the keel, complete with their reinforcing deadwood timbers. The hull had careened over onto its port side when it sank, and lay at an angle of approximately 38 1/2 degrees (figure 31).

On the starboard side of the hull, the frames were broken off an average of five feet from the side of the keelson, but on the port side, the frames were intact to the shelf clamp. The port side ceiling planking was firmly spiked to the frame timbers, except at the forward and after ends of the vessel. Two large longitudinal timbers were found approximately 16 feet from the side



Frame 31. A section view of the Eagle at the midship frame. The diver is over the clamp and waterway timbers, near the top of the port side.

of the keelson, set one above the other and bolted to the insides of the frames. They were identified as the deck-supporting clamp timber and waterway. Above the waterway, the divers discovered two 3-foot-wide gunport-like openings between the frames. Altogether, it appeared hat nearly half of the Eagle had survived up to the level of the cap rail. A 12-pounder cannon ball was found lodged beneath the keelson, further confirmation that this was a warship hull, and not the remains of an abandoned steamboat.

A six-foot-high "wall" of 2-inch thick planking edge-fastened with iron rods was observed at the forward end of the Eagle. This was at first thought to be part of the brig's deck, but it was subsequently identified as side-planking from a later-vintage canal boat.

The survey of the Poultney River in 1981 yielded three unique and well-preserved warship hulls, each of which deserved careful archaeological study. No further inspections of the finds were carried out in 1981 due to time constraints, but we decided to return the next year to begin recording the construction of the Eagle, Linnet, and the row galley. The ultimate goal of the "Whitehall Project" was to reconstruct on paper the original appearance of these warships when they navigated the lake in 1814.

1982 Fieldwork

Arrangements for the 1982 season began in the fall of 1981, when a preliminary organizational plan and a list of objectives was composed. The field project was to be co-directed by Cohn and I, and span two or three weeks in July. We planned to recruit a team of eight to ten experienced divers to record the dimensions of the hull scantlings with measuring tapes and yardsticks. Because the three wrecks were for the most part exposed above the bottom of the river, time-consuming excavation was considered unnecessary, and the divers were to concentrate entirely on measuring timbers. The Eagle was the largest and most complete of the three wrecks, and we decided to focus most of our attention on her hull. In addition, the remains of the Confiance, Saratoga and five gunboats were still unaccounted for, and so preparations were made to complete a comprehensive survey of the river and lake bottom around Whitehall, utilizing a side-scan sonar to search the murky water.

After outlining the goals of the project, the next step was to apprise the state archaeologists of our finds, and submit applications for work permits. Giovanna Peebles, the Vermont State Archaeologist, was familiar with the qualifications of our team through the Phoenix and other underwater projects, and she expeditiously processed the necessary archaeological permits. She also

provided sound advice on funding sources and a number of other issues that arose during the project. Philip Lord of the New York State Archaeologists Office was equally helpful in securing official sanction of the "Whitehall Project".

Other requirements of the project were a sponsoring organization and funding. The former need was easily answered by the Champlain Maritime Society, whose board of directors agreed to back the project and act as treasurers for grant money. Funding for the 1982 season was obtained from two sources: a generous grant from the Vermont Historical Society, and a Federal survey and planning grant administered by the Vermont Division for Historic Preservation. These contributions effectively covered the expenses incurred during the field research.

The remaining organizational hurdles were crossed during the spring and early summer of 1982. The distance from Burlington, Vermont (where most of the field crew lived), to Whitehall was too great to commute daily, and thus some type of living quarters had to be found near the site. We briefly considered camping, and then discarded the idea. Diving for several hours each day and then "roughing it" outdoors would have quickly exhausted even the most dedicated of participants. The insect population provided a second veto to camping. We decided the best alternative was to rent a large house that could

comfortably accomodate ten to twelve people.

After examining several possibilities, we found a perfect project headquarters on Lake Bomoseen, Vermont, a 20-minute commute from the site. The structure was an enormous Victorian-period summer house called "Windsport", situated immediately above Lake Bomoseen. The slightly dilapidated wooden building featured huge living and dining rooms, half a dozen bedrooms, and a rambling veranda overlooking the water. The cold, clear lake was an unexpected bonus, since we could use it as a giant bathtub for washing away accumulations of Poultney River muck and silt.

Other logistical problems were resourcefully dealt with by Art Cohn. He secured a high-pressure air compressor to fill tanks, a 17-foot-long Zodiac-brand inflatable boat, and a 1959 Chevrolet van to transport equipment. He also handled the recruiting of personnel, many of whom were participants in the 1981 survey. A skilled selection of divers volunteered to join the project, and we were fortunate to have the most essential ingredient of any archaeological expedition, an enthusiastic field crew.

A project length of three weeks was chosen after a review of goals and available funding. The first week was to involve a small team who would prepare the site, and the following two weeks were to be devoted to

documenting the hulls.

The project began on Monday, July 12th, with a crew of four consisting of Cohn, William Bayreuther, Jonathan Cowan, and myself. We launched the inflatable boat at "Cliff and Neva's Lock 12 Marina" in Whitehall, motored to the Poultney River, and explored the site. The original plan was to prepare a road into the site, over which the gear and divers could be transported each day in the van. After scouting the densely foliated track which the van would have to traverse, we decided to instead clear a footpath along the New York bank of the river. This turned out to be the best course of action. When the full-scale effort got underway the next week, diving and measuring equipment were freighted in from Whitehall on the Zodiac, while the divers parked their cars near the bridge and hiked in, a distance slightly under half a mile. The other site-preparation task involved cutting brush from the river bank near the bow of the Eagle, which transformed it into our dive platform. The clearing of the footpath and river bank required one day of work. During the remainder of the first week the crew of four split into two teams. The terrestrial team of Cowan and Bayreuther surveyed the river bank with transit, tape, and compass, and prepared maps of the site showing the location of the three wrecks (figures 30 and 32).

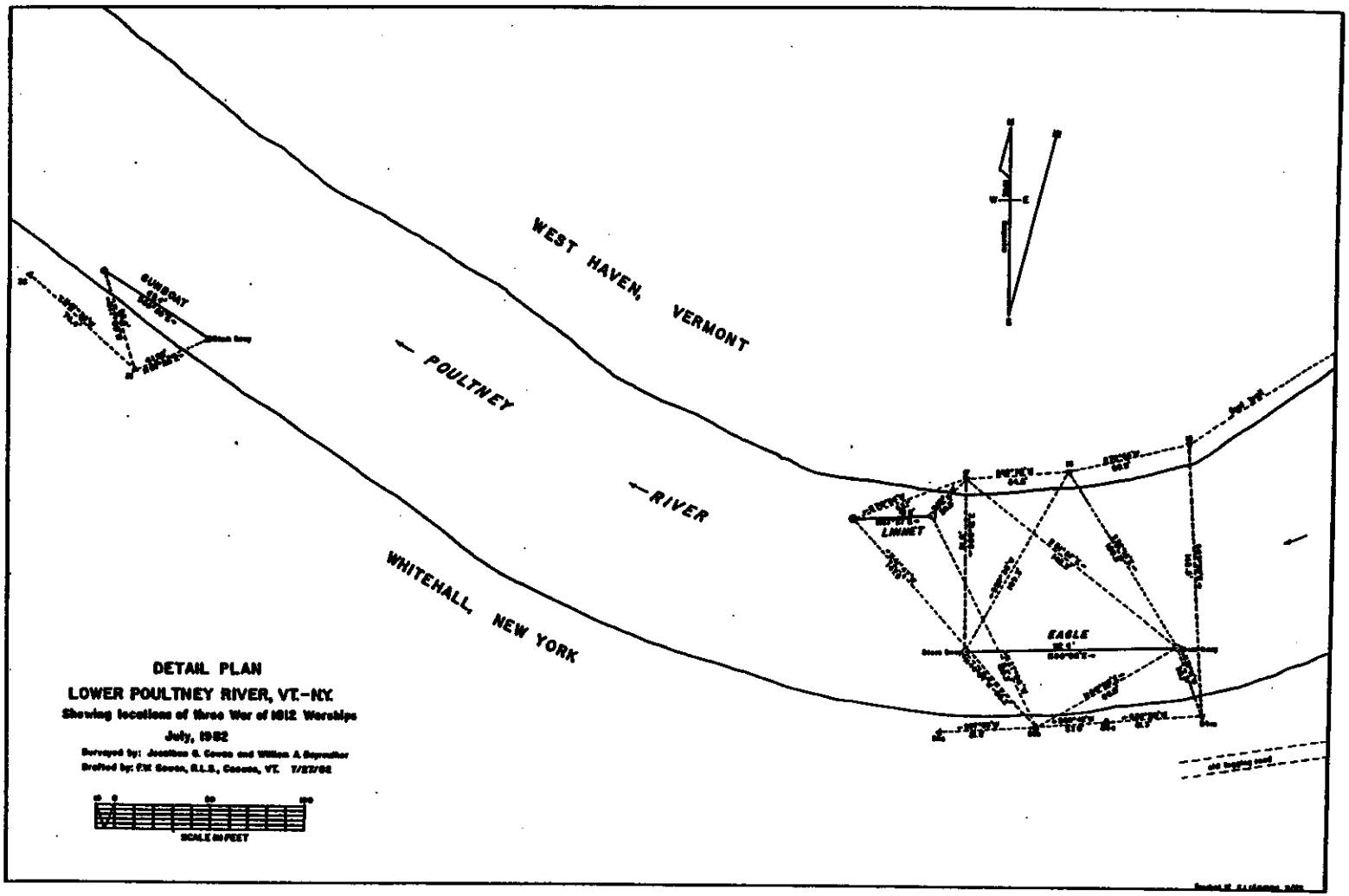


Figure 32. Detail plan, Lower Poultney River.

The second team consisting of Cohn and I spent four days bouying stemposts and sternposts, tagging each frame with an identifying number, and stapling baseline tapes to keelsons of the three wrecks. Modern debris was swept from each of the hulls, particularly the Eagle, which contained dozens of beer bottles that had washed in and settled between the frames. This wreck also a had a beaver lodge built practically on top of the starboard side, and we had to remove dozens of ready-to-eat branches that its occupants had stuffed under the keelson.

While trash-clearing and frame tagging we learned more about the extent of the Eagle's hull. A total of seven gunports were counted on the port side, five of which still retained their gunport sills. More gunports were thought to be buried near the stem. Between the clamp timber and the waterway were found the stumps of the main deck beams. Every additional find promised to make the reconstruction process easier and more accurate.

Nine persons comprised the team for the second week, when the intensive measuring work began. We started on Monday, the 19th of July with an orientation to wooden hull construction and terminology, using the exposed Ticonderoga as an example. In the afternoon each member of the crew was given a tour of the wreck they were to work on, and a familiarization with low-visibility diving. The majority of the divers were assigned to the Eagle's

large hull, and two or three began work on the row galley to obtain scantling dimensions.

A daily routine quickly developed and was maintained until the end of the 1982 fieldwork. Each day began at 7:00 a.m. when a wakeup committee made the rounds of "Windsport". Once awake and dressed, the crew informally divided itself and completed three tasks: loading the van with dive equipment and measuring tools, making breakfast, and assembling sandwiches for lunch. After breakfast, we pulled out at 8:00 for Whitehall, in a convoy composed of the equipment van and one or two passenger cars.

The first stop in Whitehall was "Cliff and Neva's", where the Zodiac was moored overnight. There all of the equipment was passed "bucket brigade" method from the van to the boat. All equipment transfers were a group effort, since each involved lugging an average of 20 tanks, 10 gear bags and weight belts, one or two crates of measuring equipment and tools, two large cooler chests, and an "Igloo" water jug. The Zodiac carried all of this weight without complaint, although she handled somewhat sluggishly when underway. The boat cast off from the marina and motored off northward, while the crew drove to the Poultney River, parked at the bridge, and walked in to the clearing near the Eagle.

Rendezvous between boat and crew was generally made about 9:00 a.m., the Zodiac was unloaded, and the gear

neatly stacked along the bank. Large canvas tarps were unrolled over the ground, to protect equipment and bare feet while donning gear. Each crew member prepared a clipboard with a mechanical drafting pencil and plastic drafting film, and then selected the measuring tools necessary for the day's tasks. Fifty-foot reel tapes, yardsticks, and 18-inch rulers were the most common measuring devices, and some divers carried flashlights to assist their vision.

By 10:00 a.m. most of the divers were in the water and at work on their assigned portions of the Eagle's hull. We began the project by documenting the more obvious features. The stempost, sternpost, and stern deadwood were carefully recorded, while other divers examined the keelson and the bases of the first futtocks and floor timbers. The clamp timber and the waterway below the portside gunports were sketched and measured from end to end.

The standard safety procedure of pairing divers in buddy teams was quickly dropped, since two people working in close proximity hindered each other considerably by kicking up clouds of silt and getting their equipment tangled. Instead, participants were spread over the wreck, and tasks were coordinated to insure a minimum of contact. Working in the dim, grey-brown light at the bottom of the river was a lonely sensation, and divers

often measured timbers for two or three hours without seeing anyone else, although there were half a dozen other crew members nearby.

Between 12:30 and 1:00 in the afternoon the divers climbed out of the water, changed tanks, replaced plastic sheets in their clipboards, and ate lunch. This time was also used to discuss any unusual features encountered during the morning. By 1:30 lunchbreak was over and the team went back into the water for two or three more hours.

Despite its foul appearance, the Poultney River proved to be passably clean, and none of the divers contracted any exotic diseases from living in it for an average of 25 hours a week. Several serious ear infections did develop, but they seemed to be the result of having one's ears wet all day. The water was warm during the 1982 season, improving the comfort and productivity of the divers, and permitting us to sometimes leave confining wetsuit jackets on shore. Marine life was also benign, with the exception of two reported incidents of leech-attack.

The flow of the Poultney River is normally sluggish in July, and the divers did not have to contend with strong currents. Instead, we encountered an unusual tidal effect. When the wind blew strongly from the west, or when large oil barges passed by the mouth of the Poultney, the current would often reverse for a time, and the river

flowed gently upstream. Eventually back pressure would overcome the surge, and water again flowed downstream. On particularly windy days, or when barge traffic was heavy, the river sloshed back and forth in a regular cycle.

Divers completed the second day's immersion between 4:00 and 4:30 p.m., removed tanks and wetsuits, rolled up tarps, and packed everything back into the Zodiac. The inflatable then pushed off, the crew hiked back to the cars, and both parties met at the marina to carry equipment and tanks from the boat to the van.

Back at "Windsport", all gear was moved into the house, the compressor was set to work filling tanks, and preparations were made for dinner. After dinner was concluded, usually around 8:00 p.m., the remainder of the evening was devoted to re-copying the day's measurements and sketches onto notebook paper. This process, though tedious, was necessary, since it greatly improved the legibility and organization of the field notes and made monitoring of progress much easier. The recopying work usually occupied everyone's attention up to bedtime, which was at 11:00.

The schedule changed slightly during the weekend between the second and third weeks, as several crew members returned home to regular jobs, new divers joined us, and the electronic survey was begun. Side-scan sonar owner and operator James Kennard and underwater

photographer Scott Hill arrived from Rochester, New York on Thursday, July 22nd. The next morning, after dropping divers and equipment at the site, the Zodiac was taken back to the Whitehall marina and transformed into a survey vessel.

A rudimentary "bowsprit" constructed of 2x4-inch timbers was lashed to the bow of the Zodiac, and the sonar transponder or "towfish" was suspended from this to a depth of two feet below the surface of the water. The unusual bow-mounted system was devised to protect the towfish from hitting the bottom while surveying in the shallow waters of the Poultney River and southern Lake Champlain.

After a few minutes of adjusting the sonar printer and examining the main channel below Whitehall, we turned the inflatable with its electronic eye into the Poultney River. This was an exciting moment for all on board, since as-yet-undiscovered vessels of Macdonough's squadron were expected to appear on the recorder. To our great disappointment, this failed to occur. The row galley appeared as a slight disturbance on the bottom, the keelson of the Linnet was revealed as a straight line, and the wreck of the Eagle was clearly depicted (plate 9), but no other vessels could be found in the channel. The three warships located in 1981 and the Ticonderoga were the only survivors of the 1814 naval

Plate 9. The sonar picture of the Eagle on the bottom of the Poultney River. The straight line in the center of the picture is the keelson. The shadow below the keelson is produced by the port side curving up from the river bottom. The canal boat wreckage has produced contours in the river bottom at the forward end of the boat. (Sonar print by James Kennard).

campaign on Lake Champlain. Archival research later provided possible explanations for the disappearances of Confiance, Saratoga, and the five row galleys.

The sonar search moved on to the main channel of the lake and continued for two more days. No further evidence of Macdonough's squadron was encountered, but a score of later-vintage hulls were located, mostly canal boats dating to the late 19th and early 20th centuries. Electronic survey of the lake channel was completed to a distance of 14 miles below Whitehall.[4]

On July 24th Scott Hill tested the abilities of his 35mm camera in the cloudy water over the Eagle. The camera, a Nikonos equipped with a wide angle 15mm lens and powerful strobes, took a series of remarkably clear pictures which showed the timbers with far greater clarity than any human eye under the river could discern. The photographs had to be taken at a very close range, reducing their usefulness for reconstruction purposes, but they showed that the wide-angle camera had definite possibilities for future work in low-visibility water.

Eleven crew members were present to continue the measuring work during the third and final week of the Whitehall Project's 1982 season. On the Eagle the objectives remained the same, completing the documentation of the primary structural timbers. Additional assignments included preliminary study of the portside ceiling

planking, recording of hull curvatures at frames H and 32, and sketching the frame tops above the waterway timbers.

On Thursday of the third week, photographer Ken Cameron and archaeologist Brian Robinson catalogued artifacts found on the three wrecks. There were relatively few items to inventory, since the Navy stripped the wrecks of most equipment before selling them, and divers reportedly picked over the hulls in the 1950's and 1960's. Items found between the frame timbers included iron spikes and drift bolts, a small assortment of shot, a glass bottle, and pieces of iron ore ballast. When the cataloguing work was completed, every artifact was given a provenience tag, bagged and redeposited on the river bottom. The terms of our archaeological permits specified that no artifacts were to be removed from the site, and in any case we had neither the money nor the time to construct conservation facilities.

The third week went as smoothly as the two preceding weeks, although the accumulation of long, fatiguing days underwater began to have a debilitating effect on participants who had been with the project since its beginning. Longer sleeping hours were instituted to correct the problem and a reasonable state of efficiency was maintained to the end. The final day of diving was Saturday, July 31st, when a few last minute details were wrapped up. It was clear at this time that another field

season would be required to complete the study of the Eagle, but the 1982 field work was a resounding success. There was a notebook filled with sketches, descriptions, and dimensions, Scott Hill's excellent photographs, and a greater understanding and appreciation of wooden ship construction shared by all the project members.

1983 Fieldwork

The fall of 1982 was spent reviewing the results of the summer's work and preparing a list of goals for the 1983 sojourn to Whitehall. The primary objective for the upcoming season was to finish the documentation of the Eagle. Hull areas that required further examination including the ceiling and external planking, the port sides of the frames (particularly towards the stem and the stern, where many of the frames were exposed), and the amidships portion of the keel. The starboard-side frame stumps and the apron timber at the stem also needed further scrutiny. During the 1982 work it was noted that the forward ends of the clamp timber and the waterway were buried under a thick layer of silt and sand. Several gunports were believed to be buried here, and we decided to excavate these features with a water dredge. At least two or three additional frame curvatures were needed for reconstructing the hull lines. Finally, we intended to remove several dozen wood samples and have them identified, to see what sort of trees Adam Brown and his shipwrights

cut for the brig's timbers.

The experience acquired during the 1982 season greatly expedited preparations for the next year's work. Permits were renewed with Vermont and New York authorities, the Champlain Maritime Society again agreed to sponsor the program, and funding was obtained through grants from the Cecil Howard Charitable Trust and the Vermont Division for Historic Preservation. With comparatively little effort, the groundwork was rapidly prepared for the next phase of the "Whitehall Project".

One aspect of the Eagle's study that continued year around was the archival research into her history. This work was greatly assisted by historian Morris Glenn of Alexandria, Virginia. His familiarity with the National Archives in Washington, D.C. enabled him to swiftly locate obscure Navy records. Glenn directed the successful search for the Eagle's log book, and he spent evenings and weekends sifting through hundreds of documents in the National Archives reading room. Most of the records of Captain James Leonard and the Whitehall Naval Station were collected through his voluntary research.

Slowly, piece by piece, the story of the Eagle's short but active career was pulled together from wide-scattered sources. In the National Archives, rolls of headache-inducing microfilm contained firsthand accounts of Macdonough's frustrating attempts to reinforce his

squadron during the summer of 1814, the hasty construction of the Eagle, the arrival of the arrogant Robert Henley, the climactic engagement in Plattsburgh Bay, and the eventual decay and dissolution of the squadron.

Libraries and museums contained other useful collections of documents. The Shelburne Museum in Shelburne, Vermont, possessed letters from Navy Agent John Bullus to Macdonough, telling of the former's diligent efforts in getting the Eagle's equipment shipped to the lake. The Bixby Library in Vergennes, Vermont, had original letters and business records from the long-defunct Monkton Iron Works, detailing that company's contributions to the shipbuilding campaign on the Otter Creek. Historian Dennis Lewis of Plattsburgh, New York provided duplicates of important records he had uncovered through document searches in New York and Canadian archives.

Not only was Eagle's history reconstructed through archival research, but related questions were answered as well. Chief among these was the ultimate fate of Confiance, Saratoga, and the five row galleys. Glenn produced evidence that the Confiance was partially, if not completely, broken up by the Navy prior to the abandonment of the Whitehall Station in 1825. Other sources told of a warship hull drifting out of the Poultney River sometime in the second half of the 19th

century. It was blown to pieces since it constituted a navigational hazard. The hull was identified at the time of its destruction as the Confiance, but there is some suspicion that it may have been the Saratoga. Five of the six gunboats were sunk after the war in the main channel of the lake, and no records could be found to indicate that they were ever raised. They may have been pulled from the water by wreckers after 1825 or destroyed by dredging operations. It is possible that the five vessels are still under the lake, buried beneath a thick layer of mud. The only row galley kept afloat after the war, the Allen, was probably the single hull of this type found near the Eagle during the 1981 survey.

In the spring of 1983 Cohn assembled a water dredge system for use on the Eagle. This consisted of a gasoline-powered water pump mounted on a surface raft, about 50 feet of canvas hose, 50 feet of PVC 4-inch diameter pipe, and a specially-shaped steel dredge head. In use, a high-pressure stream of water is introduced into one end of the dredge head, creating a powerful suction that effectively removes sand or silt over-burden. The advantage of the water dredge was that it could be operated in very shallow water, whereas an "air-lift" type excavating tool required 15 or 20 feet of water depth to create a powerful suction. The spoil pipe of the water dredge could be pointed in any direction to carry debris

away from the excavation area.

The two-week 1983 season in Whitehall began on Monday, July 10th. A small crew prepared the site in one day, cutting brush and clearing bottles and driftwood from the wreck. Most of the frame tags and baseline tapes from 1982 were still intact on the hull, and the few found missing were easily replaced.

That evening rendezvous was made with the remainder of the dive team at the hull of the Ticonderoga, and a quick lesson on wooden ship terminology was given to newcomers. The crew consisted of seven divers and a surface assistant whose job was to operate the water pump. The list of measurements to be taken from the Eagle was substantial, and we decided to concentrate all of the divers on that vessel.

The work routine established in 1982 remained essentially unchanged, as divers spent four to six hours a day moving slowly about the hull with tape, clipboard, and pencil in hand. There was one significant difference, however, and that was the water dredge. The raft and pump were moored over the wreck each day and the sturdy little engine chugged away over our heads all morning and afternoon. The homemade dredge worked surprisingly well, carrying away gobs of mud, broken glass, and branch fragments at a commendable rate. Cohn swiftly uncovered 15 feet of clamp timber and waterway, bulwark planking,

and two well-preserved gunport sills. The overlying silt had protected the bulwark planking from erosion, and patches of white paint - complete with brushmarks - could still be seen.

The dredge was necessary for uncovering hull timbers that were otherwise inaccessible, but it did have a detrimental effect on the water clarity. Despite Cohn's best efforts to direct the discharge pipe off the wreck, the sluggish river current permitted clouds of silt to drift back over the hull. On the days when the dredge was running, the water was an inky black color that made our powerful underwater flashlights seem like weak penlights

Figure 33. The water dredge in use.

(figure 33). The nearly complete absence of visibility was cheerfully accepted by the crew, who somehow continued to produce pages of detailed sketches and measurements.

The second week of the 1983 field season saw a great deal of activity above and below the water. Forester Jon Cowan arrived to commence three days of identifying wood samples from the hull. On Monday we began the removal of ceiling planking over frames XX and 22, an arduous task that required sawing through two to four inches of still-solid oak and spruce. Sawing underwater in complete darkness demanded an alert mind, for it was all too easy to run the sharp blade over one's extremities. The word "handsaw" took on new meaning. Many of the plank sections cut from the ceiling were still dry in the center, and floated rapidly to the surface when pried free of the frames.

Each plank section was tagged prior to removal, so it could be properly replaced after the hull sections had been recorded. They were taken ashore, where Jon Cowan and Anne Erwin carefully measured each piece and identified the type of wood it was fashioned from. Cowan identified over 100 wood samples from the wreck during his brief visit.

Midway through the week Cohn completed exposing the buried gunports near the bow, and moved the dredge over to the starboard side of the hull to begin the search for

keel scarfs. He found one after tunneling a narrow passageway between the keel and a large tree trunk lying parallel to the wreck. To obtain measurements of the scarf, he found it necessary to leave his air tank outside the hole and breath via an extra-long regulator hose. Bill Bayreuther meanwhile began the time-consuming job of recording the curvatures of the frames with a simple but effective goniometer manufactured by Brian Robinson in 1982.

Artifacts continued to turn up occasionally, and a cataloguing session was organized towards the end of the second week to deal with them. Artist Terry Stone joined the project for two days and sketched spikes, shot, tools, and an unusual brass shoulder belt plate found near the stern by Bill Noel (Appendix E). As during the previous year, the artifacts were bagged with provenience tags and carefully reburied on the bottom.

The official 1983 field season ended on Saturday, July 23rd in a rush of last minute activity that included spiking the detached ceiling sections back in place. This year's work was also successful. Nearly all of the measuring tasks were complete in spite of the wretched visibility, and the on-paper reconstruction of the Eagle could at last begin. The difficult job of cutting out the ceiling planking and measuring the frame curvatures had taken much longer than anticipated, and only frames 20 and 22 were completed. In 1982, two exposed frames, H at the

bow and 32 at the stern, also had their curvatures recorded, and thus there were a total of four hull sections with which to reconstruct the Eagle's lines. Two or three more would have been preferable, but we decided to make do with what there was, and return to the hull if more information was needed.

As it turned out, two more trips were made to the Poultney River in the fall and early winter of 1983. On October 5th Terry Stone and I returned to take additional notes on the clamp timber and external planking. A second excursion was undertaken on December 5th by Noel, Erwin, Cohn, and myself. The weather conditions - a driving blizzard - were far different from that we had enjoyed during the summer fieldwork, and the water was uncomfortably cold, despite the dry suits that all the divers wore. We proceeded, regardless, removing wood samples from the hull, measuring external planking, and recording the curvature of frame M. This polar trip ended our fieldwork on the Eagle, and all that remained was to turn the thousands of measurements and sketches into detailed plans of the brig's construction.

CHAPTER IX

THE CONSTRUCTION OF THE EAGLE

This chapter is devoted to description of the Eagle's hull, as it was found in 1982-1983. The information is presented in approximate sequence of construction. Because the Eagle was built to the English system of measurement, all timber dimensions are presented in feet and inches. A fold-out plan of the Eagle's hull remains (figure 45, page 236) is included at the end of this chapter; occasional reference to this plan will aid the reader in understanding the locations and dimensions of various hull timbers.

The Keel

The keel of the Eagle was characteristic of much of her construction, in that it was extremely simple in design and gave evidence of the haste with which the vessel was built by Adam Brown and his shipwrights. The keel was composed of three timbers flat-scarfed end-to-end. It measured 106 feet, 5 inches in overall length, and averaged 16 inches moulded and 12 inches sided.

The forwardmost timber, fashioned from hard maple, was 37 feet in length. It was attached to the stempost by a 3 foot, 4 inch-long flat scarf, and to the central keel timber by an 8 foot, 7-inch-long flat scarf. At its

extreme forward end the keel narrowed to 8 inches sided. The second and third keel timbers had a combined length of 78 feet; the precise length of each timber could not be determined, since their connecting scarf was buried under several feet of mud. The two pieces probably averaged about 43 feet, 6 inches in length. The existence of the buried scarf was proved by an examination of wood types, since the central timber was of hard maple, and the aftermost of white oak. The two forwardmost keel timbers were the only identified pieces of maple in the hull.

The final 24 feet, 8 inches of the aftermost keel section was cut down on its upper surface to fit the lowest deadwood timber, and was moulded only 10 inches. The keel narrowed near the stern to 8 inches sided.

The keel timbers were fastened together by iron fish plates and iron drift bolts. The forwardmost pair of fish plates, at the scarf of the stempost and keel, measured 13-1/4 inches in length, 3-3/4 inches wide at either end, 3 inches wide in the middle, and approximately 1/2 inch thick. A bolt on either end of each plate extended through the timbers to the twin plate on the other side, thereby tighty securing the scarf. A second pair of fish plates found at the juncture of the first and second keel timbers was slightly smaller, being 10 inches in length and 3 inches

wide at either end. A third pair of fish plates was probably fastened over the scarf of the second and third keel sections, but this could not be verified.

The keel was additionally stiffened during a later phase of construction by wrought iron drift bolts. The bolts, averaging 1-1/2 inches in diameter, were driven through holes drilled from above through the keelson, frames, and keel. The exact number of drift bolts in the keel could not be determined, but a total of 18 were found in the first 30 feet of the keel. The bolts were not fastened in any way on their ends, and were held in place by friction alone.

Stopwaters were driven into the corners of each of the two exposed keel scarfs. The stopwaters consisted of 1-1/4 inch diameter dowels, inserted into holes drilled across the scarf seam. They performed the dual tasks of tightening the scarf and deflecting water travelling along the seams, thereby keeping it from penetrating inside the hull. A fifth stopwater was noted at the juncture of the keel and the sternpost, and an additional pair were probably fitted to the undocumented keel scarf. No wedges were observed in the ends of the stopwaters, indicating that the brig's carpenters were confident that the dowels would swell and thereby stay tightly in position.

A horizontal V-shaped groove, the rabbet, was cut

into each side of the keel near the top. Exact measurements of the rabbet could not be determined, since the port and starboard garboard planks were still firmly spiked in position, but the grooves were estimated to be approximately 1-1/2 inches deep by 2 inches wide.

A 2-inch thick by 12-inch wide deadwood timber was set atop the keel, extending from the stem apron aft to the stern deadwood. The bottom of the keel was not fitted with a protective shoe timber.

The Stem

The Eagle's stem construction was well-represented, and included the lower ten feet of the inner and outer stemposts and the entire lower apron (figure 34).

The curved inner stempost, fashioned from white oak, extended 12 feet, 6 inches. It was flat-scarfed to the keel and secured by drift bolts and a pair of iron fish plates, while its eroded upper end terminated in a second flat scarf. The inner post was sided 8 inches on its forward surface, and widened to 10 inches sided on its after surface. It was moulded 6 inches at the after end of the keel scarf, 22 inches at the forward end of the keel, and from there averaged 16 inches moulded to the top of the post.

The 7/8-inch diameter by 5-3/4 inch long drift bolts at the top of the post once secured a second inner stem timber; a stopwater hold was evident in this scarf. The

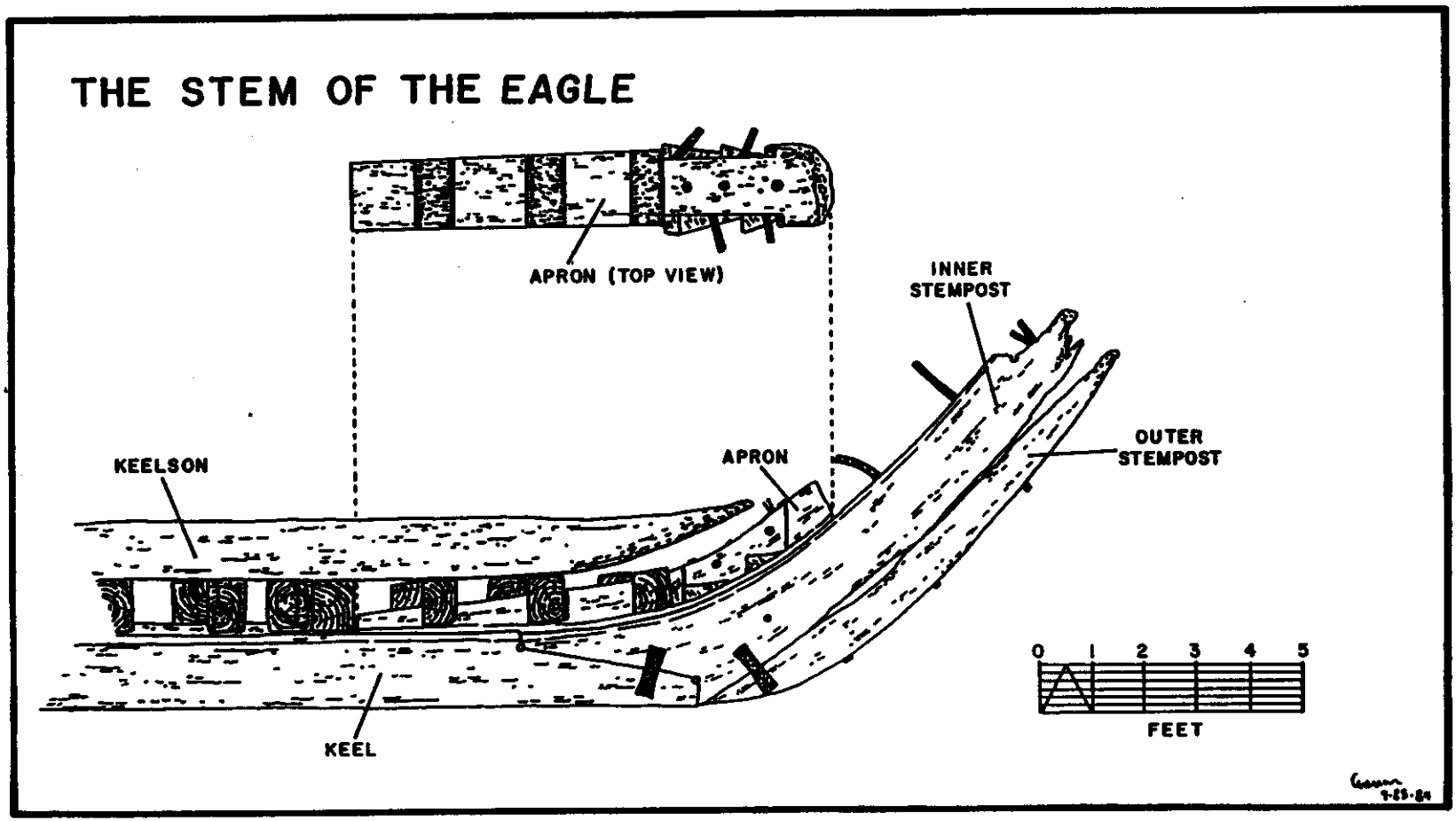


Figure 34. The stem of the Eagle.

after face of the inner post was chamfered to form a rabbet for the outer planking.

The outer stempost, also of white oak, was fastened to the inner post by three 1-1/4 inch diameter drift bolts, driven through the forward face of the timber. A pair of iron fish plates additionally secured the lower end of the post. The plates measured 12-1/2 inches in length, 3-1/2 inches wide at either end, and 2-7/8 inches wide in the center. The outer stempost had a maximum moulded dimension of 12 inches, was sided 6 inches on the forward face, widened to 8 inches sided on the aft face, and had a surviving length of 10 feet, 2 inches.

The stem apron was a curved timber shaped with a number of complicated angles to accomodate the garboard strakes and two cant frames. Seated atop the forward end of the keel and the lower one-third of the inner stempost, the apron had an overall length of 9 feet. It was moulded 3 inches on its after end and rose forward to a maximum moulded dimension of 11 inches. The aft 6 feet of the timber, sided 17 inches, was notched on the top to fit the floor timbers of frames N, O, and P. Each of the floor timbers was notched on the bottom to interlock with the apron. The notches were cut to within 2 inches of the bottom of the apron, and averaged about 9 inches wide.

A 2-foot long slot was cut into each side of the apron forward of frame P, for the purpose of seating cant

frames Q and R. These slots narrowed the side dimension of the apron to 11 inches. Unusual wedge-shaped protrusions were carved out of the side of the timber at this location to support the heels of the cant frames and to angle them in the proper direction. Each cant frame was secured to the apron by a 1-inch diameter drift bolt, driven from underneath the frame. The stumps of frames Q and R were still attached to the port side, while only the drift bolts remained to mark the position of the starboard side cant frames.

The final 11 inches of the apron forward of the cant frame R expanded to 18 inches sided. The apron was chamfered the entire length of its lower concerns to form a rabbet with the chamfered top corners of the inner stempost. The two garboard strakes were fit into the apron/stempost rabbets. The drift bolts, 15 inches in length and 1-1/4 inches in diameter protruded from the inner stempost above the apron, and probably once held a second apron timber.

The Stern

The surviving stern assembly of the Eagle included four deadwood timbers, the sternpost, and two rudder gudgeons (figure 35).

The white oak sternpost was broken off 6 feet, 10 inches above the keel. It was moulded 20 inches at the base, 14 inches at the top, and sided 8 inches. The

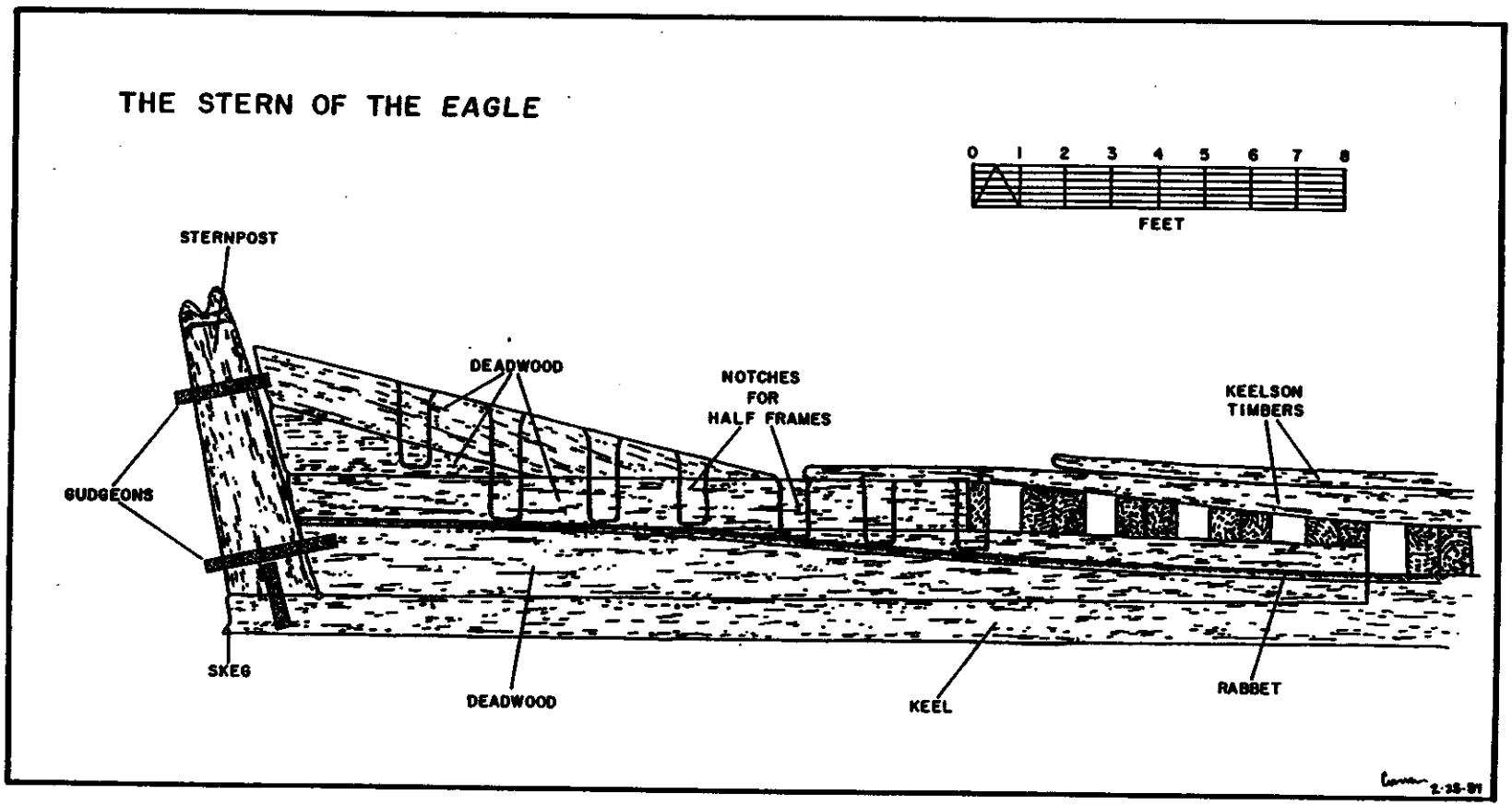


Figure 35. The stern of the Eagle.

forward face of the post inclined aft to an angle of 72 degrees from the horizontal of the keel, while the aft face inclined aft at an angle of 79 degrees. The post was fastened to the top of the keel by a pair of iron fish plates; a wooded tenon may also have secured the join, but the seam between the two timbers was too tight to permit verification of its existence. A 1-inch by 1-1/2 inch square rabbet was cut into the forward corners of the post to fit the exterior planking.

Two iron gudgeons were located on the sternpost. The lower gudgeon was attached to the post 6 inches above the keel, its two iron straps were 34 inches in length and 3 inches wide. The straps angled upward and were fastened to the sternpost and lowest deadwood timber by six through-bolts. The ring for the pintle on the after end of the gudgeon was 1 inch thick and had an external diameter of 2-1/2 inches.

The second iron gudgeon was 48-1/2 inches above the keel. Its two straps were 24-1/2 inches in length, 3 inches wide, and were fastened by four bolts at the same angle as the lower gudgeon. The after end of the gudgeon was 1-1/2 inches thick, and the pintle hole was 3 inches in diameter. Two smaller holes, 1-3/4 inches in diameter, were noted on the second gudgeon, one on either side of the pintle hole. Their purpose could not be determined.

A small, wedge-shaped projection was recorded on the

after end of the keel below the sternpost. This feature, the skeg, was included to protect the forward edge of the rudder in the event of the Eagle's running aground.

The lowest of the four stern deadwood timbers measured 23 feet in length; as previously noted, the top of the keel was cut down 6 inches to fit this white oak piece. The timber was moulded 14 inches at its forward end, and rose gradually over 8 feet, 4 inches to a maximum moulded height of 19 inches.

The keel rabbets extended into each side of the lowest deadwood timber, and gradually rose along the length of the timber until they reached the top corner of the timber and terminated at the sternpost. Below the rabbet, the lowest deadwood timber was sided the same dimensions as the keel, 12 inches at its forward end, tapering to 8 inches at its after end. Above the rabbet, the lowest timber was sided 15 inches at its forward end, and narrowed towards the stern. A considerable amount of forethought and care went into the shaping of the lowest deadwood timber.

The second deadwood timber was 13 feet in length, moulded 13 inches, and sided 10 inches at its forward end. This timber narrowed considerably towards its after end and though no direct measurements could be obtained, it appeared to be sided about 4 inches where it butted the sternpost.

The third and fourth deadwood pieces were simple wedges of wood angling upward from the horizontal of the keel to be vertical to the sternpost. The lower wedge was 6 feet in length and rose from a point at its forward end to a moulded height of 15 inches where it butted the sternpost. The sided dimensions of this piece were not recorded, but it appeared to flare upward slightly from 4 inches on its lower surface to approximately 6 inches on its upper surface.

The fourth and uppermost deadwood timber, cut from white oak, measured 12 feet in length, and rose from 1-1/2 inches moulded at its forward end to a moulded height of 15 inches at its after end. The timber's top surface was sided 13 inches at its forward end and tapered to 10 inches on its after end.

The four deadwood timbers were fastened to the keel and sternpost by a series of iron drift bolts hammered in from above. Drift bolt holes on the aft face of the sternpost were filled with round wooden plugs. The sides of the deadwood timbers were notched to fit the heels of the forwardmost futtocks of frames 29 through 35. The notches were narrow and shallow on the port side, deep and broad on the starboard side, and averaged about 3 inches deep and 12 inches wide.

The Frames

A total of 55 frames were partially represented on

the hull of the Eagle: 2 cant frames at the stem, 44 square frames, and 9 half frames at the stern. This appeared to be the original number of frames, although two to four more cant frames were possibly attached to the missing upper apron timber. Thus, the Eagle contained a total of 55 to 59 frames.

The floor timbers of the square frames were set along the keel on approximately 2-foot centers. Each floor was fastened to the keel by an iron drift bolt, which was in most cases offset from the centerline of the keel to allow room for the later addition of keelson drift bolts. The floors varied somewhat in dimensions, but averaged 11 inches moulded between the keel and keelson, 12 to 13 inches moulded at the rabbet, and 10 inches moulded at the floor head lines. Sided dimensions averaged between 8 and 10 inches. From the keel centerline to the floor head line, the arms of the floor timbers averaged 4 to 6 feet in length.

The first futtocks had the same cross-sectional dimensions as the floors and were fastened to them laterally with 1-inch square iron bolts. In several instances the bolts were driven diagonally, from the futtock corner to the floor corner; the purpose of the angled bolts may have been to keep the first futtocks from working loose from the floors. The heels of the first futtocks butted one another over the centerline of

the keel. The starboard side first futtocks were broken off at the floor head line, about 5 feet from the side of the keel. On the port side, the intact first futtocks averaged 11 to 12 feet in length.

Watercourses, also known as limber holes, were cut into the floor timbers and first futtocks of every square frame (P through 36). On the three forwardmost square frames, N, O, and P, the watercourses were merely enlargements of the apron notches on the bottom of the floors. Two watercourses were cut into the bottoms of the remaining frames, one on each side of the hull centerline, 4-1/2 inches from the side of the keel. The holes averaged 2-1/2 inches wide by 1-1/2 inches deep; the sides of each hole were formed by two parallel saw cuts, the wood between being removed by a chisen or chisel-like tool.

The heels of the second futtocks were butted against the heads of the floor timbers, and they were laterally bolted to the first futtocks. The second futtock timbers averaged about 9 feet in length. The third futtucks were similarly fitted, with their heels butting the heads of the first futtocks and bolts securing them laterally to the second futtocks. They averaged 10 to 11 feet in length. The heads of the third futtocks constituted the tops of the frames. The final timbers to be added to each square frame were the top timbers, which were butted

against the heads of the second futtocks and bolted to the third futtocks. Top timbers averaged 7 to 8 feet in length, 9 inches moulded, and 8 to 10 inches sided.

When complete, each square frame consisted of 9 overlapping pieces: one floor timber, two first futtocks, two second futtocks, two third futtocks, and two top timbers. Every futtock was held in place by 1-inch-square drift bolts, with two bolts per timber join, one on either side of each join (figures 36 through 41).

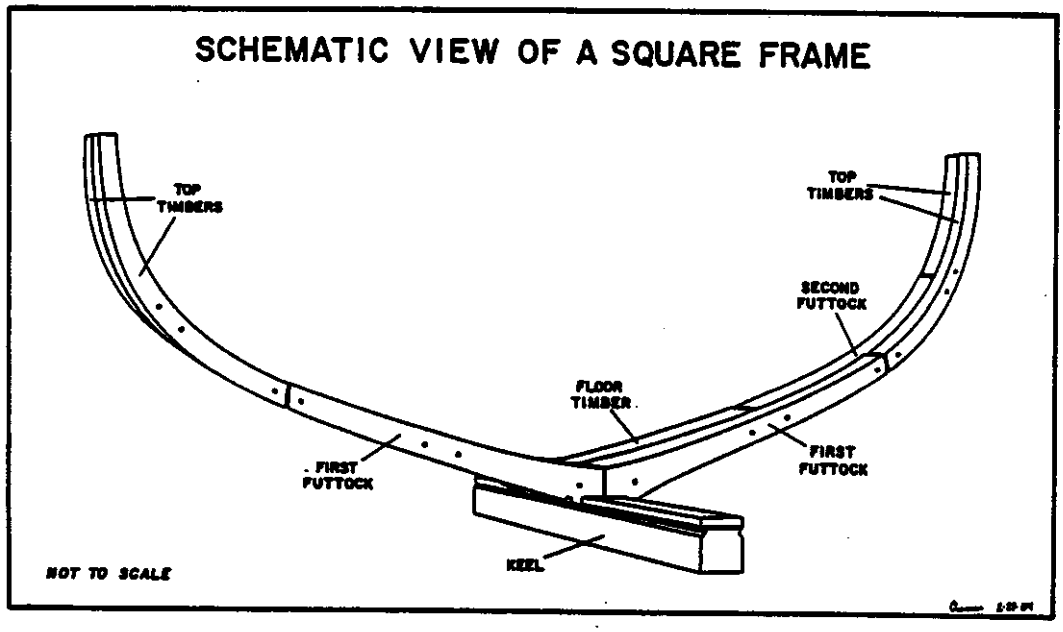


Figure 36. Schematic view of a square frame.

The 17th floor timber aft of the stem was the midship frame (marked ⊠). This was the first frame to be fastened to the keel; the midship frame signified the point of maximum breadth on the hull and functioned as a guide for frames raised both fore and aft of its location. The

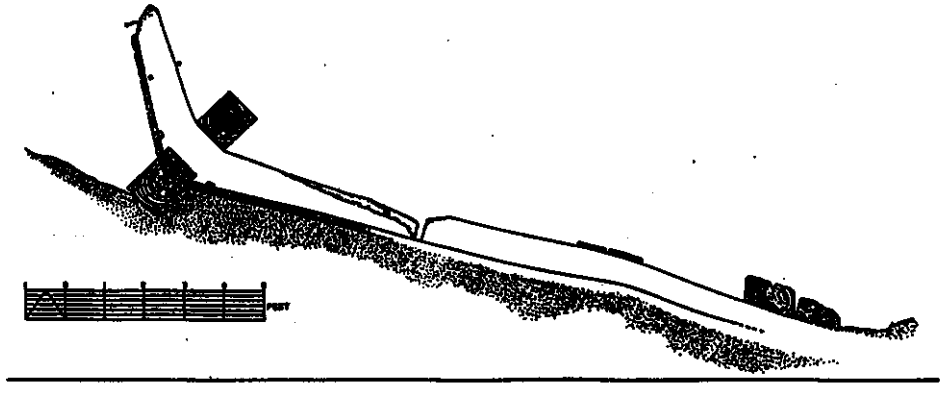


Figure 37. A section view of frame M, view aft.

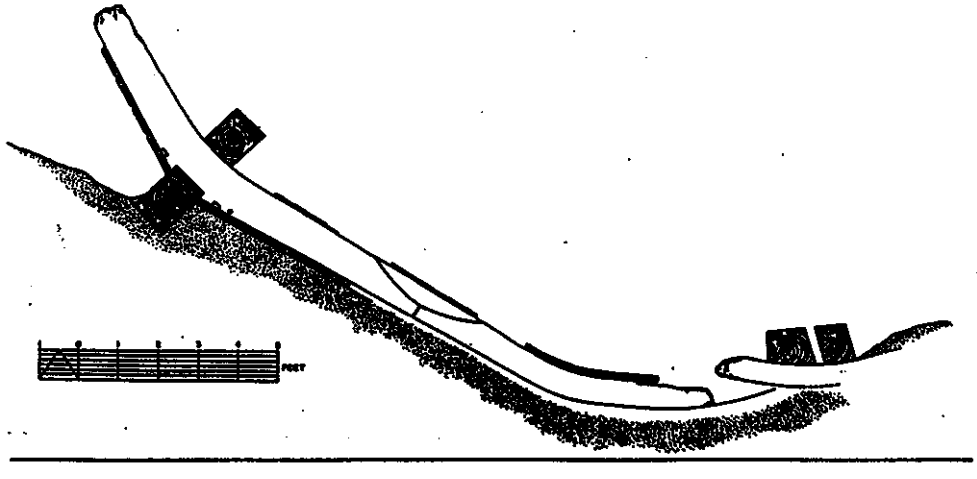


Figure 38. A section view of frame H, view aft.

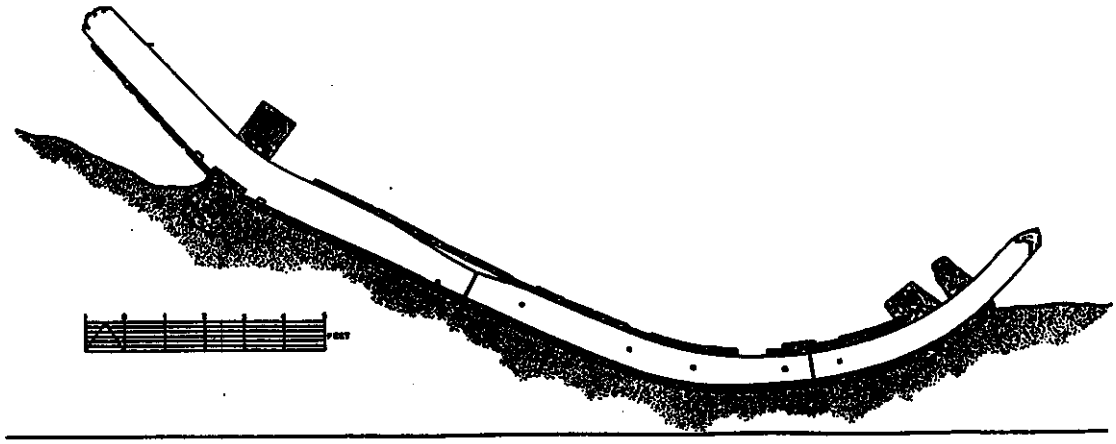


Figure 39. A section view of frame 𝔛, view aft.

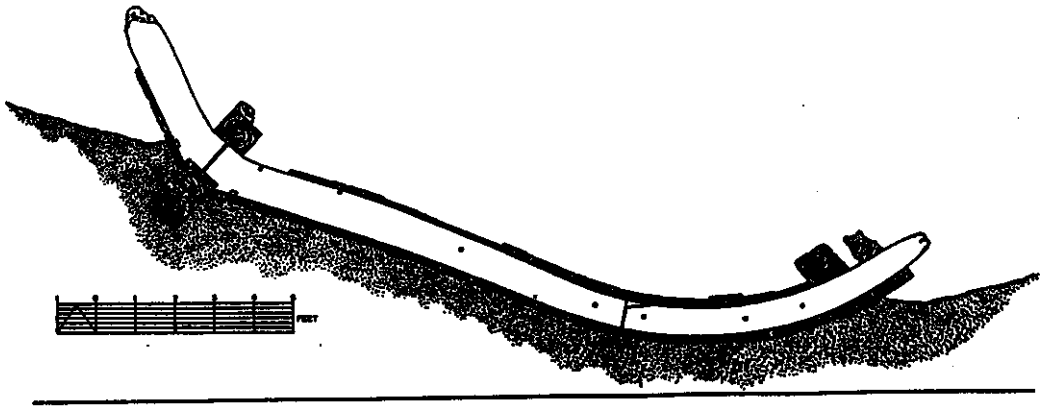


Figure 40. A section view of frame 22, view aft.

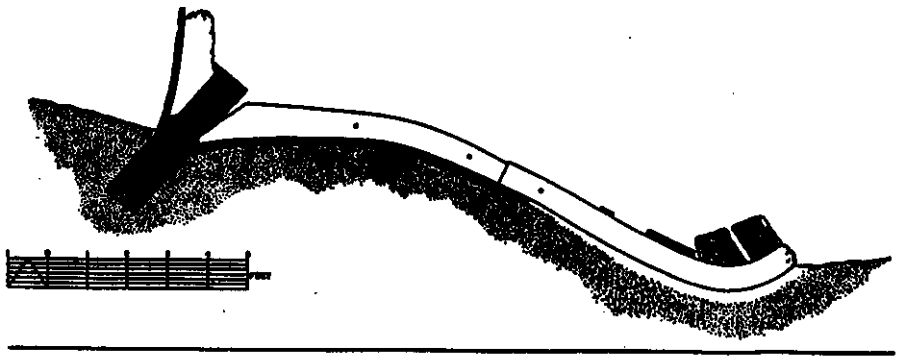


Figure 41. A section view of frame 32, view aft.

upper ends were attached to frame 1 for additional strength. Square frames A through P, forward of the midship frames, were assembled with their first futtocks attached to the after faces of the floor timbers, while square frames 1 through 28, aft of the midship frame, were constructed with their first futtocks forward of the floors.

The port side of the Eagle's square frames survived with relatively little damage, although only two top timbers were found to be intact to the level of the cap rail. The other frame tops were broken or rotted off. At the forward end of the hull, the lower futtock timbers of square frames O and P had also experienced a considerable amount of damage.

At the bow, the eroded stumps of cant frames Q and R were drift-bolted to the port side of the apron timber. Frame Q was roughly 8 inches moulded and sided at its base.

Eight pairs of half frames were set into the sides

of the stern deadwood. On the starboard side, the stumps of five half frame timbers were attached to the deadwood, and on the port side, frames 33 through 37 were found to be severely damaged. Frames 36 and 37 were represented only by short lengths of rotted timber attached to the after ends of the portside waterway and external planking. The fragment of frame 37 was over 14 inches sided and may have been a remnant of the fashion piece, the curved frame at the after end of a square-sterned vessel that defines the shape of its counter.

Unusual notches were discovered on two of the frames. On either side of the keelson, the first futtock timbers of frame 13 were notched 6 inches deep and 15 inches wide. These notches were the pump wells, where water in the Eagle's bilges collected and was removed by a pair of common pumps.

The second pair of notches were discovered on frame K, carved into the after corners of the first futtocks, about 1 foot from the side of the keelson. They each measured 8 inches long, 5 inches wide, and 2-1/4 inches deep; the two notches probably seated the ends of the bitt posts.

Brown and his carpenters did not spare much time giving the frames a finished appearance. Many of the frame timbers had edges or entire faces that were rounded log surface, and chokes, wedges, or other filler pieces

were added wherever a timber was discovered to have inadequate moulded or sided dimensions. Examples of chocks were noted at frame H, XX, and 22. In every case, the chock consisted of a slap of pine or spruce, curved on the bottom and roughly fashioned to fit over the join of two frame timbers. A chock observed on the midship frame consisted of a thin pine board fastened lopsidedly with a single spike over the butt of the floor and second futtock. The chocks were inserted to obtain an even surface for attaching the ceiling planking, and they probably added little or nothing to the strength of the frames themselves. Filler pieces were also noted between the frame tops above the waterway, where they were added to strengthen the bulwarks.

Other interesting shipbuilding shortcuts were recorded. Construction time and timber were saved on frame 26 by combining the floor timber and first futtock in a single piece of wood. The frame floors and futtocks were constructed of a mixture of woods, including white and red oak, American elm, white ash, American chestnut, white pine, and spruce (Appendix D).

The combination of very poor water visibility and a fine layer of silt on the wreck obscured tool marked on the frames. Consequently, the little we know about these features was observed on two severely eroded first futtock timbers from frames H and K. The two timbers were

dislodged from the starboard side of the wrech by divers, and were subsequently taken ashore for examination. William Bayreuther inspected their surfaces for tool marks and found the shallow impressions characteristic of adzes. He also found evidence indicating that the heels of the first futtocks were notched with saws. The shipwright first marked the area to be sawn by scoring the moulded timber surfaces with an awl or other sharp, pointed tool.

The Keelson

The keelson of the Eagle was constructed of four timbers, flat-scarfed end-to-end and extending from the apron to the uppermost stern deadwood timber. Constructed entirely of white oak, the keelson was moulded 14 inches and sided 12 inches. It was fastened to the frames and keel by 1-1/2 inch diameter iron drift bolts, in a pattern of one bolt every two frames. The bolt holes were always drilled through the floor timbers and not into the butt of the first futtocks.

The forwardmost keelson timber was 26 feet, 6 inches in length, and the central timber was 41 feet, 7 inches in length. The aftermost keelson section was composed of two timbers; the lower timber measured 37 feet, 6 inches in length, 10 inches moulded at its forward end, and tapered to 2 inches moulded at its after end. The upper timber was 32 feet in length and 4 inches moulded.

The keelson was found to be partially damaged. Its

forward end, once seated on the apron, was badly eroded, as was the entire length of the 4-inch thick keelson timber in the aftermost section. The central keelson timber had a number of longitudinal cracks beginning at the second keelson scarf; these may have been the result of the hull twisting as it settled on the bottom.

A number of intriguing features were carved or drilled into the top surface of the keelson, the most obvious of which were the steps for the Eagle's two masts. The location of the foremast step was indicated by four bolt holes drilled in a rectangular pattern over frames H and I. Presumably the bolts held a large block of wood that was slotted to receive the keel of the foremast. A similar arrangement of bolt holes for the mainmast step was found over frames 13, 14, and 15.

Nine rectangular slots were noted on the top of the keelson between frames I and 8. The slots were between 2 and 4 inches wide, ranged in length from 6 to 23 inches, and always sloped in a forward or aft direction to a depth of about 1 inch. The slots were chiselled to hold the bases of deck-supporting stanchion posts, the slope in the notch permitting the posts to be pounded tightly into position between the keelson and the deck beams.

Three other notches of unknown purpose were recorded on top of the keelson. The first of these was a hollow 9 inches long by 5 inches wide, located 2 feet forward of

the foremost step. Its depth was irregular, 1 inch in the aft end sloping forward into three round depressions, 3 inches, 4 inches and 6 inches deep. Two smaller notches were observed further aft on the keelson, over frames 18 and 19. The first was 4 inches square and very shallow, while the second was 7 inches long, 4 inches square, and 5 inches deep, with a 6-1/2 inch deep depression in the forward end of the notch.

The Clamp

The massive portside clamp was found to be well-preserved for most of its length, and it contained a great deal of information about the construction of the deck. The clamp originally extended from the stem to frame 34; its purpose was to longitudinally reinforce the hull above the waterline and to support the ends of the deck beams.

A portion of the clamp was missing between the stempost and frame P. From frame P aft the clamp extended 112 feet, 3 inches, and was composed of three or four timbers scarfed end-to-end. The uncertainty about the number of pieces in the clamp was the result of a separation that may have been an eroded scarf or simply a break in one timber.

The forwardmost clamp section was a short, badly eroded timber 8 feet, 6 inches in length, 10 inches moulded, and 14 inches sided. The forward end was so

degraded that it was impossible to determine if the piece was broken off or ended at a scarf. The timber's after end, which did end in a scarf, was also badly eroded.

The second clamp timber, fashioned from white oak, was 17 feet, 7 inches in length, and where the corners were intact measured 1 foot moulded and sided. Its after end butted the third clamp timber with a short overlapping scarf.

The third clamp piece was 18 feet in length. The after end of the third section, and the forward end of the fourth section were so severely damaged that it was impossible to determine if this was the location of a scarf. The fourth clamp piece, also of white oak, was 59 feet, 8 inches in length, and squared off at is after end.

The corners of the clamps were not square, but rather changed angles to correspond with the curve of the frames. The shaping and fitting of the trapezoidal-sectioned timbers clearly required some forthought, in order to insure that the exterior faces of the clamp met the interior faces of the frames at correct angles.

The clamp was fastened to the frames and outer planking by 3/4-inch square iron bolts that were rounded on their ends and rivetted tightly over 1-1/2 inch to 3-inch diameter iron washers. The bolts were inserted in a seemingly random pattern along the interior face of the clamp.

The clamp was a heavy timber, and it was required to simultaneously support the deck with its load of heavy iron cannon and strengthen the sides of the hull above the waterline. For these reasons, Brown had the horizontally-oriented bolts riveted to prevent the clamp from working loose from the frames and thereby risking the integrity of the entire hull. This was the only example of the use of riveted bolts noted during the study of the Eagle's construction.

The top of the clamp was notched to fit the ends of 30 deck beams. The deck beam notches were centered an average of 3 feet, 6 inches apart, averaged 11 inches wide, and were between 2 inches and 6 inches deep. There was a great deal of variation in the spacing and size of the deck beams. With the exception of the two gunports at the bow, the beams were placed so that each gunport had one beam directly beneath its center.

Shallow grooves were noted on the clamp beneath the deck beam notches; these were particularly evident at the forward end of the hull, where the interior faces of the timbers were not excessively eroded. The grooves averaged about 1 inch in depth and width, and each was slightly longer than the sided dimension of its associated deck beam. The grooves were probably added to permit the deck beams to twist slightly in their seatings. Without the grooves, any shifting of the beams might have cracked the

interior face of the clamp.

Deck Beams

Thirty notches for deck beams were counted in the port side of the clamp; there were probably one or two more deck beams at the stem and stern, making the total number of deck beams between thirty-two and thirty-four. Twenty-two partly-fragmented deck beam ends were found inside of the beam notches.

The beam ends displayed a surprising lack of uniformity in their moulded dimensions, averaging 9 inches, but ranging between 6 and 10 inches moulded. Nearly all of the beams were 11 inches sided. Two smaller intermediate deck beams, known as "ledges", were recorded, each measuring 7 inches square.

The ends of the deck beams extended completely across the top surface of the clamp and butted against the top timbers of the frames. Once set in place on the port and starboard clamps, each beam end was fastened to the clamp by two 3/4-inch square bolts. No evidence was found to indicate that the beams were ever reinforced by lodging, hanging, or dagger knees. Two of the beams were examined for wood type and identified as white oak and spruce.

The Waterway

The surviving 115-foot-length of the waterway was composed of four or five large timbers butted end-to-end

and fastened over the deck beam ends and the clamp. The exact number of timbers in the waterway could not be positively determined due to an eroded area between timbers that may or may not have been a join. In general, the waterway was found to have suffered more damage and erosion than the clamp, and most of its surface, particularly towards the stern, was worn back an inch or two. The lower interior corner of the waterway was for the most part missing; it may have been levered off by the beam ends when the deck was torn from the hull.

The forwardmost waterway timber was 6 feet, 8 inches in length, and 13 inches moulded. The wood was severely rotted and had the consistency of wet cardboard; no accurate sided dimensions could be obtained from the top or bottom surface. This piece was similar to the first timber on the clamp, in that it was much larger than the following sections, and was clearly intended to add extra reinforcement to the forward end of the hull.

The second waterway timber, of white oak, was 34 feet, 2 inches in length, 10 inches moulded, and 12 inches sided. This piece was the best preserved of the waterway timbers, due to the mud and silt which covered it until the 1983 study of the wreck. The third waterway timber measured 20 feet, 6 inches in length; the fourth measured 18 feet, 3 inches in length; and the fifth, also of white oak, measured 23 feet, 3 inches. The after end of the

waterway was squared off. The fourth and fifth timbers may originally have been a single piece, but the break between them was too eroded to provide any definitive evidence. The third, fourth, and fifth waterway timbers were 10 inches moulded and 12 inches sided.

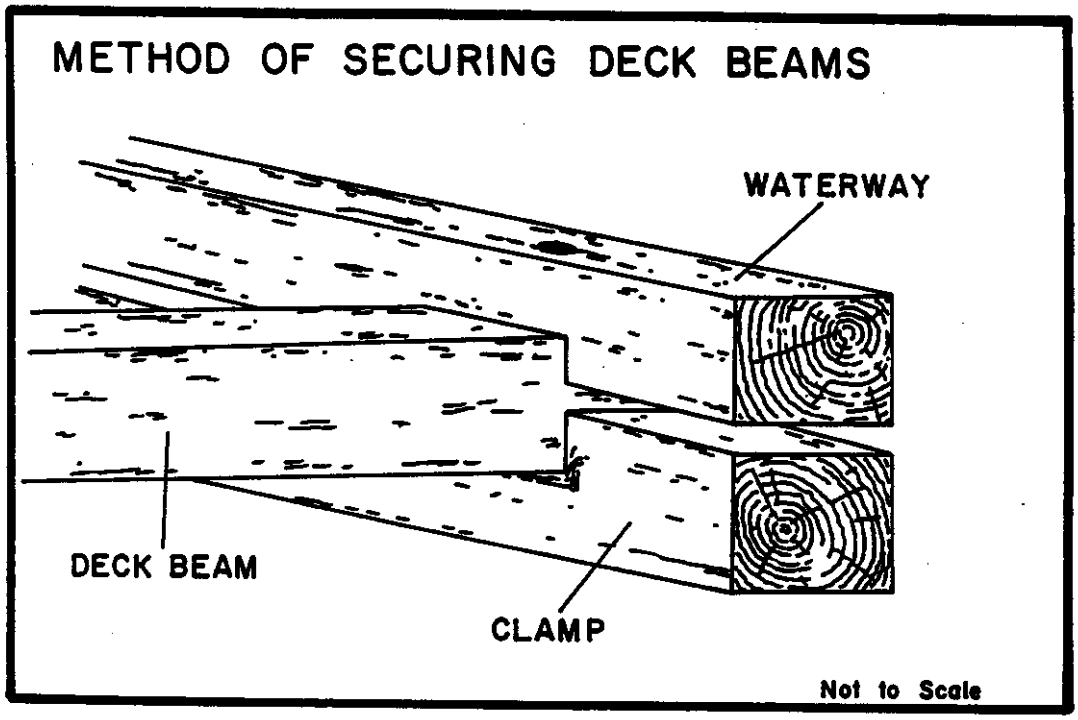


Figure 42. Method of securing deck beams.

The lower surface of the waterway was notched to fit over the top of the deck beam ends, the notches averaging 2 inches deep (figure 42). 3/4-inch square bolts were driven from the top of the waterway into the beam ends and the clamp, with one bolt per deck beam. The clamp and waterway effectively locked the deck beams tightly into place. The strongly-fastened deck beams were the primary

means of laterally stiffening the hull. A space of 2 or 3 inches was left between the clamp and waterway to permit the circulation of air between the timbers, thereby inhibiting the formation of dry rot.

The top of the waterway between the gunports was utilized as a shot rack or garland for holding round shot in convenient proximity of the guns. Each garland consisted of a row of round depressions, chiselled to a depth of 2 inches. Between the carronade ports there were nine indentations for holding 32-pound shots, each 7 inches in diameter. The garlands between the long-run ports contained eleven indentations for 18-pounder shot, each 5 inches in diameter.

The forwardmost shot garland in the second waterway timber was particularly well-preserved, and contained some interesting features that no longer existed in the other garlands. There were eleven 18-pounder shot indentations, spaced 2-1/2 inches to 3 inches apart, and set 1 inch back from the top interior corner of the waterway. The indentations were carved out with a semi-circular gouge, the marks of which were still evident. A small, sloping hole was drilled from the inside of each indentation to the interior face of the waterway. These holes drained rainwater from the garlands onto the deck. If allowed to collect, the water would have rotted the wood and rusted the iron shot.

The Gunports

The Eagle probably had a total of twenty-four gunports, eleven on each side of the hull, and two at the stern. During the three years of fieldwork, ten portside gunports were discovered and recorded, seven of which still retained their sills. Five of the seven sills were fitted with iron pivot plates, identifying them as carronade positions. The sills were seated atop the waterway and foreshortened frame ends. For the purposes of description, the portside gun stations have been numbered one through eleven, beginning at the stem.

Gunport #1, the forwardmost station, was found to be entirely destroyed, the only evidence for its prior existence being the lengthy space between the stempost and gunport #2. Warships of the early 19th century generally had a port near the stem which permitted them to fire forward when engaging an enemy bow-on.

Gunport #2 was partially overlain by canal boat wreckage, and only the interior face of the sill could be examined. The sill was 4 feet, 2 inches in length, and 5 inches thick. The sill did not have an iron pivot plate, indicating that gunport #2 was intended for a long 18-pounder cannon. There were eleven shot depressions in the garland between gunports #2 and #3.

Sill #3 was in a good state of preservation, and careful measurements were made of its surface. The sill

consisted of a slab of white oak, 5 inches thick, 17 inches wide, and 3-feet, 1-inch long. The interior of the sill had wooden projections on each side, approximately 5 inches square, increasing the length of the sill to 3 feet, 11 inches. Each of the projections held a single 9-1/2-inch-long square iron spike, which was driven from the interior face of the sill into the top timbers.

Set in flush with the top of sill #3 was an iron pivot plate, 3/4 of an inch thick, 5 inches wide, and 20 inches long. One end of the plate at a 5-inch-long right-angle projection that hooked over the exterior hull planking. Two iron bolts secured the plate to the sill. The carronade at gunport #3 pivoted on a bolt set into a 2-1/2-inch-diameter hole in the top of the plate. A 1-inch-diameter hole was drilled into the sill beneath the plate, presumably to allow for the insertion of a pivot bolt cotter pin (see Appendix E for further information about carronade pivot plates). Nine 32-pounder shot indentations were measured between gunports #3 and #4.

Sill #4 (figure 43) was also a carronade sill, but its dimensions, and the dimensions of subsequent sills, were smaller than those of sills #2 and #3. Sill #4 was 14 inches wide, and on its interior side was 3 feet, 7 inches long. The sill measured 4 inches thick, but its

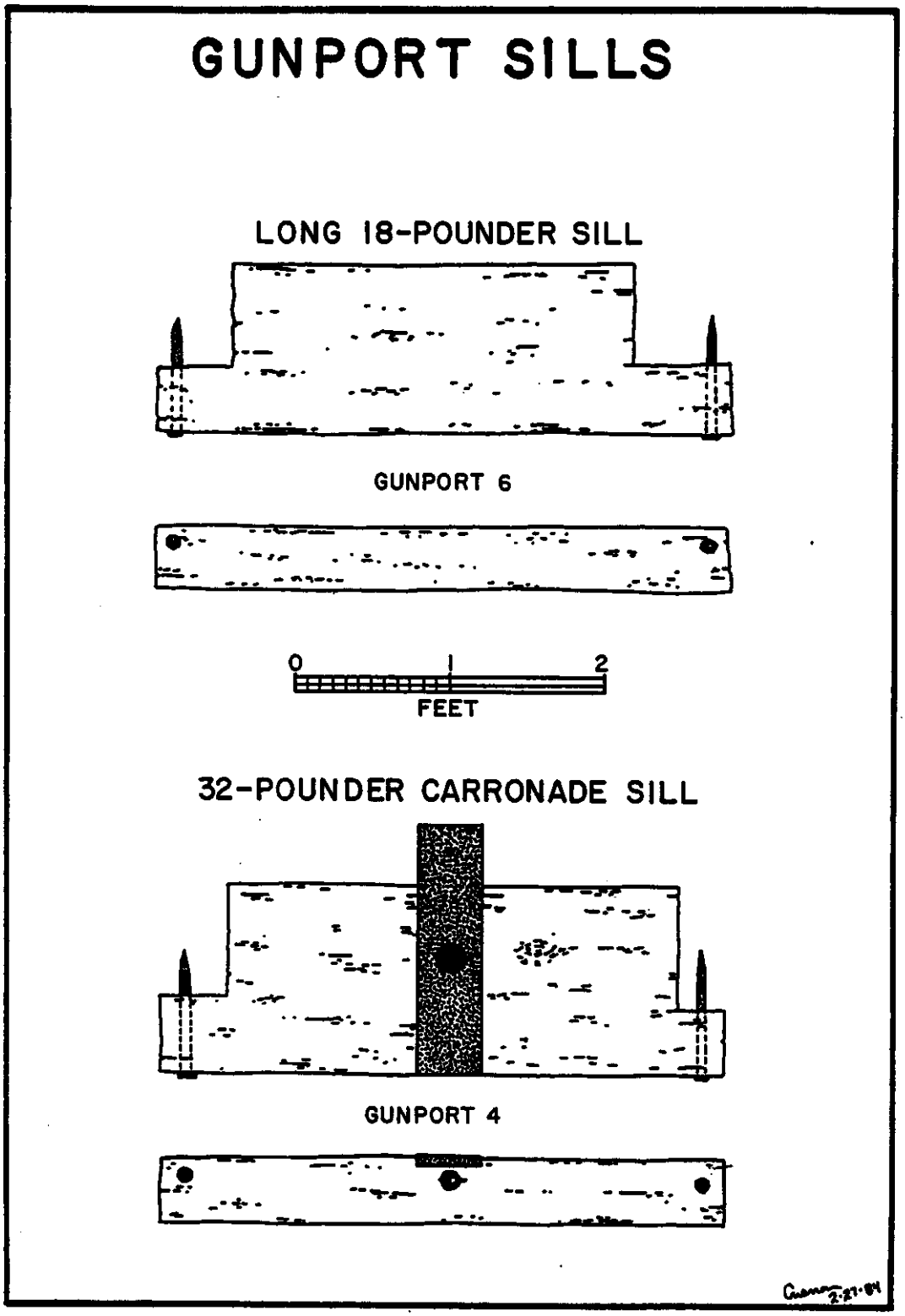


Figure 43. Gunport sills.

surfaces were partly eroded, and its original thickness was probably about 5 inches.

Just aft of station #44 was the intact top timber of frame 1, extending 3 feet, 8 inches above the waterway. This timber helped to define the average size of all the gunports. Bound on the top by the cap rail, on the sides by the top timbers, and on the bottom by the sill, each port opening averaged 3 feet, 3 inches square.

The top of the waterway between gunports #4 and #5 was not carved with shot identations, and gunport #5 was missing its sill. The garland between stations #5 and #6 held eight 32-pounder shot indentations. The absence of a carronade plate at gunport #6 (figure 43) indicated that it was a long gun station; the sill was slightly narrower than gunport sill #4, being only 16 inches wide.

The bulwark between ports #6 and #7 was partially preserved, and measured precisely 7 feet in length (figure 44). This appears to have been the standard distance between all of the gunports. There were nine hollows between gunports #6 and #7. Sill #7 was fitted with a carronade plate, and was similar in dimensions to sill #4.

The shot garland between ports #7 and #8 contained an oddity: seven 32-pounder shot indentations and one indentation twice the size of any of the others. This oversized hollow appeared to be intentional, but its purpose could not be determined. Gunport #8 was missing

its sill.

The waterway between gunports #8, #9, #10, and #11 was severely broken and rotten, and the exact size of

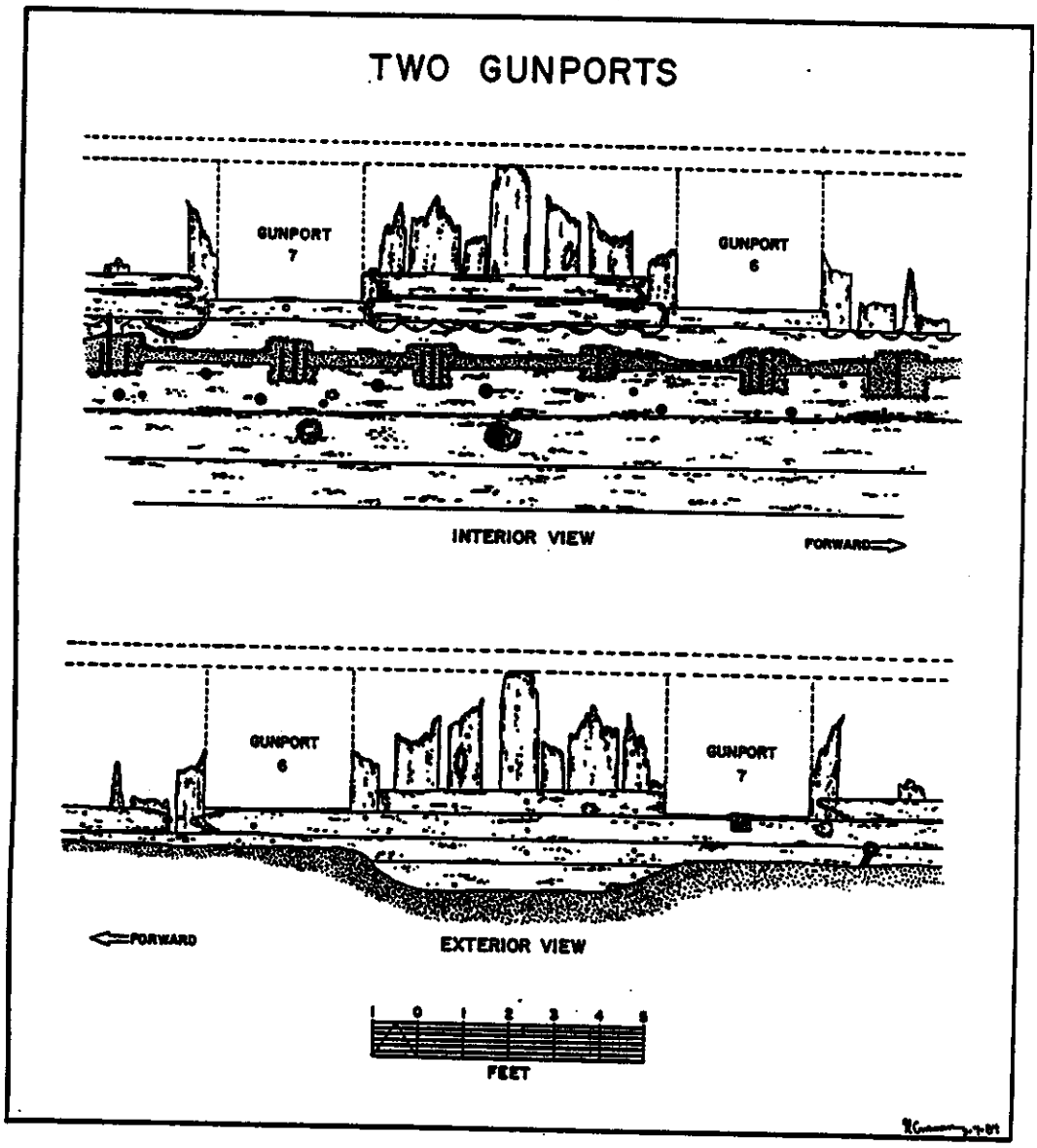


Figure 44. Two gunports.

each of the shot garlands could not be determined. Gunport sills #9 and #10 were both fitted with carronade plates, while the sill for #11 was missing. The garland of #11 had smaller indentations, suggesting that the aftermost station was equipped with an 18-pounder long gun. There was only a single shot indentation aft of gunport #11.

External Planking

The external planking was probably the least-studied portion of the Eagle's hull. Only five planking strakes, including the garboard, were still attached to the starboard side, and most of the port side external planking was underneath the wreck and therefore inaccessible. A few planking measurements were taken at the stem, the gunports, and at the planking seams between the frames.

The garboard strake on the starboard side was 13 inches wide at frame O and expanded to 15 inches wide by frame E. Its inboard edge was carved to a V-shaped point and fit snugly into the keel rabbet. The garboard measured 1-1/2 inches thick, but the planking on the starboard side of the hull was very eroded, and the original thickness was probably closer to 2 inches. At frame E the widths of the other strakes were consecutively, 10 inches, 10-1/2 inches, 11-1/2 inches, and 8-1/2 inches. The planks were attached to the hull with 8- to 9-inch-long square iron spikes.

The port side garbord strake was 13 inches wide at frame ⅩⅩ. Planking widths, based on interior seams, were recorded between frames N and M, A and ⅩⅩ, 21 and 22, and 31 and 32. These measurements showed an average strake width of 9 inches to 11 inches on the underside of the hull, and a narrowing trend towards the top of the hull, where the average strake width was 5 inches to 6 inches.

The thicknesses of the external planking were more difficult to determine. The garboard and below-waterline planking on the port side was no doubt similar to that on the starboard side, around 2 inches thick. The next obtainable thickness measurements were directly below the gunports, where the planking measured 3-1/2 to 4 inches thick. These extra-heavy strakes, called "wales", worked together with the interior clamp timbers to strengthen the sides of the hull above the waterline.

Six samples of wood were removed from the external planks and examined for wood type. Five of the six proved to be white oak, and included the port and starboard garboard strakes, the first planks above each garboard, and the second strake below the gunport sills. The sixth wood sample, taken from the first external planking strake below gunport sill # 10, was identified as American chestnut.

Eight rigging elements were found attached to the port side of the hull near the gunports. Seven of these

were 18-inch-long iron chainplates, bolted to the sides of the hull. Three were attached between gunports #7 and #8, and four between gunports #8 and #9. The tops of the chainplates, were 6 inches below the level of the gunport sills. The seven chainplates fastened the mainmast's shrouds to the port side of the hull. The port side foremast chainplates may have been attached to the hull between gunports #2 and #5, but the forward portion of the wreck was too deeply buried to permit inspection (for further information about the dimensions of the chainplates see Appendix E).

The eighth rigging element noted on the outside of the hull was a ring spike, a 14-inch-long iron spike with a 4-inch diameter ring welded to one end. It was driven through the outer planking aft of gunport #5, and may have been intended for anchoring the running rigging of the Eagle's yards.

Ceiling Planking

Most of the ceiling planking on the port side of the Eagle's hull was found to be intact, although some pieces were missing or damaged at the stem and stern. The ceiling was one of the more accessible features on the wreck, but unfortunately proved very difficult to measure. The planks were overlain by a layer of fine silt that obscured details, including many of the planking seams; in other places where there were longitudinal cracks which

resembled planking seams. Despite these setbacks, enough information was obtained to present an accurate idea of the ceiling's composition.

On the port and starbord side, the rows of planks immediately adjacent to the keelson were missing; this was no surprise, since these planks, called "limber boards", were customarily left unfastened to permit access to the bilges. The limber boards on the Eagle may have been removed by the Navy before 1825, or they may have floated off after her sinking. The space between the keelson and the first intact ceiling strake indicated that the limber boards were 15 inches long.

The first five or six ceiling strakes out from the keelson consisted of wide, thin planks, average 15 feet in length, 9 to 15 inches wide, and 1-1/2 inches thick. Most of the planks were of white pine with occasional pieces of spruce; the soft white pine was considerably eroded and cracked.

Outboard of the first four or five pine ceiling strakes were five to seven strakes of white oak. The planks averaged between 7 and 17-1/2 inches wide, and were 2 to 3 inches thick. This band of oak ceiling strakes probably served as the footwales, extra-heavy planks that reinforced the frames at the turn of the bilge.

The final three strakes of ceiling below the clamp consisted of long planks of spruce or white oak, between 7
(pine?)

and 11 inches wide and 2 to 4 inches thick. A single plank of spruce in the strake directly below the clamp extended from frame H to frame 25, a distance of 66 feet.

The ceiling strakes were fastened to the frames with iron spikes, 7-1/2 to 8 inches long for the thicker planks and 5 to 5-1/2 inches long for the thinner planks. The spikes were normally driven in a pattern of four per plank per frame, but in some cases only two or three spikes were used at the juncture of strake and frame.

A single complete scupper hole was found on the port side of the Eagle's hull, cut into the first ceiling strake below gunports #6 and #7. The hole, 5 inches wide by 9 inches long, partially intersected a frame, and appeared to have been expanded aft in order to provide enough room for the scupper pipe (figure 44). Because this was the only scupper on the port side, its position indicated that the space between gunports #6 and #7 was considered by the shipwrights to be the lowest point on the Eagle's sheer when she was in proper trim.

A second, incomplete hole, 6 inches in diameter, and 4 inches deep, was found 4 feet aft of the completed scupper. This was probably the first location chosen for the scupper, and was abandoned because it either intersected directly on the center of a frame, or was not on the lowest point of the sheer.

The ceiling planking was carefully examined for

evidence of the lower (or birth) deck, but disappointingly little was found. A few bent-over spike heads, seemingly scattered in a random manner. were noted on the ceiling, but seatings for the beam ends were not evident. The birth deck was no doubt completely removed by the Navy after the ships were put in ordinary, to encourage the circulation of the air inside the hull.

Half a dozen bulwark planks were found attached to the frame tops, between gunports #2 and #3, and gunports #6, #7, and #8 (figure 45). Where intact, they averaged 7 feet long, 7 to 8 inches wide, and 4 to 6 inches thick. The planks were attached to the frame tops with iron spikes. Between gunports #2 and #3, the bulwark held traces of thickly-applied whitewash paint, in which the brush marks were evident.

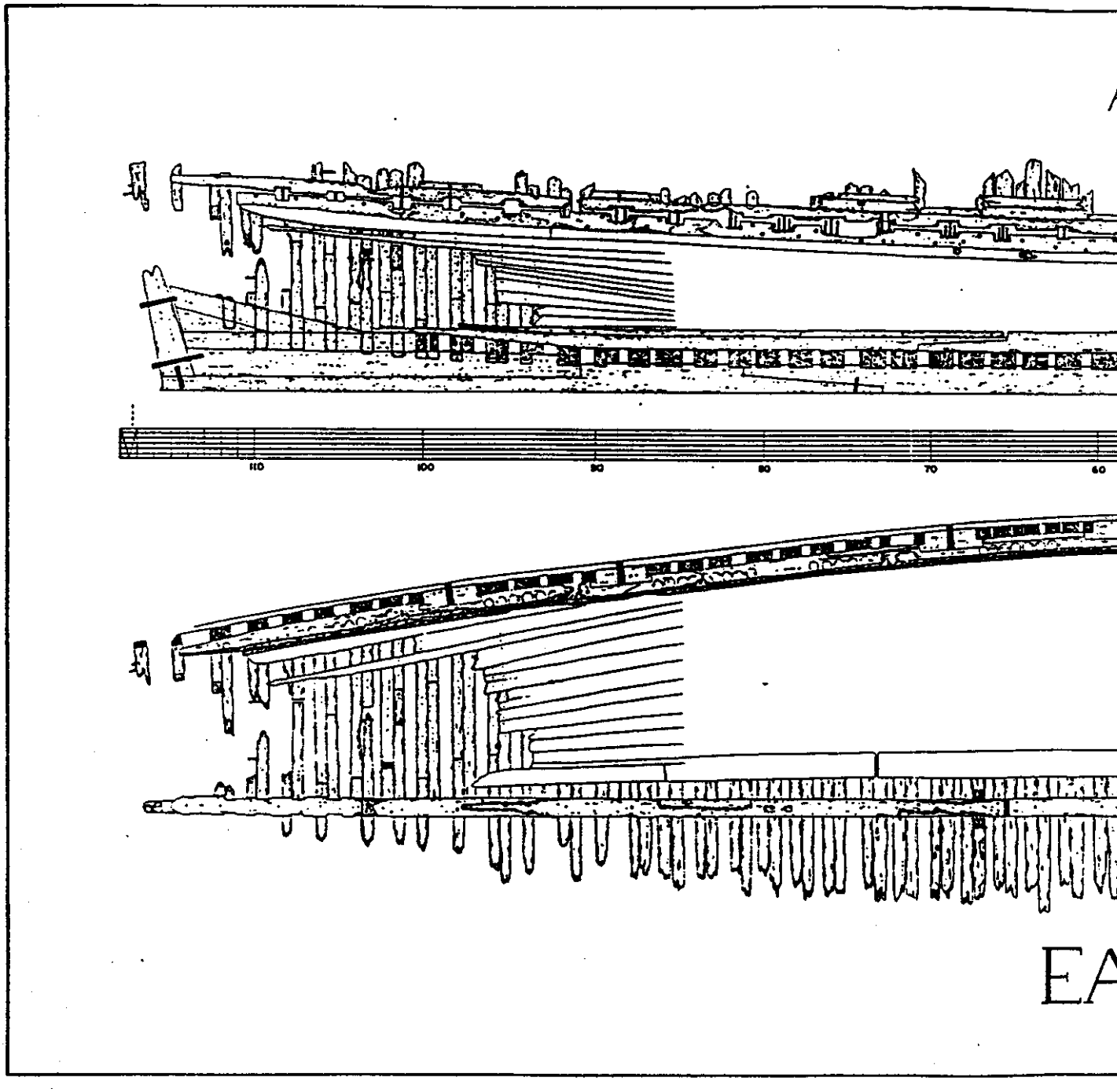
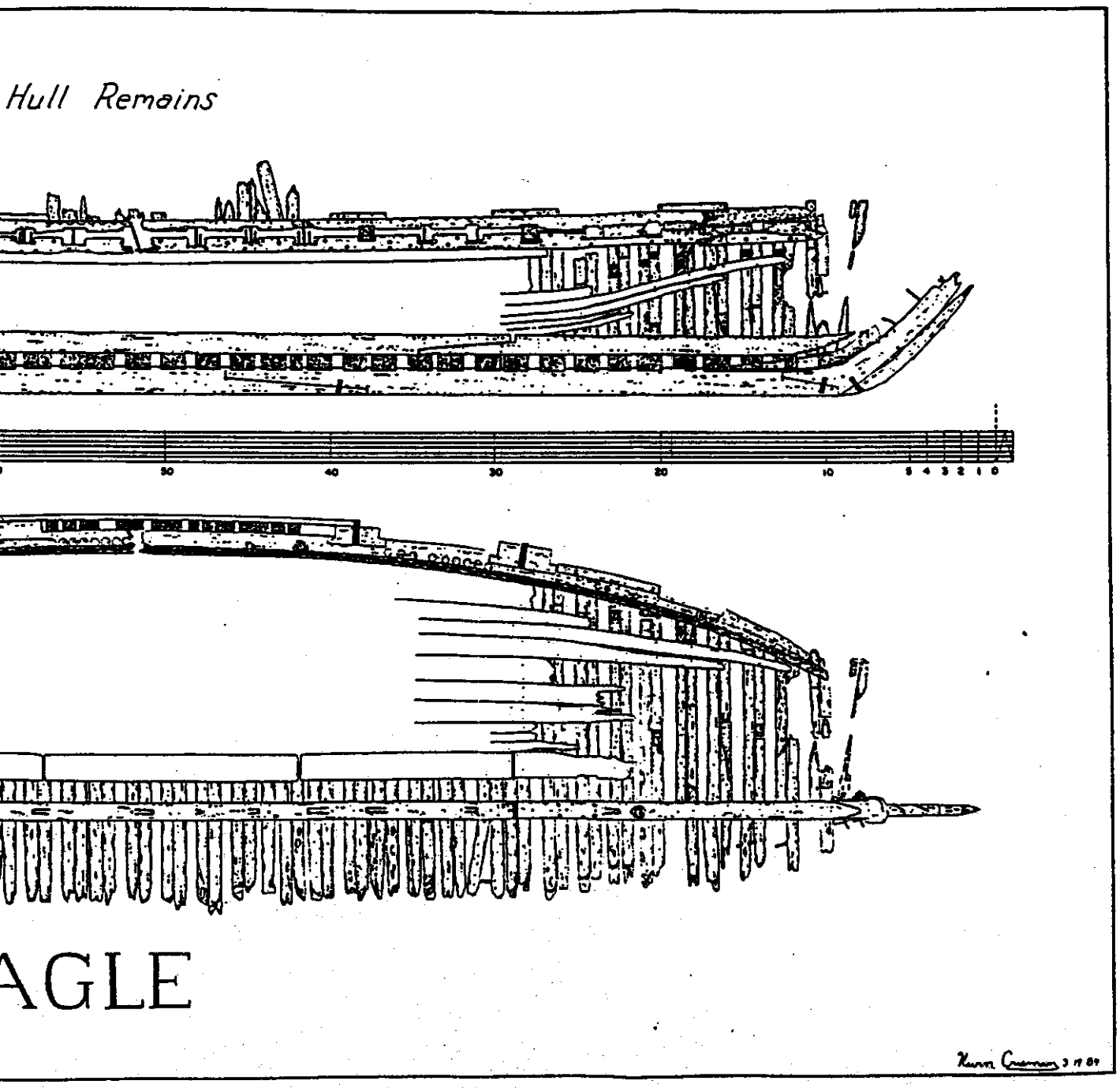


Figure 4



45. Hull remains.

CHAPTER X

THE RECONSTRUCTION OF THE EAGLE

Evidence for Reconstructing

In Chapter IX the existing structure of the Eagle was described at length, but to complete the study of the brig, it was necessary to move into the realm of educated conjecture and reconstruct - on paper - the missing portions of her hull. These included the starboard side of the hull, the top of the stem and stern, and the main and birth decks with their associated features. Masts, yards, and most other rigging elements were also absent from the wreck of the Eagle.

Fortunately, the reconstruction did not have to be based entirely on guesswork, since a number of sources could be relied upon to fill in most of the missing details. The hull itself provided the best clues for reconstruction purposes. For example, although the main deck was entirely broken up, the deck beam slots in the port clamp timber clearly indicated the size and spacing of the beams. Slots in the keelson marked the location of stanchion posts, and seatings for the bilge pumps were noted at the base of frame 13. Notches, bolt holes, and other small but important features provided reliable evidence for rebuilding much of the now-dismembered Eagle.

In places where hull timbers were completely destroyed, and no clues remained to assist the reconstruction process, it was necessary to turn to contemporary hull plans and construction contracts. Most of these could be found in Howard Chapelle's two books, The History of the American Sailing Navy, and The History of American Sailing Ships. Archaeological studies of other War of 1812-period shipwrecks, particularly of the Hamilton, Scourge, and Jones in Lake Ontario, constituted a further source of information about the possible appearance of the Eagle in 1814.[1]

The ship plans most relevant to the reconstruction of the Eagle's exterior were the lines of Macdonough's flagship Saratoga (figure 63). This ship-rigged sloop of war was similar in size to the Eagle, and the two vessels were launched just four months apart from one another by brothers who appear to have shared similar philosophies and techniques of ship construction. Most importantly, Saratoga and Eagle were built to navigate Lake Champlain, and thus would have shared the design modificationsimposed by shoal waters.

The contract and plans of the Peacock, a sloop of war built by the Brown brothers in 1813, contained a wealth of information about warship construction during the War of 1812 (figure 47).

The Peacock and the Eagle were similar in length, breadth, and armament, but because the former was an ocean-going vessel, the two differed radically in draft. The Navy contract for the Peacock listed at length the techniques of construction and the sizes and types of materials to be used in the assembly of her hull.[2] Many of the timber dimensions in the two hulls were identical, suggesting that some of the specifications contained in the Peacock's contract were equally applicable to the Eagle.

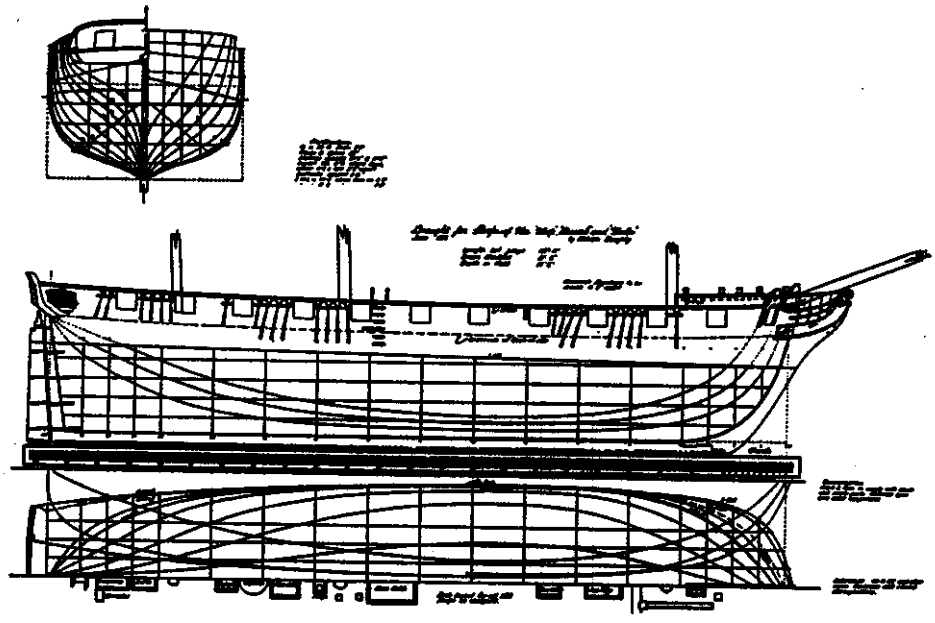


Figure 46. The original design for the Peacock.

(From The History of the American Sailing Navy by H. I Chappelle. Courtesy of W.W. Norton & Company, Inc., New York.)

A third Brown-built vessel that had many similarities to the Eagle was the Niagara, a 20-gun brig built on Lake Erie in 1813 by Noah Brown. Like the Eagle and Saratoga, the depth of the Niagara's hull was severely restricted by shoal waters. Unfortunately, no lines were taken from this vessel or her sister ship Lawrence when they were afloat on Lake Erie. The Niagara was raised and reconstructed in 1913 as part of the centennial celebration of Perry's victory; she underwent a second restoration in the early 1930's, and extensive repairs in 1963. At present, the keel is the only original timber left in the hull.[3] Howard Chapelle drafted plans for the second rebuilding of the vessel, but noted that many of the features, such as the stem, stern, and deck arrangements, were conjectural and subject to considerable debate[4] (figure 57).

In 1979 the Pennsylvania Historical and Museum Commission hired naval architect William A. Baker to prepare revised hull and rigging plans for a third major restoration of the Niagara. Baker's excellently researched mast, yard, and rigging specifications were of great value for the reconstruction of the Eagle's rig. There were a number of helpful sources for determining the probable size and position of deck features such as hatches, bitts, companionways, and catheads. Inboard profile and deck plans of the Peacock and the Prince de Neufchatel (a

privateer built by the Brown's in 1812-1813), each contained detailed information about the deck arrangements of early United States' warships.

The Hamilton and Scourge, two U.S. Navy armed merchant schooners that foundered in Lake Ontario in 1813, have recently been discovered and photographed by remote-control submersible. The color pictures of the two vessels provided close-up views of the decks of actual War of 1812 warships, with the cannon at the ports and the masts standing upright. Included in the photographs were views of pumps, pin rails, channels, chainplates, cleats, blocks, and a multitude of other small items that comprise a sailing ship's equipment.

The 20-gun brig Jones, built on Lake Ontario in 1814 and later scuttled in Sackets Harbor, was examined by the writer in the spring of 1984 to obtain comparative information on the Eagle. This vessel was similar in overall dimensions to her Lake Champlain counterpart, and was in much the same state of preservation, with the keel, keelson, and portside well-represented. Nine intact gunports on the top of the port side yielded a wealth of data concerning gundeck arrangements on early 19th century fighting ships.

By carefully selecting from the hull plans, contracts, and archaeological photographs and drawing the details that best fit what was known of the brig, a

reasonably accurate reconstruction of the Eagle's hull was obtained.

Hull Lines

The first step in the reconstruction of the Eagle was the preparation of a set of hull lines, a three-dimensional framework onto which could be rebuilt the other hull features. Hull lines are composed of three views: the body plan (or end-on view), the sheer plan (or side view), and the breadth plan (or top view). Each illustrates a hull contour not visible in the other two plans, and together they depict on paper the shape of a three-dimensional vessel.

Hull lines constitute the "ideal" shape of a wooden vessel, precise contours that are nearly impossible to obtain in reality. During construction, the shape of a hull is affected by the practicability of its design, the skill of the shipwright or shipwrights, the availability of timber, and a host of other factors. Uneven frame and plank surfaces create a multitude of bumps and hollows on the sides of a wooden ship. After launching, vessels undergo further modification as hull timbers are bent and twisted by the differing forces of gravity and bouyancy, uneven pressures of weight inside the hull, and the slow but relentless processes of decay.

Distortion continues to occur after a vessel has sunk, further altering a vessel from its original, intended

lines. If the foundering was the result of violent storms, fire, or warefare, the distortion may be quite radical, but even in gentler sinkings, deterioration and the weight of cargo or sediment gradually flattens hull timbers. All possible distortions must be taken into consideration when reconstructing the lines of a vessel on the basis of its hull remains.

During the 1982 and 1983 fieldwork in the Poultney River, a total of five frame curvatures were taken off the port side of the Eagle's hull, at frames M, H, XX, 22 and 32 (figures 37-41). In each case, the measurements were taken from the inside of the external planking, thereby recording the contour of the frame at its outside face.

Obtaining the body plan of the Eagle was a simple matter of raising the listing port side to an upright orientation, and then "mirror imaging" the frames over to the missing starboard side of the hull. Frames M and H were found to be cracked or twisted by the weight of the canal boat wreckage overlaying the stem. The resulting distortions were corrected by determing the point at which the bending or breaking began, and fairing the curves of the frames upward from there. Each of the five recorded frames was missing part of its top timbers above the waterway. The height of the bulwark to the bottom of the cap rail (3 feet, 5 inches) was known by the surviving frame tops between gunports 4, 5, 6, and 7; these timbers

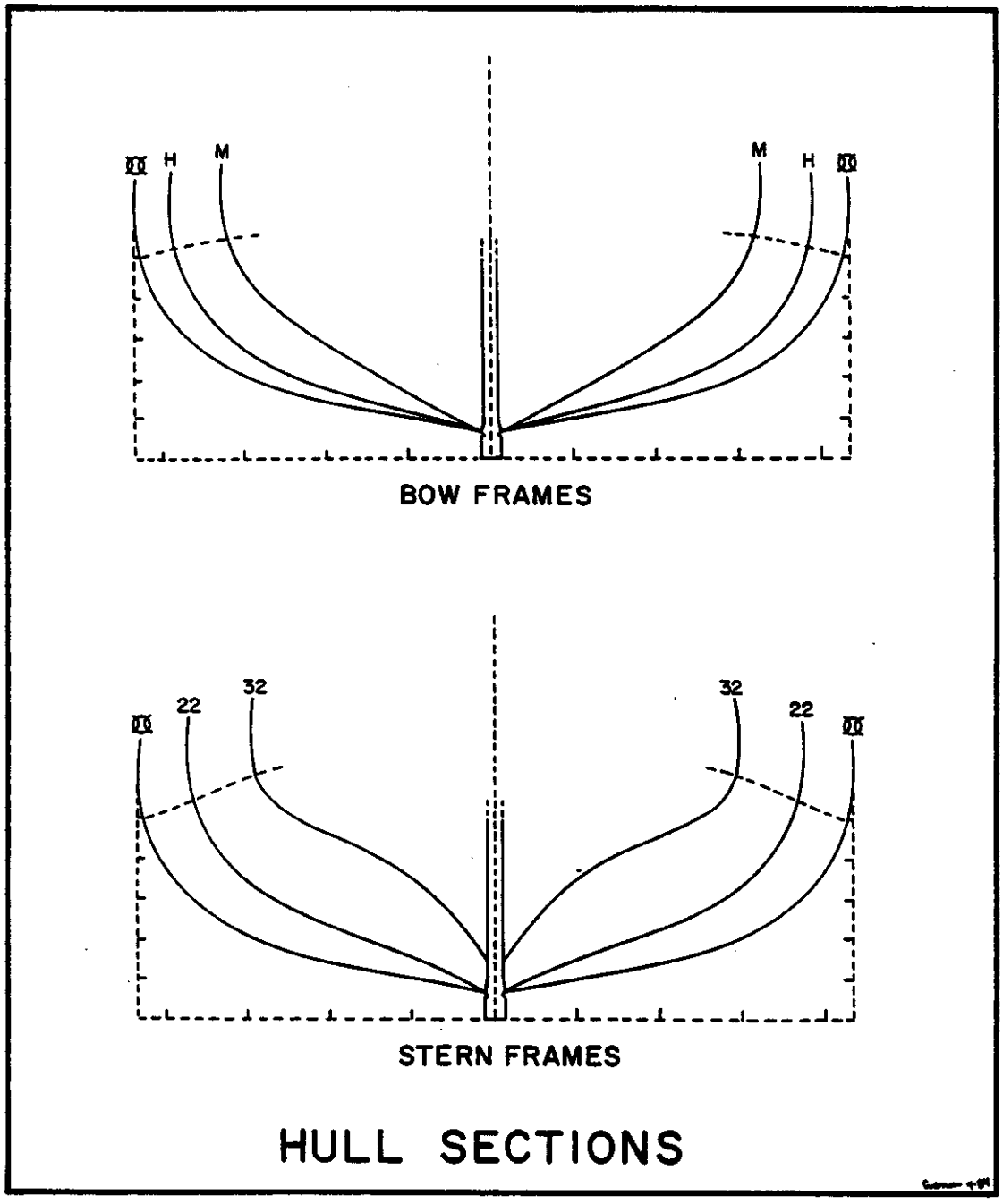


Figure 47. Hull sections.

suggested that there was very little incurving (or "tumblehome") to the bulwark. The missing lengths of frames M, H, ⅩⅩ, 22, and 32 were added, based on the curve of each frame up to the level of the waterway.

The results of "raising", "mirroring", and "fairing" the frames were perspectives of the Eagle from the stem and stern (figure 47). These views presumed that the brig was symetrical, when in fact, for reasons already explained, it may not have been precisely equal on both sides.

The locations of the clamp and waterway timbers were noted during the recording of the five frame curvatures, allowing the height of the main deck above the keel to be determined. The deck is shown as a dashed line in figure 47.

When the body plan was for the most part completed, the next priority was the completion of the side view, or sheer plan. The information necessary for this illustration included the length of the keel, the position of frames M, H, ⅩⅩ, 22, and 32 on the keel, the rake of the stempost, and the angle of the sternpost and counter.

The curvatures of the surviving lengths of inner and outer stempost were carefully documented during the 1982 field season. The height of the deck on the body plan suggested that the ten feet of intact posts represented approximately half of the original stem. The pronounced

forward rake of the lower stem, and the rapid narrowing of the hull forward from frame ⅩⅩ to M, combined to give the impression of a sharp-bowed vessel.

The lines of the Saratoga and the reconstructed Niagara were examined for comparison with the Eagle's bow (figure 48). The Saratoga exhibited a rather bluff

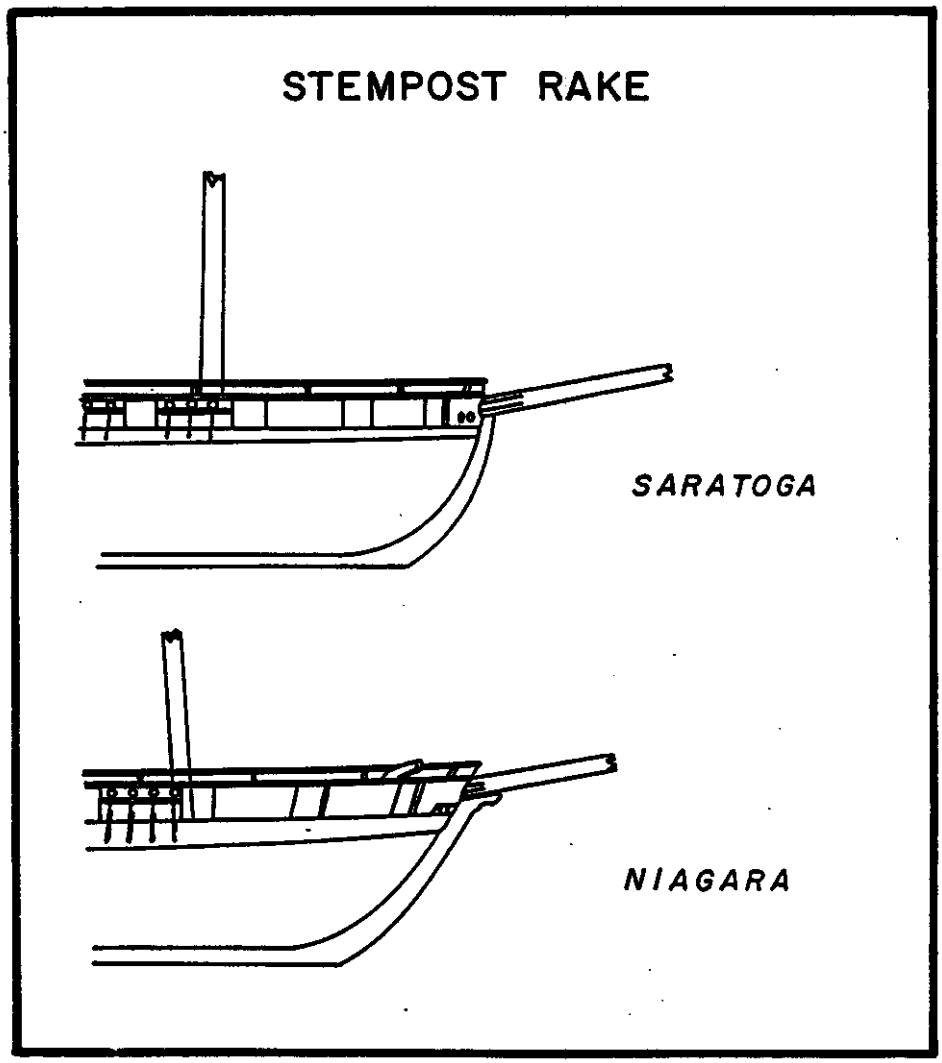


Figure 48. Stempost rake.

(Adapted from The History of the American Sailing Navy, by H. I. Chappelle. Courtesy of W.W. Norton & Co., Inc., New York)

bow with no embellishments such as a cutwater and headrails. Chappelle was of the opinion that all vessels run up by the Brown brothers on Lake Erie and Lake Champlain had similarly unadorned heads, and that they were fitted with a plain stem, or at best a gammoning knee.[5] His reconstruction of the Niagara depicted a bow sharper than the Saratoga's, with a gammoning knee. Since so little was left of the Niagara's original stem by the time Chapelle first examined her, he was forced to rely heavily upon the Saratoga for his reconstruction; the influence of these lines upon this thinking is evidenced by his notation on the plans of the Niagara, "bow rake may be over-sharp".[6]

Chapelle's depiction of the Niagara's bow may have been more accurate than he realized, for if the Eagle is a typical example of Brown-built 20-gun brig, this type of warship had a very sharp stem. The rapidly narrowing aspect of frames H and M, the forward rake of the lower stemposts, and the scarf at the top of the inner stempost all strongly suggested that the Eagle was a sharp-bowed vessel.

The complete shape of the Eagle's stem was obtained by continuing a fair curve of the stemposts, and intersecting this with the incurving waterlines of frames H and M. The reconstructed stem (figure 49) is shown like that of the Saratoga, without a cutwater or gammoning knee.

Most of the Eagle's stern was found to be missing, and as a result, its reconstruction was forced to rely very heavily upon the stern of the Saratoga. The reconstructed counter of the Niagara appeared to be a copy of the Saratoga's, and the stern of the ocean-going Peacock seemed too ornate to hve had much resemblance to the stern of the hastily-built Eagle.

Two features at the stern of the sunken brig provided information about its original appearance. The most important of these was the seven-foot length of sternpost. The forward and after faces of the post inclined aft at slightly different angles, causing the post to narrow as it went upwards. From this, the rake of the stern to the underside of the counter could be easily established. The breadth of frames 22 and 32 showed that the Eagle was proportionately much narrower at the stern than the Saratoga. The two frames also indicated the height above the keel of the deck and the bulwark at the after end of the hull. The counter of the Saratoga was copied and added, at the correct scale, to the top of the Eagle's reconstructed sternpost (figure 49).

Two rudder gudgeons were found on the sternpost of the Eagle, but the height of the reconstructed stern suggested that there probably was at least one more. The rudder on the brig's stern is similar to that of the Saratoga. Chapelle's plans of Macdonough's flagship do

not indicate if she was equipped with a rule-joint or plug-stop rudder, but the Eagle's rudder post has been shown as a plug-stop type. The rule-joint rudder, an older design, had a rectangular post that swung in a wide arc when the rudder was turned; as a result, a large aperture was required where it entered the hull.[7] The plug-stop type, which came into widespread usage around 1801, had a round rudder post set slightly forward on the blade, so that its axis was a line down through the hinge of the pintles and gudgeons. The plug-stock rudder post revolved rather than swung, and needed only a small, circular aperture where it entered the hull. The sternpost of Macdonough's schooner Ticonderoga was hollowed at the top to fit a plug-stock rudder, and it is likely that the other large vessels of the Lake Champlain squadron were similarly outfitted.

The restorations of the missing stem and stern were based upon fragmentary hull remains and similar features from contemporary warship plans; inevitably, a certain amount of conjecture was involved in their reconstruction. Fortunately, this was not the case with the remaining portion of the sheer plan, the port side of the hull from the keel to the underside of the cap rail. The nearly intact clamp and waterway showed the precise location of ten of the port side's eleven gunports. Surviving frame tops demonstrated the height of the bulwarks, the size of

each gunport, and the distance between each gunport. Finally, the full hull sections provided information about the height of the deck and the gunports above the keel. When carefully combined, these details produced a reliable plan of the Eagle's port broadside. The forwardmost (missing) gunport was added, using the size and spacing of the other gunports as a guide.

The Eagle's cap rail could not be found on the wreck, and it was necessary to consult documentary and archaeological sources to determine the probable dimensions of this timber. The Peacock's contract specified a cap rail 6 inches thick and wide enough to cover the ends of the top timbers and the bulwark and external planking. The cap rail found on the wreck of the Jones was the same thickness, and thus a 6-inch cap rail was placed atop the Eagle's sheer.

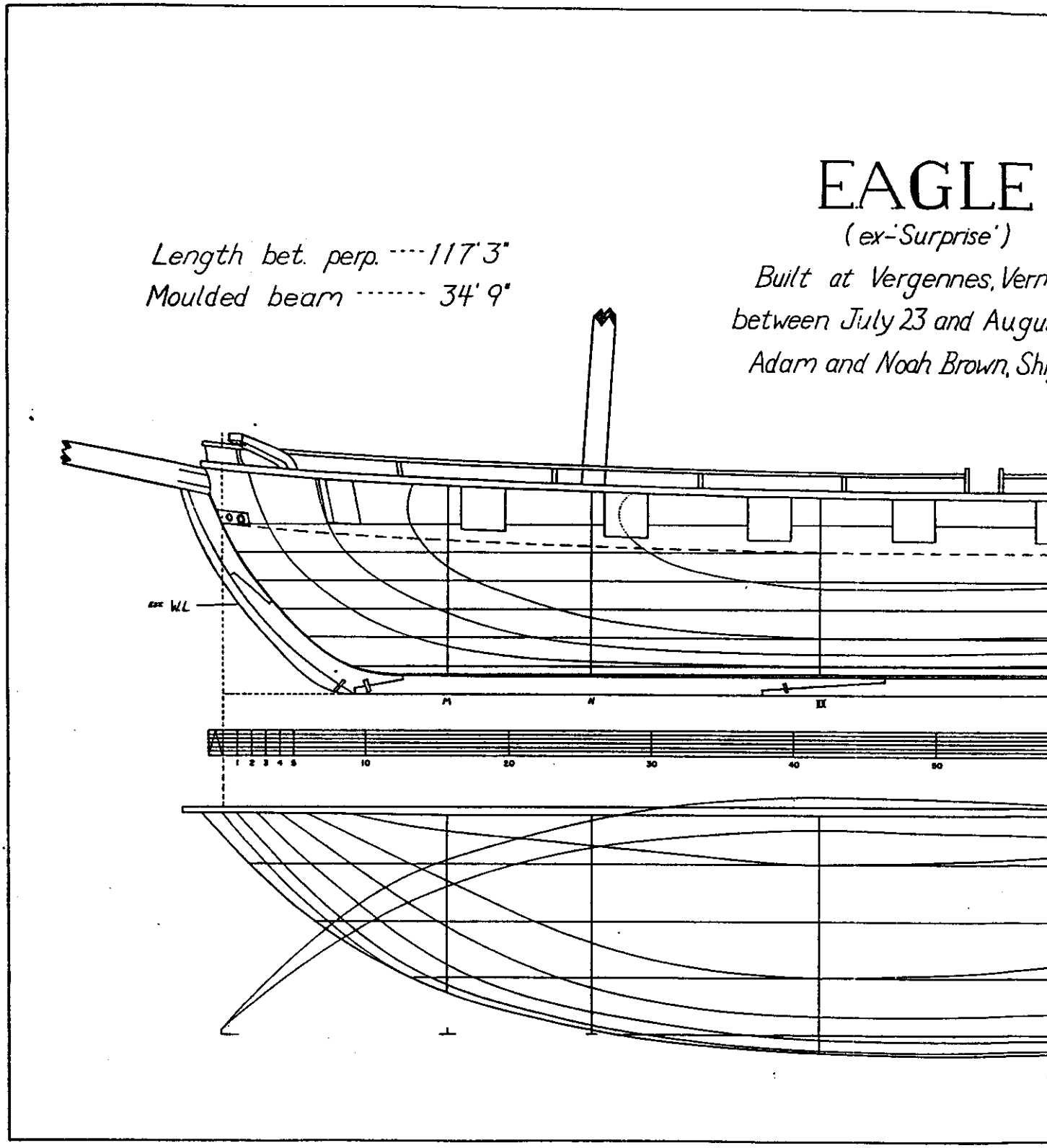
Hammock rails appear to have been considered standard equipment on Brown-built lake vessels, and were included above the Eagle's cap rail. The rails were intended as racks for storing the crew's rolled hammocks when they were not in use, and in battle the hammocks were left on the rails to give the gun crews further protection against small-caliber shot and splinters. The rails for the Eagle were copied directly from the Saratoga plan, although the position of the entryway was moved slightly forward.

Six parallel, horizontal waterlines were drawn from

the keel upward on the body and sheer plans, and from these a half-breadth plan was prepared, illustrating the horizontal contours of the hull above the keel. After completion of the half-breadth plan, four parallel buttock lines were drawn from the keel outwards on the body and half-breadth plans. Buttock lines, which appear as concentric curves on the sheer plan, depict the contours of the hull from the keel to its point of maximum breadth.

When the body, half-breadth, and sheer plans were finished, a pair of intersecting diagonals were added to the Eagle's body plan to describe the bilge shapes and to check the fairness of the other hull projections. They are represented by sweeping curves overlapping the half-breadth plan. Had either curve shown any major irregularities, this would have been an indication of some type of error in the hull lines.

The body, sheer, and half-breadth views of the Eagle comprise a complete set of her hull lines. The plans clearly indicate the design limitations imposed by the shallow conditions on Lake Champlain (figure 49). The Eagle was 117 feet, 3 inches long between perpendiculars, and 34 feet, 9 inches in moulded beam, a length-to-beam ratio of 3.37:1. She was an extremely shallow vessel for her size, with a depth of 12 feet, 6 inches from rabbet to sheer at the midship frame, and a depth of hold of 7


EAGLE
(ex-'Surprise')
Length bet. perp. ---- 117'3"
Moulded beam ------- 34'9"
Built at Vergennes, Vern
between July 23 and Augu
Adam and Noah Brown, Sh
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1 2 3 4 5
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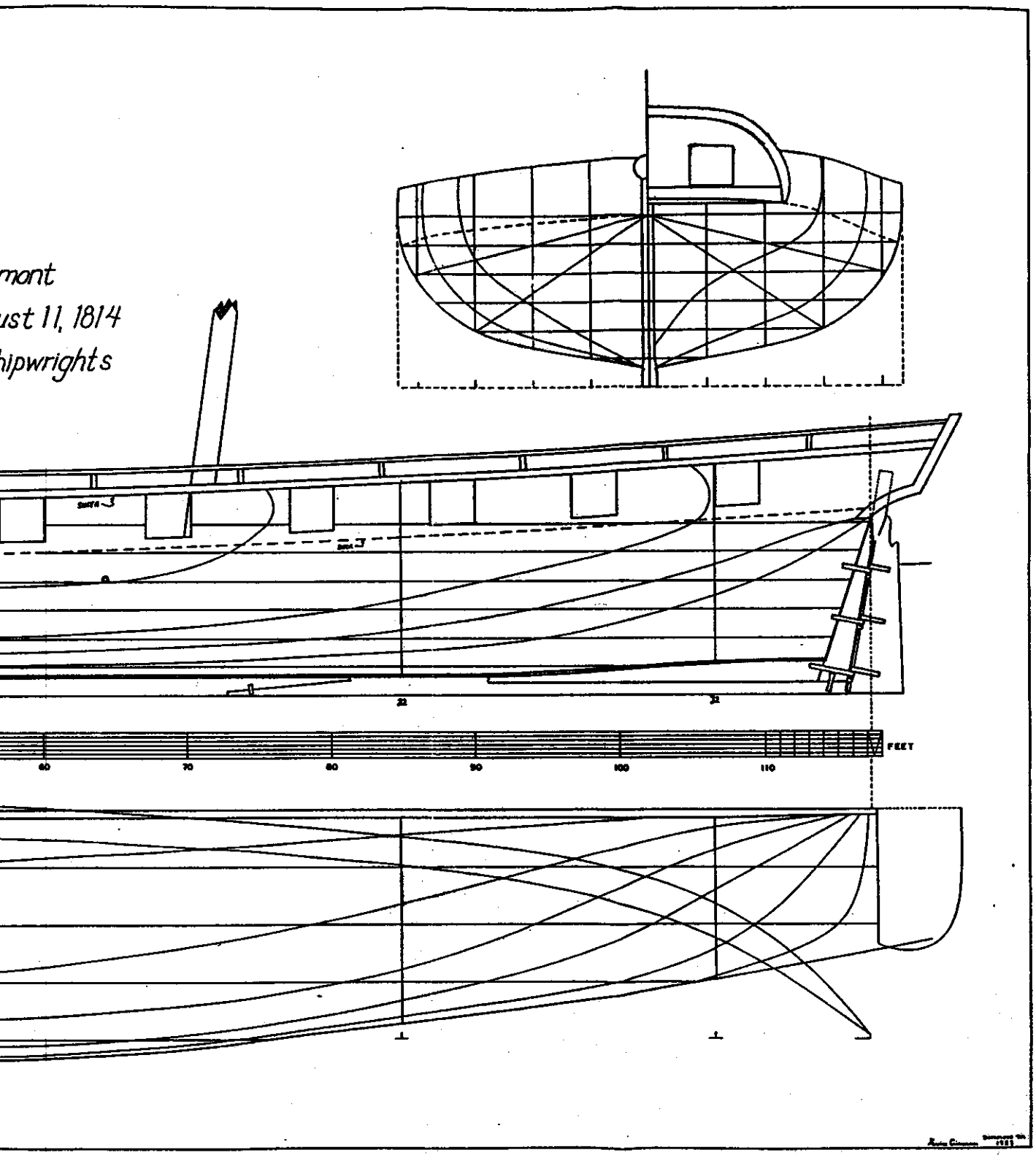
Figure 49. E



Eagle (ex-Surprise).

feet, 3 inches.

An estimate of the Eagle's tonnage may be obtained by using the 19th century tonnage formula, whereby the length of the keel is multiplied by the maximum beam, and the result is again multiplied by half the maximum beam, and divided by 94. The length of the Eagle's keel was 106 feet, 5 inches, and her beam was 34 feet, 9 inches. Thus

$$\frac{106.5 \times 34.75 \times 17.375}{94} = 684 \text{ tons}$$

The tonnage formula was intended for ocean-going vessels with a deep draft, and the actual tonnage of the Eagle was no doubt considerably less than this, perhaps 525 to 575 tons.

The Interior of the Hull

A significant amount of information about the construction of the main deck was acquired by a thorough examination of the brig's existing hull. The location and dimensions of each of the deck beams was determined by the notches between the port shelf clamp and the waterway, and by the ends of the deck beams themselves, many of which were still bolted within the notches. Because the clamp was missing or damaged at either end of the vessel, the positions and sizes of two or three deck beams were not precisely determined. The lengths of all the deck beams were easily ascertained by measuring

the breadth of the hull between the frame ends. The only detail about the beams not available in the hull remains was their arch; the deck would have been slightly cambered to shed water to the sides and out the scuppers. The contract for the Peacock specified that deck beams were to arch 5 inches in 32 feet, a ratio that was adapted for reconstructing the main deck of the Eagle.

The inordinate breadth of the Eagle amidships necessitated the use of deck-beam-supporting stanchion posts. Seven sloping rectangular slots were cut in the top of the keelson between the steps of the fore and main masts, to fit the heels of the posts; these stanchion slots aligned with the locations of seven deck beams. An eighth stanchion slot was cut 6 inches forward of the foremast step, but did not correspond with the position of any beam, and its purpose remains a mystery. The dimensions of the stanchion posts could not be determined from the slots, but a below-deck stanchion depicted in the interior profile of the Peacock (figure 50) measured 6 inches square, a reasonable size for the Eagle's posts. The plans indicate that the four corners of the Peacock stanchion were bevelled, presumably to minimize splintering of the post corners.

The positions of two of the Eagle's hatches were identified by the spacing of the stanchion slots, since between the masts there were two conspicuous gaps in the

row of stanchions (figure 51). The hatches were 6 feet in length, but their widths could not be determined from the wreck. Hatches of similar size on the Peacock were

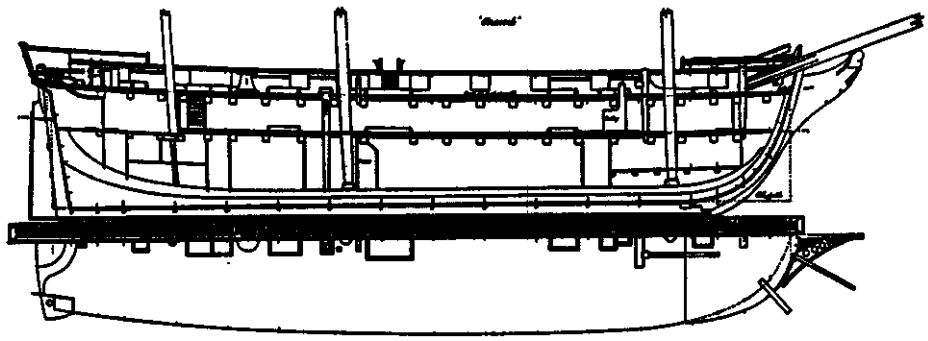


Figure 50. The Inboard Arrangements of the Peacock. (From The History of the American Sailing Navy, by H. I. Chapelle. Courtesy of W.W. Norton & Co., Inc., New York)

generally square, suggesting that the Eagle's hatches measured 6 feet on a side. Hatch coamings for the reconstructed brig were made 4 inches thick by 9 inches high; the coamings on the ocean-going Peacock were much higher, but Brown was probably not concerned about the possibility of large amounts of water sloshing over the hatch coamings and into the Eagle's hold, given the protected conditions on Lake Champlain.

The Peacock, and most other War of 1812-period warships for which we have deck plans, had a small companionway situated between the foremast and the stem. There were no obvious clues to the original position of this opening on the wreck of the Eagle, but the most likely location was 5 feet forward of the foremast,

between two deck beams. Here the companionway would not have been in the way of the forwardmost 18-pounder gun. The reconstructed opening was made 2 feet, 6 inches in length and 4 feet in width.

There were few clues concerning the positions of the hatches, companionways, and skylights aft of the mainmast, and reconstruction of these features depended heavily upon contemporary plans. One small ledge beam was observed between gunports #9 and #10. This may have been the location of a 5 foot, 6 inch-long hatch.

Most contemporary plans indicate a small companionway or skylight at the stern. The most likely position for this opening was between two widely-spaced deck beams, slightly forward of the probable location of the wheel.

There was probably an additional companionway or hatch just aft of the mainmast. Because the strength of the gun deck would have been a prime concern of Adam Brown and his shipwrights, they probably avoided interrupting deck beams if at all possible. For this reason the additional opening was included as a companionway or skylight, 2 feet, 6 inches in length.

The reconstructed deck of the Eagle (figure 51) has three hatches, and three smaller companionways or skylights, about the number that could be expected on an inland-lake 20-gun warship. The Eagle was not a cargo-carrying vessel, nor did she need to load in through her

hatches large quantities of provisions for long ocean voyages. Her hatches and companionways did not have to be particularly large or numerous, as long as they were capable of sustaining the traffic of sailors carrying powder, shot, and wounded during a battle.

The Eagle's deck and deck beams were probably reinforced by fore-and-aft tiers of carlings, but again, the wreck contained no information concerning the location and dimensions of these timbers. The Peacock contract called for two tiers of carlings on the main deck, moulded 7 inches and sided 9 inches. William Baker's reconstructed deck plan of the Niagara specified carlings 6 inches moulded and 7-1/2 inches sided, in two tiers except in the amidship area, where he added a third tier. A carling arrangement similar to Baker's was adapted to fit between the main deck beams of the Eagle.

None of the Eagle's deck planking survived the ravages of time, wreckers, and the Poultney River, and it was again necessary to refer to the Peacock contract for an example of typical deck planking dimensions. The contract called for plank 3 inches thick, of heart yellow pine, not over 9 inches wide; it further specified two spikes through every plank, into each beam and ledge.

No evidence of a lower (or birth) deck could be found on the ceiling planking within the wreck. This deck undoubtedly existed, both as a base for bulkheads

and equipment lockers, and to keep the crew from having to walk on the iron-ore ballast. Clearance between decks on vessels of this period was typically very low; the Peacock, for example, had less than four and one-half feet between her main deck beams and the birth deck. The Eagle could have afforded more headroom between decks, approximately 5 feet, 6 inches, and still have had a large space of roughly 2 feet beneath the birth deck for the stowage of ballast. The inboard profile of the Peacock suggests that the birth deck followed the sweep of the sheer, although this may not necessarily have been the case on the Eagle.

Because the brig had such a shallow hold, the birth deck beams would have added little to the strength of the hull, and they did not have to be particularly large in dimensions. The lack of a birth deck clamp tends to confirm that the deck beams were diminutive. Brown probably spiked small, uncambered beams directly to the ceiling planking for the foundation of this deck. The Peacock contract specified a thickness of 2-1/2 inches for the birth deck planking, but thinner planks may have been employed on the Eagle to save time and materials.

The location and size of the compartments between decks is a topic open to considerable discussion, since the extant hull provided almost no information. Contemporary ship plans were also somewhat vague

concerning typical bulkhead arrangements.

The prior existence of a shot locker at the base of the mainmast was suggested by the unusual concentration of round, grape, and cannister shot between frames 11, 12, and 13. A similar locker, also containing the pump tubes, was indicated on the inboard profile of the Peacock.

Plans of large War of 1812-period warships indicate that in most cases the galley or camboose was situated in the first large hatch abaft of the foremast. This was further confirmed by photographs of the schooner Scourge which clearly showed the stove pipe (or "Charlie Noble") slightly behind the foremast. Galleys were presumably placed below or adjacent to hatches to permit the escape of the smoke and cooking fumes they produced. The dimensions of the Peacock's camboose were copied for the one shown in the Eagle reconstruction (figure 51).

Compartments in the Eagle's hold probably included the captain's cabin (typically in the stern), cabins for the first and second lieutenants, the midshipmen, the master, the surgeon, and an offier's mess. Other compartments may have consisted of shot, cable and sail lockers, the magazine, and storerooms for the equipment of the gunner, the carpenter, and the boatswain.

Hatches and companionways would have been fitted with steep flights of companion stairs or ladders. The

hatches, with the exception of the galley hatch, were probably equipped with two sets of stairs each, and the companionways with one, making a total of between five and seven companion stairs in the hold of the Eagle.

Deck Fittings

The deck of the Eagle held an array of equipment and features necessary for navigating the lake and firing her weapons. These included pumps and scuppers for the removal of water from the bilges and deck, bitts for making fast ropes or cables, a windlass or capstan for hauling in cables, catheads at the stem for taking in anchors, a wheel or tiller for steering the brig, and the cannon and their associated tackle. Evidence of some of these fittings was found on the wreck, but for other items it was necessary to consult contemporary plans and documents, and archaeological reports on similar early-19th century vessels.

Two notches in the first futtocks of frame 13 were identified as pump wells, but nothing could be learned of the pumps themselves from the wreck, or from historical documents relating to the Eagle. Thomas Oertling, an expert on ships' pumps, offered information regarding the probable design and operation of the brig's pumps.[8] Oertling believed that a vessel of the Eagle's size and purpose would have been equipped with simple suction pumps, called "common pumps". These could have been

manufactured at Vergennes with a minimum of materials, and were more than adequate for emptying the brig's bilges.

According to Oertling, each pump tube was probably fashioned by hollowing an elm log, either by drilling it, or by cutting it in half, hollowing it out, and fastening it back together. Elm was most often selected for this purpose because of its tough, water-resistant qualities; the removal of its heart wood for the pump shaft would make the tube less likely to split. To prevent clogging of the pumps by large pieces of bilge debris, the openings at the bottoms of each tube were probably covered by strainers made of sheet lead punched with small holes.

For the reconstruction, the upper end of the pump tube, the side pieces (or cheeks), and the handle (or brake), were copied from unscaled photographs of the Scourge's pumps. Oertling believed that the tops of the Eagle's pumps would have been similar or identical.

The internal mechanism of each pump probably consisted of a wooden piston, fitted with leather gaskets, and hinged wood and leather one-way valves. An iron shaft attached the piston to the brake. When the brake was pumped, the piston moved up and down in the tube, drawing water in and forcing it through the one-way at the top of the piston. On the Scourge's pumps, water drained onto the deck through a trapezoidal opening at the top of the tube; once on deck, the water flowed across the

cambered deck and out the scuppers.

Only one scupper hole was found on the Eagle's port side, underneath the clamp timber, between gunports #6 and #7 (figure 44). There was undoubtedly a twin scupper on the now-missing starboard side of the hull, making a total of only two scuppers. Presumably the scuppers were not made until the brig was outfitted and ballasted in her proper sailing trim. The crew may then have poured water on the deck to observe where it collected at the lowest point of the sheer. The abortive scupper hole noted on the port side may have been the result of an error in determining the optimum location for the drain.

The scupper itself may have been an elbowed lead tube about 5 inches in diameter, expanded into a collar at its upper end and nailed to a hole in the deck planking. The lower end of the tube was perhaps also collared and nailed to the external planking. The presence of only two scuppers was a further indication that Brown was not concerned about large quantities of water collecting on the main deck.

Frame K, near the stem, had two notches cut into its after corners, one on either side of the keelson. This locale, near the foremast, was the likely position of two upright posts, known as the "bitts". The posts extended several feet above the deck, and were attached to one another by an above-deck cross-piece. The bitts were

used for securing anchor tackle, towing cables, and other lines.

A second pair of upright posts, designed to secure the heel of the bowsprit, was probably placed in the stem forward of the bitts. No information concerning the size or location of these posts could be gleaned from the wreck, and it was again necessary to copy those shown on the Peacock.

Warships of the War of 1812 period were generally outfitted with an upright circular winch or "capstan", situated on the centerline of the vessel. Historical records did not indicate if the Eagle was equipped with a capstan, although it is possible that one was shipped up from New York City or built by Adam Brown at Vergennes. Alternatively, Adam Brown may have fashioned a hardwood log into a simple windlass and fastened it to the bitt posts in lieu of their cross piece. A windlass of this sort could have been rapidly and inexpensively manufactured from materials available in Vergennes, and would have been nearly as effective in use as a capstan. It is also conceivable that because of the brig's accelerated building and outfitting no winch of any sort was installed. Due to the complete lack of evidence one way or another, neither a capstan nor a windlass were included on the reconstructed hull plans, although the writer leans toward the possibility of a windlass at the bitts.

Catheads were probably fitted to the stem of the Eagle to assist in the handling of her heavy anchors. The catheads were placed in the reconstruction where they would be least likely to interfere with the operation of the guns at the forwardmost ports.

Historical records and archaeological examination of the wreck provided no clues about how the brig was steered, but a vessel the size of the Eagle would have been very difficult to control with only a tiller, particularly in rough weather. For this reason, it is likely that she was outfitted with a wheel. The inboard profile of the Peacock (figure 50) illustrated an arrangement that may have been used for the Eagle's wheel, with a long, curved tiller bar extending from the rudder post to a position beneath the wheel. A system of ropes and blocks would have attached the tiller to the wheel drum, thereby completing the arrangement. The Peacock plan further indicated that the top of the rudder post was slotted to hold an above-deck tiller bar, for use if the wheel was broken.

The reconstructed deck plan depicts the suggested stem-to-stern arrangement of each broadside; one long gun, two carronades, two long guns, four carronades, one long gun. This is based primarily upon the evidence of surviving gunport sills, which indicated that ports #2 and #6 were long gun stations, while ports #3, #4, #7, #9 and

#10 were carronade stations. Long guns were probably stationed at gunport #11, port and starboard, where they could easily be shifted to fire out of the stern posts. Similarly, gun station #1 of each broadside was probably empty except when the long gun at station #2 was shifted forward to deal with an enemy vessel off the bow.

Despite the lack of evidence on the wreck of the Eagle, it is certain that the bulwarks between each gunport were fitted on the inside with large eye bolts to secure the gun tackle. At every gunport two heavy bolts, one on each side, held the recoil-restraining breeching ropes. Other bolts, probably centered between the gunports, held the blocks and tackle that drew the guns back to the ports after loading.

Masts, Yards, and Rigging

The extant hull of the Eagle yielded scant information about her sailing rig. The locations of the mast steps were determined by bolt holes on top of the keelson. Seven iron chainplates, once used to secure the mainmast shrouds to the side of the hull, were discovered below the portside gunports. An iron ring spike was found attached to the external planking forward of the chainplates; presumably it anchored part of the rigging, perhaps a brace or sheet that trimmed the foremast sails.

Historical records are disappointingly vague about the details of the Eagle's rig. Daniel Records' log

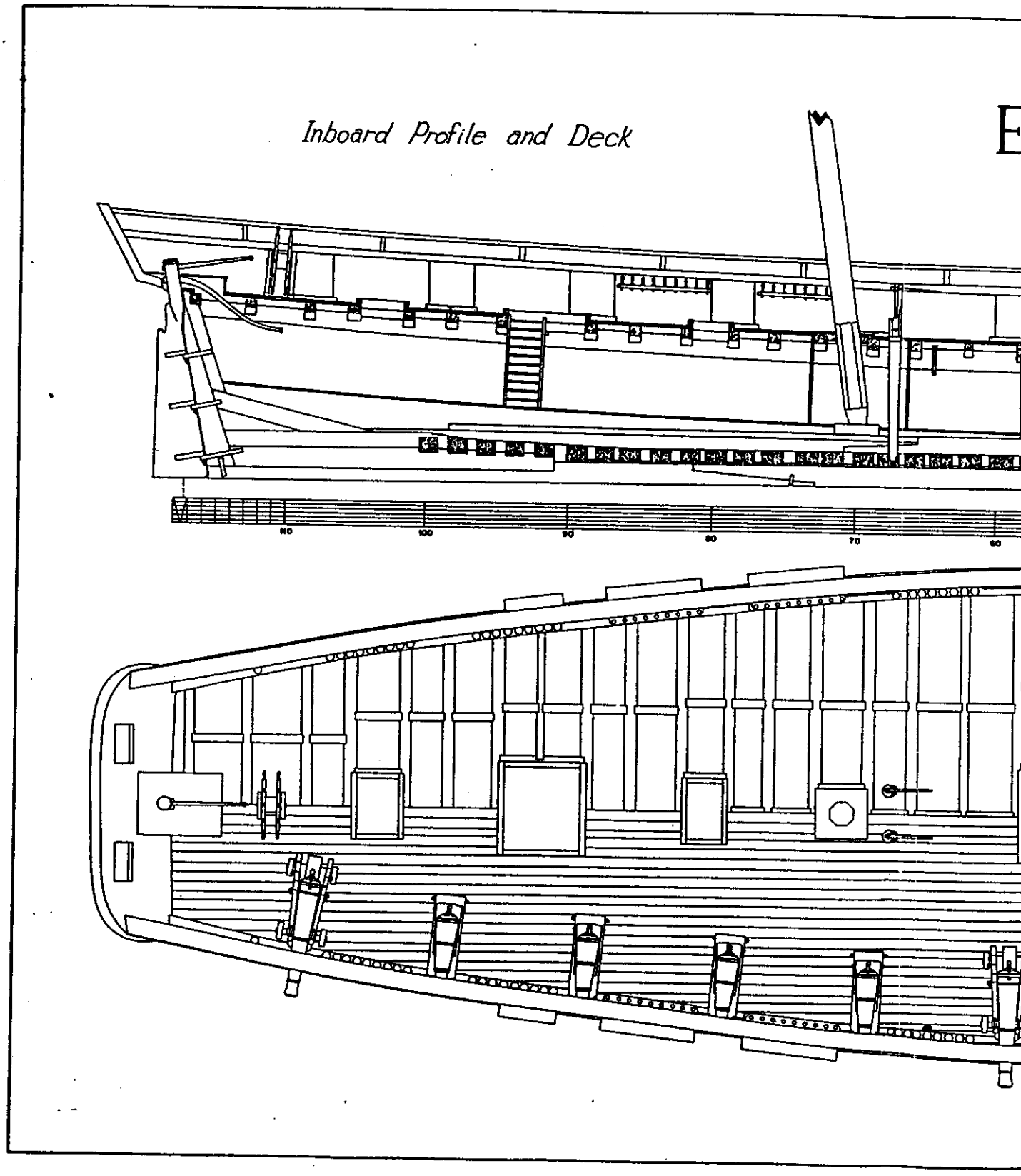
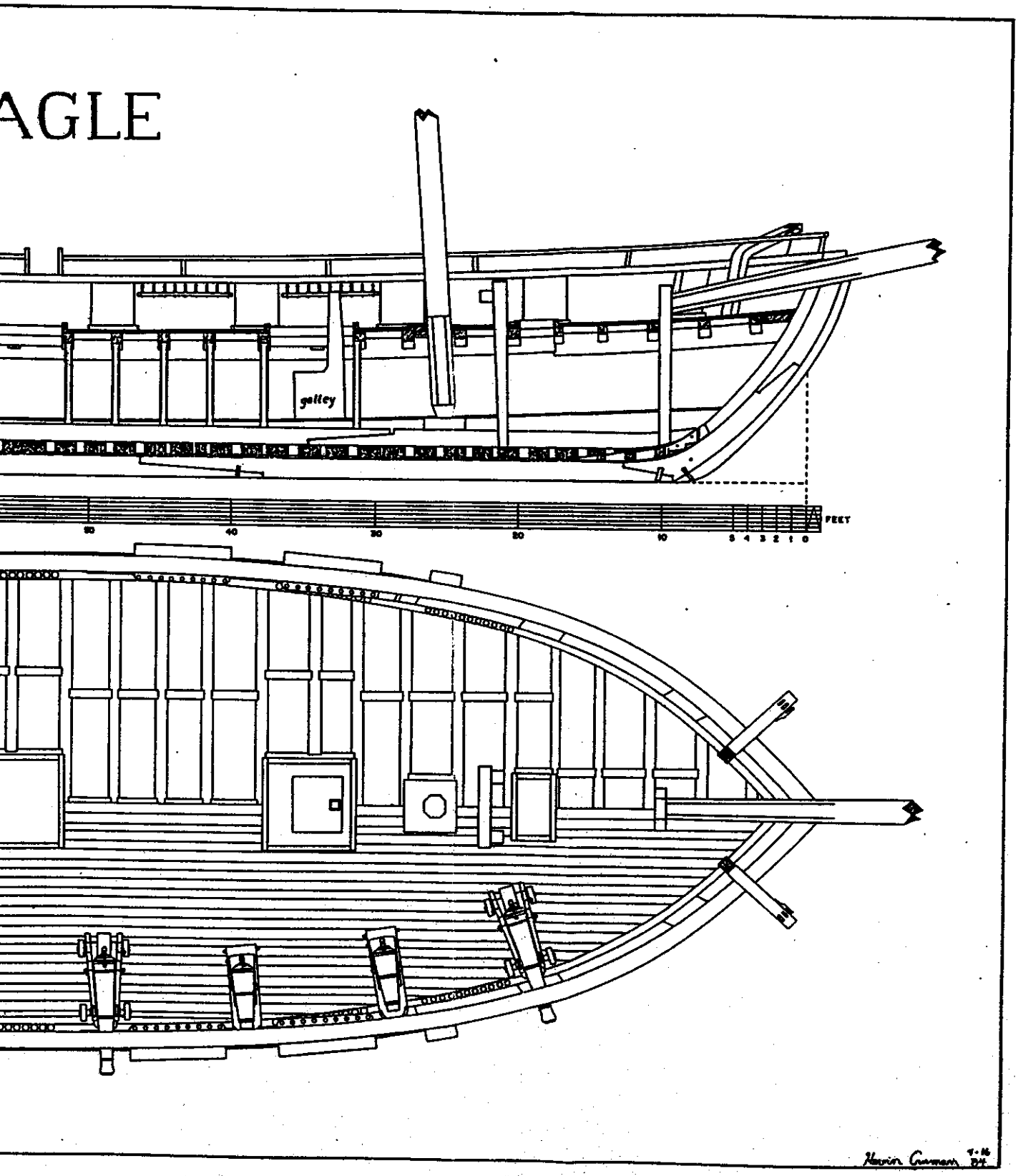


Figure 51. The



nboard profile and deck, Eagle.

book confirms that she was rigged as a brig, with two masts that carried main, top, and topgallant sails, in addition to a fore-and-aft spanker sail on the mainmast and jib sails between the foremast and the bowsprit. Thus, nothing substantive is known about the Eagle's rig, except that she carried the standard set of sails for a brig. The frustration occasioned by the lack of detailed information is further aggravated by Navy Agent John Bullus' letter of July 26th, 1814: "This morning received a letter from Mr Brown inclosing the dimensions of the spars of the brig, for the sail makers."[9] If only Brown's original list of dimensions could be found! An extensive search of likely archives and historical societies has failed to produce this vital document.

The watercolor portrait made of the Eagle in the fall of 1814 (plate 3) is very small in scale, but insofar as it may be relied upon, it shows her as being very loftily sparred. This agrees with Chapelle's belief that the masts of the U.S. Navy's lake warships during the War of 1812 "were a little more lofty than would be those of an ocean-going vessel of the same size".[10]

Because few rigging details survived on the wreck and in archives, the reconstruction of the Eagle's masts, yards, and rigging had to depend heavily on a study of the existing dimensions and spar plans for early 19th century warships. A fortuitous coincidence made this task

substantially easier for me. In 1979 the Pennsylvania Historical and Museum Commission hired naval architect William Avery Baker to prepare plans for a third rebuilding of the Niagara. Baker, a widely-recognized expert on the subject of 17th, 18th, and 19th century ship rigging, examined 1794 and 1839 masting rules, as well as the spar dimensions of the U.S. Navy brigs Argus, Hornet, Syren, and the Lake Ontario brig Oneida. After considerable research, he concluded that the Niagara's original rig was probably proportionately very similar to the lofty rig of the Oneida. Baker prepared a detailed list of dimensions and six sheets of reconstructed rigging plans, shortly before his untimely death in September of 1981.

The Niagara and Eagle had a great many similarities: both were 20-gun brigs of approximately the same dimensions, they were built only one year apart from one another by the Brown brothers, and the two vessels were designed to navigate shallow inland lakes. It is reasonable to assume that the Niagara and Eagle carried nearly identical sets of masts and yards. A time-consuming program of research into the Eagle's probable rigging dimensions seemed likely to produce plans similar to, if not less accurate than, Baker's excellent work. Accordingly, by the generous permission of the Pennsylvania Historical and Museum Commission, the Baker rigging

reconstruction was adapted to fit the Eagle's hull.

The bolt pattern on the Eagle's keelson suggests that large steps, not less than three feet in length, were installed for the fore and main masts. The width and height of each of the steps are not known, but it might be assumed that they were similarly expansive. Adam Brown no doubt wanted a secure seating for the mast heels, since only about 7 feet of each mast was inside the hull.

Masts were (and still are) raked aft on most types of large sailing vessels. Baker estimated that the rake of the Niagara's foremast was four degrees to the top of the keel, and the mainmast was raked 8 degrees to the top of the keel, angles which happened to coincide with the spacing of the Eagle's deck beams. He specified that the mast partners were to be 8 inches thick, and let down 4 inches below the tops of the supporting beams.

Dimensions and views of the masts, yards, mast tops, cross-trees, caps, and other rigging elements are shown in figures 52 through 54. The fore and main topmasts and topgallant masts on the Argus, Hornet, Syren and Oneida were identical in length and diameter, and Baker was of the opinion that this would have been the case on the original Niagara. The dimension lists of the four brigs further indicated that the yards of the fore and main masts were made the same length, although the foremast

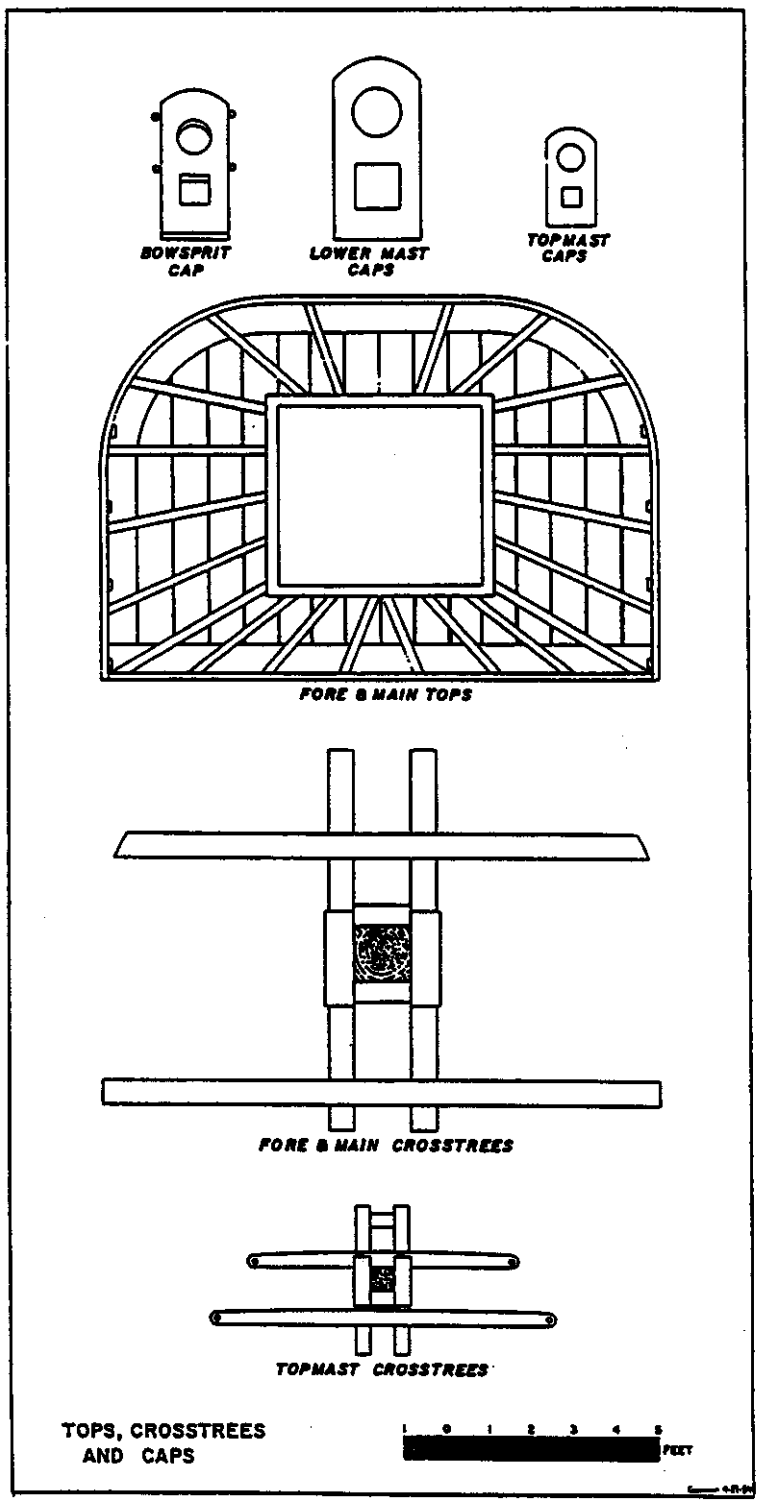


Figure 52. Tops, crosstrees, and caps.

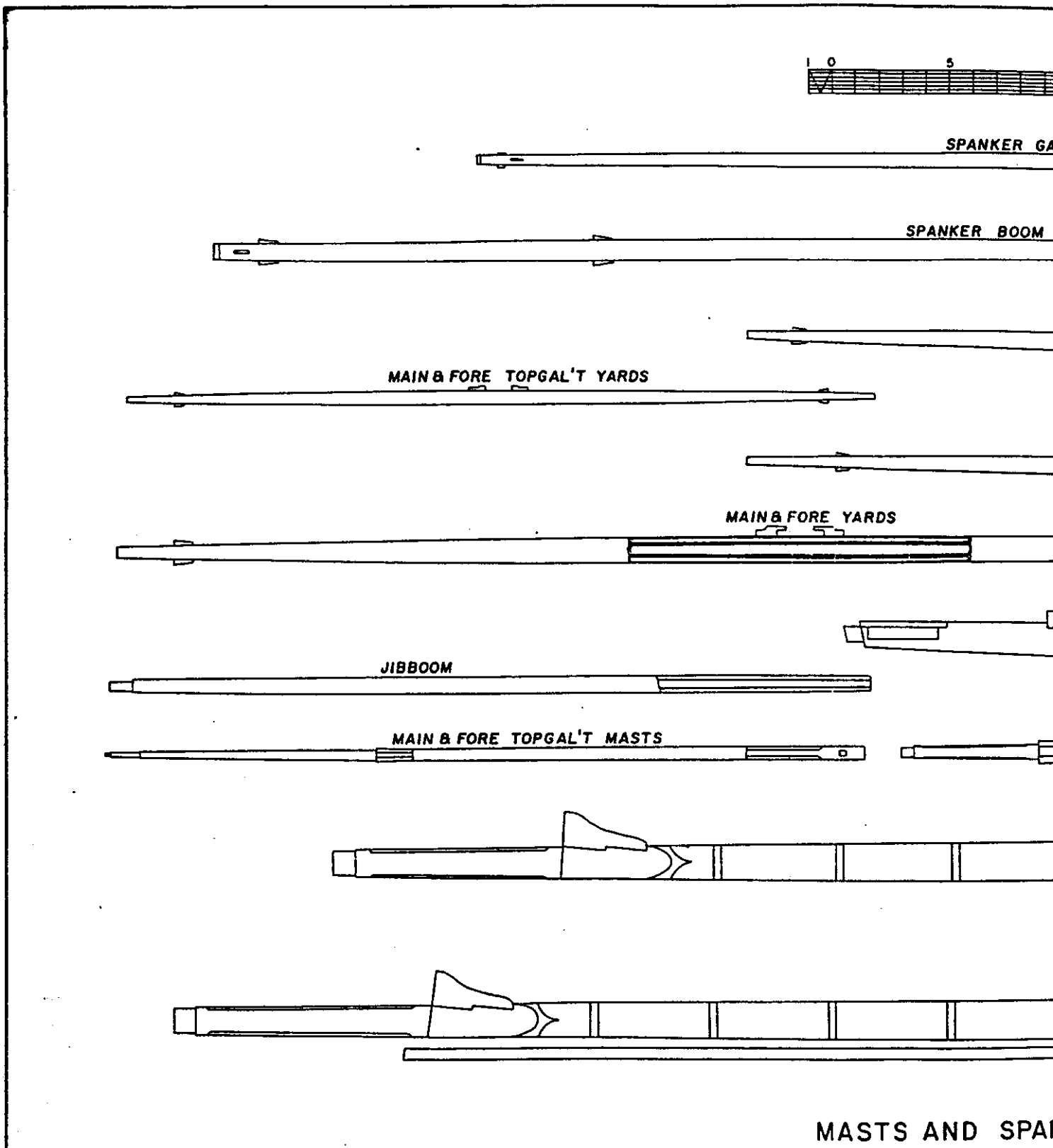
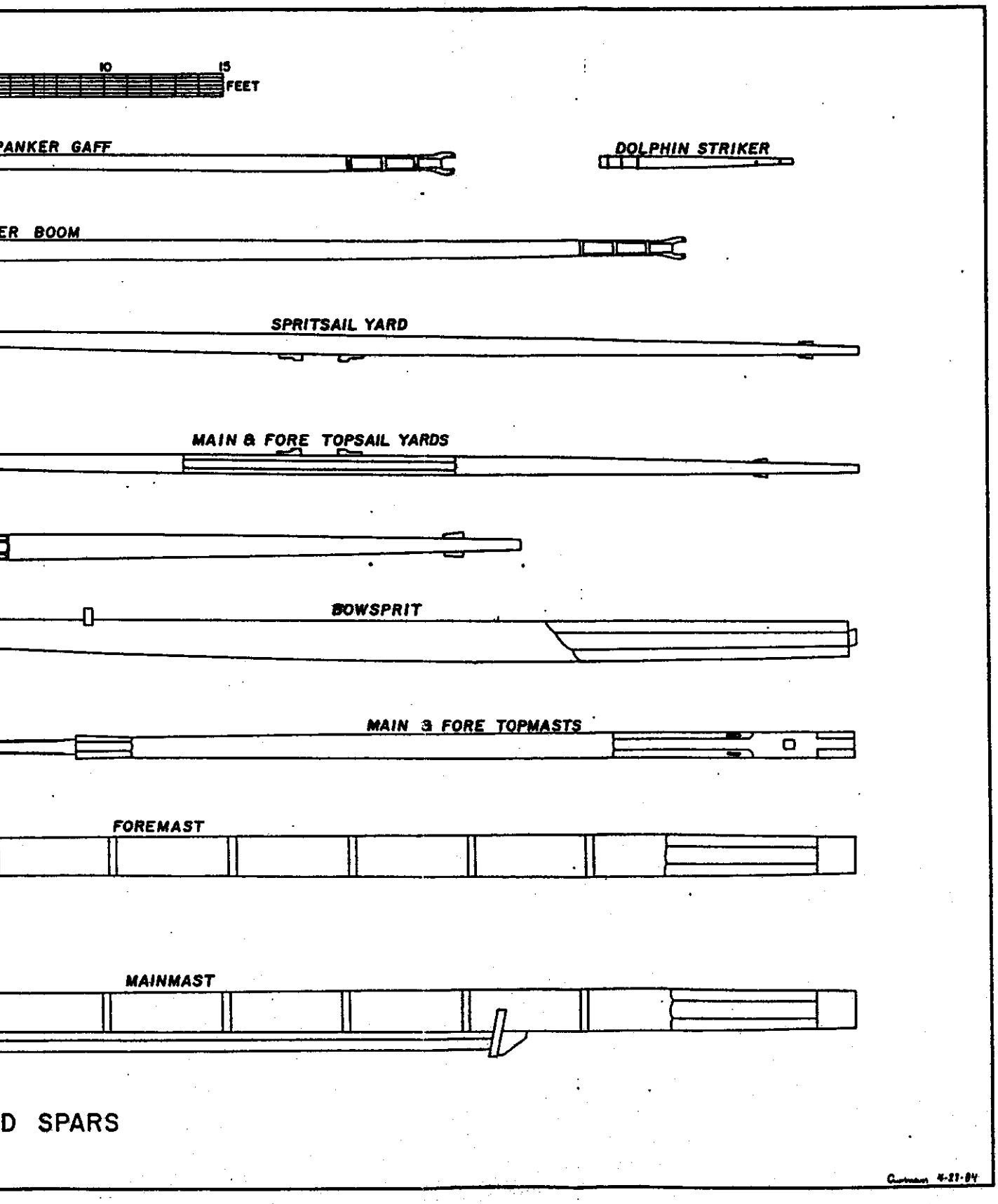


Figure 53. Masts



Masts and spars.

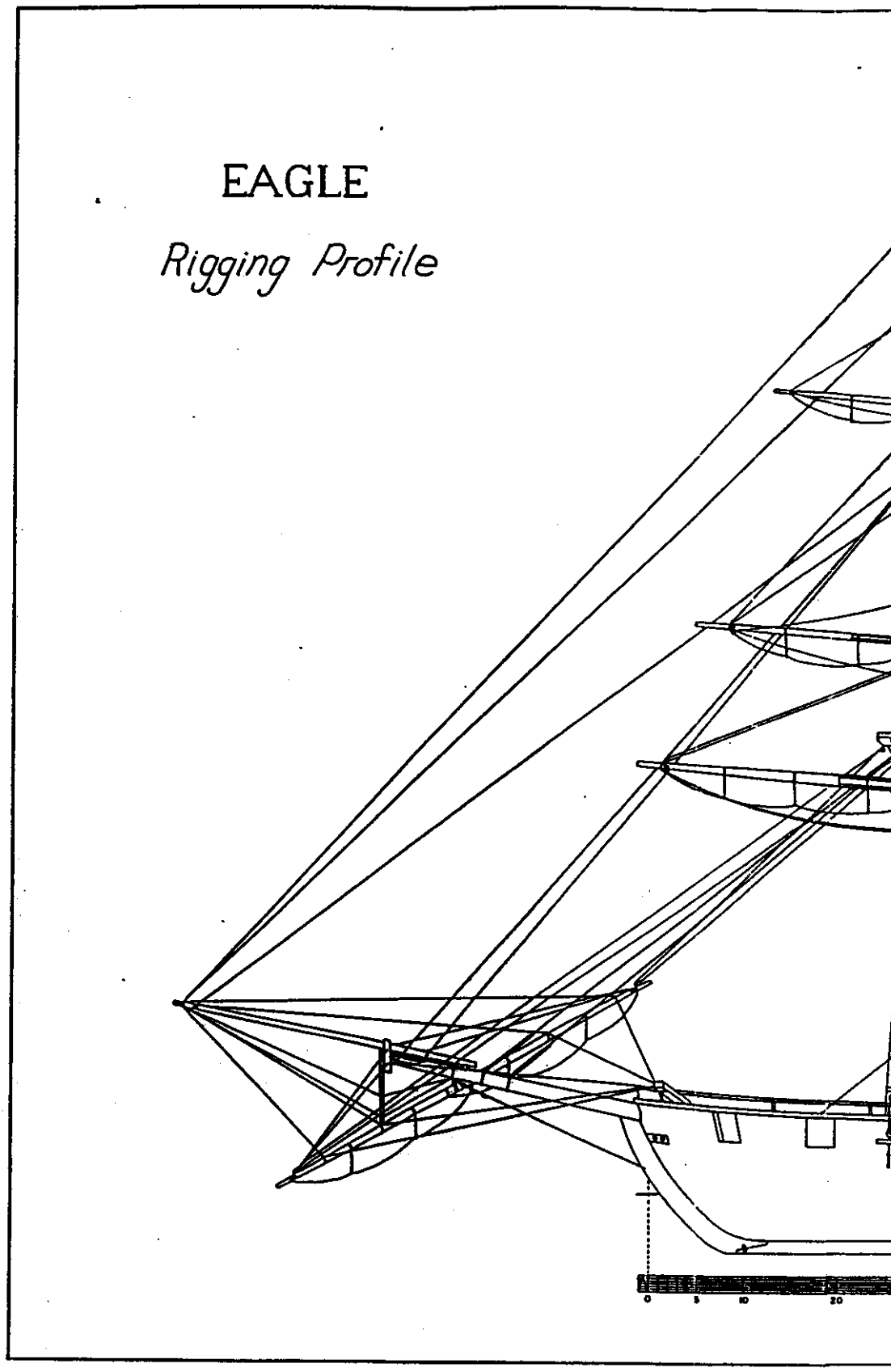
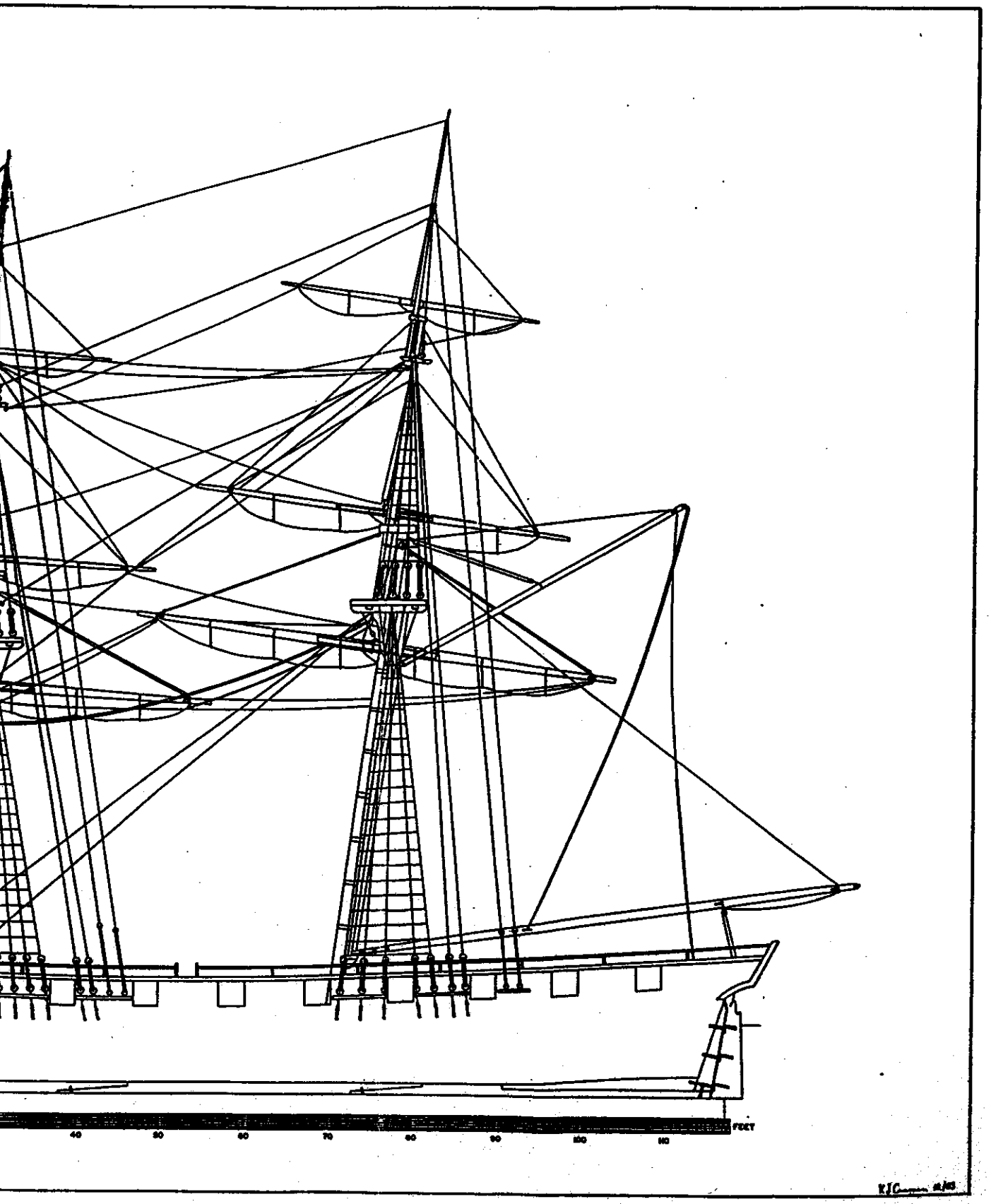


Figure 54



Rigging profile.

yards were approximately 1/2 inch smaller in diameter. The masts and yards of the Eagle were probably fashioned from pine, the wood customarily used for ship's spars. Baker's rigging profile, as adapted to the hull of the Eagle, is shown in figure 54. The location of the mainmast chainplates on the Eagle differed from those on the reconstructed Niagara, due to different gunport spacing, but there were seven chainplates in each case. Baker made the plates for the topmast backstays smaller than those for the mainmast shrouds, while on the Eagle all seven plates were of a uniform size. The portside foremast plates on the wreck of the Eagle were buried under the hull, and were not examined during the 1982 and 1983 fieldwork in the Poultney River. The spacing of the gunports adjacent to the foremast suggested the chainplate arrangement shown in figure 54.

The insides of the Eagle's bulwarks were undoubtedly fitted with racks of belaying pins for securing the running rigging of each mast. Deck plans for the Prince de Neufchatel show her pin rails directly inboard of her channels; a similar arrangement was copied for the Eagle, and is shown on her "Inboard Profile and Deck" plan (figure 51).

CHAPTER XI

THE EAGLE AND WAR OF 1812 NAVAL CONSTRUCTION

The Eagle was not a typical example of an early 19th-century ocean-going vessel, but was instead a hybrid warship, designed to navigate a shallow, land-locked lake, and built under conditions that were extreme even for wartime. Two factors loomed all-important in her construction: speed of assembly and short-term strength. From the moment Adam Brown and his carpenters laid the brig's keel at Vergennes, they were engaged in a shipbuilding race with the British carpenters at Isle aux Noix, the prize of their contest being naval control of Lake Champlain. The Eagle had to be lauched, outfitted and manned before the British squadron was ready to disputr supremacy; in addition, her hull had to be sturdy enough to withstand volleys of round and grape shot if a naval action came to pass. Brown had to ignore the considerations of expense and long-term durability if the U.S. Navy was to win the "race with the adze".

The Eagle had many features in common with other warships built during the hectic years of the War of 1812. Two basic requirements applied to the design, assembly, and outfitting of wartime-built fighting ships, that is, swift completion and the ability to continue in service until the conclusion of hostilities. In the two previous

chapters, the construction of the Eagle was discussed, and her appearance in 1814 was reconstructed from archaeological and archival information; to gain a better understanding of the brig, it is useful to compare her similarities and differences with contemporary warships on the oceans and lakes.

Naval Construction on the Atlantic Coast

Peacock-class Sloops of War

Early in 1813 United States Naval Constructor William Doughty submitted two sets of plans for the construction of six ship-rigged sloops of war. The two designs resembled the Eagle in length, breadth, and armament, but not in depth. The first specified 22 guns, a length of 117 feet, 11 inches on deck, 97 feet, 6 inches on the keel, a moulded beam of 31 feet, 6 inches, and a depth of hold of 14 feet, 6 inches. The plans further indicated a midship deadrise of 23 degrees, and a very pronounced drag to the keel, which was to draw twice as much aft as forward. Three vessels were laid down on this draft, Argus, Erie, and Ontario, although only the latter two were completed, as the Argus was burned on the stocks by the British. Ontario and Erie were known as fast sailers, but the extreme drag of their keels made them difficult to steer.[1]

The second design produced by Doughty (figure 46) was similar to the first in armament and dimensions, but was

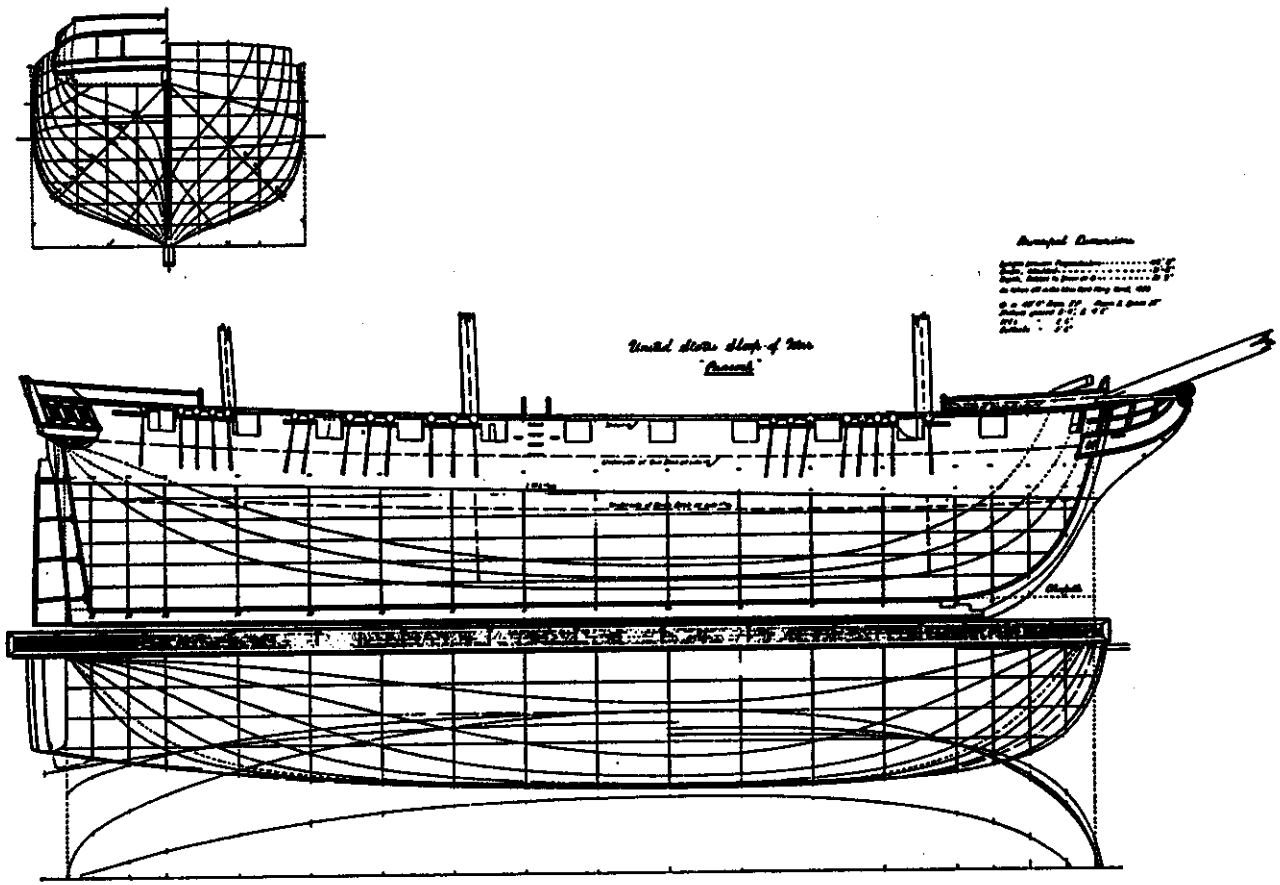


Figure 55. The Peacock, as built.

(From The History of the American Sailing Navy, by H. I. Chapelle, Courtesy of W.W. Norton & Co., Inc. New York)

given a more even trim fore and aft. The three ships built to these plans, Wasp, Frolic, and Peacock, were swift sailers, very handy, and overall proved to be one of the finest class of vessels produced during the War of 1812. Peacock, reportedly the fastest of the three, was set up and launched at the New York City shipyard of Adam and Noah Brown, between August 1 and September 27, 1813. This speedy bit of work indicates that the Browns were already well-versed in the techniques of rapid hull construction by the time Adam took on the assembly of the Eagle. The Peacock had a long and distinguished career, and because of her fine sailing qualities became the model for U.S. Navy ship-sloops built in the decades following the war.

Details of the Peacock's design and timber dimensions were preserved in her contract and Doughty's original plans, as well as in a second set of lines and an inboard profile that were taken prior to her dismantling in 1828 (figures 50 and 55).[2]

The hulls of the Peacock and Eagle were similar in techniques of construction, but the former had a heavier keel and frames to support more extensive upperworks. The Peacock's keel was 18 inches moulded and 14 inches sided, an increase over the Eagle's by two inches in each dimension. The bottom of the ship-sloop's keel was fitted with a 4-inch shoe, a standard keel-protecting timber that

for unknown reasons was omitted from the brig. Because the Peacock was destined for use in salt water, her contract specified that all fastenings below the waterline were to be of high-quality copper. For greater strength of the ship's spine, the heads of the copper drift bolts were to be riveted over copper washers. Time restrictions at the Vergennes shipyard dictated that the iron drift bolts in the Eagle's keel be left unriveted.

The floors and futtocks of the two warships were similar in shape and dimensions. On both vessels the floors and first futtocks were notched at their bases to fit over the keel deadwood, and the frame timbers were fastened by two iron drift bolts at every timber butt. Each square frame of the Peacock consisted of eleven timbers, while those of the shallower-hulled Eagle consisted of nine. Their keelsons were nearly identical in dimensions.

It was in the design and assembly of the clamp timbers that the two vessels most differed. The main deck clamps of the Peacock consisted of two timbers, each 4 inches thick and 12 inches wide, fastened to the frames one above the other; this clamp arrangement was considerably lighter than the single 12-inch-square clamp attached to the inside of the Eagle's frames. The difference in clamps was due entirely to the existence and non-existence of reinforcing knees. The Peacock's clamps did not have to be particularly large, since lodging and dagger knees were installed at

the juncture of the deck beams and clamps, and served as the primary strengthening elements. The knees secured the beams solidly in place and strengthened the hull both laterally and longitudinally.

Brown chose to skip knees entirely when assembling the gundeck of the Eagle, thereby saving days of construction time. He simply enlarged the clamp to assume the function of the knees, an expedient permitted by the lack of large, hull-twisting waves on Lake Champlain. For like reasons, Brown left the customary knee out of the stern deadwood assembly of the Eagle. The omission of knees on an ocean-going vessel like the Peacock probably would have resulted in the vessel rapidly working herself to pieces.

The dimensions of the Peacock's main deck beams, ceiling, and external planking averaged slightly larger than those on the Eagle. The external planking of the ship-sloop was particularly well-fastened, with a combination of wedged locust-wood treenails and 7-1/2 inch-long copper spikes. Treenails are the optimum planking fasteners, for when properly inserted and secured with wedges, they form a strong, long-lasting join between plank and frame. Driving treenails is a lengthy, labor-intensive process, and Adam Brown could not afford the time required to properly treenail the Eagle's external planking. In any case, the iron spikes he used

were probably more than adequate under the circumstances.

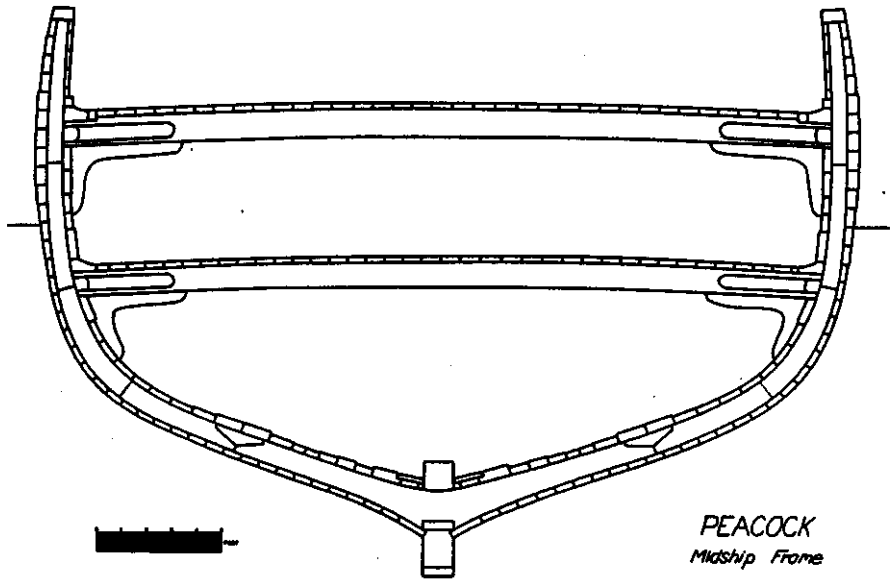
There were some marked differences in the woods incorporated into the hulls of the Peacock and Eagle. While the latter was run up with a peculiar mixture of hardwoods and softwoods, the contract for the former gave precise specifications for the composition of timbers. The Peacock's keel, lower frames, external planking, thick stuff, clamps, and waterway were to be of the finest white oak; her apron, knights head, hawse pieces, and main transom of live oak; her ceiling planking, beams, ledges, and deck planking of yellow pine; and her top timbers of red cedar and locust. Clearly, the Peacock was intended for a long, active career on the high seas.

To summarize, the internal construction of the two warships was very similar, the only major structural difference being the Eagle's lack of a keel shoe, knees, and the enlarging of her clamp timbers. It was in the smaller assembly details that the Peacock and Eagle showed more differences. Peacock was built to last under harsher conditions, and her contract called for higher-quality materials and workmanship than appeared in her Lake Champlain counterpart. The Eagle lacked "proper" woods, riveting of keel drift bolts, treenailed external planking, and a host of other minor features that were probably standard on most contemporary U.S. Navy ocean-going vessels.

Comparing the lines of the Peacock and Eagle, while an informative exercise, is a little bit like comparing oranges and apples, since the two hulls were built to sail in very dissimilar bodies the water. The Peacock, with her 16-foot draft, could not have navigated Lake Champlain without sooner or later running aground, and the Eagle, with her shallow hull and low freeboard, would have been a dangerously bad sailer in the rough seas of the North Atlantic.

Midship sections of the two hulls serve to illustrate their differing hull shapes (figure 56). Peacock, being the deeper vessel, was narrower and sharper, with a length-to-beam ratio of 3.7:1, and a midship deadrise of approximately 20 degrees. These characteristics combined to give the ship her fast-sailing abilities. To maintain stability in the Eagle's low hull, Brown made the brig beamier, with a ratio of 3.37:1, and gave her a midship deadrise of only 11 degrees.

The difference in hull depths probably accounts for the diversity of sailing rigs between the two warships. The Peacock was designed to work independently as a commerce raider, and for this she needed the largest possible sailing rig to overtake merchant vessels and to escape superior enemy warships. Success or failure in this line of work hinged almost entirely upon sailing speed and handiness. The deep, sharp hull gave her good lateral



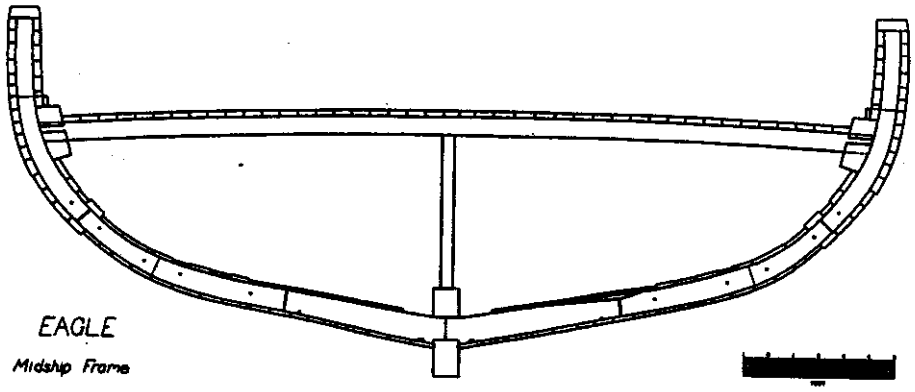


Figure 56. Midship sections of the Peacock, top and the Eagle, bottom

resistence to the wind and enough stability to easily carry a full ship rig.

The Eagle, confined to a narrow lake where maximum possible sailing speed was largely irrelevant, required something less. Her hull was probably capable of carrying a ship rig, but too much sail area might have affected her stability, particularly in strong winds. The lofty brig rig that Brown installed probably provided all of the speed that was necessary, and the omission of a mizzen mast, with its associated yards, sails, and rigging, saved both time and expense in outfitting.

Although it is difficult to prove now, it seems likely that the Eagle may have been as fast as the Peacock in light or moderate airs with the wind abaft the beam. The Eagle's lofty rig, sharp bow, and shallow displacement all suggest she was capable of a fair turn of speed under the right conditions. In very heavy winds, or when sailing close-hauled, the Peacock probably would have held the advantage, since her deeper bite into the water would have given her much better lateral resistence.

Naval Construction on Lake Erie

The Lawrence and the Niagara

The naval campaigns on Lake Erie in 1813 and on Lake Champlain in 1814 bear a remarkable resemblance to one another. In each case, the success or failure of land armies depended on the outcome of a naval battle, and the

outcome of the naval battle depended primarily upon each sides's ability to build more warships than its opponent. On Erie and Champlain, the cause of the United States triumphed through the successful partnership of energetic young naval officers and experienced, fast-working shipbuilders.

Presque Isle, U.S. Navy Lieutenant Oliver Hazard Perry's base on Lake Erie, offered considerably fewer amenities than Macdonough's shipbuilding facilities at Vergennes. Timber was the only construction material on hand, and all other essential supplies, particularly iron for fastening timbers together, had to be scrounged locally or shipped in at great expense from distant cities. Perry was additionally handicapped by being directly subordinate to Commodore Isaac Chauncey on Lake Ontario; as a result he received only small quantities of second rate men and materials, the dregs of Chauncey's base at Sackets Harbor.

The U.S. Navy on Lake Erie did have an advantage, in the form of one man, that would override many of its difficulties. Noah Brown arrived at Presque Isle in late February of 1813 to oversee the construction of two 20-gun brigs, a small schooner, and several gunboats. He immediately set to work with customary diligence, and within four months completed the assembly of the squadron; while engaged in the task of running up the vessels, he

also found time to build a blockhouse, a guardhouse, mess and barracks buildings, a blacksmith shop, fourteen small boats, and all of the gun carriages required by the warships. In addition, a shallow bar at the mouth of Presque Isle harbor forced him to construct four large floats to assist the crossing of the brigs Lawrence and Niagara.[3] Perry's victory over the British squadron on September 10, 1813, owed a great measure to Noah Brown's resourcefulness and energy.

After the conclusion of the War of 1812, the brigs Lawrence and Niagara were sunk for preservation and later abandoned in Misery Bay. In the second half of the 19th century one of them, reportedly the Lawrence, was raised and cut into souvenir pieces. As noted earlier in this thesis, the second brig, Niagara, was salvaged and restored in 1913, and in subsequent decades underwent further rebuildings. At the present time the keel is the only original timber in the hull.

Because they were designed for service in shallow water and were built by shipwrights who were brothers, it is likely that the Lawrence, Niagara, and Eagle were very similar in construction and appearance. Unfortunately, few details about the original lines and scantling dimensions of the Lake Erie brigs have survived the passage of time. Comparison of the hulls must be based upon rather tenuous evidence that consists of Howard

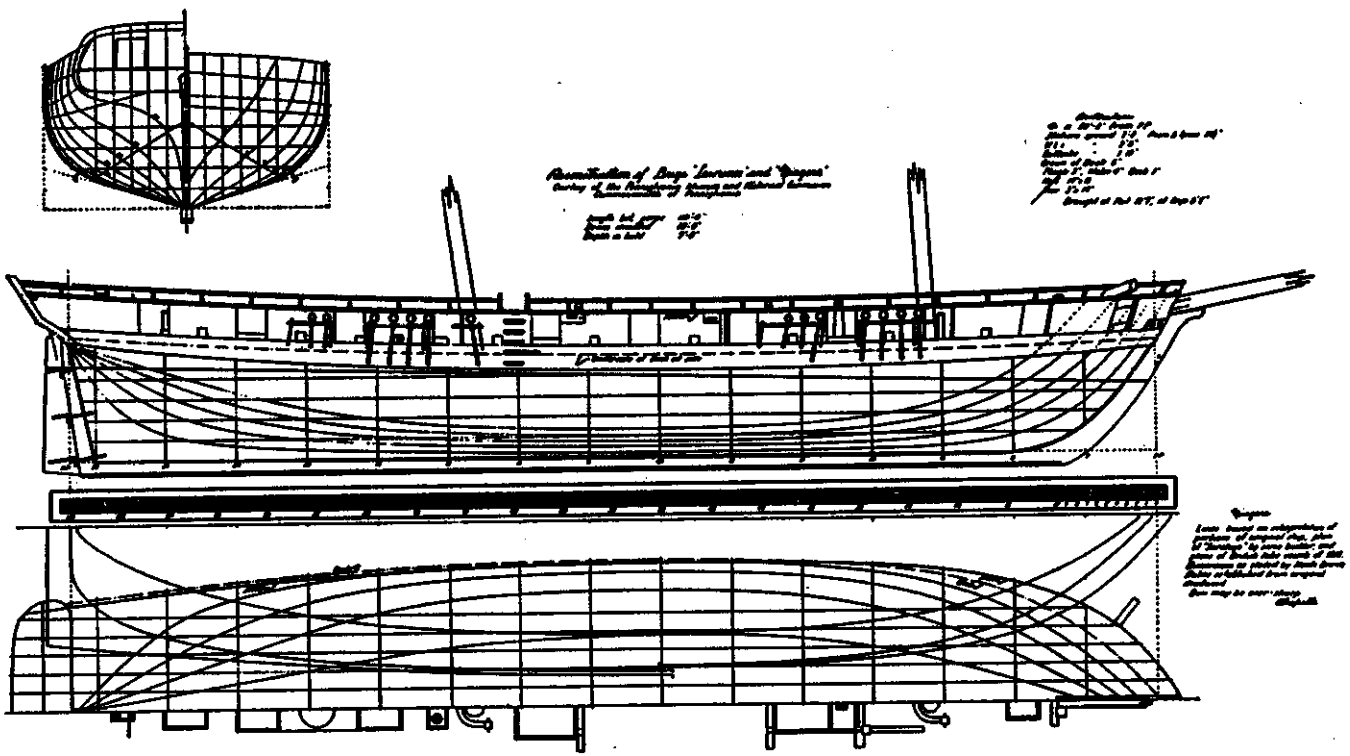


Figure 57. Chapelle's reconstruction of the Niagara.

(From The History of the American Sailing Navy, by H.I. Chapelle. Courtesy of W.W. Norton & Co., Inc. New York)

Chapelle's reconstructed hull lines (figure 57), and a series of photographs taken of the Niagara during her raising in 1913 (three of which have been rendered as ink drawings and included in the text).[4]

According to Chapelle's plans, the keel of the Niagara was 100 feet in length, and was of substantial dimensions, 14 inches moulded and 18 inches sided. Chapelle also included a 3-inch-thick shoe below the keel, but there is no evidence of this timber in the 1913 photographs, and it is doubtful that one was ever fitted.

Approximately 10 feet of the Niagara's stempost was intact in 1913, and it appears to have had the same sharp forward rake that was exhibited by the Eagle's post. When the stem was rebuilt in 1913 it was given a cutwater and headrails, but Chapelle believed that these would not have been included on the original vessel, and he had them removed during the second reconstruction in 1933. Chapelle was also inclined to think that the rebuilt bow was over-sharp, but the stem of the Eagle has provided additional confirmation that the Brown brothers built the lake brigs with sharp bows.[5]

The sterns of the Niagara and Eagle appear to have been similar in design and construction; each consisted of a single large post fastened to the keel with a pair of iron fish plates (figure 58). The deadwood assembly of the Niagara is not shown in any of the

photographs, and thus it is not known if Noah Brown omitted the stern knee, as his brother Adam did on the Eagle.

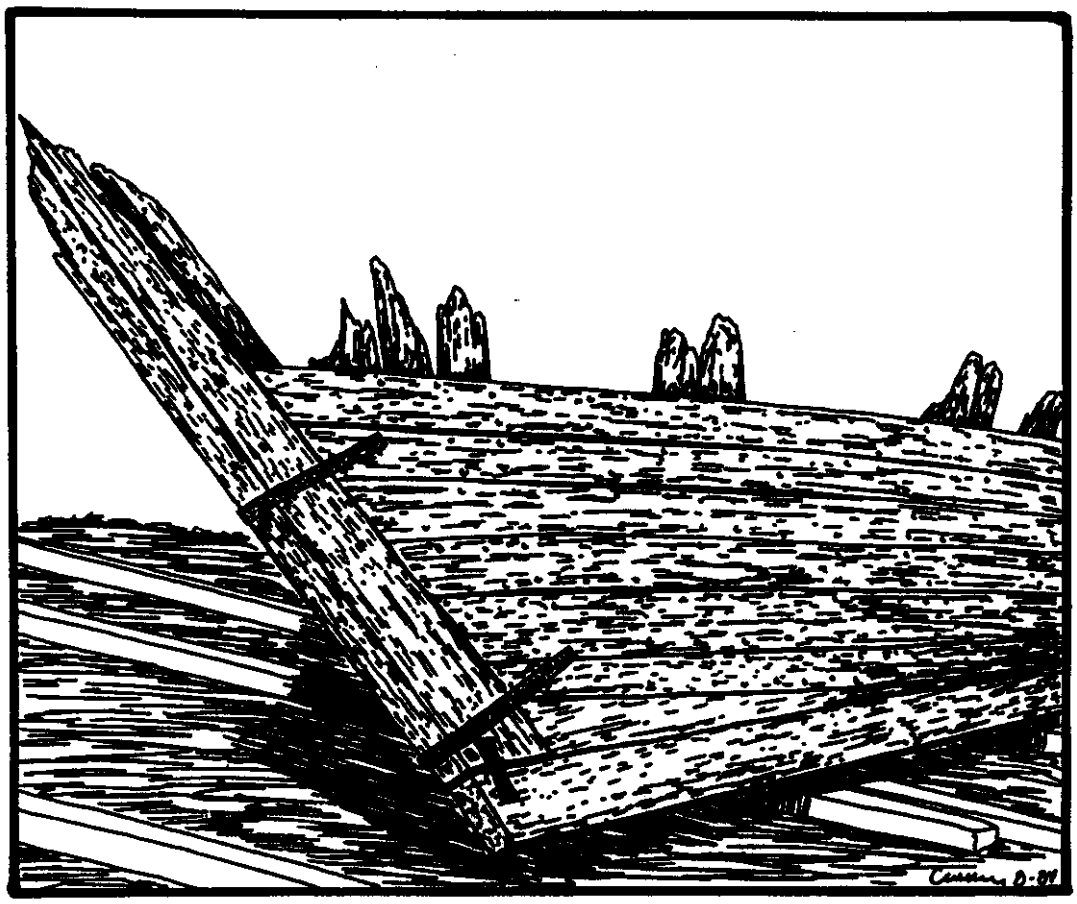


Figure 58. The stern of the Niagara
(Adapted from a photograph provided by the Pennsylvania Historical Museum Commission)

The frames of the Niagara were closely-spaced along the keel, and seem to have been similar to the Eagle's in dimensions (figure 59). Chapelle indicated that the floors were on 21-1/2-inch centers.[6]

Figure 59. Interior of Niagara after raising, view aft. Note mast step bolts in keelson, foreground.

(Adapted from a photograph provided by the Pennsylvania Historical Museum and Commission)

To all appearances, the keelsons of the Niagara and Eagle were identical in dimensions and assembly, but again, the lack of timber measurements for the Lake Erie brig precludes any definitive statements. Mast steps constructed by the Brown brothers do not seem to have been very durable, for the Niagara's fore and main mast steps were missing when the hull was raised. At the location of each step there were four protruding drift bolts set in a rectangular pattern, a fastening arrangement identical to that on the Eagle. The top of Niagara's keelson was notched along its length, presumably to seat the lower ends of deck-beam-supporting stanchion posts.

Although most views of the wreck of the Niagara show only the bottom of the hull, one of the 1913 photographs confirms that one of the brig's sides was intact to the sheer when she was first pulled from the mud of Misery Bay. The picture, taken from outside of the hull, shows a complete gunport and section of bulwark (minus the cap rail), external planking, and a half-dozen frame tops (figure 60). In the center of the bulwark is a small, square opening, unmistakably a sweep (or oar) port. For unknown reasons, the ports were not included in the 1913 reconstruction of the hull, but Chapelle added a sweep port between every gunport in his revised reconstruction plans, and they were reintroduced to the hull in 1933.

Sweep ports constitute one of the few obvious differences between the Niagara and the Eagle, since the latter vessel did not have any type of openings in her bulwarks for sweeps. The reason for this divergence

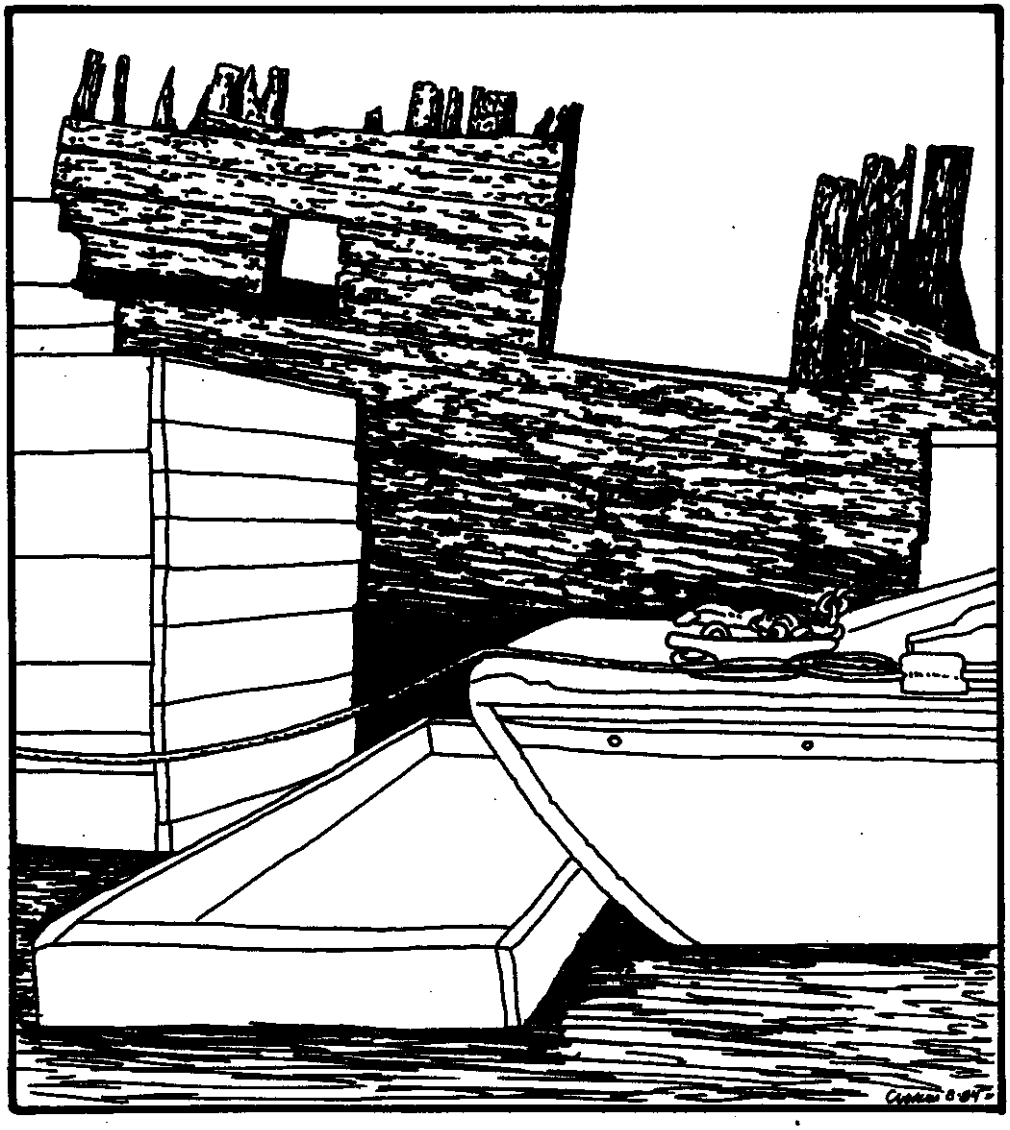


Figure 60. The Niagara gunport.

(Adapted from photograph provided by the Pennsylvania Historical and Museum Commission)

between the two vessels becomes obvious when the compositions of the American squadrons on Lake Erie and Lake Champlain are examined. The smaller warships on Erie, six schooners and a sloop, were of relatively deep draft, and were not suitable for towing the Lawrence and Niagara under oars. The ten small, shallow-draft gunboats of Macdonough's squadron, on the other hand, were quite capable of towing large warships, and were occasionally used for this purpose. The Niagara had to be capable of self-propelling on calm days, whereas the Eagle could count on gunboats for tows when she was stranded by a lack of wind.

The Niagara's photographer did not publish an interior view of the gunports, a sad omission, since a look at the clamp and waterway timbers would have answered many questions about the similarities and differences between the Niagara and Eagle. One wonders if Noah Brown skipped deck beam-reinforcing knees entirely as his brother did a year later, or if he spent extra time and money cutting dozens of knees to strengthen the brig. We may never know the answer to this, unless a collection of interior photographs of the gunports turn up.

Many of the woods used in the construction of the original Niagara were identified in 1913, and were found to exhibit the same diversity of species that was noted on the Eagle. The floors and futtocks were of oak,

poplar, cucumber, and ash, the top timbers were fashioned from red cedar and black walnut, and most of the deck planking was composed of white pine.[7] Documentary sources and the 1913 photographs indicate that the Lawrence and Niagara were fastened primarily with iron, although it is possible that some of the timbers on their hulls were treenailed due to shortages of iron at Erie in 1813.[8]

The reconstructed lines and wreck photographs suggest that the Niagara closely resembled the Eagle in construction and appearance, the only obvious external differences being the sweep ports in the Lake Erie brig's bulwarks. Because much of the Niagara's hull was intact when she was raised, the overall dimensions presented in Chapelle's reconstruction can be accepted as fairly accurate. The Niagara was slightly smaller and deeper in draft than the Eagle, being 110 feet in length between perpendiculars, 29 feet in beam, and 14 feet, 3 inches from keel rabbet to sheer at the midship frame. The Erie brig was also sharper than her Lake Champlain counterpart, with a midship deadrise of 16 degrees versus 11 degrees. These dimensional differences were relatively minor, and it is likely that if seen together from a distance, the brigs would have been nearly indistinguishable. Examination of the two vessels leaves an impression of thoughtful design and heavy, durable construction, features that the Navy came to regard as

standard in its Brown-built warships.

Naval Construction on Lake Ontario

The *Oneida* and *Jones*

Of the numerous freshwater lakes on the border of the United States and Canada, Lake Ontario saw the most active shipbuilding program of the War of 1812. Both sides concentrated the greater part of their naval resources on gaining ascendancy on this lake, but the contest remained one of shipbuilding only, as the two opposing commanders refused to engage in action without a substantial advantage over the other. The British base at Kingston, Ontario and the American base at Sackets Harbor, New York saw the construction of progressively larger warships, and by the end of the war both locales had launched, or were about the launch, ships of the line mounting over 100 guns.

The director of construction at Sackets Harbor was shipwright Henry Eckford of New York City. Born in Scotland, Eckford migrated to Quebec at the age of 16 to serve a shipbuilding apprenticeship under his uncle. Five years later, in 1796, he moved to New York City, where in 1800 he established his own shipyard.[9] Like the Brown brothers, he could design, build, and outfit fine warships on short order, and often under very trying conditions. Because the New York shipyards of Eckford

and the Browns were situated in close proximity to one another, the three were probably well-acquainted, but archaeological evidence has suggested that they did not influence each other's shipbuilding techniques to any great extent.

Two examples of Eckford-built Lake Ontario warships were available to compare with the reconstructed Eagle. The first vessel, the Oneida, exists in the form of hull and rigging plans. This 262-ton brig was designed by naval architect Christian Bergh and built by Eckford at Oswego, New York in 1808-1809 (figure 61). Bergh's plan called for a vessel 85 feet, 6 inches between perpendiculars, 22 feet, 6 inches moulded beam, and 8 feet in depth of hold. Her original armament was fourteen 24-pounder carronades and a long 32-pounder on a raised forecastle, but the pivot was later replaced by two long 12-pounders.[10]

No information could be found concerning the scantling dimensions or internal construction of the Oneida, but some comparison was possible of the external appearances of this brig and the Eagle. The two were proportionately somewhat similar in sheer plan, although the Oneida had a deeper hull and a cutwater and headrails on her stem. Both vessels were sharp-bowed and had similar frame deadrise, 10 degrees at the midship frame on the Oneida and 11 degrees on the Eagle. Oneida

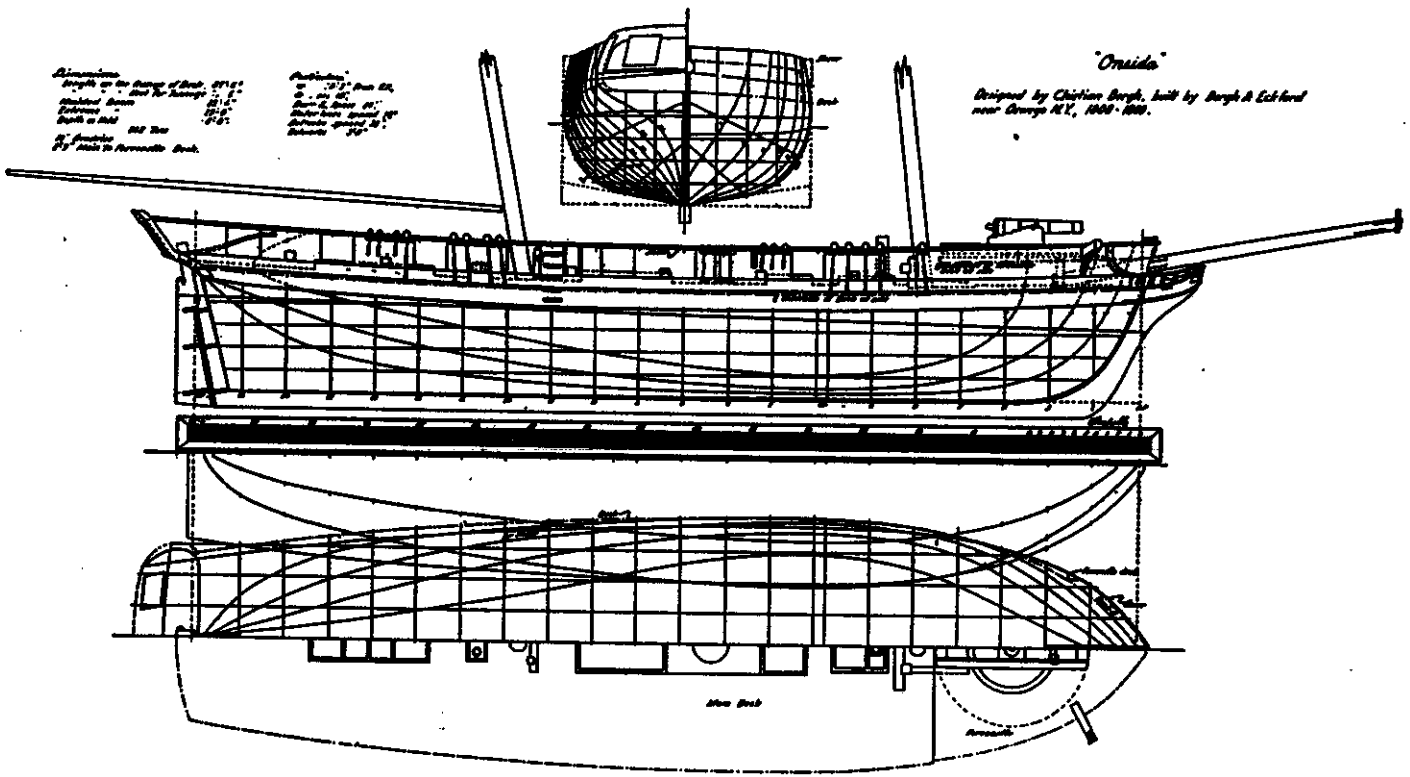


Figure 61. The Oneida
(From The History of the American Sailing Navy, by H.I. Chapelle, Courtesy of W.W. Norton & Co., Inc., New York)

was a leaner vessel, with a length-to-beam ratio of 3.86:1 against the Eagle's 3.37:1. The former was reportedly a fast sailer when first launched, but her bottom had become fouled by the time of the war, and she handled sluggishly in action.

The second example of Eckford's handiwork, and one of the few surviving hulls from the American fleet on Lake Ontario, presently lies on the bottom of Sackets Harbor. This vessel, a 20-gun brig sunk for preservation at the end of the war, was identified by historian Benson Lossing in 1860 as the brig Jefferson.[11] Research by Great Lakes historian Richard Van Gamert has led him to conclude the brig was in fact the Jones,[12] a belief the writer shares; however, the precise identity is largely irrelevant to this discussion. The Jefferson and Jones were constructed simultaneously by Eckford, and all evidence suggests that they were built to the same design. The wreck in Sackets Harbor will be referred to here as the Jones.

The keels for the two brigs were laid in February of 1814 and both were launched in early April. They were very heavily armed, Jefferson with sixteen 42-pounder carronades and four long 24-pounders, and the Jones with eighteen 42-pounder carronades and two long 24's. Little is known of the two vessels, beyond their armament and the fact that each had a complement of 160 men.[13]

The hull sunk in Sackets Harbor survived in a nearly intact condition for over 150 years, and when examined by divers in the early 1960's was found to be about 75 percent complete. A marina was built around the site of the wreck a few years later, at which time some of her timbers were damaged or destroyed.[14]

The Jones was examined by myself and colleague Arthur Cohn in May of 1984, and appeared to be in much the same condition as the Eagle. The 115-foot-long hull was lying on its port side, and was partially filled with soft mud. The keel was partially, if not completely preserved and was accessible at a point roughly amidships. The bow had suffered considerable damage, and nothing could be found of the stem post. The stern was in much better shape, and included two sternposts, a gudgeon, and supporting deadwood timbers. The port side frames were for the most part complete up to and including the cap rail. About one-third of the keelson was missing from the forward end of the hull, but it was otherwise well-preserved. The clamp and waterway timbers, two deck beams, and nine gunports were examined and partially documented at the top of the port side.

The keel of the Jones was moulded two feet and sided 11-1/2 inches; it was probably composed of two timbers seated one atop the other, but no seam was visible due to the cloudy water conditions around the wreck. The top of

the keel had 1-inch-deep notches for seating the frames.

Four feet of the brig's stern posts protruded from the mud and were extensively sketched and measured. The Jones had a main sternpost and an inner sternpost, each of which were moulded 14 inches, and an additional 3-inch moulded false post spiked to the back of the main post. The inner post was sided 9-1/2 inches at its forward face, while the main and false posts were each sided 7 inches. The ends of the external planking were spiked to the sides of the inner post. A single gudgeon was felt on the back of the sternposts, 16 inches below the mud.

The stern deadwoods of the Eagle and Jones were similar in that each lacked a knee and instead relied upon large wedges of wood to reinforce the join between the sternposts and keel. The topmost deadwood timber of the Jones was 4 feet in length, moulded 11 inches at its after end, and tapered forward to a point. It was the same sided dimension as the inner post, 9-1/2 inches. Because of the thick mud precise measurements could not be obtained from the deadwood timber below this but it was moulded over 19 inches.

The frames of the Jones resembled those of the Eagle in dimensions and methods of construction. The floors and first futtocks were moulded 11 inches between the keel and keelson, 14 inches at the rabbet, and were sided 9 inches. The heels of the first futtocks butted at

the centerline of the keel, and the frame timbers were attached to one another with 3/4-inch square iron drift bolts. Each of the floors was fastened to the keel with 1-1/4-inch-diameter iron drift bolts. Two partially-buried frames were carefully examined for evidence of limber holes, but these could not be felt under the mud, suggesting that Eckford considered them unnecessary.

The top timbers of several frames were inspected at the cap rail, and proved to be moulded 6 inches and sided 6 to 9 inches. They were somewhat thinner than the top timbers of the Eagle, which averaged 9 inches moulded.

The keelson of the Jones was massive, and consisted of two timbers bolted one above the other, moulded 11 inches and 10 inches, and sided 10 inches. There were 1-inch-deep notches on the bottom of the keelson to interlock over the tops of the frames, and it was also notched on the top to fit the heels of stanchion posts.

The clamp timber was deeply buried, and could only be examined by touch. It was 11 inches moulded and sided. The clamp had shallow notches on its top surface to fit the ends of the deck beams.

One deck beam was partially uncovered and measured; it was 10 inches moulded, 13 inches sided, and narrowed slightly in sided dimensions where it fit into the clamp. No lodging or hanging knees could be felt under the mud, but drift bolt heads were noted near the end of the beam,

suggesting that the deck beams may have been reinforced by knees. The spaces between the clamp, waterway, and deck beams were filled with blocks of wood 8 inches moulded, 6 inches sided, and 3 feet, 9 inches in length (figure 62).

The waterway measured 10 inches square and was drift-bolted to both the clamp and the insides of the frames. This timber is not notched on the bottom to fit over the ends of the deck beams. The top inside corner of the waterway was deeply chamfered between the gunports, and unlike the Eagle, it was not hollowed to form shot garlands.

Altogether, the construction of the clamp and waterway of the Jones differed considerably from that of the Eagle. The latter had a large, deeply-notched clamp and waterway, while the former relied upon filler timbers placed between the clamp and waterway to hold the ends of the deck beams tightly in place. Neither of the brigs had deck-beam-reinforcing knees, although this was not conclusively proven on the Jones.

Nine intact or partially-intact gunports were found on the port side of the Jones, complete with their associated gun-tackle bolts. One port, located approximately amidships on the hull, was selected for measurement during the initial survey (figure 62). The port was 3 feet, 3 inches wide and 3 feet, 8 inches high.

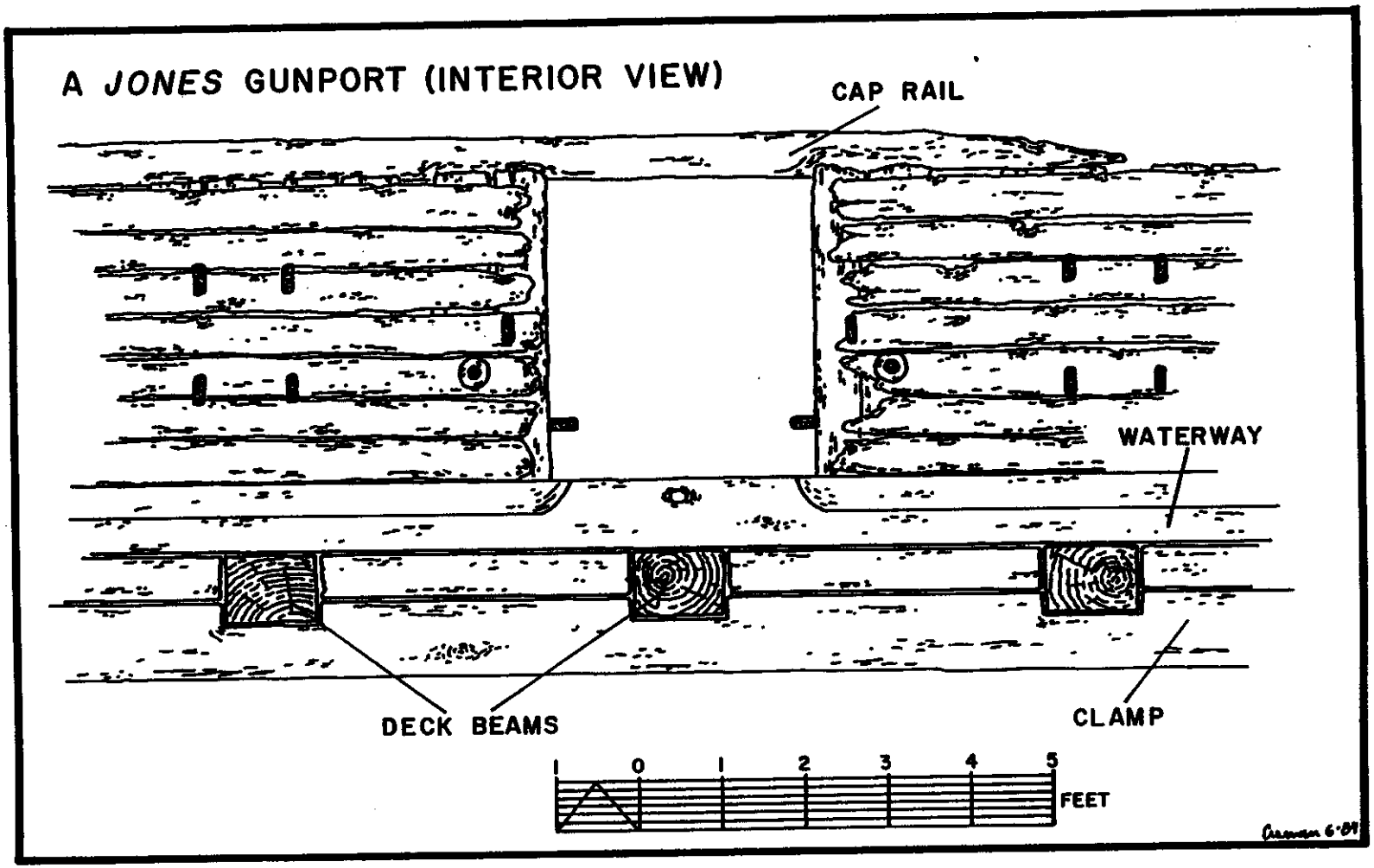


Figure 62. A Jones gunport.

Sills were absent from all of the ports, but it probable that they once existed, as available records suggest that sills were considered standard equipment on early 19th century warships. The addition of 5-inch thick sill timbers would have made the Jones' ports 3 feet, 3 inches square, the same dimensions as those of the Eagle.

The top of the brig's bulwark consisted of a 6-inch thick, 1-foot-wide cap rail. The underside of the rail was notched to interlock over the tops of the frames, and it was both spiked and drift-bolted into place.

The bulwark sections between each gunport were 6 feet, 8 inches in length. The planking on the interior of the bulwark was composed of seven 6-inch-wide planks, fastened with iron spikes to the top timbers. The planks were 1-1/2 inches thick, but seemed badly eroded; originally they were probably 2 or more inches thick. The planking on the outside of the bulwarks averaged 3 to 4 inches in thickness, but also appeared heavily eroded. Rigging channels, 1 foot, 3 inches wide and 2 inches thick, were observed on the outside of the hull, 1 foot below the top of the cap rail.

Most of the gun tackle-securing eye bolts were still present on the insides of the Jones' bulwark. There were two 4-inch-diameter bolts fastened to the top timber on either side of each gunport. One of these was

vertically-oriented on the inside of the timber, mid-way between the cap rail and the waterway; the second, horizontally-oriented bolt was in the port opening itself, 2 feet, 11 inches below the cap rail.

On each side of every gunport was a lead through-pipe located halfway between the cap rail and waterway. The pipes were roughly 2-1/2 inches in interior diameter, and had a 4-inch-diameter flange on the inside of the bulwark. Their purpose was somewhat of a mystery, but their height above the deck ruled out the possibility of their being intended as water drains. The pipes may have held retaining ropes for some type of gunport lid.

The bulwark sections between the gunports each contained four additional vertically-oriented eye bolts, arranged in a 1-foot-square pattern. Thus the tackle for every gun was secured by eight eye bolts, with four bolts on each side of every port.

The dimensions and construction of the Jones and Eagle gunports were very similar in most respects; the bulwark of the Eagle was slightly heavier in construction, with thicker top timbers and bulwark planking. The Eagle did not have any lead through-pipes at her ports, nor were any of her tackle bolts in situ.

In overall construction, the Jones was more heavily built than the Eagle, and her timbers displayed greater care in their assembly. Her keel and keelson were massive

men by ocean-going standards, and were skillfully notched to interlock around the frames. Notching of the keel and keelson has been recognized as a trademark of British shipwrights, but its appearance on the Jones can be explained by Eckford's apprenticeship with a Canadian shipwright in Quebec. The products of his shipwrightery were probably more British in construction techniques than those of the Brown brothers.

Because the Jones was missing her stempost and most of her frames were buried, it was not possible to compare her lines with those of the Eagle, except to say that both appeared to be the same length. The exposed frame timbers of the Jones gave the impression of having a sharp deadrise, and this belief is further strengthened by Howard Chapelle's observation that "The vessels on Lake Ontario were relatively deep and sharp and were of the seagoing type in nearly all respects.[15] This certainly seems to have been the case with the Jones, which was designed and built to withstand long and difficult service.

Naval Construction on Lake Champlain

The Saratoga, Ticonderoga, Linnet, and Confiance

With the possible exception of the two brigs built by Noah Brown on Lake Erie, probably no other vessel hade more in common with the Eagle than Macdonough's 24-gun

flagship Saratoga. The two warships were designed and framed for service on the same lack, and were built within a four month span by brothers who were partners in shipbuilding. It is reasonable to expect that there would be some similarities between their hulls.

A set of lines for the Saragota are in existence, although their origins are obscure (figure 63). The hull plans were submitted to the Navy Department after the war, but it is not known if they were prepared by Noah Brown before or after construction; it is also possible that he prepared the lines months or even years after the war, relying on his memory and a few recorded dimensions. According to the drafts, Saratoga was a long, lean ship, 143 feet, 6 inches between perpendiculars, and 36 feet, 4 inches in moulded beam, giving her a length-to-beam ratio of 3.94:1. The Eagle was slightly stubbier, with her ratio of 3.37:1. Both warships had shallow hulls, the ship measuring 14 feet, 6 inches from keel rabbet to sheer at the midship frame, and the brig measuring exactly two feet less. The Saratoga and Eagle also had identical above-deck arrangements of 3-foot-square gunports separated by 7-foot-long sections of bulwark.

In other important details, however, there was a surprising lack of agreement between the two vessels. Both had nearly equal rake to their sternposts, but their stemposts greatly differed, as the Saratoga had a bluff

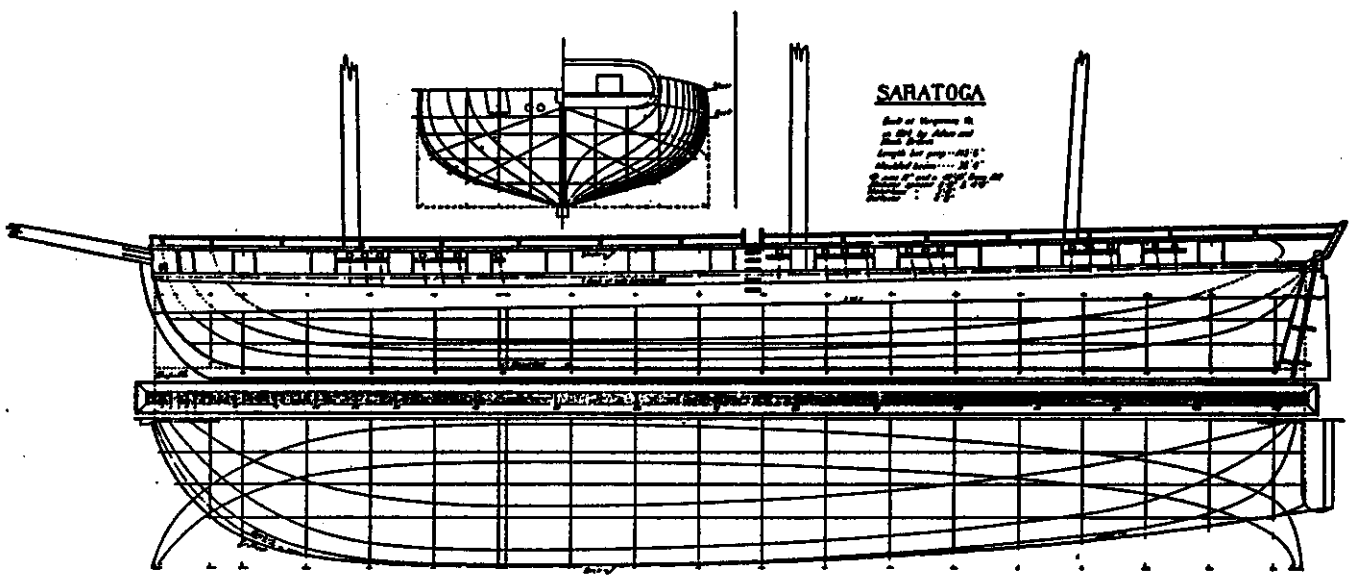


Figure 63. The Saratoga.

(From The History of the American Sailing Navy, by H.I. Chapelle. Courtesy of W.W. Norton & Co., Inc., New York).

stem and the Eagle was designed with a sharply-raked stem. It is not clear if the differences in stems was related to the length and rig of each vessel, or if they were the results of differing opinions between the Brown brothers about the optimum shape of a warship bow.

According to Saratoga's lines, she had a slightly sharper deadrise than the Eagle, of about 15-1/2 degrees at the midship frame. This may have given the Saratoga a slight edge over the brig when sailing near the wind, but how closely the two vessels matched one another under sail was never recorded.

Because the Saratoga's hull was not available for study it was impossible to compare the internal construction of the two warships. This was unfortunate, as it would have been an instructive exercise to see if the brothers used similar scantling dimensions and assembly techniques. One wonders if Noah was the first to resort to the shortcut of omitting reinforcing knees from the stern deadwood and deck beams. The swift completion of the Peacock, Lawrence, and Niagara in 1813 suggests that the Browns were quite proficient in methods of rapid construction by the time they produced the Lake Champlain squadron in 1814.

Plans or lines of Lieutenant Stephen Cassin's schooner Ticonderoga have not yet been found, but fortunately her remains were available for study. The lower portion of her

hull was raised from the Poultney River in 1958, and placed on display at the Skenesboro Museum in Whitehall, New York. The schooner's timbers were extensively documented and photographed by a Champlain Maritime Society-sponsored team in 1981.[16]

The Ticonderoga offered an interesting contrast to the Eagle in her design and construction. This vessel was begun as a steamboat and converted in mid-construction to a 17-gun warship; the surviving hull remains gave unmistakable evidence of her commerical origins. She was approximately 120 feet long on deck, the same length as the Eagle, but was much narrower in beam, which was estimated to have been around 26 feet. This gave her a ratio of 4.8:1, making the Ticonderoga a very lean vessel indeed. Her scantlings were lighter than those of the Eagle, and she had a lesser tonnage - about 350 tons.

The Ticonderoga's keel was 113 feet, 9 inches in length, 7 feet, 4 inches longer than the keel of the Eagle. When laid down for a steamboat, the keel was composed of only two timbers, 10 inches moulded and 13 inches sided. As part of the warship conversion, Noah Brown added 14 additional inches of false keel to strengthen the hull and improve its lateral resistence to wind and currents. There was no deadwood timber atop the keel. Like the Eagle, the schooner's keel was fastened with unriveted iron drift bolts and iron fish plates.

Only the base of the Ticonderoga's stem survived, and it was impossible to determine if she was sharp-bowed like the Eagle or relatively bluff-bowed like the Saratoga. The schooner had both inner and outer stem posts.

The two stern assemblies bore little resemblance to one another. Ticonderoga had both an inner and outer stern post, and a three-piece deadwood incorporating a curved knee timber (figure 64). Its overall construction showed a higher degree of craftsmanship and attention to detail than was evident in the simple but serviceable sternpost and deadwood the Eagle.

The frames of the brig and schooner also differed remarkably in size and shape. The Ticonderoga's frames, on 2-foot centers, were relatively small, only 8 inches moulded and 7 inches sided at the first futtocks and floors. The floors were not notched to fit over the top of the keel, and the heels of the first futtocks did not butt over the keel but were instead bolted to the floors about 12 inches from the centerline of the hull.

The schooner had less than 10 degrees of deadrise at the midship frame, and a very sharp turn of the bilge. As a result, she was probably very boxy in section, quite unlike the smoother curves of the Eagle's hull. Not much was left of the Ticonderoga's frames above the turn of the bilge, but the small dimensions of the futtocks

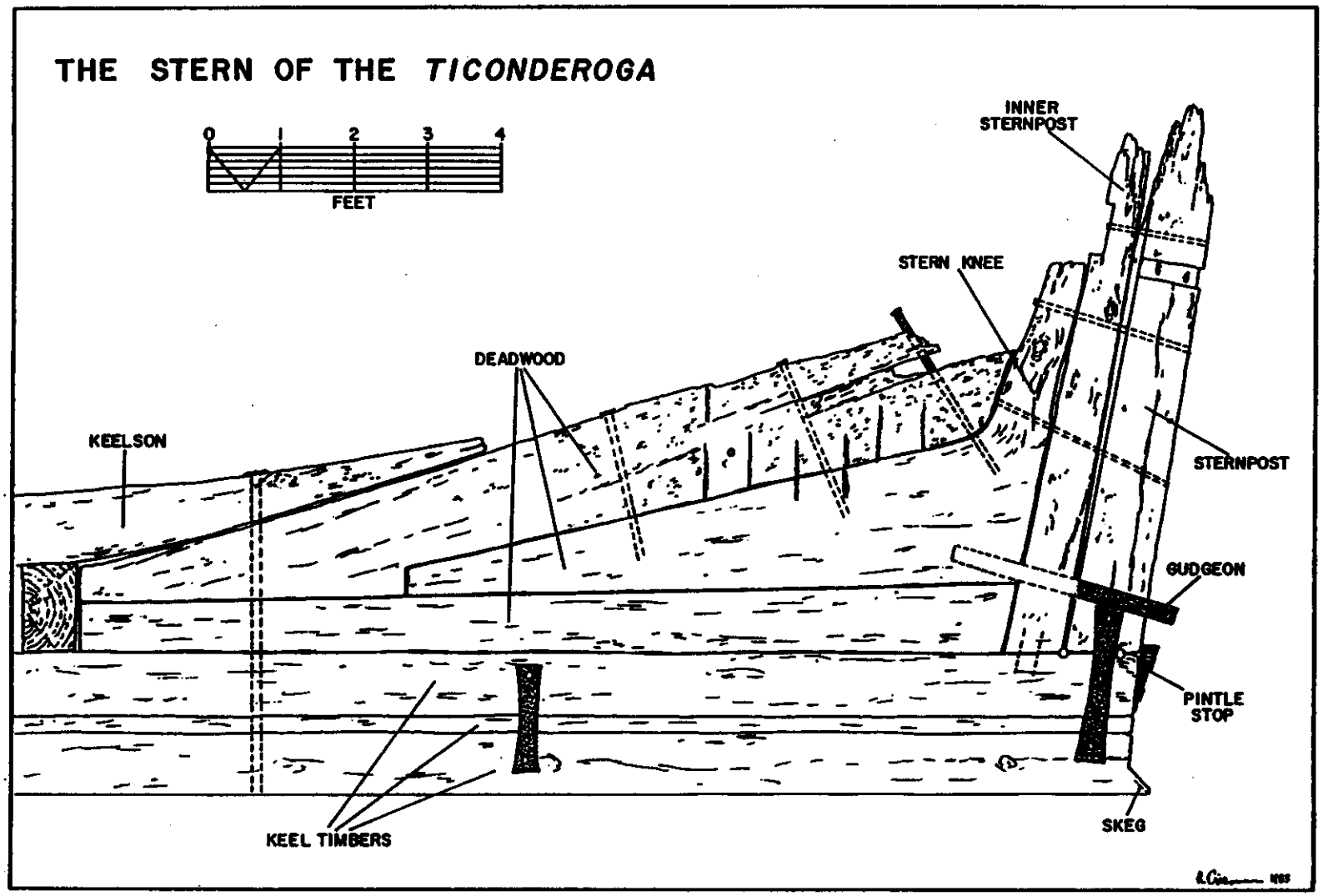


Figure 64. The stern of the Ticonderoga.

suggest that the sides of her hull were rather weak.

The keelson of the Ticonderoga was moulded and sided 13 inches, and was thus similar in size to the keelson of the Eagle. The schooner's bottom planking averaged 3 inches thick, 1 inch thicker than that on the brig. Both vessels were iron fastened throughout.

As previously noted, lines for the Ticonderoga have not yet been found, so a comparison of hull shapes must be based upon evidence provided by the bottom of the schooner's hull. This evidence suggested that beyond their similarity in length, the two warships had practically no other features in common. The Ticonderoga and Eagle stand as excellent examples of commercial versus military construction.

The Ticonderoga was a narrow, boxy vessel, originally designed to contain a steam engine, passengers, and a limited amount of cargo. Her well-built, lightly-framed hull was more than adequate for this purpose, but was not particularly suited to conversion into a sailing warship. The weight of 17 guns and two masts above the waterline probably made her topheavy, and the nearly flat bottom must have allowed the schooner to slide over the water surface to leeward when sailing near the wind. It is probably safe to say that the Ticonderoga was the worst sailer of the three large warships in the U.S. Navy squadron on Lake Champlain.

The Ticonderoga's large false keel and fore-and-aft rig no doubt alleviated some of her problems of instability and lateral drift; indeed, it is possible that with her schooner rig she was more weatherly (able to sail closer to the wind) than either the Saratoga and Eagle. Square-rigged vessels can generally carry a greater sail area than similarly-sized fore-and-aft rigged vessels, and thus it is likely that under most wind conditions the sharper-hulled Saratoga and Eagle were faster and more seaworthy than the Ticonderoga. The Ticonderoga's narrow hull might have proven dangerously crank and prone to capsizing had Brown attempted to outfit her as a brig.

The hull of the Royal Navy brig Linnet, one of the Eagle's two major adversaries at Plattsburgh Bay, was discovered in the Poultney River in 1981, and partially documented in 1982. The vessel had suffered extensive damage, and with the limited amount of information recorded by the divers, it was impossible to determine which end was the stem and which was the stern. The remains consisted of a 56-foot, 6-inch-long midship section, with the frames broken off at the turn of the bilge. Despite the incomplete nature of the hull study, some comparison with the Eagle's construction was possible.

The Linnet was built by the British shipwright William Simons at Isle aux Noix during the winter of 1813-1814. She measured 82 feet, 6 inches on deck, 27

feet in beam, and had a depth of hold of 6 feet, 8 inches. The brig averaged around 350 tons burthen and was armed with sixteen long 12-pounders.[17]

Lines or other plans of the Linnet have not yet turned up, but a set of lines do exist for a vessel of identical size scheduled for construction at Isle aux Noix in 1815 (figure 65). The dimensions of the plans are so close to those of the Linnet that it seems reasonable to assume that the Linnet was used as the design model. They show a shallow, bluff-bowed, and rather beamy vessel with a length-to-beam ratio of 3:1. The lines of the Linnet were apparently of the sort that pleased early 19th century sailors, for the appearance of the brig produced favorable comments from all who saw her, and Macdonough himself observed: "[The British] brig is one of the first class and is a remarkably fine looking vessel."[18]

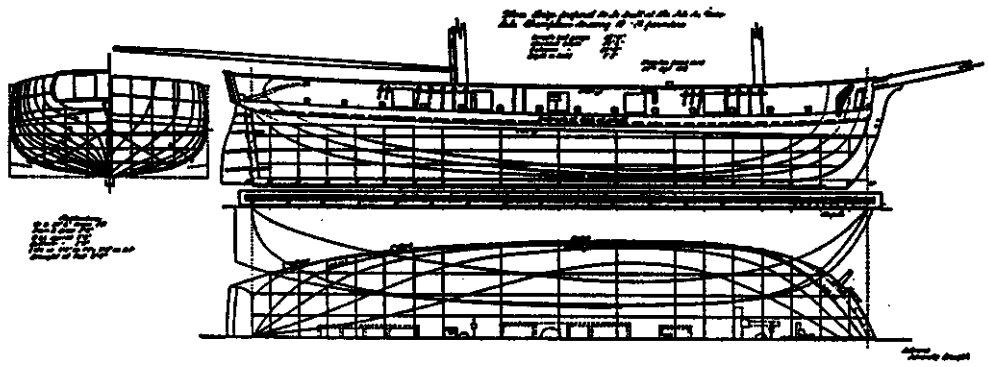


Figure 65. Brig to be built at Isle aux Noix.

(From The History of the American Sailing Navy by H.I. Chapelle. Courtesy of W.W. Norton & Co., Inc., New York)

The Linnet displayed a great deal of craftsmanship in her assembly, but was lightly-timbered and more resembled the Ticonderoga than the Eagle in her frame construction. The keel was of modest dimensions, 12 inches moulded, and 8-1/2 inches sided. The floors averaged 9-1/2 inches moulded, 8 inches sided, and were placed along the keel on 1 foot, 6 inch to 1 foot, 8 inch centers. The floors did not interlock in any way with the top of the keel and they displayed very little deadrise. As on the Ticonderoga, the heels of the first futtocks did not butt over the keel but were bolted to the floors several inches from the side of the keel. The keelson was 12-1/2 inches moulded, 8-1/2 inches sided, and notched on its underside to interlock over the top of the frames and further stiffen the brig's spine. The hull appears to have been iron-fastened throughout.

The Linnet was set up and completed under conditions that were considerably less frantic than those surrounding the production of the Eagle, and perhaps for this reason her internal construction showed more attention to detail. The notching of the keelson to fit over the tops of the frames was a good example of this. Overall, she appears to have been a well-built vessel with substantial scantlings for her size. The longer, larger-timbered, and heavier-gunned Eagle could have withstood considerably more punishment and inflicted greater damage than the Linnet was ever capable of. If Henley had not been

preoccupied with the destruction of the Confiance at Plattsburgh Bay, it is likely that the 18- and 32-pounder guns of the Eagle would have made quick work of the Linnet and her battery of 12-pounder cannon.

Very little is known about the construction and design of the frigate Confiance, the Eagle's other opponent at Plattsburgh Bay. She was built by William Simons at Isle aux Noix in the summer of 1814, and measured 147 feet, 5 inches long on deck, 37 feet, 2 inches in beam, and had a depth of hold of 7 feet. These dimensions strongly suggest that her floors had very little deadrise, and she may have had a peculiar raft-like appearance in cross section.

The Confiance was built in a hurry, and there are indications that her construction was attended by a severe shortage of timber; she may not have been finished to the high-quality standards shown on the hull of the Linnet. This belief is substantiated by the frigate's rapid deterioration after the war. Her hull, declared Captain Leonard, was "of the very worst timber for building ships", and by the time of her sinking in 1820, the Confiance was described as "much decayed and hogged."[19]

The narrow dimensions of the timbers in the Linnet's hull, and the poor quality of construction suggested by Confiance's swift demise, may have been important contributing factors to Macdonough's victory at Plattsburgh

Bay. Of the two major British vessels in the action of September 11th, one didn't belong there because of her light scantlings, and the other appears to have been disadvantaged by too-hastly assembly. Together they faced an enemy gifted with a great advantage: sturdy warships designed and built by Adam and Noah Brown, the shipbuilding brothers from New York City.

CHAPTER XII

CONCLUSIONS

Throughout the War of 1812, the naval campaign on the Great Lakes remained essentially a battle of shipwrights; the construction and outfitting of the Eagle may be regarded as the climax of that war. Other lake warships were built larger and nearly as quickly as the Eagle, but none were assembled under such dramatic circumstances; she was, beyond a doubt, "the ship that saved the day". The importance of the Eagle in the Battle of Plattsburgh Bay has been underplayed by many historians, perhaps because of Henley's decision to shift the vessel in the midst of the engagement, but the fact remains: the Eagle's 20 guns provided Macdonough with the crucial margin of superiority he needed over the British squadron. Without her it is likely that the battle would have ended in an American defeat, or at best a bloody draw. The Eagle represented the peak of Adam and Noah Brown's careers, for rarely have shipwrights been more directly involved in securing a victory for their side.

The archaeological study of the Eagle's hull demonstrated that in spite of her accelerated construction, she was a well-built vessel. Adam Brown's appreciation of the sailing and fighting conditions on Lake Champlain was readily apparent in the design of the brig. Her wide,

shallow hull was ideally suited to navigating the shoal waters of the lake. Brown's appreciation of the need for haste was also clearly displayed in the Eagle's construction. He utilized as many time-saving shortcuts as possible, including the use of available woods and the omission of knees, a false keel, and treenail fastenings. In no instance, however, was the overall quality of the hull compromised. The key structural timbers were of more than adequate dimensions, and the brig's thick bulwarks probably gave her crew a great sense of security throughout the battle against the British squadron. The hull of the Eagle has shown what early North American shipwrights were capable of producing when challenged by unusual and adverse situations.

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7. Ibid, p. 869

8. A.U.S., R.G. 45, 147, Roll 5, pt. 3, #43a.

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13. According to the reports of Macdonough and Pring, the Linnet remained in action for 15 minutes after the surrender of the Confiance. Henley recorded it as 8 minutes in his official report, and the Eagle's Sailing Master, Daniel Records, recorded the interval as 4 minutes in his logbook. These time discrepancies continually appear in the different accounts of the action.

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3. A.U.S., R.G. 45, 125, Roll 39, #51.

4. R. Macdonough, Life of Commodore Thomas Macdonough, p. 152. The nine lightly wounded were: Actg. Lt. William Spencer, slight wound of the cheek; Francis Breese, slight wound of the hand; Joseph Valentine, slight wound muscular part of leg; Andrew McEwen, right leg fractured; Matthew Scriver, slight wound right shoulder; John McKenny, slightly wounded, hardly perceptible; Robert Buckley, slight wound in breast; John Harley, slightly wounded right leg and arm; James Dervick, slight wound of the cheek - Surgeon Briggs report to Macdonough.

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22. A.U.S., R.G. 45, 125, Roll 40, #126.

23. A.U.S., R.G. 45, 149, Roll 11, #471; B. Lossing, Fieldbook, p. 976.

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APPENDIX A

A Partial Muster Roll of the United States Navy Brig *Eagle*

[Asterix indicates wounded while serving on *Eagle*.]
[Cross indicates died while serving on *Eagle*.]

Name	Rank
Robert Henley	Master Commandant
Joseph Smith*	First Lieutenant
William Spencer*	Second Lieutenant (acting)
Jairus Loomis	Master (acting)
Daniel Records	Sailing Master (acting)
William Machesney	Midshipman
William Chamberlain	Midshipman
Henry Tardy	Midshipman
Abraham Walters*	Pilot
Francis Breeze* (or Breese?)	Master's Mate
Peter Vandermere+	Master's Mate
John Wilson	Boatswain (acting)
Charles B. Johnson	Carpenter (acting)
Edward Smith	Gunner (acting)
William C. Allen*	Quartermaster
James Duick* (or Dervick?)	Quarter Gunnner
Isaac Stoddard	Surgeon (acting)
James Willis+	Seaman
John Ribero+	Seaman

Muster Roll (Continued)

Name	Rank
Jacob Lindman+	Seaman
Andrew McEwan*	Seaman
Stephen Bostick	Seaman
Christian Frederick	Seaman
Cornelius Moore	Seaman
Joseph Foquet	Seaman
John Lewis	Seaman
John Brown	Seaman
Horace Lane	Seaman
Zebediah Conklin*	Ordinary Seaman
Joseph Valentine*	Ordinary Seaman
John Hartley*	Ordinary Seaman
John Micklan*	Ordinary Seaman
Robert Buckley*	Ordinary Seaman
John N. Craig*	Ordinary Seaman
John McKenney*	Ordinary Seaman
Garrison Gibbs (or Gill?)	Ordinary Seaman
Thomas Maloney	Ordinary Seaman
James Springer	Ordinary Seaman
James Seitch	Ordinary Seaman
Perkins Moore*	Ordinary Seaman
James Winship+	Ordinary Seaman
Thomas Anwright+	Ordinary Seaman

Muster Roll (Continued)

Name	Rank
Nace Wilson*	Ordinary Seaman
Parnel (or Purnall?) Boice+	Ordinary Seaman
Thomas Lewis+	Boy
Aaron Fitzgerald*	Boy (or Marine?)
John Davis	Rank Unknown
Joseph Richardson	Rank Unknown
Joseph Morrison	Lieutenant, acting Marines
Mathew Scriver*	Marine
George Mainwaring*	Marine (or Musician?)
John Wallace+	Marine
Joseph Heaton+	Marine
Henry Jones*	Marine
John McCarty*	Marine
James M. Hale+	Musician (or Marine?)
John Wood+	Musician

APPENDIX B

The Log Book kept on board the
United States Sloop of War Surprise
of twenty guns. Robert Henley Esqre
Commander Kept by Daniel Records
Acting Sailing Master

Occurences and Remarks on board the United
States Sloop of War Surprise. Robert Henley Esq.re
Commander in Virgennes or Otter Creek Vermont

1814 Sunday August 21	These 24 hours moderate winds and pleasant weather at about 11 A.M. cast off from the bank at Vergennes and proceeded down the Otter Creek about 1 1/2 miles over the first bar in said Creek and moored in the stream
Monday August 22nd	All these 24 hours fine weather Crew employed in getting on board ship stores and other necessary Articles the Riggers and Carpenters at work on board and all hands preparing the Brig for the services on the Lake.
Tuesday August 23rd	First part of these 24 hours squally with some Rain middle and latter part fine weather the Riggers and Carpenters still at work as before At about Meridian let go the moorings and perceeded down the Creek as far as Crittington landing there made fast and took in some ballast.

Remarks on board the U. States Sloop of War Surprise R.
Henley Esq.
Commander lying in Otter Creek Vermont

Wednesday August 24	First part of these 24 hours some light rain middle and latter part fair weather Riggers and Carpenters employed as yesterday the Crew employed in the Boats and receiving and taking on board the spare Rigging and blocks from the Rigging loft and the remainder of the Ballast at Crittington landing and receiving on board three hundred and fifty eighteen pound shot and one hundred twenty four pound shot.
Thursday August 25	All this day strong winds from the Northward and fair weather. received the sails from the sloop Washington and bent them likewise

received eleven cases containing one caboose and iron work for the Gun Carriages. One case said to be gunlocks and one small coil of Rigging and one half Teirce Received on board from Vergennes two sails for the Saratoga and fifty twenty four pound shot some hooks and thimbles and other Blacksmiths works for the Brigs use
The Riggers and Carpenters still working on board

Friday August 26th — All these 24 hours light variable wind and pleasant weather at Daylight cast off the mooreing and perceeded down the mouth of Otter Creek and received some ballast then made sail and perceeded out on the Lake Bent the Top Gallant sails and crossed the Yards and stood down the Lake

Saturday August 27th — First part moderate breezes from the southward and fair weather Steering down the Lake all sail set. Middle and latter part fresh breezes and Cloudy At about half past 9 A.M. came to anchor off Chazy near the Commodores Ship

Occurences and Remarks on Board the United States Sloop of War Surprise Robert Henley Esq. Commander at anchor off Chazy

Sunday August 28th — All this 24 hours light winds and cloudy weather Weighd the Anchor and hauled into the line and came to with the best Bower anchor with a spring and employed in delivering and receiving the necessary Articles for the use of the Fleet and getting the Brig ready for service as fast as possible

Monday August 29th — All these 24 hours light air and pleasant weather employed at sundries as necessary on Board and in the boats in delivering and receiving sundry Articles

Occurences and Remarks on board the United States Sloop of War Surprise Robt Henley Esqre Comman off Chazy

Tuesday August 30th — All these 24 hours light winds and pleasant weather employed at sundries as necessary on board and in the Boats.

Wednesday August 31	First part of these 24 hours moderate breezes from the northward and pleasant weather Latter part Variable winds and calms At 4 P.M. weighed Anchor and made sail up the Lake sent up the top gallant yards cross'd them and set the top gallant sails steering up the Lake all sail set At 5 P.M. calm three galleys towing the Brig At 6 P.M. came to with the stream Anchor in eight fathoms water in company with the Fleet being off the S.W. end of the Isle of Mott
Thursday Sept 1st	First part of these 24 hours Calms still at Anchor off the S.W. end of the Isle of Mott. Latter part light winds and variable At 20 minutes after Meridian a preparative Signal was made on board the Commodores Ship At 20 minutes before 1 PM a signal was made for getting underway At 15 minutes after 1 PM weighed the Anchor and proceeded up the Lake the Gallies a head towing the Wind being ahead and very light At 1/2 past 1 PM James Willis Seaman fell from the Main top sail yard on deck and expired 20 minutes before 4 p.m. At 9PM came to anchor with the Stream in Plattsburgh Bay beofre the village in 8 fathoms water the Cantonment bearing about west and furled sails. This day Lieutenant Joseph Morrison came on board and took his station

Occurences and Remarks on board the United States Sloop of War Surprise Robert Henley Esqre. Commander lying in Plattsburgh Bay

Friday Sept 2	First part of these 24 hours moderate breezes from the south and fair weather still at Anchor in Plattsburgh Bay This forenoon buried James Willis Seaman and sent all the sick to the Hospital Here follows their names Garrison Gibbs John Davis Thomas Maloney Joseph Richardson Latter part variable winds and Squally with some thunder and lightning and heavy showers of rain. Lieut. Loomis came on board and took his station. Received from the sloop Montgomery 16 men still at anchor in Plattsburgh Bay before the Town

Names of the men received from the Hospital
Viz Stephen Bostick
Seaman Frederick
Cornelius Moore
Joseph Foquet
James Springer

Occurences and Remarks on board the United States Sloop of War Surprise R Henley Esqre. Commander on Lake Champlain

1814 Saturday Sept 3rd	First part of these 24 hours moderate breezes from the southward and fair weather Middle part strong variable winds and flying clouds employed at sundries on board and in the boats as necessary Received on board 21 acting Marines from the Shore at Plattsburgh Likewise a quantity of Board and some old canvas Latter part light winds and fair weather Still at Anchor off Plattsburgh
Sunday Sept. 4th	First part of these 24 hours moderate winds from the southward and fair weather Middle part fresh breezes from the Westward and squally with some rain At about half past one PM. got underway to try the Brigs sailing made a stretch off in the Lake by the wind and came to anchor at about half past 5 pm in eight fathoms of water Latter part hard squalls with showers of rain
1814 Monday Septr 5	All these 24 hours fresh breezes from the Northward and fair weather At about 10 AM a preparative signal was made on board the Commodores Ship At half past 10 AM a signal of information respecting the enemy At about 2 PM. weighed Anchor and warped into the line and came too with the stream Anchor the spring bent on

Occurences and Remarks on board the United States Sloop of War Eagle Robert Henley Esqre. Commander lying in Plattsburg Bay on Lake Champlain

The name of the Brig was this day changed to the Eagle

Tuesday Septr 6th	All these 24 hours fresh breezes from the Southward and fair weather At about 8 P.M. weighed Anchor and warped to the southward about half a mile and came to Anchor in eight fathoms water At about 10 A.M. of this day the Enemy commenced an attack on Plattsburgh the Enemy in large force they succeeded in gaining the Northern part of the Village and burned several buildings the Galleys of the fleet assisted to repel the attack the action continuing on shore until the end of these 24 hours

Occurences and Remarks on board the United States Sloop of War Eagle Robt. Henley Esqre Commander on Lake Champlain

Wednesday Septr 7th	First part of these 24 hours fresh breezes from the southward and fair weather At about 1 P.M. weighed anchor and warped to the southward and Anchor'd in a line with the rest of the Fleet with the small Anchor Crab Island bearing about S.S.W. distance about 2 miles the brisk fireing continued on shore until about half past 3. P.M. when the fireing ceased on both sides except some single guns at intervals
Thursday Septr 8.	These 24 hours Variable winds and squally with some showers of rain still lying in the line as before Sent the launch to Crab Island for fire wood This day in a hard squall the small anchor broke off the shank and the Brig adrift let go the best Bower and brought her up again
1814 Septr 9 Friday	All these 24 hours variable winds and pleasant weather still laying in the line off Plattsburgh as before mentioned the Crew employed as necessary in getting the Brig in order
Saturday Septr 10	First part of these 24 hours variable winds and good weather Latter part fresh breezes from the northward and fair weather the Crew employed in necessary preparations as before stated

Occurences & Remarks on board the United States Sloop of War Eagle Robert Henley Esqr Commantr on Lake Champlain

1814 Sunday Septr. 11th	All these 24 hours the wind from the Northward and fair weather with moderate breezes At 7 AM the guard boat made the signal that the Enemy was approaching. Beat to Quarters hoisted up the top sail yards and prepared for Action At 9 A.M. the Enemy hauled round Cumberland Head and stood in for our Fleet At half past 9 A.M. we opened fire upon the Enemys Ships At 9:40 A.M. the Action became general At 10:30 A.M. the starboard spring being shot away and the Brig laying exposed to the raking fire of the Enemy cut the best Bower cable to cast the Brig to bring the larboard side to bear after casting the brig cut the other spring and shifted our position and with a spring brought the Broadside to bear on the Enemy and opened our fire on them again At 10:50 th Enemys large Ship of 37 guns surrendered At 10:54 the Enemys Brig of 16 guns surrendered The two sloops having surrendered some minutes before the general surrender They also had thirteen Gallies all of which made their escape favor'd by the lightness of a head wind and the crippled state of our Fleet which put it out of our power to pursue them We had 13 killed and 27 wounded some slightly
1814 Monday Septr 12th	These 24 hours variable winds and weather some times fair and sometimes squally with showers of rain still at anchor off the Village of Plattsburgh This day employed in repairing damage sustained in the action of yesterday the 11th of September and taking care of the wounded prisoners and prizes taken yesterday
Tuesday Septr 13	These 24 hours variable winds mostly from the southward and showers of rain. Employed as yesterday in repairing the damage

sustained in the action of the 11th and taking care of the sick and wounded and burying the Dead of both Fleets

Occurences and Remarks on board the United States Sloop of War Eagle Robert Henley Esqre Commanr on Lake Champlain

Wednesday Septr 14	These 24 hours variable winds and weather attended with showers of rain still at anchor as yesterday before the Village of Plattsburgh Still employed in repairing the damages sustained in the action of the 11th instant
Thursday Septr 15	The first part of these 24 hours variable winds and cloudy weather with some rain The latter part calm and fine clear weather The hands employed in repairing damages as before sustained in the action of the 11th and loosing drying and exercising sails Still at anchor before the Village of Plattsburgh in company with the Fleet and Our Prizes The prisoners being sent off for Whitehall
Friday Septr 16th	All these 24 hours light variable airs and calms and cloudy with much rain employed in the boats and on board as occasion required Still at anchor in the line off Plattsburgh as before
Saturday Septr 17	These 24 hours variable winds and weather with some rain employed in the boats and on board in repairing damages sustained in the action of the 11th of September loosing and airing the Sails

Occurences and Remarks on board the United States Sloop of War Eagle Robert Henley Esqr Commander on Lake Champlain

Sunday Septr 18th	This day strong gales from the Westward and fair weather in the evening more moderate and fair Nothing done on board this day of importance the hands being on Liberty Still at anchor as before in the line This day Captain Henley left the Eagle for Burlington the command of said Brig devolving on Willm A Spencer Lieutenant

Monday Septr 19th	These 24 hours variable winds and weather employed in the boats and on board in repairing the damage sustained in the action of the 11th Instant
1814 Tuesday Septr 20th	First part of these 24 hours strong gales from the southward and cloudy with a heavy swell Veered away the cable to the long servis The latter part more moderate and variable winds hove in the cable to the short servis employed as before in the boats and on board as necessary in the repairing the rigging and other damages sustained in the action of the 11th instant
Wednesday Septr 21	The first part of thse 24 hours moderate breezes from the northward and fair weather This morning weighed anchor and shifted our birth near Crab Island in five and a quarter fathoms water Crab Island bearing south Latter part light variable winds and cloudy weather and some light rain This day took up a corpse and buried the remains on Crab Island delivered ten of the light artillerymen to the order of the Commodore These men had been on board during and since the action of the 11th Septr Otherwide employed as necessary in the boats and on board in repairing the damages sustained in the action of the 11th Instant

Occurences and Remarks on board the United States Sloop of War Eagle Robert Henley Esqre Commander on Lake Champlain

Thursday Septr 22nd	First part of these 24 hours fresh breezes from the southward and cloudy Latter part light variable winds and cloudy with some rain employed in the boats and on board as most necessary sent the boat to Crab Island for fire wood Still laying at Anchor off Crab Island as Yesterday in company with the Fleet
Friday Septr 23rd	This day light winds from the northward and fair and pleasant weather employed in the boats and on board as usual loosing and drying the sails and furling them again

Saturday Septr 24th	These 24 hours moderate breezes from the southward and fair weather employed as usual on board and in the boats and repairing the damages sustained in the action of the 11th Instant and sweeping for the Anchors lost on that memorable day
Sunday Septr 25th	First part of these 24 hours strong Gales from the southward and cloudy weather with some rain Veered away the long servis at about 11 AM veered away the whole cable except enough to freshen the hawser At about half past meridian the wind shifted to the northward Blowing very strong this afternoon got another Anchor bent on a ten inch cable and carried out the Anchor to windward and hove the cable taught to bear a strain with the other cable At midnight more moderate Still in company with the Fleet in Plattsburgh Bay Crab Island bearing south distant about half a mile

Occurences and Remarks on board the United States Sloop of War Eagle Robt Henley Esqre Commr on Lake Champlain

Monday Septr 26	These 24 hours fresh breezes from the westward and fair weather employed in the boats and on board as usual in repairing the damages sustained in the action of the 11th Instant Still sitting at Anchor in Plattsburgh Bay as before in company with the Fleet Crab Island bearing south distant about half a mile
1814 Tuesday Septr 27th	These 24 hours moderate breezes from the Westward and fair weather This morning weighed the small Anchor and hove in the best bower and sighted it, let go the best Bower again and paid away the short servis loosed the sails to dry and payed away the long servis Dryed the sails and landed them again employed as before in repairing damages sustained the 11th Instant Still at anchor as yesterday

Wednesday Septr 28th	All this 24 hours light variable winds and cloudy weather employed in the necessary repairs in mending the sails repairing the rigging and carpenters work loosing drying and furling sails and sweeping for the Anchors lost in the Action of the 11th Instant and in the Boats as usual
Thursday Septr 29th	All this day moderate breezes and fair weather This day an order came from Commodore Macdonough for me and a part of the crew to go on board the prize Ship Confiance and proceed to Whitehall which order was obeyed So ends my account of Occurences and Remarks on board the United States Sloop of War Eagle

PLATTSBURGH BAY

on LAKE CHAMPLAIN 29th Septr 1814

Daniel Records
Acting Sailing Master

APPENDIX C

A List of Stores Sold at Whitehall, June 19th, 1825.

Anchors

2 .... 8 to 10 Cwt.
1 .... 6 to 8 Cwt.
1 .... 5 to 6 Cwt.
1 .... 4 to 5 Cwt.
3 under 4 Cwt.

Cables & Hawsers

25 .... 13 to 12 inch
13 .... 6 to 5 inch

Running Rigging

1200 .... 2 to 1 inch

Blocks

50 .... 8 inch double
100 ... 8 inch single
50 .... 7 inch single
50 .... 6 inch single
30 .... 5 inch single
20 .... 4 & under

Candles

69 1/2 lb Sperm

4 Broad axes
4 Narrow axes
7 Adzes
40 Pod augers
4 Anvils
12 Brushes
1 Piece white bunting
5 Smiths bellows
1 Carpenters compasses
2 Casks (harness)
1 Nippers cylinder
2 Iron dogs
3 Screw drivers
2 Tin funnels
10 Gouges
3 Grapnels
5 Tons iron ore

Boats

1 Launch
1- 1st Cutter
1- 2nd Cutter
2- 3rd Cutter
3- 4th Cutter

Instruments

8 Compasses of wood
1 Compass azimuth

Cabin Furniture

8 Chairs
2 Candlesticks
2 Coffee mills
10 Sheet iron stoves
1 Spit
1 Snuffer
1 Stew pan
4 Tormentors
2 Tea Kettles

3 Steam kettles
3 Tim measures
1 Messenger
294 Lynch pins
50 Sets jib boom old rigging
7 Saws
23 Galls tar
1870 Wads
17 9pdr iron cannon
10 6pdr iron cannon
300 9pdr round shot
1140 6pdr round shot
1851 3&4pdr round shot
130 Double head shot 9prd
194 Gun brichings
76 Carronade beds & slides
145 Gun handspikes

Stores Sold at Whitehall (Continued)

2 Jacks
1 Tea Kettle
5 Old rigging for bowsprit
10 Sets standing rigging
2 For Mainmast
5 Mainmast
2 Mizzen topmast
10 Hand trumpets
2 Chests medicine
3 Pair steelyards
3 Scales & weights
2 Grind stones
2 Shovels
2- 12pdr Carronades
14 Swivels, 1 broken
Pig iron Lot No. 7 in acct. of sales
Gunhouse when done with it
Gun tackle Lot 16 & 17
see acct of sales
Old spars tops etc see Lot No. 1
with acct of sales

110 1/2 lbs Flour
46 lbs Pork
316 1/2 lbs Rice
1 1/4 Gall. spirits
10 Pewter bed pans

Including- 1 Crab
10 Swivels
Also 3 Tin quart measures
Carriages included with
guns sold Lot No

APPENDIX D

Wood Species Indentified in the Hull of the Eagle.

1. Keel (forwardmost timber) - hard maple.
2. Keel (center timber) - hard maple.
3. Keel (aftermost timber) - white oak.
4. Stempost (inner) - white oak.
5. Stempost (outer) - white oak.
6. Apron - white oak.
7. Sternpost - white oak.
8. Stern deadwood (lowest timber) - oak (red or white).
9. Stern deadwood (topmost timber) - white oak.
10. Frame M (floor timber) - American elm.
11. Frame I (filler wedge) - white pine.
12. Frame H (floor timber) - white ash.
13. Frame H (first futtock, stbd.) - American elm.
14. Frame H (first futtock, port) - white pine.
15. Frame H (chock between first and third futtock, port) pine or spruce
16. Frame H (third futtock, port) - unident. hardwood
17. Frame C (floor timber) - ash.
18. Frame B (floor timber) - white oak.
19. Frame B (first futtock, stbd.) - oak (red or white).
20. Frame A (floor timber) - white oak.
21. Frame A (first futtock, stbd.) - red Oak.
22. Frame o (floor timber) - white ash.
23. Frame o (chock between floor and first futtock, port) pine or spruce
24. Frame o (first futtock, port) - white oak.
25. Frame o (second futtock, port) - white oak.
26. Frame 1 (floor timber) - white oak.
27. Frame 1 (first futtock, stbd.) - oak (red or white).
28. Frame 3 (floor timber) - white pine.
29. Frame 3 (first futtock, stbd.) - white oak.
30. Frame 4 (floor timber) - American elm.
31. Frame 4 (first futtock, stbd.) - white oak.
32. Frame 5 (floor timber) - white oak.
33. Frame 5 (first futtok, stbd.) - white pine.
34. Frame 6 (floor timber) - white oak.
35. Frame 6 (first futtock, stbd.) - white oak.
36. Frame 7 (floor timber) - white ash.
37. Frame 7 (first futtock, stbd.) - white oak.
38. Frame 12 (floor timber) - unident. hardwood.
39. Frame 12 (first futtock, port) - white pine.
40. Frame 17 (first futtock, stbd.) - white pine.
41. Frame 22 (floor timber) - American elm.
42. Frame 22 (first futtock, port) - white pine.
43. Frame 22 (second futtuck, port) - white oak.
44. Frame 22 (third futtock, port) - white oak.

45. Frame 22 (first futtok, stbd.) - red or white spruce.
46. Frame 22 (top timber) - white pine.
47. Frame 27 (floor timber) - white oak.
48. Frame 28 (top timber) - white pine.
49. Frame ? (first top timber aft gunport 7) - oak (red or white)
50. Frame ? (second top timber aft gunport 8) - American chestnut
51. Keelson (forwardmost timber) - white oak.
52. Keelson (central timber) - white oak.
53. Keelson (aftermost timber, top) - white oak.
54. Keelson (aftermost timber, bottom) - white oak.
55. Clamp (first timber) - oak.
56. Clamp (second timber) - white oak.
57. Clamp (fourth timber) - white oak.
58. Deck beam (beam below gunport 3) - pine or spruce.
59. Deck beam (first beam aft gunport 6) - white oak.
60. Waterway (first timber) - oak.
61. Waterway (second timber) - white oak.
62. Waterway (fourth timber) - white oak.
63. Gunport sill (gunport 3) - white oak.
64. Gunport sill (gunport 10) - oak (red or white).
65. Garboard strake (at bow, stbd.) - white oak.
66. External plank (first above garboard, stbd.) - white oak.
67. External plank (second above garboard, stbd.) - white oak.
68. Garboard strake (at bow, port) - white oak.
69. External plank (first above garboard, port) - white oak.
70. External plank (first plank below gunport 10) - American chestnut.
71. External plank (second plank below gunport 9) - white oak.

Ceiling plank - Frame o (keelson to clamp)

72. Ceiling 1 - white pine.
73. Ceiling 2 - white pine.
74. Ceiling 3 - white pine.
75. Ceiling 4 - white pine.
76. Ceiling 5 - spruce (red or white).
77. Ceiling 6 - white oak.
78. Ceiling 7 - white oak.
79. Ceiling 8 - white oak.
80. Ceiling 9 - white oak.
81. Ceiling 10 - white oak.
82. Ceiling 11 - white oak.
83. Ceiling 12 - white oak.
84. Ceiling 13 - red spruce.
85. Ceiling 14 - red spruce.

86. Ceiling 15 - red spruce.
Ceiling plank - Frame 33
(keelson to clamp)
87. Ceiling 1 - white pine.
88. Ceiling 2 - white pine.
89. Ceiling 3 - white pine.
90. Ceiling 4 - white pine.
91. Ceiling 5 - white pine.
92. Ceiling 6 - white pine.
93. Ceiling 7 - white pine.
94. Ceiling 8 - white oak.
95. Ceiling 9 - white oak.
96. Ceiling 10 - white oak.
97. Ceiling 11 - white oak.
98. Ceiling 12 - white oak.
99. Ceiling 13 - white pine.
100. Ceiling 14 - white pine.
101. Ceiling 15 - red spruce.
102. Bulwark interior planking (lower plank, between gunports 6 and 7) - unident. softwood.
103. Bulwark interior planking (lower plank, between gunports 7 and 8) - white oak.

APPENDIX E

ARTIFACTS FOUND ON THE EAGLE.

Fasteners

Iron fasteners were exclusively used in the construction of the Eagle, and the remains of the hull contained hundreds of drift bolts and spikes. During the three year study of the vessel, a representative sample of iron fasteners was recovered, photographed, sketched, and then returned to the wreck.

Fa. 1 Iron Bolt, Square

L: 12 in.
W: 15/16 in. on each side

One end is slightly mushroomed as a result of being pounded by a hammer.

Found: Detached, on top of Frame L, portside, near the clamp timber. It probably once fastened a deck beam to the clamp.

We noted many examples of these square bolts in the hull of the Eagle. They were used almost exclusively in two ways: (1) to fasten the floors and futtocks of the frames together, and (2) to fasten the clamp, deck beams, and waterway to one another. A 25-inch-long example was found detached on the clamp timbers; it was one of several dozen used to fasten the waterway to the clamp.

Fa. 2 Iron Drift Bolt, Round

L: 2 in. (broken)
Dia. 11/16 in.

One end is mushroomed as a result of being pounded by a hammer.

Found: Detached, between Frames 12 & 13, beneath the keelson.

Round drift bolts were used primarily in two ways: (1) to attach the keelson, frames, deadwood timbers, and keel together, and (2) to fasten the clamp timbers to the frames and outer strakes. Round drift bolts inserted along the spine of the hull averaged 1-1/2 to 2 inches in diameter, while those in the clamp timbers appeared to be of slightly smaller diameter.

Fa. 3 Square Iron Bolt (one end rounded for washer)

L: overall: 4-1/4 in.
L: of rounded end: 1-1/4 in.
W: of bolt: 3/4 in. square
Dia. of rounded end: 3/4 in.

The square end of the bolt appears to have been broken off.

Found: between the clamp and waterway at Frame 50.

Fa. 20 was probably one of the bolts that held the lower clamp timbers to the frames and external planking. The end of the bolt was rounded to fit a washer.

Fa. 4 Iron Spike, Square

L: 10-14/ in.
W: 11/16 in. tapering to 7/16 in.

The head is heavily corroded. The shank is square in section, tapering to a point.

Found: Detached, no provenience.

This is the largest size of spike found on the Eagle's hull. They may have been employed in fastening the external planking to the frames.

Fa. 5 Iron Spike, Square

L: 8-3/4 in.
W: 9/16 in. tapering to 3/8 in.

The four corners of the spike head angle downward, leaving a square-shaped flat surface in the center of the head. The shank is square in section, tapering to a point.

Found: Detached, at Frame 22 near the keelson.

Fa. 6 Iron Spike, Square

L: 8-3/4 in.
W: 9/16 in.

The head is heavily corroded, but appears to have been similar to that of Fa. 4. The shank is square in section, tapering to a point.

Found: Detached, on the river bottom, at the after end of the clamp.

Fa. 7 Iron Spike, Square

L: 8-1/2 in.
W: 5/8 in. tapering to 3/8 in.

Heavily corroded head. The shank is square in section, tapering to a point.
Found: Detached, no provenience.

Fa. 8 Iron Spike, Square

L: 8 in.
W: 9/16 in. tapering to 3/8 in.

Heavily corroded head. The shank is square in section, tapering to a point.
Found: In ceiling plank #13, attaching it to frame XX.

Fa. 9 Iron Spike, Square

L: 7-3/4 in.
W: 5/8 in. tapering to 7/16 in.

The four corners of the head angle downward, as on Fa. 4. The shank is square in section, tapering to a point; it is slightly bent.
Found: Detached, on clamp timber.

Fa. 10 Iron Spike, Square

L: 7-15/16 in.
W: 9/16 in. tapering to 3/8 in.

Heavily corroded head. The shank is square in section, tapering to a point.
Found: Detached, Frame 22 near keelson.
Fa. 7-9 appear to be the standard size of spikes used for attaching thick ceiling strakes to the frames.

Fa. 11 Iron Spike, Square

L: 6-1/4 in.
W: 1/2 in tapering to a point

The head is well preserved; its four corners angle downward, leaving a square-shaped flat surface in the center of the head. The shank is square and tapers to a point; it is slightly bent.
Found: Detached, outside the hull on the port side, near the top of Frame 22.

Fa. 12 Iron Spike, Square

L: 5-7/16 in.
W: 3/8 in.

The shank is square and tapers to a point.
Found: Attaching to a ceiling plank to Frame 22.

Fa. 13 Iron Spike, Square

L: 5-1/2 in.
W: 5/8 in. tapering to 1/4 in.

The head is well preserved; its four corners angle downward, as on Fa. 10. The shank is square in section and tapers to a point.
Found: On the aft futtock of Frame 4, 8 feet from the side of the keelson, port side.

Fa. 14 Iron Spike, Square

L: 5-1/16 in.
W: 5/16 in. tapering to 1/4.

The shank is square and tapers to a point.
Found: Detached, on the river bottom, at the after end of the clamp.
Fa. 11-13 appear to be the standard size of spikes used for attaching thin ceiling strakes to the frames.

Fa. 15 Iron Spike, Square

L: 4-1/4 in.
W: 5/16 in. tapering to 3/16 in.

The head and shank are both heavily corroded.
Found: Detached, no provenience.

Fa. 16 Iron Nail, Square

L: 2-9/16 in.
W: 3/16 in. tapering to 1/8 in.

The head and shank are both heavily corroded.
Found: Detached, on the river bottom, at the after end of the clamp.
A light finishing nail, perhaps used in joinery work inside the hull (bulkheads, companionways, ladders, etc.). The possibility also exists that the nail was lost on the site at some other date, and was not part of the Eagle.

Fa. 17 Iron Washer

Exterior dia: 2-5/8 in.
Interior dia: 1-3/8 in.
Thickness: 1/4 in. to 1/8 in.

Found: Between Frames 12 & 13, beneath the keelson.

Washers were used exclusively on the interior face of the clamp. Their purpose was to prevent the clamp timbers from pulling loose from the bolts which secured the clamps to the frame tops. The washers were fitted over the ends of the bolts, and the bolt heads were then peened to the washers.

Fa. 18 Iron Washer

Exterior dia: 1-15/16 in.
Interior dia: 1 in.
Thickness: 1/4 in.

Found: Between Frames 12 & 13, beneath the keelson.

Fa. 19 Iron Washer

Exterior dia: 1-5/8 in.
Interior dia: 7/8in.
Thickness: 1/4 in.

Found: Beneath Frames I & H, one foot from keel, port side.

The seam of this washer is visible. The washer was manufactured by bending a flat strip of metal edgewise, in a circle and overlapping to two ends.

Fa. 20 Iron Ring Bolt with Rope Thimble

L. overall: 24 in.
L. of shank: 19-1/2 in.
Dia of shank: 1-1/8 in.
Exterior dia of ring: 4-1/4 in.
Interior dia of ring: 1-3/4 in.

Dia. of thimble: approximately 2-1/8 in.
Width of thimble: approximately 1-1/4 in.

Fa. 20 may be a forelock bolt, but this was never determined since the end of the shank was so heavily concreted. The thimble was also heavy concreted to the ring of the bolt.

Found: Detached, on the river bottom, 5 feet from the port side of the hull.

This bolt probably was fastened through the bulwark, and held the rope and tackle that operated one of the Eagle's guns. The thimble prevented excessive wear to the rope which passed through the ring.

Shot

During her brief period of active service in the United States Navy, the Eagle carried 20 guns, eight long 18-pounder cannon and twelve 32-pounder carronades. Ammunition for these guns included hundreds of round, grape, and cannister shot. Some of the Eagle's crew were equipped with pistols or muskets, requiring lead shot. Considering the quantities and types of munitions used aboard the brig, it is not surprising that some of the shot found its way into the bilges. During the three-year study of the hull, 19 pieces of shot were recovered for examination.

Sh. 1 Iron Round Shot, 12-pounder

Dia: 4-7/16 inches

The scar from the mold sprue is visible on the surface of the shot. No other marks or stamps could be found.

Found: Between Frames 11 & 12, under the keelson. The Eagle did not mount any 12-pounder guns, so this shot is a little bit of an anomaly. One tempting but far-fetched possibility is that the ball was fired into the Eagle from one of the British brig Linnet's 12-pounder long guns. More likely, this was a shot stored on the vessel after the war, or condemned as ballast for some flaw in its manufacture.

Sh. 2 Iron Grape Shot, for 18-pounder gun

(three samples found)
Dia: 2-3/16 inches

The diameter corresponds to that for a 1-1/2-pounder shot. Nine 1-1/2-pound balls comprised the standard grapeshot charge for an 18-pounder.

Found: 1 example between Frames 12 & 13.
2 examples between Frames 22 & 23.

Grapeshot was designed for use against personnel and small boats.

Sh. 3 Iron Cannister Shot

(twelve examples found)
Dia: 7/8 in.

Most of these small shot have the stub of the mold sprue projecting from their surface.

Found: 12 examples between Frames 12 & 13.

Several dozen of these shot packed into a tin can comprise the standard anti-personnel cannister charge. If these particular balls are a representative sample, then the ballistic properties of cannister shot must have been very poor.

Sh. 4 Lead Musket or Pistol Ball

(three balls found)
Dia: 5/8 in.

Found: 3 examples between Frames 12 & 13.

Tools

Four tools were discovered during the study of the Eagle's hull. Three of these, a hammer, a chisel, and a file, were possibly dropped after 1825 by workers engaged in dismantling the exposed portions of the hull.

To. 1 Iron Hammer Head, Claw-type

L. overall: 4-13/16 in.
L. of claw: 1-1/2 in.
L. of poll: 1-1/2 in.
Dia. of face: 1-3/16 in.
W. of eye: 1 in.
Height of eye: 1-1/16 in.

The left side of the hammer eye is stamped: D. MAYDOLE CAST STEEL. This is an adze-eye carpenter's hammer, a type invented in 1840 by blacksmith David Maydole of Norwich, New York. He increased the length of the hammer eye, making a longer hole for the handle to go into. As a result, the head was much less likely to fly off the handle. Maydole's hammer design became so popular after

its introduction in 1840 that he opened a hammer factory, where the example found on the Eagle was manufactured. President James Garfield said of Maydole: "When his name is stamped on a steel hammer, it is his note, his bond, his integrity, embodied in steel. The spirit of the man is in each hammer, and the work, like the workman, is unrivalled. Mr Maydole is now acknowledged to have made the best hammer in the world." The handle and head are still attached to one another on the Eagle hammer, a further testimonial to the inventor's design.

Found: During the 1983 excavations of the forward end of the clamp.

The most likely explanation for the location of this hammer was that it was dropped into the water by a worker removing spikes from the Eagle's hull. The post-1840 manufacture of the hammer head suggest that parts of the Eagle's hull remained accessible to salvagers well into the mid 19th century.

To. 2 Iron Chisel with Wooden Handle

L. overall: 8-1/16 in.
L. of handle: 3-1/8 in.
Dia. of handle: 1-3/16 in.
W. of blade: 1-7/8 in.
Thickness of blade: 1/4 in.

Found: On the river bottom outside the hull, at gunport #10.

To. 3 Iron File

L. overall: approximately 13 in.
L. of tang: approximately 1 in.
Width: approximately 1-1/4 in.

Found: At Frame H, near the clamp.

To. 4 Iron Scissors

L. overall: 6 in.
L. of blades: approximately 3 in.

Found: On the river bottom at the aft end of the clamp.

Miscellany

Mi. 1 Iron Carronade Pivot Plate

(five examples found)
L. overall: 19 to 20 in.
Width: 5 in.
Thickness: 3/4 to 1 in.
Dia. of pivot hole: 2-1/2 in. narrowing to 2 in.
L. of end projection: 4-1/2 to 5-1/2 in.

Five examples of carronade pivot plates were found attached to gunport sills on the port side of the Eagle. Each was fastened with two iron bolts at one end of the plate, while a projection at the other end of the plate overlapped the outside planking. A 32-pounder carronade mount would pivot by means of a bolt inserted into the pivot plate. A 1-inch-diameter hole was drilled into the wooden sill under each plate, presumably to allow a cotter pin to be inserted into the pivot bolt. This would have ensured that the bolt did not jump out of the hole when the carronade recoiled. Plans of a 32-pounder carronade mount may be seen on page 284 of Chapelle's History of the American Sailing Navy.

Mi. 2 Iron Chain Plate

(six examples found)
L. overall: 18 in.
Width: 2-14/ in.
Thickness: 7/16 in.
Dia. at top: 4 in.
Dia. of hole: 2 in.

Chainplates were used to attach the standing rigging to the side of the hull. Six were found bolted to the portside, where they secured the mainmast shrouds.

Mi. 3 Brass Shoulder Belt Plate

L. overall: 3-1/2 in.
Width: 2-3/8 in.

The back side of the plate has two studs with brass washers for attaching the plate to a belt. A fragment of black leather still remains. There is a long hook for fastening the plate to the other end of the belt. There are no markings or stamping on either surface of the plate.

Found: On the river bottom, aft end of clamp.

The long hook identifies this as a shoulder belt plate, as a shorter hook was generally used on waist belts to facilitate their removal. Shoulder belts were normally dropped over the head rather than being unhooked each time. Examples of British Army and Navy shoulder belt plates have been found on the bottom of Plattsburgh Bay and at Fort Lennox, Isle aux Noix, Quebec. The army plate carries the stamp of the 39th Regiment, while the Royal Navy plates are stamped with a fouled anchor. The absence of any insignia on this plate suggests that it may have been U.S. Navy or Army issues.

Mi. 4 Bottle

L. overall: 5-1/2 in.
Dia: 1-1/4 in.

No mold lines are visible. There is an open-pipe pontil on the base. The glass has a slight green tint.

Found: Between Frames H and I, portside.

While there has been considerable contamination of the Eagle's hull with later-period garbage, this bottle appears to date to before the sinking of the Eagle. Similar examples of pharmaceutical bottles have been found on a U.S. Navy gunboat sunk in the Patuxent River in 1814.

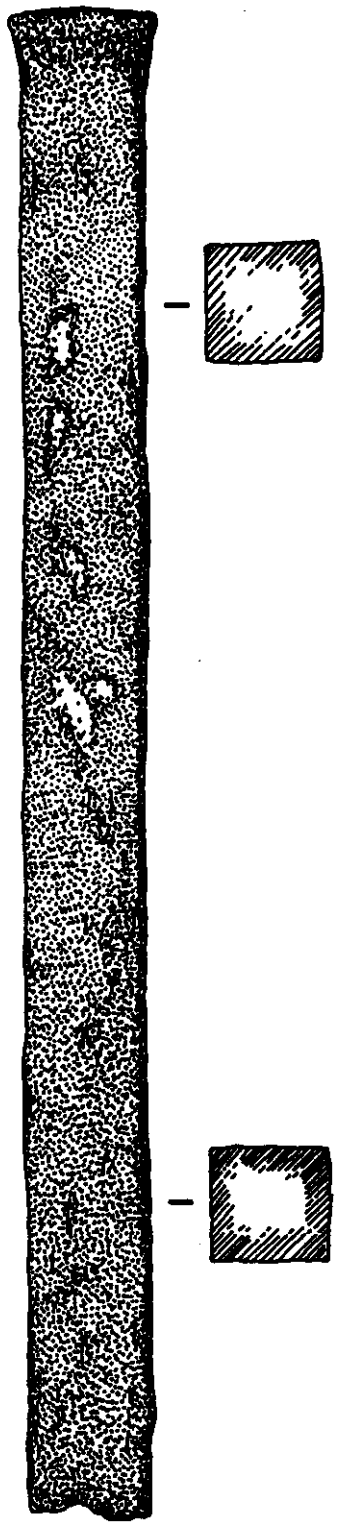
Mi. 5 Bottle

L. overall: 4-3/4 in.
Dia: 1-9/16 in.

Crude mold lines visible from the base to the shoulder. There is an open-pipe pontil on the base. The glass has a blue-green tint.

Found: Between the clamp and waterway timbers, just forward of Frame XX.

Like Mi. 4, this bottle appears to date to the time when the Eagle was afloat, and resembles the pharmaceutical bottles found on the Patuxent River gunboat.



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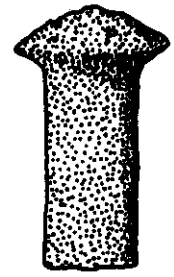

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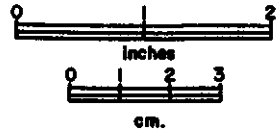

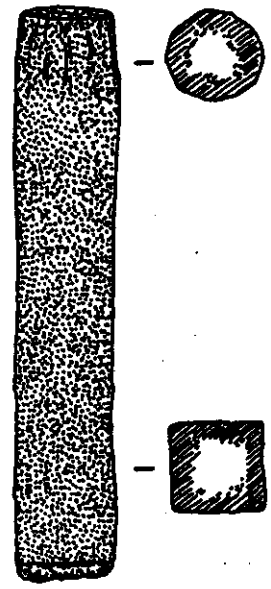

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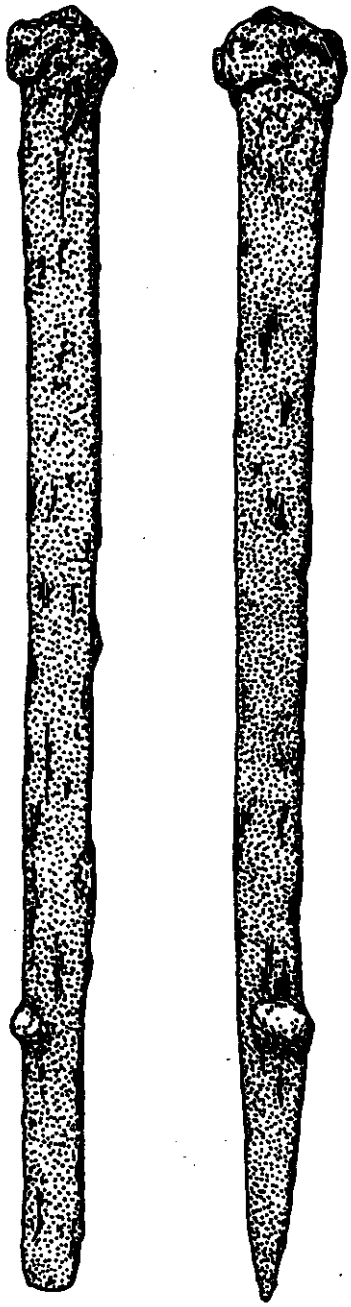
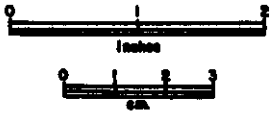
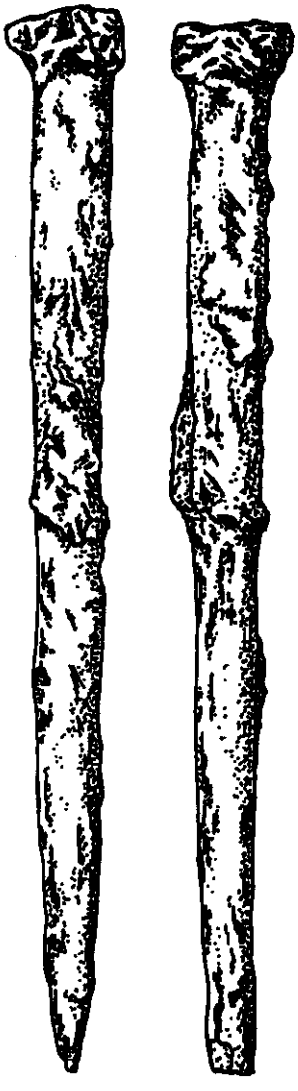


Fa. 4

Fa. 5

Fa. 6





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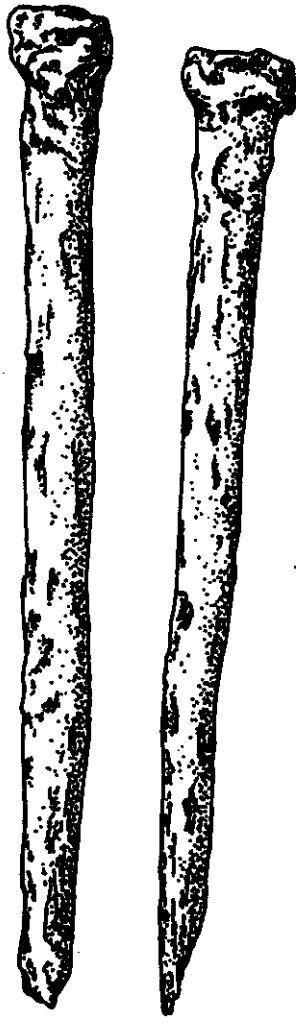

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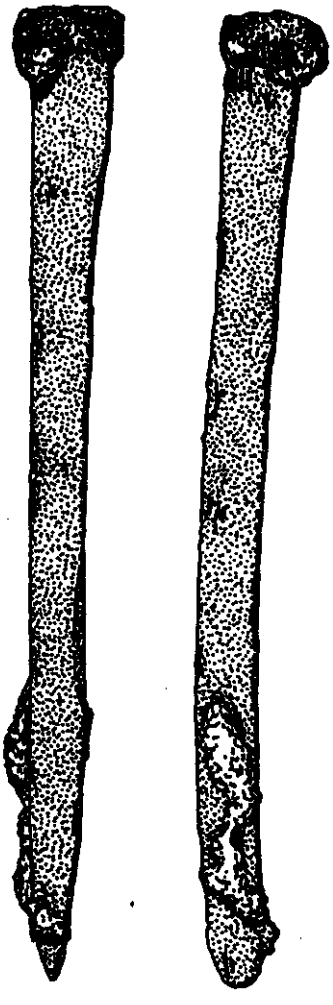

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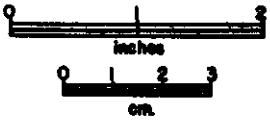

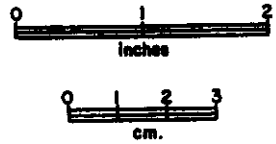

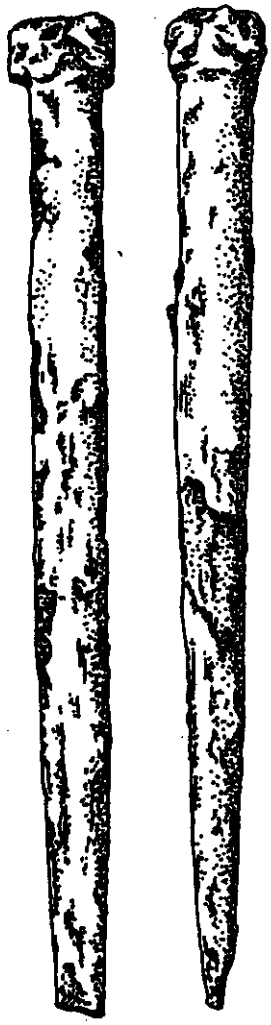

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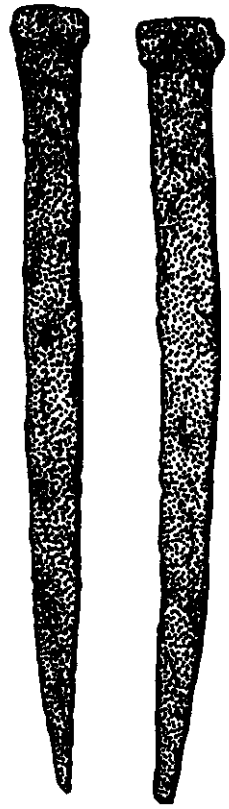

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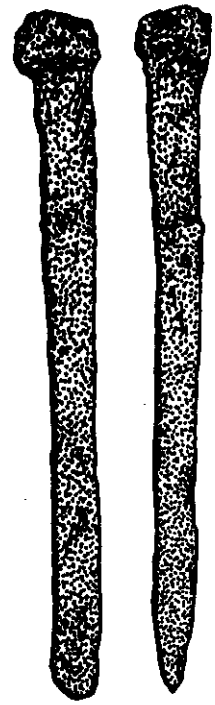

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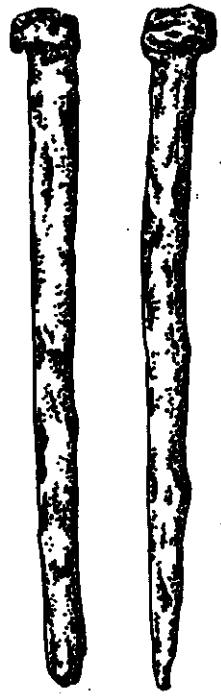

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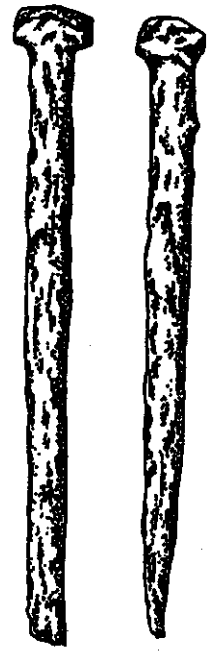

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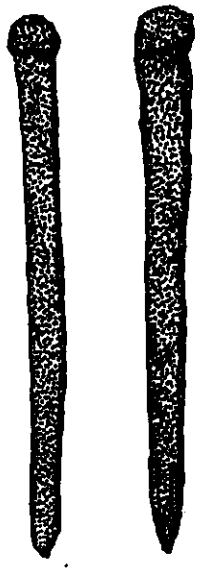

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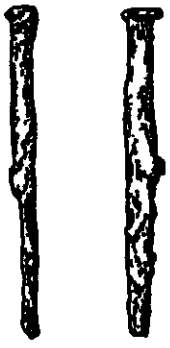

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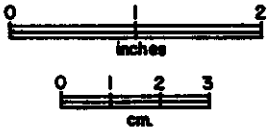

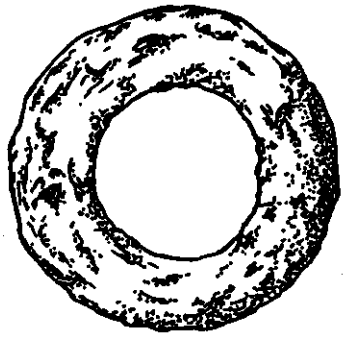

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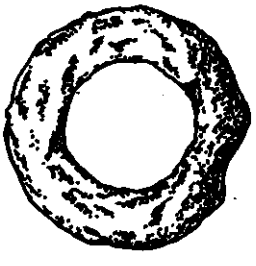

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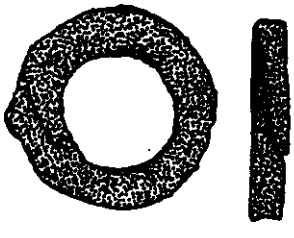

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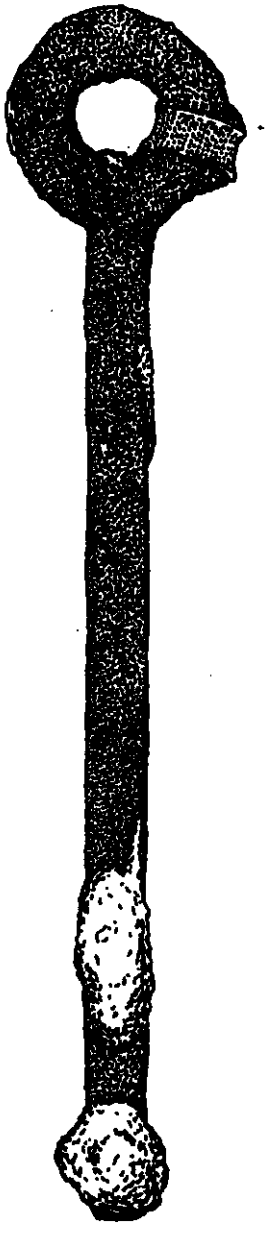

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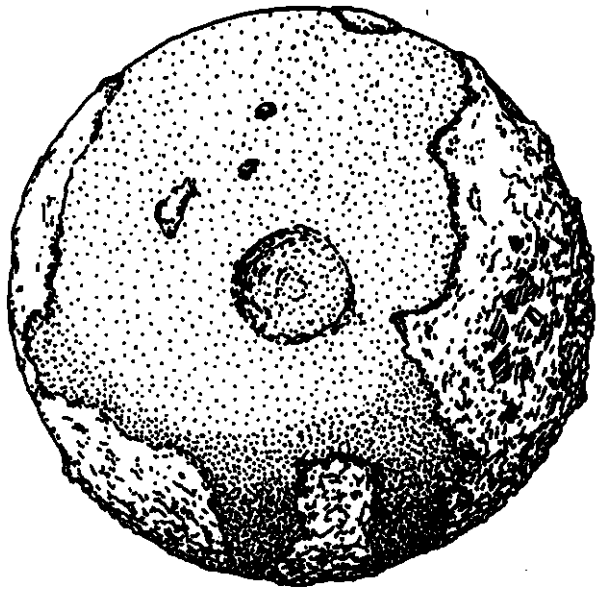

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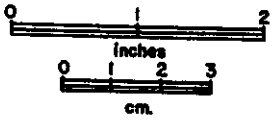

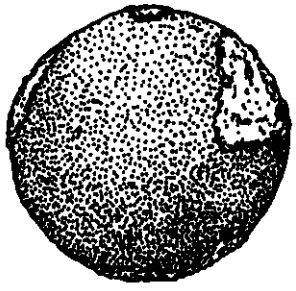

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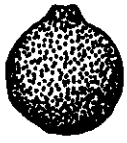

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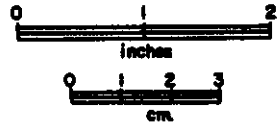

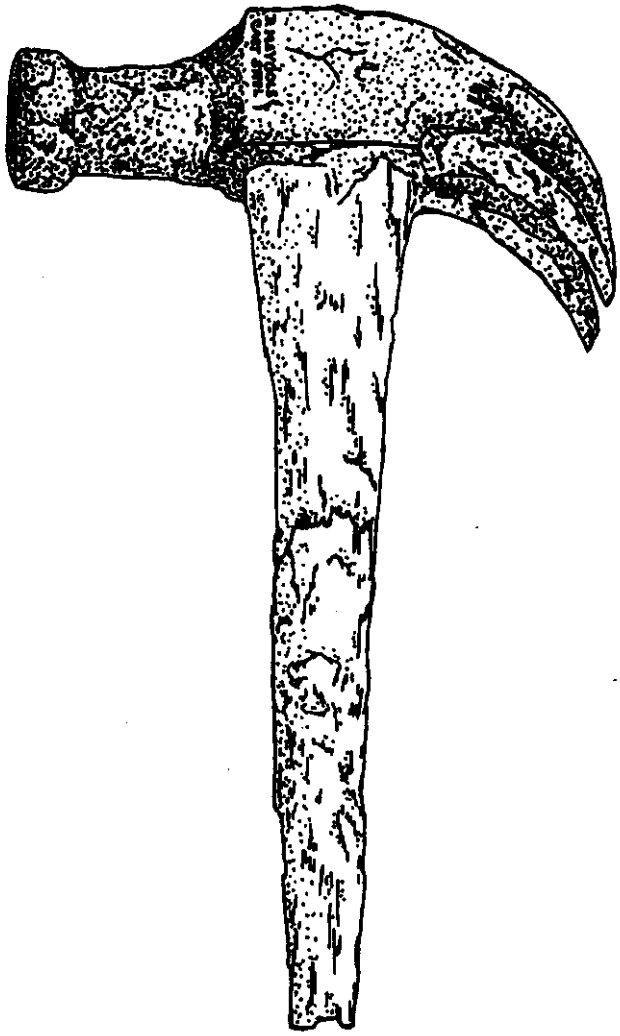

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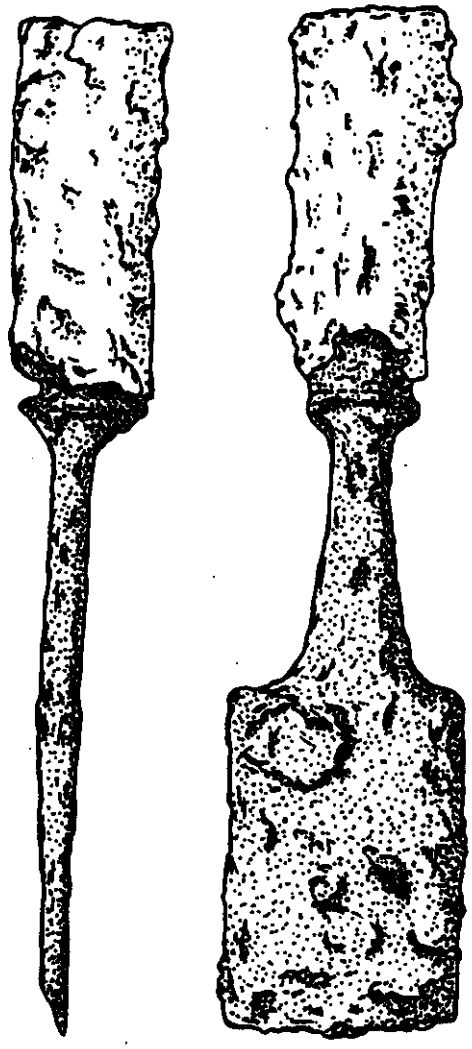

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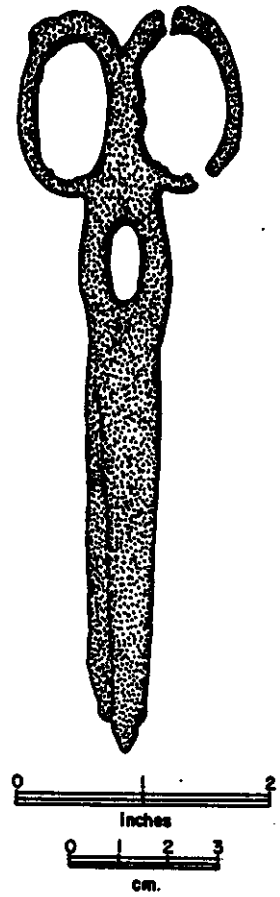

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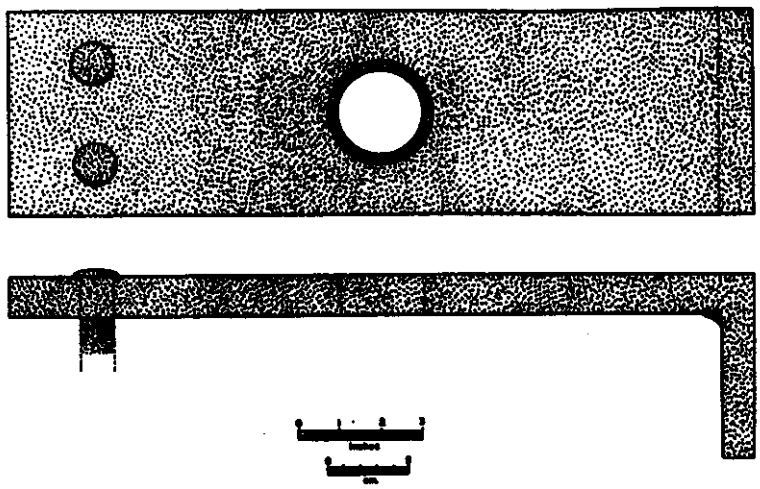

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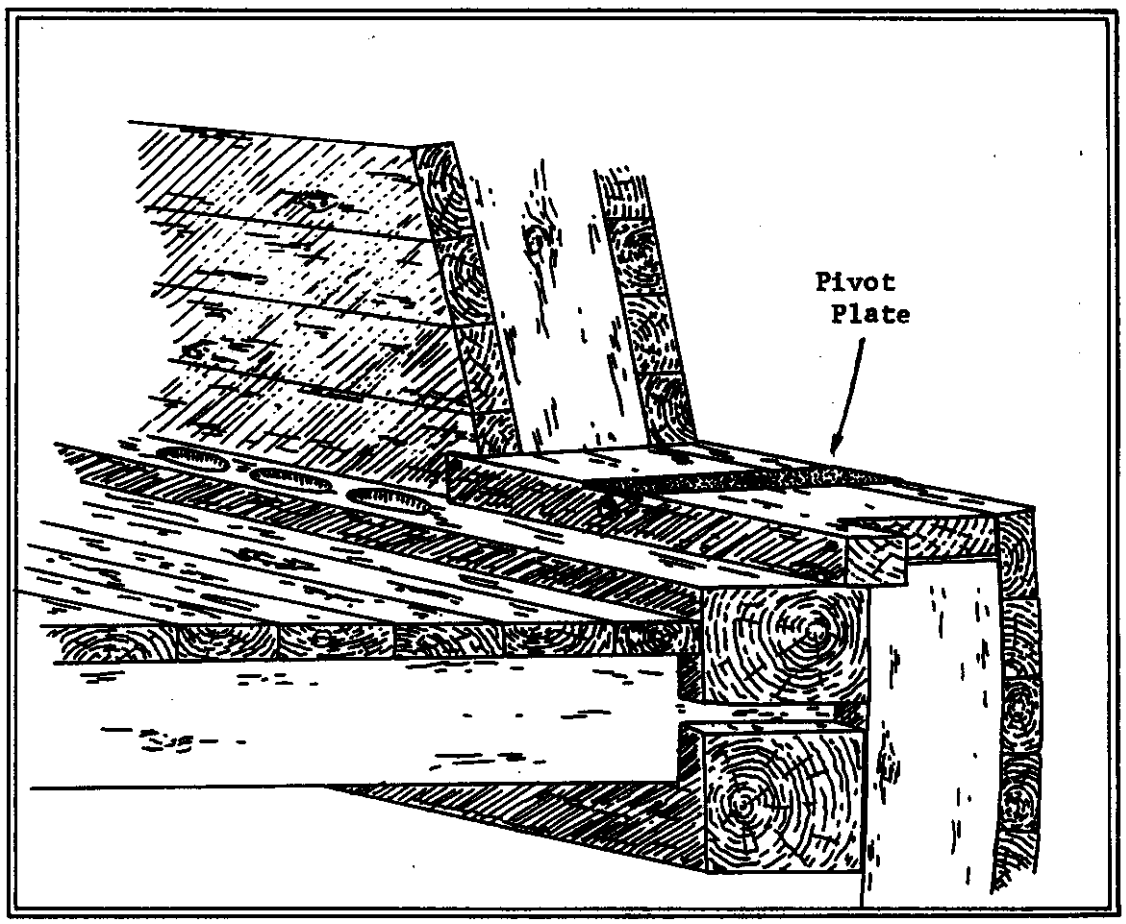

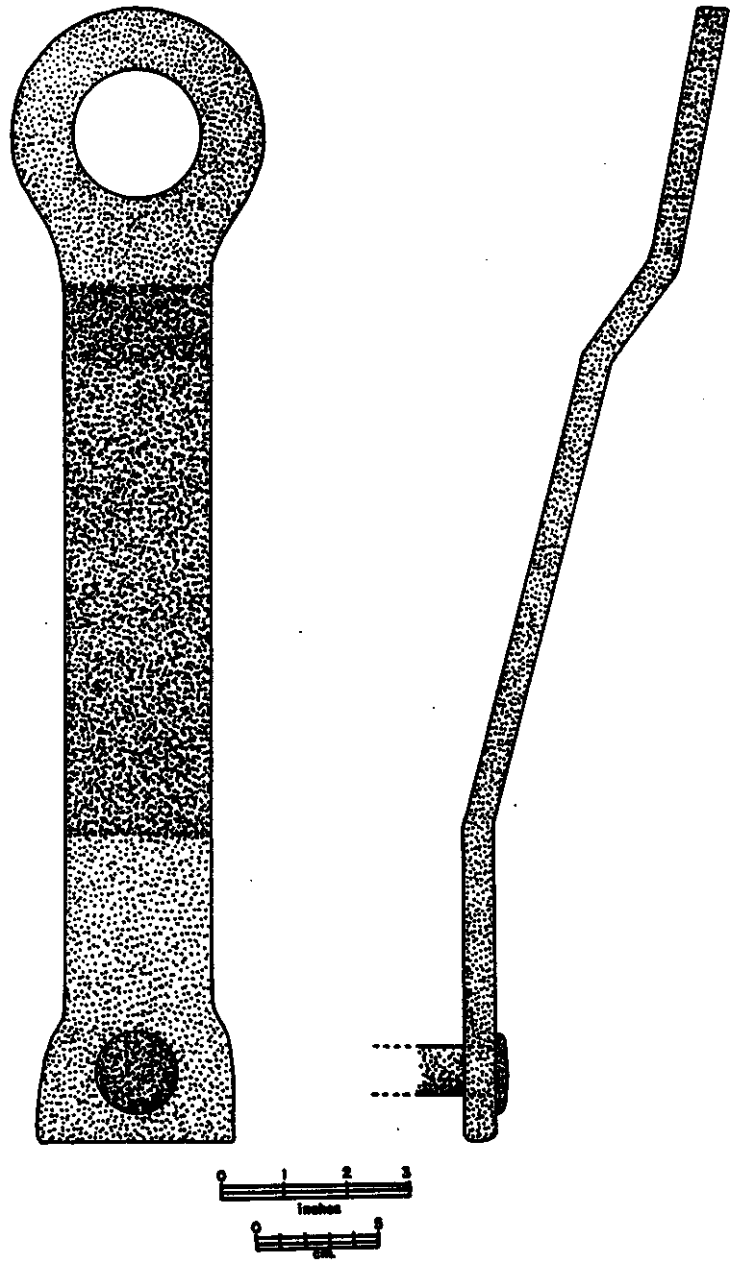

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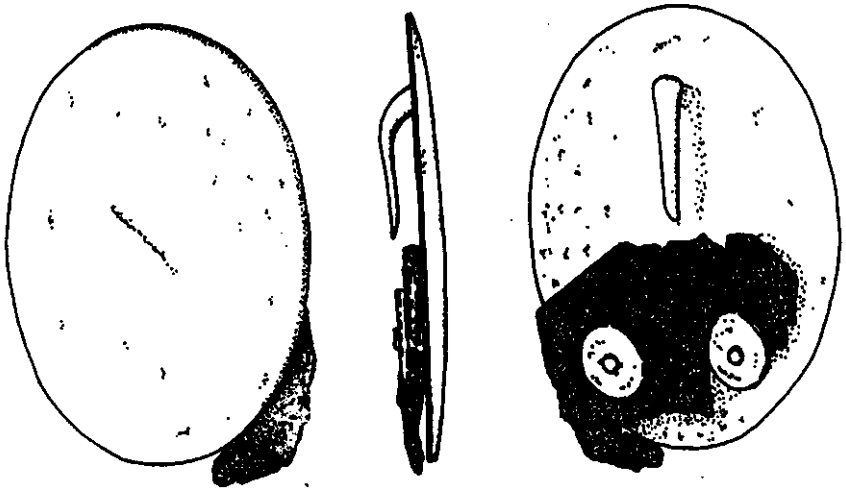

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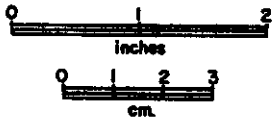

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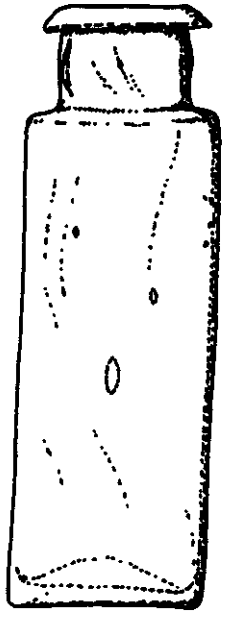

Mi. 5

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APPENDIX F

Principal Dimensions and Scantlings of the United States Navy Brig Eagle

Length - between perpendiculars	117 feet, 3 inches
on keel	106 feet, 5 inches
Breadth - moulded	34 feet, 9 inches
extreme	35 feet, 5 inches
Height - from rabbet to sheer, Frame XX	12 feet, 6 inches
Depth of Hold	7 feet, 3 inches
Draft - afore (estimated)	6 feet, 3 inches
- abaft (estimated)	9 feet
Tonnage (estimated)	525-575 tons
Length-to-beam ratio	3.37:1

Keel - of hard maple and white oak. Moulded 16 inches, sided 12 inches.

Posts - of white oak.

Frames - of white oak, white pine, white ash, American elm, red oak, American chestnut, spruce. Floor timbers moulded 11 inches between the keel and keelson, and 12 to 13 inches at the rabbet, futtocks moulded 10 inches, sided 8 to 10 inches.

Keelson - of white oak. Moulded 14 inches, sided 12 inches.

Shelf Clamp - of white oak. Moulded and sided 12 inches.

Deck Beams - of white oak and spruce. Moulded 9 inches, sided 11 inches. Ledges moulded and sided 7 inches.

Waterway - of white oak. Moulded 10 inches, sided 12 inches.

Hull Planking - of white oak.

Ceiling Planking - of white oak, white pine, and spruce.

APPENDIX G

A Glossary of Ship Terms

Amidships - The point on a vessel halfway between the stem and stern.

Apron - A curved internal timber, attached to the lower end of the stempost above the leading edge of the keel.

Ballast - Heavy material such as iron, stone, or sand, placed in a vessel's hold for the purposes of lowering her center of gravity and increasing stability.

Beam - The width of a ship.

Belaying pin - A pin to which ropes are made fast.

Bilges - The curved portion of a hull beneath the waterline.

Birth deck (or berth deck) - The deck situated immediately below the gun deck of a vessel.

Bitts - Upright posts for tying off ropes and anchor cables.

Body Lines - Geometric lines drawn on the plan of a ship's hull to illustrate its transverse shapes.

Bulkhead - An upright partition within a hull.

Bulwark - The frame ends and planking above the edge of the uppermost deck.

Buttock lines - The lines on a ship's draft which express the longitudinal shapes of a vessel at various intervals parallel to the keel.

Camber - The slight curve of a hull timber.

Camboose (or caboose) - A ship's galley.

Cant frames - The frames at each end of a vessel which are not perpendicular to the keel. Those at the stem slant forward, while those at the stern slant aft.

Cap rail - A timber attached to the top of a vessel's frames.

Carlings - Stiffening timbers located between and perpendicular to, the deck beams.

Catheads - Beams projecting from the bow of a vessel, which contain sheaves used to draw and secure anchors.

Ceiling - The internal planking of a ship.

Chainplates - Metal fastenings for attaching mast shrouds to the sides of a hull.

Chamfer - The flat surface created by slicing the square corner or edge off a timber.

Channels - Projections on a vessel's bulwarks, designed to extend mast shrouds out from the side of the hull.

Chocks - A wedge of wood secured across the butt of two frame timbers.

Clamp - A thick internal strake, generally opposite a wale, that reinforces the sides of a vessel (see shelf clamp).

Coaming - Raised borders around a hatch, designed to keep water out.

Companionway - Stairs between decks.

Counter - The portion of a vessel's stern that overhangs and projects aft of the sternpost.

Cutwater - The forwardmost part of the stem, which forms a curved leading edge that is widest at the top. The cutwater is designed to part the water as the vessel advances.

Dagger knee - A diagonally-oriented, angled reinforcing timber, used to strengthen the join between deck beams and the side of the hull.

Deadrise - The angle of the bottom of a hull above the horizontal plane of the keel.

Deadwood - Solid timbers bolted to the top of the keel.

Deck beam - An athwartship timber that supports a deck.

Depth of hold - The centerline distance between the top of the floor timbers and the top of the deck beams at the midship frame.

Drag - When a vessel is trimmed with the after end of the keel deeper than the forward end.

Eye bolt - A bolt with a circular opening at one end.

False keel - A timber fastened to the bottom of the keel to protect it from damage. Also called a "shoe" in some ship contracts.

Fashion piece - A frame that defines the shape of a vessel's stern.

Fish plate - Plate of iron or other metal, designed to secure the join between two major hull timbers. Usually used in pairs over timber seams.

Floor timber - The timber of a frame that is fastened across the keel.

Floor head line - The line along each side of the hull where the floor timbers end.

Forecastle - The part of a vessel forward of the foremast.

Frame - The skeletal structure of a vessel, mounted perpendicularly to the keel and composed of a floor timber and several futtocks (also referred to as a rib).

Freeboard - The distance between the upper deck and the waterline.

Futtocks - The upper timbers of a frame; frames are sually composed of several futtocks attached to a floor timber and each other.

Garboard - The external planking strake that is closest to the keel.

Gammoning knee - A curved timber at the top of a vessel's stempost to which the bowsprit is lashed.

Gudgeon - A metal bracket attached to the sternpost on which the rudder is hung by means of a pintle.

Gunport sill - The timber located on the bottom of a gun port.

Gunwale - The uppermost wale or strake on a vessel's side.

Half frame - A frame that does not extend across the keel, but rises up from either side of it.

Hanging knee - A vertically-oriented, angled reinforcing timber, generally used to strengthen the join between deck beams and the side of the hull.

Hawse pieces - Internal bow timbers, which abut the cant frames at their heels and run parallel to the stempost.

Headrails - Curved rails extending from the bow of a vessel to its cutwater.

Keel - The backbone of a ship, to which the stem, stern, and frames are attached.

Keelson - An internal longitudinal timber, set atop the frames directly over the keel, which serves to reinforce the hull.

Ledges - Small athwartship beams, located between main deck beams.

Limber boards - Ceiling planks immediately adjacent the keelson, generally left unfastened to permit access to the bilges.

Limber hole - Holes cut in the floor timbers and first futtocks, on either side of the keel, which allow bilge water to circulate inside the hull (also called water courses).

Lodging knee - A horizontally-oriented, angled reinforcing timber, generally used to strengthen the join between deck beams and the side of the hull.

Midship frame - The broadest frame on a vessel, indicated by the symbol ⊠.

Moulded - The measurement of height or width as seen in the body plan of a vessel; the shapes of timbers derived from the sheer and body plans of a vessel.

Oakum - Caulking composed of old hemp rope fibers which is soaked in pitch or tar and driven into planking seams.

Pin rail - A rack for holding belaying pins, located inside the bulwarks of a vessel.

Pintle - A metal bracket, attached to the rudder, which fits into a gudgeon on the sternpost, forming a hinge for the rudder.

Portside - The left hand side of a vessel, when one is facing forward.

Rabbet - A groove cut into the keel, stem, and stern, into which the external planking is seated.

Scantlings - The principal timbers in a hull.

Scarf - The joint connecting two timbers.

Scupper - A water drain on a vessel's deck.

Sheer - The upward curve of a ship's hull or bulwarks as seen from the side.

Shelf clamp - A thick internal strake that reinforces the side of a vessel and supports the ends of deck beams.

Shoe - (See false keel).

Shot garland - A rack for holding a row of cannot shot.

Shrouds - The set of ropes that braces the masts of a vessel.

Sided dimension - The measurement across outer frame faces or tops of longitudinal timbers; the dimension of non-moulded timber surfaces.

Skeg - A projection on the aft end of the keel which protects the forward edge of the rudder.

Square frame - A frame that is perpendicular to the keel and extends across both sides of the hull (see frame).

Stanchion - An upright supporting post.

Starboard side - The right hand side of a vessel, when one is facing forward.

Stempost - An upward-curving timber attached to the forward end of the keel.

Stern knee - An angled timber which reinforces the join between the keel and sternpost.

Stopwater - A wooden dowel driven across the seam between two external timbers (such as the stempost and keel), to deflect water travelling along the seams and prevent the timbers from shifting.

Strake - A continuous line of planks, extending from the stem to the stern.

Sweep port - Opening in a vessel's bulwarks for a sweep (or oar).

Thick stuff - Thick ceiling strakes that parallel the keelson and longitudinally reinforce the hull.

Top timbers - The futtocks located at the top of a frame.

Transoms - Beams or timbers extending across the sternpost of a vessel.

Treenails - Wooden dowels driven into holes drilled to the same or slightly smaller diameters. Used to fasten hull timbers, primarily external planking.

Tumblehome - The incurving of the tops of a vessel's frames, designed to reduce topside weight and improve stability.

Turn of the bilge - The area of a hull where the bottom curves toward the side.

Wale - A thick planking strake which reinforces the side of a vessel.

Watercourses - (See limber holes).

Waterlines - In ship drawings, geometric lines which illustrate the horizontal shapes of the hull at intervals parallel to the baseline. Sometimes called "level lines".

Waterway - A strake or timber located at the juncture of the deck and bulwark. On some vessels this timber was hollowed to act as a gutter.

APPENDIX H

Letters of Permission

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Sincerely yours,

Mary E. Ryan

Mary E. Ryan
Perms. Mgr.

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NATIONAL MUSEUM OF AMERICAN HISTORY

September 19, 1984

To whom it may concern:

Permission is granted Mr. Kevin Crisman to use for publication a picture of a painting of Commodore Thomas MacDonough from the collections of the Naval Section of the Division of Armed Forces History in the National Museum of American History of the Smithsonian Institution, in connection with a study that Mr. Crisman is doing on the Eagle.

Philip K. Lundeberg
Curator
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September 21, 1983

Mr. Kevin J. Crisman
5 Liberty Street
Montpelier, Vermont 05602

Dear Mr. Crisman:

I am replying to your letters to Thomas Mc Carthy of our staff, relative to the prints of the U. S. Brig NIAGARA as prepared by the late William Avery Baker. Since the time of your letter, we have been in the midst of a reorganization and this has taken vertually all of our time. At the conclusion of that time, we attempted to make the prints for you, but have discovered that the copying machine is malfunctioning at this time and the prints are of poor quality. We are having the machine fixed and your prints will be mailed to you shortly.

We would be very much interested in seeing your report on the U. S. Brig EAGLE and would encourage you to use the Baker drawings in the report with a credit to William Avery Baker and the PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION. These drawings represent one of the last projects worked on by Mr. Baker. They are incomplete, because he died before finishing the project.

We are interested in what you have learned in your study of the EAGLE, since we are moving cautiously ahead with plans to restore the NIAGARA in time for the 175th anniversary of the Battle of Lake Erie in 1988. At the present time, I am on a nine month sabbatical, working in part, on the NIAGARA project. We have collected a great deal of information on the NIAGARA and her role in the battle, but precious little on the physical attributes of the brig. This summer, I was in Greenwich, England, looking for records on what the Brits call, " the Canadian Campaign, " and found nothing. We are having prints of Royal Navy built brigs sent over here next month. We are also searching in other countries for material.

I would like to correspond with you about the project and maybe we can come up with mutually helpful ideas. Better yet, if I had your telephone number, I could call you on the Watts line. The EAGLE project sounds great and I am anxious to see your efforts.

Most sincerely,

Michael J. Ripton

MICHAEL J. RIPTON
Consulting Director

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VITA

Kevin James Crisman

Residence: Peacham, Vermont

Address: 5 Liberty Street, Montpelier, Vermont 05602

Born: May 16, 1959; Joliet, Illinois

Parents: Ronald E.W. and JoAnn E. Crisman

Education: University of Vermont, 1977-1981, B.A. in Anthropology

Experience:

From 1977 to 1980 Crisman was employed as an archaeological excavator and laboratory assistant by the State of Vermont and the University of Vermont Anthropology Department. In 1980, he assisted in the excavation of a prehistoric city in Peru.

Crisman has been active in nautical archaeology on Lake Champlain since 1980, and has assisted in or directed the investigation of over a dozen shipwrecks. These include the steamer Phoenix (1819), the canal schooner General Butler (1876), and four vessels from the War of 1812, the Linnet, Allen, Eagle, and Ticonderoga. His book on the history and construction of the Ticonderoga was published by Eyrie Publications in 1983.

He is at present directing the study of a 20-gun brig sunk in Sackets Harbor, Lake Ontario, and is serving as the project archaeologist in the excavation of three French and Indian War vessels sunk below Fort Ticonderoga, New York.