

Abstract

In 1844 the U.S.S. Michigan was the United States Navy's first iron hulled warship. She was also the first U.S. Navy ship to use steam as her primary power source. The speed, power and reliability obtained by using the new building material combined with the new source of power insured the continuance of iron hulled steam propelled ships into the future. The U.S.S. Michigan was the United States Navy's first modern warship.

The Michigan was placed into service at Erie, Pennsylvania, on Lake Erie. The fact that the navy's fastest and potentially most powerful steamship of the mid-nineteenth century was placed into service on the Great Lakes boundary between the U.S. and the British possession of Canada throws doubt on the popular notion that all was peaceful between Britain and the United States on the lakes since the end of the War of 1812.

The history of the Michigan therefore includes the Agreement of 1817 between the U.S. and Great Britain to limit naval forces operating on the lakes and the reasons why this agreement was broken by both sides in their nervousness over the Canadian rebellion of 1837. The construction of the vessel to protect the United States lake trade led to further diplomatic disputes between Britain and the United States which continued until well after the Civil War.

War with Britain on the Great Lakes was barely avoided on

several occasions in the second and third quarters of the nineteenth century. The warship was therefore never tested in battle, yet, her presence at times calmed hostilities and insured peace.

In the 1850's the Michigan played a role in the unfortunate Beaver Island incidents and the consequent destruction of the Mormon colony located there. In the 1860's the Michigan helped the Union war effort during the Civil War; recruiting men for the Union army, quelling draft riots in the port cities, and stopping potentially bloody strikes in the towns of Houghton and Marquette, Michigan. The importance of the vessel during the war was underscored by several Confederate attempts to capture or destroy her.

After the Civil War hostilities continued on the Great Lakes with the formation of the Fenian Brotherhood. These Irish veterans of the Civil War attempted an armed invasion of Canada and were only just thwarted by the intervention of the Michigan and U.S. troops under General Meade.

Although the ship was obsolete by the later part of the nineteenth century, she remained on the lakes training sailors for the navy. The Michigan continued to have a great social impact on the town of Erie even after she was renamed, the Wolverine, by the Navy Department in 1905.

The vessels' final years were shrouded in legal entanglement. The historic vision of the ship preserved for posterity was destroyed in 1949 at a scrap yard in Erie, not far from where she was launched.

THE IRON SENTINEL
U.S.S. MICHIGAN 1844 - 1949

A Thesis
Presented to
the Faculty of the Department of History
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by
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Introduction

Just as a ship is more than the sum of its parts, a ship's history is more than the story of a machine built and controlled by man. This is the history of the U.S.S. Michigan, a vessel which aptly demonstrated her personality by launching herself in 1843 and sinking the tugboat which towed her to the scrap yard in 1949. This ship's history is more a biography or life history of the vessel, formed from the impressions of the people who were affected by her passing.

Most ships die anonymously on the scrap heap and consequently leave almost no trace in history. The Michigan's wake has also long ago disappeared, however, her passage in history has been more lasting. This vessel, like an extraordinary person, left a mark in history worth noting.

The Michigan was born in the age of sail yet lived to see the complete dominance of steam. She was our navy's first iron ship, powered by steam, with main ordnance mounted fore and aft, not unlike most modern warships. What made the Michigan a remarkable ship was the fact that her design concepts and engineering would not have been out of place at the Battle of Jutland in World War I, yet she was conceived in 1842, seventy four years before Jutland.

The construction, engineering and launching of this "great experiment" made the Michigan historically significant in

itself. Though designed to look like an average wooden frigate of the day, the vessel was iron hulled, iron framed and iron fastened. That put the Michigan a generation ahead of any United States warship then afloat. Another first for this vessel was the fact that she was the first naval ship designed with steam as her primary motive power. All United States naval steamers-of-war, until the Michigan, used steam as an auxiliary to sail.

The U.S.S. Michigan was important for several reasons other than her engineering. Her longevity was remarkable. She remained in existence for 106 years from launching to scrap pile, proving indelibly that iron and steel were the building materials of the future. During this time she affected the lives of a great many people. As a highly visible part of life on the Great Lakes the Michigan became familiar to the people who lived there and became a veritable institution in the city of Erie, Pennsylvania, where she was stationed for most of her life.

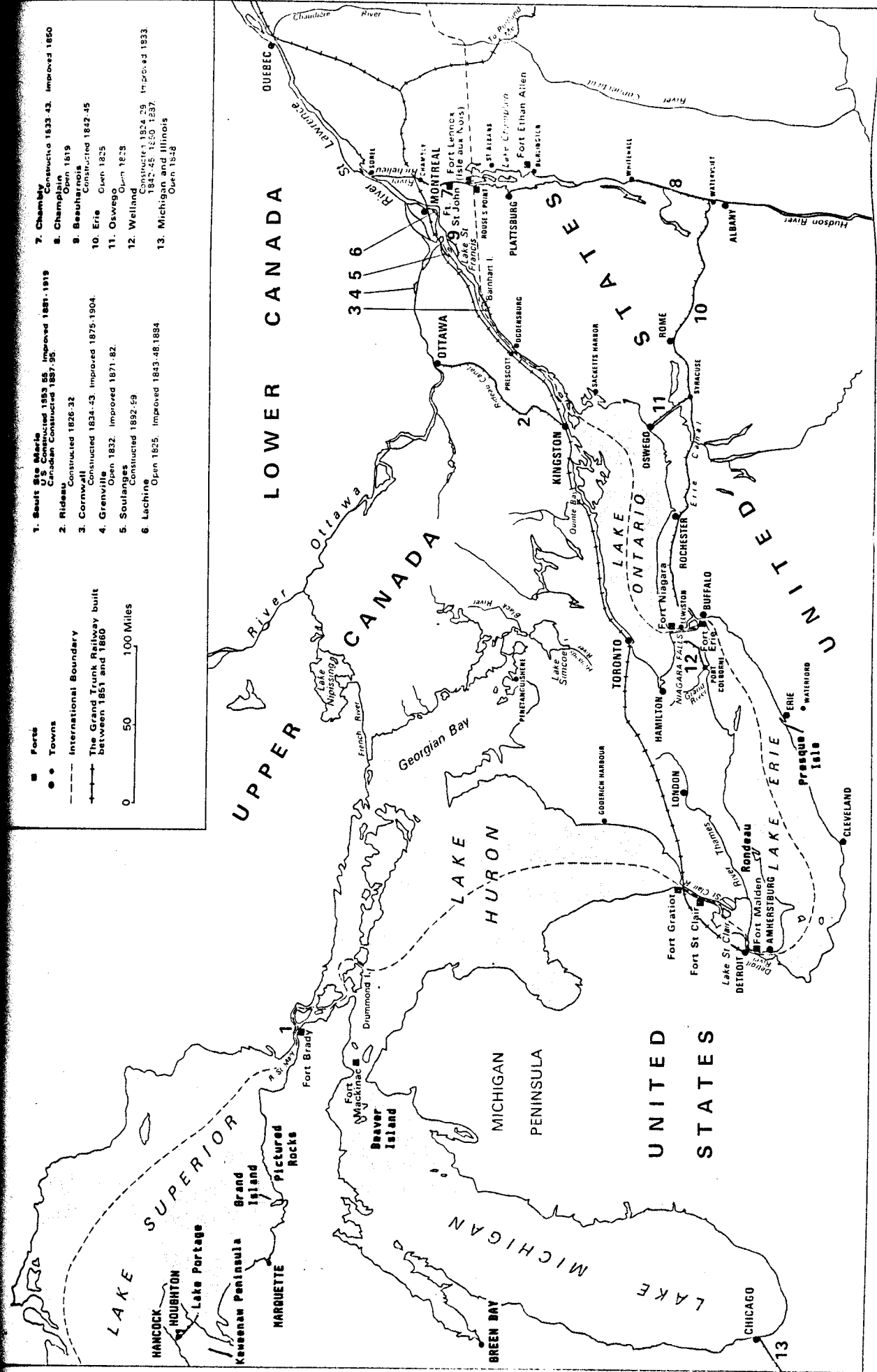
Throughout her career, hundreds of sailors trained on board the Michigan for careers in the blue water navy of the United States. In this way the ship influenced the entire navy. The officers and sailors who trained aboard the Michigan carried their Great Lakes experiences and friendships around the world.

In order to understand how a vessel like the U.S.S. Michigan was conceived and designed, it is necessary to go back to the end of the War of 1812. This war and its aftermath necessitated certain arrangements between the United States and Great Britain. These arrangements had a profound effect on the naval situation that existed on the lake border between the British provinces of

Canada and the United States.

The remainder of this work will cover the the long and oftentimes colorful history of the vessel. The life of the Michigan is intermixed with the history of the Great Lakes and will be told using the accounts of the men who served on board the vessel.

In essence the Michigan's story is the story of an experiment that was successful. She was much more of a revolution in warship design than Joshua Humphrey's "Super" frigates, yet, this ship did not become famous for prowess in battle, like "Old Ironsides." The Michigan's fame comes from the fact that she was the first modern American warship, or as Lieutenant Commander Walter E. Brown put it in 1924, she was "The Daddy of 'Em All."



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|--|---|
| 1. Sault Ste Marie
U.S. Constructed 1853-55
Canadian Constructed 1857-95 | 7. Chambly
Constructed 1833-43
Improved 1850 |
| 2. Rideau
Constructed 1826-32 | 8. Champlain
Open 1819 |
| 3. Cornwall
Constructed 1824-43
Improved 1875-1904 | 9. Beauharnois
Constructed 1842-45 |
| 4. Grenville
Open 1832
Improved 1871-82 | 10. Erie
Open 1825 |
| 5. Soulanges
Constructed 1892-99 | 11. Oswego
Open 1823 |
| 6. Lachine
Open 1825
Improved 1843-48; 1884 | 12. Welland
Constructed 1824-29
Improved 1833
1842-45; 1850; 1857
Open 1848 |
| | 13. Michigan and Illinois
Open 1848 |

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Constructed 1824-29
Improved 1833
1842-45; 1850; 1857
Open 1848 |
| | 13. Michigan and Illinois
Open 1848 |

■ Ports
 ● Towns
 - - - International Boundary
 + The Great Trunk Railway built between 1851 and 1869
 0 50 100 Miles

The Great Lakes and River St. Lawrence Frontier
 adapted from Bourne's BRITAIN and the BALANCE.

Chapter 1. The Portent of the Michigan

The Agreement of 1817

The Great Lakes, via the St. Lawrence River, offer a water pathway into the heart of North America. From the Atlantic Ocean, down the St. Lawrence River to the western tip of Lake Superior, a ship can journey over 1000 miles into the interior of the continent. In the early 1800's an uninterrupted voyage along this route was not possible because of natural barriers. The shallows and rapids of the St. Lawrence River, the Niagara Falls between Lakes Erie and Ontario, and the rapids of the St. Marys River, where the Sault Locks would one day allow ships to enter Lake Superior, prevented free and easy passage onto all of the lakes. However, the potential of this Great Lakes commercial route was not overlooked by the United States or Great Britain in the pioneering days of the lakes region. For many years previous to this, the French had used the lakes to access the fur trade of the Northwest territory. Unfortunately for the French, they lost their lucrative water pathway as a result of the French and Indian War. It is not surprising that in the War of 1812, with Great Britain and the United States residing on opposite shores, the Great Lakes would again take on great strategic importance.

The War of 1812 was inconclusive. Although the United States and Great Britain vied for control of the Great Lakes,

neither seemed able to gain a clean advantage. Commodore Oliver H. Perry's victory over the British fleet in Lake Erie in 1813 was offset by continued American blunders in the land campaigns. Stalemate was officially recognized when the war ended with the signing of the Treaty of Ghent on December 24, 1814.

By the end of hostilities the United States had sixteen warships on Lake Ontario, twelve on Lake Erie, and three on Lake Champlain.¹ More ships were in the process of being built, including the 106-gun ships of the line Chippewa and New Orleans, at Sackett's Harbor, New York. These ships were probably the largest, most powerful ships in the world at that time as they would undoubtedly carry many more guns than the rated 106.² The economy of the United States, however, could ill afford to maintain such a large fleet during peace time. Immediate measures had to be taken to alleviate the war debt. Therefore, on February 27, 1815, Congress authorized

That the President of the United States be, and he hereby is authorized to cause all the armed vessels thereof on the lakes, except such as he may deem necessary to enforce the proper execution of the revenue laws, to be sold or laid up, as he may judge most conducive to the public interest.

The statute also stated that the vessels must first be "divested of their armament, tackle and furniture, which are to be carefully preserved"³ This act clearly gave the president the power to unilaterally disarm American naval power on the Great Lakes. Since the Treaty of Ghent offered no proviso for mutual disarmament, British naval forces on the lakes did not have to disarm to match American forces.

Apparently President Madison utilized the Act of February 27 to order the dismantling of United States naval forces on the Great Lakes. This policy reduced the American naval presence on the lakes from thirty-one commissioned vessels to four. During the year 1815, only the schooner Lady of the Lake patrolled Lake Ontario, and the schooners Porcupine and Ghent patrolled the lakes of Erie and Huron. On Lake Champlain the lone galley Allen
4
remained on guard.

Great Britain, on the other hand, initially had no intention of dismantling her fleets on the lakes. The American attempt to seize Canada from Britain during the recent war greatly incensed the British and made them determined that any future attempt by the United States to infringe on British territory would be thwarted. This attitude appeared repeatedly in Britain's future handling of lake disputes. Britain's caution concerning American armaments on the lakes was exacerbated by the fact that Canada's population and resources were grossly inferior to those of the United States, and the St. Lawrence River was not deep enough to allow passage of the Royal Navy. Therefore the British leaders believed that any mutual and equal disarmament on the lakes would
5
be to their disadvantage.

The year 1815 saw the Americans preoccupied "laying up in ordinary" most of their ships. However, the continued British naval buildup in the lakes during the early part of 1815 did not go unnoticed. John Quincy Adams, the American minister in London, read several disturbing British newspaper accounts stating that the British Government was determined to maintain and augment their naval force on the Great Lakes. Adams

immediately sent this information to the State Department. These newspapers, along with intelligence reports from the lakes, demonstrated to James Monroe, the secretary of state, that there was a possibility of an arms race on the Great Lakes. Monroe contacted President James Madison to inform him of these developments.⁶

The chances of a renewed arms race compelled Secretary Monroe to write to Adams on November 16, 1815, requesting that he approach the British government with a proposal from President Madison to reduce the number of armed vessels on the lakes, "the smaller the number the more agreeable to him." Mr. Adams was not optimistic about the British government's reaction to Madison's proposal. However, on January 25, 1816, Adams met with Lord Castlereagh, the British Secretary for Foreign Affairs, to begin discussion on the lakes naval buildup. A few days after his initial meeting with Castlereagh, Adams expressed his pessimism about a mutual arms limitation agreement to the secretary of state. In the meeting on the 25th, he explained to Castlereagh that the principle dangers to peace in Canada were "the Indians, the temper of British Local Authorities, and the British armament on the Lakes,... but the most important circumstance was the increase of the British armaments upon the Canadian lakes since the peace." According to the American minister, Lord Castlereagh countered by saying, "that we [the U.S.] had so much advantage over them by position that a mutual stipulation against arming during the peace would be unequal."⁷ The British considered a continuation of the war on the lakes a distinct possibility.

Indeed, a segment of the British populace continued to hold with this notion until 1871, when the Treaty of Washington was
8
signed.

During the intervening months, Secretary Monroe remained optimistic. He had foreseen the only conclusion that could be made by the British. Since the United States could build ships faster on the lakes, had more port facilities, had more man-power and had closer and therefore more efficient access to her industrial capacity, the British must conclude that they could not prevail in an extended confrontation with the United States on the Great Lakes. Therefore, Monroe must have concluded that cost expediency would dictate disarmament of the British naval squadrons. With time, the British came to the same conclusion. British Commodore Sir James Yeo reported to Lord Melville in 1815, "The preservation of Canada by means of Naval force on the Lakes, will, in my opinion, be endless if not a futile
9
undertaking."

On April 15, 1816, Adams wrote to Monroe relating a meeting he had with Lord Castlereagh the previous week. In this meeting Castlereagh surprised Adams by divulging, "excepting the vessels which might be necessary to convey troops occasionally from station to station, the British Government did not wish to have any ships in commission or in active service; and all the armed vessels now existing there might be laid up, as it was called here, in ordinary." Adams did not consider his powers of negotiation to extend to making an actual agreement and considering that Adam's message to Monroe would take up to two months to reach Washington and another two months before Monroe's

instructions would reach London, Adams suggested to Castlereagh that the negotiations move to Washington. Lord Castlereagh accepted the American ambassador's proposal and forwarded instructions to Charles Bagot, British minister in Washington. 10

Charles Bagot, Envoy Extraordinary and Minister Plenipotentiary, contacted Secretary Monroe on July 26, 1816. In his letter, Bagot related that an agreement "tended to diminish the expenses of each country," and "might diminish also the chances of collision, and prevent any feelings of jealousy." 11 Obviously, Lord Castlereagh under the instructions of the Prince Regent, had relayed to Bagot that Britain had consented to an agreement. The questions remained as to the precise nature of the agreement and how much power Castlereagh had entrusted to Bagot to conclude such an agreement.

Finding the British in a conciliatory mood, Monroe quickly drafted what would, in all points but one, become the final agreement between the two countries. On August 2, 1816, Monroe wrote a letter to Bagot which revealed the United States' offer. Monroe proposed that the United States and Great Britain each maintain one naval ship on Lake Ontario, one on Lake Champlain, and two ships for the Upper Lakes of Huron and Michigan. These ships were not to "exceed 100 tons burthen," and not carry more than "one eighteen pounder cannon." Monroe went on to say that should either side, "be desirous of annulling it [the arms agreement], and give notice thereof, it shall be void and of no effect after the expiration of ____ months from the date of such notice." By leaving the expiration time blank, Monroe gave Bagot the

responsibility of determining the length of time after which notice was given, that the agreement would be negated. Obviously the secretary of state had knowledge of the size and number of United States vessels operating in the lakes region, for he tailored the stipulations of the agreement to match the United States naval force then patrolling the lakes. Monroe's letter continues, "all other armed vessels on those lakes shall be forthwith dismantled." Monroe failed to mention the ships laid up in ordinary or the naval facilities and forts which would remain in place.

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Monroe's objectives seem to be two fold. First, the secretary of state wanted to reduce expenditures. Ships in "ordinary" needed no crew, only maintenance and preservation. Secondly, Monroe seemed aware that to prevent conflict with Britain, not only should the number of armed vessels be limited but the armament of the ships that remained should be reduced to one gun per vessel. Armed with only one gun, a naval officer would have difficulty provoking serious hostilities.

On August 6, 1816, four days after Secretary Monroe's proposal, Bagot replied. He relate to Monroe that although he was not authorized to formulate a specific agreement on disarmament of the Great Lakes, he could authorize a temporary agreement to halt new ship construction while awaiting word from London. Further correspondence between the two men verified that no new construction was being initiated by the Royal Navy. A reciprocal statement concerning American forces was sent on November 7, 1816. Castlereagh had obviously not given Bagot full reign in concluding the agreement. The temporary agreement

however, seemed to be in the spirit of diplomacy.

Mr. Monroe apparently was anxious to formalize an agreement as quickly as possible. This may have been due to the fact that he was awaiting the results of the November presidential election, in which he was a candidate. Monroe quite naturally wished to conclude any unfinished business as secretary of state. By mid-month of November 1816, Monroe's original optimism over the limitation of armaments on the Great Lakes had faded despite Bagot's temporary measures. In a letter to John Adams, who was still serving as United States minister in London, Monroe stated,

The transfer of the negotiation from London to this city for the regulation of the naval force on the lakes on each side, and the limited powers that were given to Mr. Bagot, had much the appearance that the object was to amuse us rather than to adopt any effectual measure for that purpose. The supply in the interim of Canada with a vast amount of cannon and ammunition of war is a circumstance which has not escaped attention. 14

From the standpoint of a future president, Monroe realized the prospects of renewed tension and arms build up. Yet he was not in a position to prevent it. Monroe did not take the British bureaucracy into account in his eagerness to obtain a final settlement. For although Castlereagh did write to Bagot at the end of September to give his approval, it was not until four months later that final confirmation from the British cabinet was achieved. On January 31, 1817, Castlereagh wrote to Bagot authorizing the conclusion of the agreement on the terms suggested by Monroe on August 2, 1816. It took Bagot another two months to contact the United States State Department.

Finally, on April 28, 1817, Bagot sent Richard Rush, the acting secretary of state due to Monroe's ascendancy to the presidency, a letter stating that the prince regent, Edward IV, was willing to accede to the proposal of August 2, 1816. He further stated that the period of time between giving formal notice and the end of the agreement would be six months.¹⁶

On April 29, Rush informed Bagot that the British proposal was acceptable to the president of the United States. The next day, a letter was sent to the secretary of the navy, Benjamin W. Crowninshield, informing him of the agreement. Crowninshield instructed Commander D.S. Dexter on Lake Erie, Captain Melancthon T. Woolsey on Lake Ontario and Captain Leonard on Lake Champlain to comply with the new agreement specifications.¹⁷ Since United States naval strength had already been reduced to the level specified in the agreement, American compliance with Crowninshield's order was relatively easy.

One year later President Monroe asked the Senate, in a letter dated April 6, 1818, to approve the agreement. On April 13, James Barbour of the Committee on Foreign Relations reported that two thirds of the senators present concurred with the agreement. On two subsequent readings before the entire Congress, no resolutions were added. On April 16, 1818, the agreement received a unanimous affirmative vote from the thirty senators present. The Senate, in essence, recommended that the president approve of the agreement as an informal yet binding accord. The agreement had by now gone full circle and was once again thrust into the lap of James Monroe who quite naturally agreed to it.¹⁸

In one final act on the subject, President Monroe proclaimed the agreement on April 28, 1818, although it was not published until nearly forty years later. The agreement states:

The naval force to be maintained upon the American lakes by His Majesty and the Government of the United States shall henceforth be confined the following vessels on each side, that is - On Lake Ontario to one vessel not exceeding one hundred tons burden, and armed with one eighteen-pound cannon. On the upper lakes to two vessels not exceeding like burden each, and armed with like force. All other armed vessels on those lakes shall be forthwith dismantled, and no other vessels of war shall be there built or armed. If either party should be hereafter desirous of annulling this stipulation, and should give notice to that effect to the other party, it shall cease to be binding after the expiration of six months from the date of such notice. The naval force so to be limited shall be restricted to such services as will in no respect interfere with the proper duties of the armed vessels of the other party. 19

This agreement, commonly referred to as the Rush-Bagot Agreement or the Agreement of 1817, was not a formal treaty. It is best described as a gentlemen's agreement between the United States secretary of state and the British minister to Washington. The United States Congress, rather than ratifying the agreement as a treaty, recommended that the president accept it as is. The decision of American naval armament on the Great Lakes rested solely with the president. Likewise, there seems to be no record that the British gave the Agreement of 1817 any of the formalities of a treaty. ²⁰ Apparently the prince regent, Edward IV, would take responsibility for British naval armaments on the Canadian side of the Great Lakes.

Although informal, the Rush-Bagot Agreement was effective

for a time. The agreement's continued success was in the best interests of both countries. Neither the United States nor Great Britain had anything to gain from a naval arms race on the Great Lakes.

After the Agreement of 1817, tensions on the lake border outwardly ceased. Of the four American ships which patrolled the lakes in 1815 none were fit for service by 1822.²¹ On March 3, 1825, Congress empowered the president "to cause to be sold, at such time, and in such manner, as he shall judge best for public interest ... the whole of the public vessels upon Lakes Erie, Ontario and Champlain, except the ships of the line New Orleans and Chippewa, now on the stocks, under cover at Sackett's Harbor."²² For the relatively small price of maintenance the New Orleans and Chippewa were retained as insurance of Britain's good will. Another indication of America's relaxed attitude toward the lakes region was the dismantling of Fort Shelby at Detroit²³ and the removal of its garrison in 1826.

However, the British remained anxious over the possibility of war on the lakes. In May 1825, a party of British commissioners conducted covert reconnaissance operations while journeying through the northern part of the United States. The mission of these men was to discover the vulnerabilities of the United States lake defenses. They reported to Sir Peregrine Maitland, who was in charge of Canada during the absence of British Governor Lord Dalhousie. In his report to the Duke of Wellington on September 9, 1825, Maitland quotes the commission as stating,

Should, however, the advance to Waterford
[Pennsylvania] be reckoned too rash, and be

disapproved of as risking too much without adequate object, we are afraid, from the peculiar geographic situation of the United States, that no military Operation what-ever, can be undertaken from His Majesty's North American Provinces (by land) or that any blow can be struck from thence which would be sensibly felt by the Government of the United States. 24

British paranoia resulting from the United State's advantage on the lakes was justifiably confirmed by the undercover commission. Should another war with the United States occur, the British could not maintain naval supremacy on the lakes and their only recourse on land seemed very risky. The British therefore concentrated on defensive works in Canada such as the Rideau Canal, the permanent fortification of Quebec and Fort Lennox on Lake Champlain. Any hope of a positive outcome in a war in North America depended on the Royal Navy's activities off the eastern seaboard of the United States and the ability of Canada to hold out against attack from the United States. ²⁵ Ironically, this British paranoia, prevalent in future border disputes, led to the construction of the U.S.S. Michigan.

The Disputes of 1837

The Great Lakes remained peaceful for twenty two years after the end of the War of 1812, despite British anxiety over the protection of Canada. In 1837, however, a dispute arose that directly led to the construction of the warship Michigan. This dispute was not originally between the United States and Great Britain. The border disturbances began with the actions of a group of fanatical men who adopted the name "patriots."

In 1837, Canada was having domestic trouble. A segment of her citizenry demanded freedom from British rule. This discontented element found much sympathy among the people of the United States who likened the Canadian conflict to their own revolution against British rule. The bad economic conditions in the United States in 1837 may have influenced the situation by giving some hard pressed United States citizens an outlet in foreign adventurism. For these reasons, the "patriots," in some instances, were allowed to operate directly from the United States in their attempts to disrupt British sovereignty in Canada. United States authorities had neither the power or public support to thwart these activities in 1837.

On December 10, a Canadian named William Lyon Mackenzie led a group of the "patriots" in the capture of Navy Island, a Canadian possession in the Niagara River. Mackenzie then declared Navy Island the new seat of the Canadian government. The "patriots" occupying the island were supplied from the American shore via the steamer Caroline. On December 29, just nineteen days after the takeover, a British military commando team burned the supply steamer and left one dead American citizen, Amos Durfee, on the "patriot" named Fort Schlosser wharf in New York. This act cut off supplies and ended the occupation of Navy Island, but the burning of the Caroline also raised the ire of many Americans, who used the destroyed ship as a rallying cry for war against Britain.

During the spring and summer of 1838 both the United States and Great Britain procured the services of steam vessels on the Great Lakes in order to ferry troops to various locations in the

region. In June 1838, United States secretary of the navy, Mahlon Dickerson, wrote to Samuel Ingham, of the House Committee on Naval Affairs, to inform Ingham that President Martin Van Buren was procuring two steam ships for U.S. service on the lakes. These two steamers were the Oneida and the Telegraph. These vessels were "armed and equipped not to interfere with existing treaties." ²⁷ Apparently neither ship carried more or heavier armament than one 18-pounder gun. No mention was made of the fact that the vessels exceeded the 100 ton weight limit specified in the Agreement of 1817.

The United States and British ships, and the troops they ferried, managed to keep the insurgents at bay during most of 1838. However, in July the "patriots" did managed to burn the British merchant steamer, Sir Robert Peel, in retaliation for the destruction of the Caroline. ²⁸

Later in 1838, the United States became alarmed at the strength of the British naval buildup on the lakes. Concerning this matter, secretary of state, John Forsyth, protested to British minister Henry S. Fox about the apparent British disregard of the Agreement of 1817. On November 21, 1838, before a reply to secretary Forsyth's protest was received, President Van Buren made a proclamation denouncing insurgent activity on the northern border. ²⁸ The purpose of this proclamation was to assure Britain that the United States was resolved to stop the activities of the "patriots."

However, four days later, in a letter to Secretary Forsyth, Fox explained that it was necessary for the British to maintain a

naval force that exceeded the Rush-Bagot Agreement, "In consequence of the unlawful and piratical acts of hostility to which these provinces are at present exposed." Fox went on to say that the increased naval forces were a temporary measure that would be removed when the emergency had subsided. The discussion on the subject was apparently closed for the winter of 1838-39,³⁰ as there seems to have been no reply to Fox's letter.

The conditions existing on the lakes during 1839 were described by American Major General Winfield Scott as "tranquil." Apparently after the trial and conviction of the insurgent leader Mackenzie in June of 1839, the "patriot" rebellion burned itself out. On March 23, 1840, Scott reported to secretary of war Joel Poinsett, that not a single armed British ship was seen on Lake Erie all year.³¹

That fall, Secretary of State Forsyth verbally contacted British minister Fox. Forsyth explained to Fox that the conditions which necessitated additional naval armament, no longer existed. Fox replied that in his opinion, British forces would stand down if one more year passed without disturbance in Canada.³² Assured by Fox's message to Forsyth, President Van Buren, in his annual congressional message, delivered on December 24, 1839, offered that the border disturbances were over. "There is every reason to believe, that the disturbances like those which lately agitated the neighboring British provinces, will not again prove the source of border contentions," the president went on to state, "in almost every complaint against our country, the offense may be traced to emigrants from the provinces who have sought refuge here."³³

Van Buren was apparently deceived by Fox. For although the British kept a low profile, they continued to strengthen their position on the lakes. Forts were garrisoned and rebuilt and armed vessels were procured. Finally, in the spring of 1840, Congress passed motions asking the president for information about the continued British arms buildup on the lakes. On March 28, and again on June 29, 1840 the president answered these motions by transmitting the letter of assurance from British minister Fox and intelligence reports from Major General Scott and General Alexander Macomb.

34

Although the Great Lakes were again peaceful in 1840, tensions between Great Britain and United States increased substantially due to other developments. British naval vessels were again patrolling the lakes after a border incident in Maine and the November arrest and much publicized trial of Alexander McLeod. McLeod, a Canadian citizen, gained much notoriety by boasting that he was the slayer of the American killed during the burning of the steamer Caroline.

35

In 1841, new issues were added to the growing United States exasperation with Great Britain over diplomatic disputes. Several American ships were seized in the open ocean by British cruisers under the pretense that the Americans were engaged in illegal slave trade. On August 11, Rufus S. Reed presented a petition to Congress "praying an increase of the maritime and military forces on the lakes and frontiers." Among other reasons the petitioners claimed that Canada had "two large war steamers of sufficient capacity to mount thirty guns each and which are

36

exploring the different harbors on both sides of the line." ³⁷

This was not the first, though perhaps it was the most blatant, ³⁸
instance of British reconnaissance in American territory.

This petition was submitted to Congress at a critical time. For a large part of 1841, Congress had been locked in debate over a bill to fund the construction of new fortifications. This bill contained an amendment, proposed by Congressman John W. Allen of Ohio, allocating \$100,000 to provide armed vessels for Lake Erie to match British vessels. On September 9, 1841, the fortification bill, with Allen's amendment, was approved. The amendment called for "the construction or armament of such armed steamers or other vessels for defense on the northwestern lakes, as the president may think most proper, and as may be authorized by the existing stipulation between this and the British ³⁹ government, \$100,000." Once again, as in 1818, Congress let the president decide the issue of naval armament for the Great Lakes.

On September 25, 1841, the new president, John Tyler, was compelled to issue a proclamation denouncing organizations ⁴⁰ against British rule in Canada. President Tyler realized that a naval presence on the lakes was necessary to prevent dissident groups from moving freely across the region. Tyler also knew that the United States was virtually unarmed, should an actual conflict with Britain arise on the Great Lakes. In order to rectify this lack of naval armament, an inquiry was conducted concerning the possibility of completing the New Orleans, a ship of the line that had been laid down during the War of 1812 and was lying in an incomplete state at Sackett's Harbor in New York.

The second line of battle ship, the Chippewa, had been sold for
41
scrap in 1834. The inquiry showed that the New Orleans was
42
heavily affected by dryrot.

In the fall of 1841, Secretary of State Daniel Webster finally questioned the British naval presence in two letters to British minister Fox. Webster also asked Fox if the Agreement of 1817 had been annulled by the British government. On November 30, Fox replied that the British steamers were for defensive purposes and as for the Agreement of 1817, he needed to contact
43
his government about any possible annulment.

Before Fox had replied to secretary Webster, President Tyler instructed the secretary of the navy, Abel P. Upshur, to proceed with the measures outlined in the Fortification Statutes. On November 27, 1841, Upshur instructed Commander Lewis Warrington to "take the necessary measures for construction of one steamer
44
to defend Lake Erie."

Chapter 1 Endnotes

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Chapter 2. The Experiment

Upshur's Decision

Abel Parker Upshur had assumed the position of navy secretary on October 11, 1841, nearly one month after the Fortification Bill had passed Congress.¹ Although Upshur was a political conservative from Virginia he was by no means a conservative when it came to the operation of the Navy Department. Upshur was a man of great foresight and organizational knowledge, who unfortunately inherited a good deal of unfinished work from his predecessors in the Navy Department.

Since the end of the War of 1812, naval construction had been controlled by a Board of Navy Commissioners. The Board of Navy Commissioners consisted of three senior navy captains whose duty was to supervise and facilitate all naval construction. By 1841 the members of the Navy Board had become entrenched in their positions. At its inception in 1815, the board represented an advancement over the previous naval administration, however, it had gradually changed to a bureaucracy of "old men who opposed the construction of steam warships, blocked radical changes in design, and frustrated the efforts of the more imaginative naval architects and shipbuilders."² The age of "wooden walls" was coming to an end, yet the Navy Board refused to see this.

Secretary Upshur realized that in order to bring about the

modernization the Navy Department desperately needed, it was his duty to persuade Congress to abolish the Board of Navy Commissioners.³ Upshur's opinion s ignited controversy in Congress during 1842 as to the Navy Board's alleged shortcomings. As a result of this controversy, Congress dismissed the Navy Board and Upshur instituted the bureau system starting in August,⁴ 1842.

In the new system, operation of the navy was divided among five bureaus. As credit to Upshur's drive and powers of persuasion the Navy Board seemed to have acquiesced to his ideas, for they initiated work on the revolutionary iron steamer to be built under his orders of November 27, 1841.⁵ Secretary Upshur determined that the first vessel constructed for his modern navy would be the ship appropriated by Congress to defend Lake Erie.

In a report to the president on December 4, 1841, Upshur outlined his ideas concerning the navy. It was Upshur's belief that the United States needed a much larger navy, a navy which was at least half the strength as that of Great Britain. Great Britain at that time had in commission over 100 ships of the line, the United States had fewer than fifteen operational. This seemed an insurmountable gap in conventional terms. However, it was not Upshur's intention to advocate the construction of large, expensive battleships, since he believed, "the application of steam-power to vessels of war, and the improvements which have recently been made in artillery, are destined to change the whole system of maritime war." Upshur pleaded for government subsidy of private enterprise in the construction of steam powered

merchant ships. He theorized that these merchant ships and the advances that would be made in steam engineering by the private sector, would be invaluable to the navy in time of need. Upshur also stated,

Steamships have been built in Europe altogether of iron. As far as the experiment has been made, it is understood to have been successful. I recommend that it be made here also, with at least one vessel of medium size, sufficiently large to afford a fair test, without exposing too much to the hazard of failure. The great abundance of that material found in all parts of our country affords us every facility which can be desired; and our workmen will soon acquire, if they do not now possess, the requisite skill in converting it into vessels. We may thus acquire a cheap and almost an imperishable naval force, while, at the same time, we afford encouragement to some of the most useful branches of our home industry. 6

Secretary Upshur had never served in the navy and therefore was not subject to the navy's bias toward tradition and convention. His outsider's viewpoint gave him a different understanding of how to evolve that branch of the armed forces from most navy men. He believed iron ships were a natural outgrowth of our nation's wealth in that commodity.

By January 1842 Upshur decided that Pittsburgh, Pennsylvania was the best place to have his experiment constructed.⁷ Pittsburgh had a long tradition of iron working. By 1836, the city already had nine rolling mills and eighteen foundries. In 1839 the iron workers of Pittsburgh had demonstrated their prowess in iron ship construction by building the steamer Valley Forge for river use.⁸ It was here that the company of Stackhouse and Tomlinson had forged the anchors for Perry's fleet in the War of 1812.⁹

In February 1842, the navy secretary let it be known in Pittsburgh that a naval contract would soon be up for bid, for in the next several weeks, from mid-February to early March, he received nearly forty letters of recommendation from the businessmen of Pittsburgh. One company had by far the most recommendations however, that company being the same Stackhouse and Tomlinson which had forged the anchors for Perry's fleet nearly thirty years before.

10

In choosing Pittsburgh, Upshur ruffled the feathers of several congressmen representing states in competition with Pennsylvania for iron working contracts. One of these congressmen was Nathaniel G. Pendleton of Ohio, who felt that free enterprise had not been followed because the bidding and recommendations for the new iron steamer were not made public. Pendleton managed to cause enough debate in Congress over this issue that on the June 20, 1842, the House of Representatives passed a resolution demanding to know why bidding for the steamer was not made public and why the steamer was to be constructed of iron.

11

On July 7, Upshur answered this resolution, by forwarding all the information that he had to date on the progress of the ship, which despite the controversy, was already under construction. He also stated that proposals were not advertised publicly because, "I should not have felt myself bound to accept the lowest bid, because my object was to procure the best workmanship and the best materials, and not merely to build an iron vessel at the least possible cost." He went on to say that

"Pittsburgh was chosen because it offered the best material and facilities and the workmanship is just as good as Cincinnati." Apparently Cincinnati was the chief iron working town in Ohio at that time. It was obvious from Upshur's statement that he knew which congressman was his chief antagonist. The secretary also responded that he accepted the proposals by Stackhouse and Tomlinson because they were just as low as the other proposals submitted and they were the only company which submitted a proposal for the engines within the time limit he had set. 12

In order to answer Congress's second question Upshur reiterated what he had written to the president on December 4, of the previous year, in explaining why the ship should be constructed of iron,

I determined to build this vessel of iron instead of wood, for two reasons. In the first place, I was desirous to aid, as far as I could, in developing and applying to a new use the immense resources of our country in that most valuable metal; and, in the second place, it appeared to me to be an object of great public interest to ascertain the practicability and utility of building vessels, at least for harbor defense, of so cheap and indestructible a material.

Upshur also stated that he "did not consider it wise, in the then condition of our relations with England, to begin such work on the borders of a lake commanded by her naval power." 13 Since Pittsburgh was not located on Lake Erie it would have been difficult for British forces operating out of Canada to capture the vessel before it was complete.

Meanwhile, plans for the iron ship were taking shape. Soon after being given instructions from Upshur in November, 1841, Commander Lewis Warrington of the Board of Commissioners,

acted Samuel Hartt, a naval ship designer. Warrington
 assigned Hartt to design the vessel because of his previous
 experience. Hartt helped to design the Mississippi, the navy's
 14
 first steam powered ship. Secretary Upshur apparently stressed
 Commander Warrington that he wished to be kept informed on the
 progress of the iron ship. On March 22, 1842, he reported to the
 secretary to explain that a draught of the vessel was being
 prepared in New York by Samuel Hartt. He also explained that
 as yet had no plans for an engine,

Great doubts and even difficulties are
 experienced in ascertaining the proper kind
 of engine for the steamer in question, as
 well as for the other steamers building, and
 to be built, and the result of the operations
 of those which have been lately finished, is
 looked for with anxiety, but with confidence. 15

Three days after Warrington wrote to Upshur, Hartt contacted
 Warrington to say that the plans were finished and also that a
 model had been prepared on which the ribs and plates had been
 16
 worked for estimating the iron needed. It had taken three
 months for Hartt to design the iron ship.

While plans for the ship were being formulated, the navy
 commissioners resolved that the vessel to be constructed would be
 17
 stationed at Erie, Pennsylvania. Erie was chosen as the ship's
 base in order to protect Presque Isle Bay, "where a fleet
 could be built in safety in case of war." A small naval station
 had been located at Erie since Perry's fleet had anchored there
 18
 thirty years before. Presque Isle Bay was an excellent natural
 harbor that could be easily defended.

Because of the recommendations he received in February and

ch, secretary Upshur decided that Stackhouse and Tomlinson was the firm that he wanted to build the vessel. In April, 1842, Stackhouse and Tomlinson entered into a contract with the Navy Department. The company first had to compute a price for the iron it would furnish by examining the "iron schedule" sent to them by Samuel Hartt. On April 20, the contract was returned to Washington by Stackhouse and Tomlinson who agreed to build the vessel for a total of 13 3/4 cents per pound. This included the cost of transporting the vessel to Erie, Pa. where it would be assembled. The iron totaled 376,730 pounds, so the price for the iron in the hull alone was approximately \$50,000. The iron was all to be of the best quality American Juniata Iron of that portion for Rivets to be of extra quality similar to the kind used for chain cables.¹⁹ The mineralogical specification for iron in 1842 was crude. Juniata simply refers to good quality American iron. Nevertheless, Juniata iron proved to be extremely durable and rust resistant.

Within a month, the navy commissioners' office also accepted the engine offer of Stackhouse and Tomlinson. Samuel Stackhouse and Joseph Tomlinson agreed to furnish all the material for the engines and hull. The hull was to be completed before April 10, 1843, and the engines were to be delivered to Erie before the ship was launched.²⁰

Construction

Early in the summer of 1842, Samuel Hartt arrived in Pittsburgh to supervise the work. He hired eight men, three

ps carpenters and five apprentices and laborers, to help him complete the wooden moulds on which the hot iron plates could be shaped. 21 These moulds would allow the men to shape the red hot wrought iron plates with hammers much the way blacksmiths had worked iron for centuries.

Hartt's design calculations were based on his knowledge of the specifications for the British armed steamer Nemesis and the light steamer Troubadour. The plates on the Nemesis were eight feet long and thirty inches wide. The plates on the Troubadour were seven feet long and thirty inches wide. Hartt estimated that his vessel would have eight foot plates that were 22 twenty-seven inches wide.

By July, the moulds for the plates were ready. While still hot from the rolling mill, the plates were hammered over the 23 wooden moulds into their desired shapes. The contract specified that the moulding and fitting of plates should not be 24 done in cold weather. The cold would result in cracks in the brittle iron and ill fitting pieces if the iron was not formed at uniform temperature.

Nile's National Register reported on March 23, 1843, that "The iron steamship constructed at Pittsburgh, is now being taken apart, with a view to its conveyance to Lake Erie by way of Beaver River [Erie-Beaver Extension Canal], and the Pennsylvania 25 and Ohio Cross Cut Canal." This report indicates that the rolling and forming had gone well for not only were the parts ready for transport to Erie, but they had been put together at Pittsburgh to insure proper fit. Stackhouse and Tomlinson had surpassed their contract deadline of April 10, by a month. Since

hull could not have been assembled in the winter, it must have been completed during the summer and fall of 1842, a period of five months at the most.

On May 9, 1843, Samuel Humphreys, the chief naval instructor, was ordered to Pittsburgh by the Bureau of Ordnance and Repair to examine the vessel. Humphreys was to determine the equipment the ship should carry. ²⁶ Since there was no immediate threat of war Humphreys determined that the vessel would not be fitted to its maximum extent.

During the summer of 1843, the ship's hull was reassembled at Erie having first been assembled in Pittsburgh. The wood material needed to complete the decks, superstructure, engine mounts and ship's rig was procured. A contract for the rigging ²⁷ was made with Joseph Long. It was also at this time and into the fall, that the engines and boilers were being delivered piece by piece to Erie. According to the engine contract with Stackhouse and Tomlinson dated May 7, 1842, the company had fourteen months from the reception of working plans to deliver ²⁸ the engines to Erie. The engine plans must have been delivered to Stackhouse and Tomlinson in mid-summer, 1842, for the engines were delivered by fall, 1843. The engine plans were drawn up for ²⁹ the navy commissioners by designer Charles W. Copeland.

The attempted launching of the ship occurred on December 5, ³⁰ 1843. There was considerable excitement over the launching. Many people at that time did not believe that an iron vessel could float and the stories of people betting that the iron ship would sink off the ways may not have been an exaggeration. There

However, several iron vessels and canal barges which had
floating for many years previous to the launching of this
In any case, it seems that the vessel stuck on the ways
sliding some fifty feet. This was not an extremely unusual
reference but it did cause some consternation among the men
to launch her. Apparently the vessel thwarted all
attempts to push her the rest of the way down the ramp that day.
the next day however, the ship was found floating
naturally in Presque Isle Bay. One tradition says that
men, playing a practical joke, accomplished at night what
shipwrights could not do in the daytime. In any case the
was afloat on December 6, 1843.

Two days later on December 8, the ship was named by
President John Tyler, the United States Ship Michigan, in honor
the recently proclaimed twenty-sixth state in the Union.
entire cost of the Michigan according to the government
er, William A. Bloodgoode, was \$152,478.71. The Michigan
ed to be an economical buy as her total cost was only three
the cost of renting the steamers Oneida and Telegraph for
years.

gn

The Great Lakes posed unique design problems for Samuel
tt. Owing to the lakes geographical position and the unusual
properties of fresh water, the seas on the lakes could become
ense. Waves would be encountered that would be as high as any
the open sea, yet, these waves would be of much greater

frequency. Also, many of the lake ports and rivers were too shallow to allow a vessel of large draft. Therefore, Hartt had to design a ship which would be unlike most ocean and river going vessels of the day.

Though the Michigan was an iron hulled steamship, she was similar in dimensions and inner support structure to a typical wooden frigate, although her draft and below the waterline configuration was lessened to allow her to patrol and operate in shallow water. The hull of the Michigan was 167.6 feet in length and 27.1 feet at the beam, and had a 12.9 foot depth of hold. She was listed as displacing 582 tons or roughly one third the tonnage of a large wooden frigate.

The Michigan's relatively small displacement was achieved for two reasons. First, iron is a much lighter ship building material than wood. An iron hull of less than an inch in thickness is lighter but has more strength than an oaken hull of nearly a foot in thickness.

Secondly, Hartt designed the Michigan to have a flat bottom, which gave the ship a rectangular cross section unlike the semicircular bottoms of contemporary wooden warships (see diagram 1, page 37, cross section). This design feature was notable for several reasons. A flat bottomed ship did not protrude as far into the water as a ship of the same displacement with a conventional nineteenth century hull. The flat bottomed shape displaced more area around the keel. An analogy might be made to a cup, symbolizing a standard round hull, and a saucer, symbolizing the Michigan's hull. Although the two objects weigh the same, when placed in water, the saucer does not protrude as

far into the water as the cup. The draft of the Michigan averaged only seven feet six inches which allowed her to operate almost anywhere on the Great Lakes.

37

Another advantage of the flat bottom is that it allowed the ship to become a more stable gun platform. A flat bottom combined with a relatively broad beam eliminated much of the pronounced sideways rolling motion produced by round bottomed wooden ships. When firing guns on board a conventional wooden warship, the gunners had to compensate a great deal for the roll of the ship. The Michigan's gunners did not have to compensate as much for the rolling of the ship and could therefore more easily train their guns on target. All modern surface warships have relatively flat bottoms.

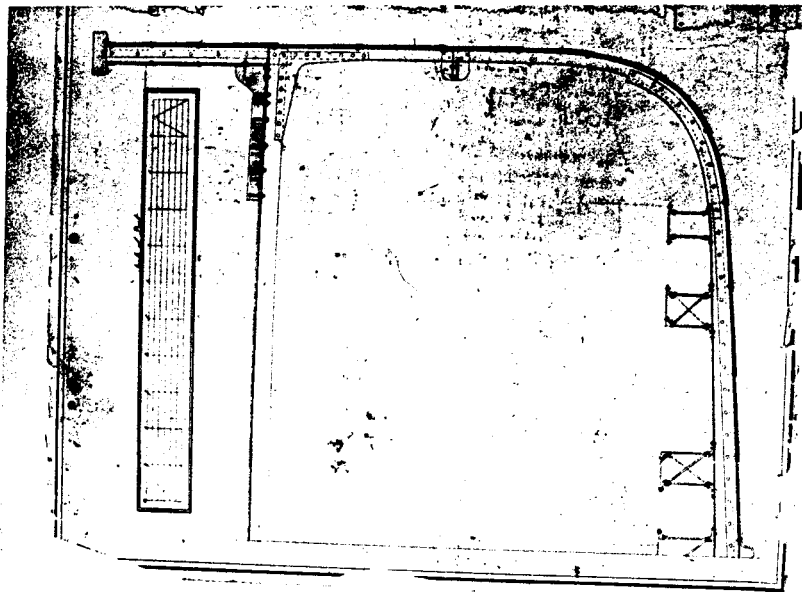
The lines of the Michigan's hull had another advantage beside allowing her to be a stable, shallow draft gun platform. The streamlined underwater shape made the Michigan the fastest vessel under steam in the United States Navy for many years. In 1854, ten years after the Michigan was launched, she was still the fastest ship under steam in the United States Navy. In a trial run on July 18, 1847, the vessel achieved a speed under steam alone, of twelve knots, or nearly fourteen miles per hour.

38

Within a few years after the launch of the Michigan, clipper ships, whose hulls closely resembled the Michigan's, began to dominate the sailing trade with their speed.

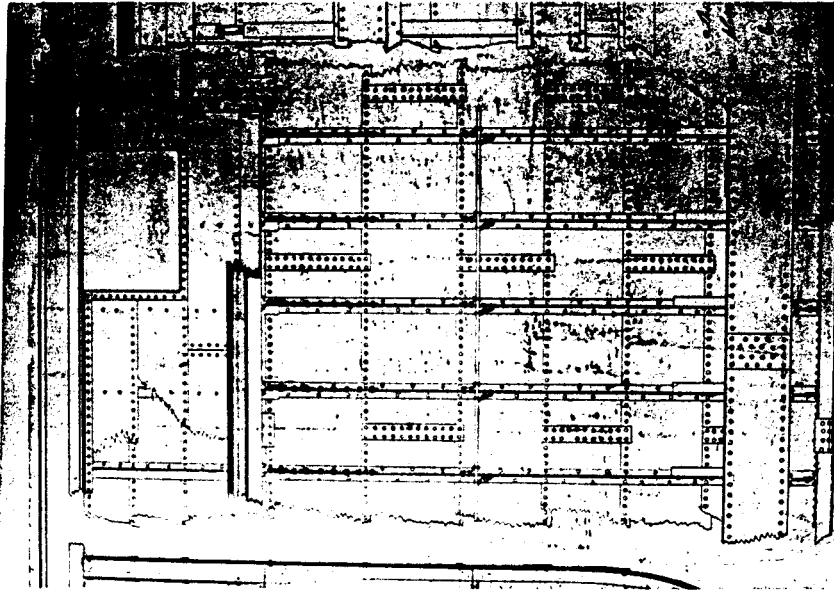
When Samuel Hartt designed this vessel very few working designs for iron ships were available. Most iron ships built then used the same support features built into wooden ships.

39



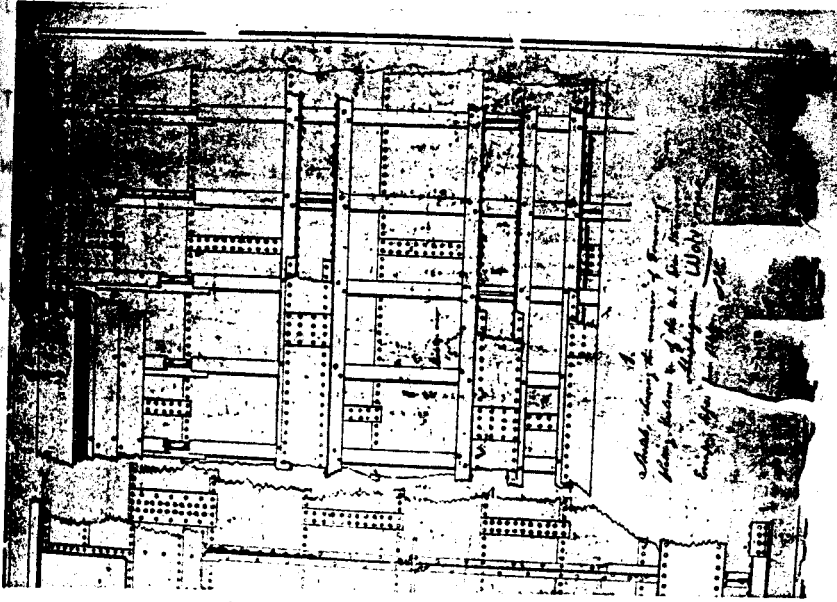
Cross Section

This is the half hull cross section of the **MICHIGAN**. Notice the box shaped keelsons with the keel at lower left.



Profile

This view shows the framing and fastening pattern of the **MICHIGAN**. Note the gun port at the top.



Bird's Eye View

This view shows the bottom plates, frames and keelsons. Frames are two feet apart.

These diagrams were drawn by Samuel Hartt in September, 1844.

The Michigan was no exception. The iron plates of the vessel were rolled as imitations of the wooden planks of most contemporary ships, with the exception that the plates were, at their extreme, only ten feet long. The plates were lap straked. That is they overlapped one another instead of fitting flush. Each plate was fastened to the next by a single row of rivets across the overlapped section. The rivet heads were on the inside of the hull leaving a cleaner outside appearance and possibly reducing the water resistance of the hull.⁴⁰ The iron plates were 3/8 inch to 5/16 inch thick and from thirty inches wide at the midship bend to thirteen inches wide at the ends of the vessel.⁴¹ Where the ten foot plates joined to form long strakes, a ribband of iron overlapped the joint and was riveted to both plates (see diagram 1, page 37, Profile).

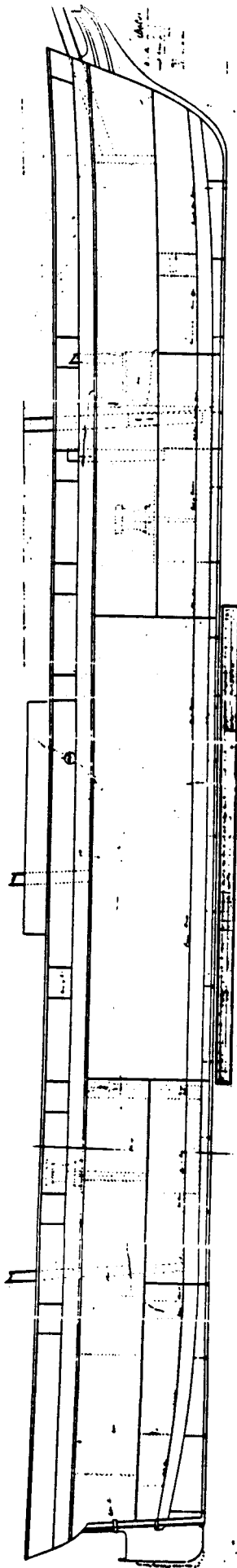
The frames of the ship were formed from 3/8 inch T iron. These frames were 4 1/2 inches across the top of the T and four inches on the stem of the T.⁴² The frames were spaced twenty four inches apart. The outer hull plates fastened into the T frames across the top of the T via several evenly spaced rivets (see diagram 1, page 37, Profile).

At the stem and stern of the ship were posts of 1 1/2 inch thick iron.⁴³ The stem post was seven inches wide and twenty feet six inches long. The stern post was six inches wide and fifteen feet six inches long.⁴⁴ These posts are designed to carry the stress of the bow and stern of the ship. On a wooden vessel the stem and stern post are some of the largest timbers on the ship with the exception of the keel and keelson which are the backbones of the ship.

Because the Michigan was flat bottomed, the stress of the hull was evenly distributed across the bottom rather than being primarily on the lowest part of the ship, which in wooden vessels was traditionally the keel and keelson. Therefore, the Michigan was designed with five keelsons running longitudinally along the bottom from the stern to the bow and two additional keelsons parallel to, but outside the others at the widest portion of the ship in the engine room (see diagram 1, page 37, Cross Section). The keelsons rested on the T frames where they branched away from the sides of the vessel to run across the bottom. These T frames were in turn reinforced to support the keelsons by doubling them or connecting two T frames together at the ends to form I beams (see diagram 1, page 37, Profile).

The keelsons were long rectangular boxes formed from flat plates and L irons. The largest keelson was sixteen inches high and ran directly down the center of the vessel from the stem to the stern. The other keelsons were slightly smaller due to the camber in the bottom of the vessel. That is, since the bottom was not perfectly flat and rose near the sides of the hull, the keelsons nearest the sides of the ship were smaller in order that the hold of the ship have a perfectly flat bottom (see diagram 1, page 37, Cross Section). The five full length keelsons were supported internally by iron bars of 1/2 inch thickness that crisscrossed throughout the lengths of the keelsons (see diagram 1, page 37, Cross Section).

The major difference between the internal construction of Michigan and her wooden predecessors was the purpose of the

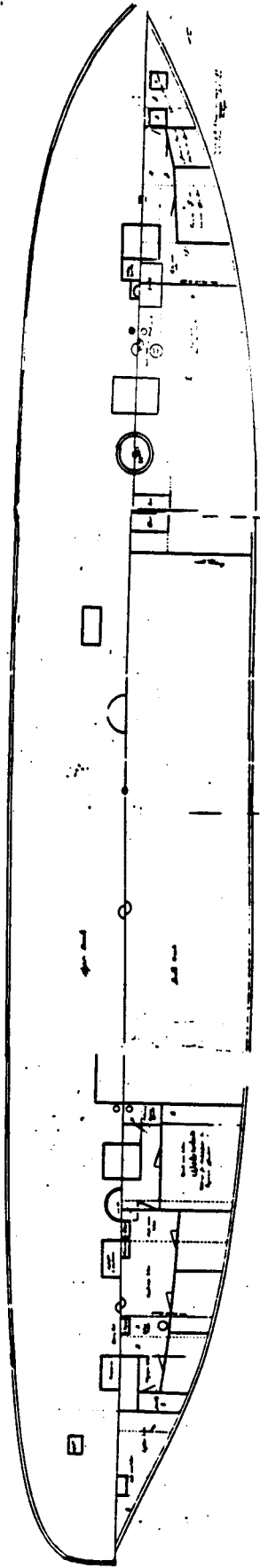


Sheer Plan

The sheer plan of the steamer **MICHIGAN**, Erie, Jan. 25, 1845. The masts are stepped into the center iron keelson. The central open space is the engine room. Below the engine room is a rectangular open foot space to show how long the engine room is.

National Archives RG-19, 79-7-15-D.

Diagram 2



Inboard Arrangement

Sketch of the inboard arrangement of the U.S. Steamer Michigan Jan. 1, 1844. The rake of the masts accounts for the fact that the mast holes on the gun deck are not lined up with the mast holes in the berth deck.

National Archives RG-19, 79-7-15-P.

Diagram 3

would be necessary for the projectile to pass through the side of the ship, through over five feet of coal and through the coal bunker bulkhead.

The superstructure of the Michigan was built of wood supported by iron, T shaped, deck beams. The original deck planking was pine, 3 1/2 inches by eight inches by forty or fifty feet long. The fasteners for the wooden superstructure were cast bronze spikes, four inches long and tapered on two sides.

The inboard arrangement of the vessel was conventional and most sailors who transferred from the sailing navy would have had no difficulty in finding their way around on the Michigan. There were however, two major differences between the below decks arrangement on the Michigan and that of most standard wooden frigates. The gun deck on the Michigan was not enclosed; it was the weather deck. Secondly, the engine room, located amidships, took up roughly one third of the vessel's below deck space. The captain's cabin and the officer's rooms and wardroom were conventionally located in the stern of the vessel above the powder magazine. The galley, crew's berths, sail lockers, and general store rooms were located forward of the engine room (see diagram 2, Sheer Plan and diagram 3, Inboard Arrangement, pages 42-43).

The Michigan was originally barkentine rigged. A barkentine rigged ship has a combination sail pattern, that is, some of the masts are square rigged and some of the masts are fore and aft rigged. The barkentine is a good sailing rig for variable winds found near coasts and or inland waterways. In the Michigan's case, the foremast was square rigged with fore course, fore topsail and fore topgallant sails. The mainmast was fore

and aft rigged along with the mizzenmast, with gaff sails and gaff topsails (see page 52). Sailing was the auxiliary motive power for the Michigan. In the secretary of the navy's report for 1854, it was reported that "this vessel seldom carries any

51

sail, and never much." In order for the vessel to proceed efficiently on sail power alone, the paddle wheel shaft was locked in place and several of the lower paddle wheel buckets were removed so they would not produce drag in the water.

52

Throughout the ship's long career she never had to resort to sail power alone to make it to port.

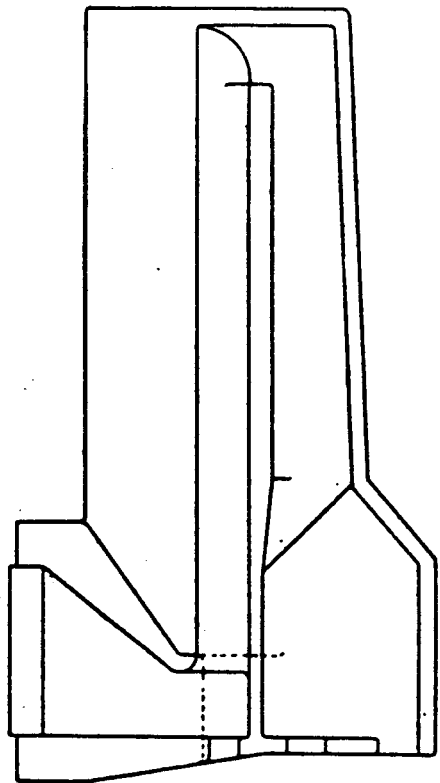
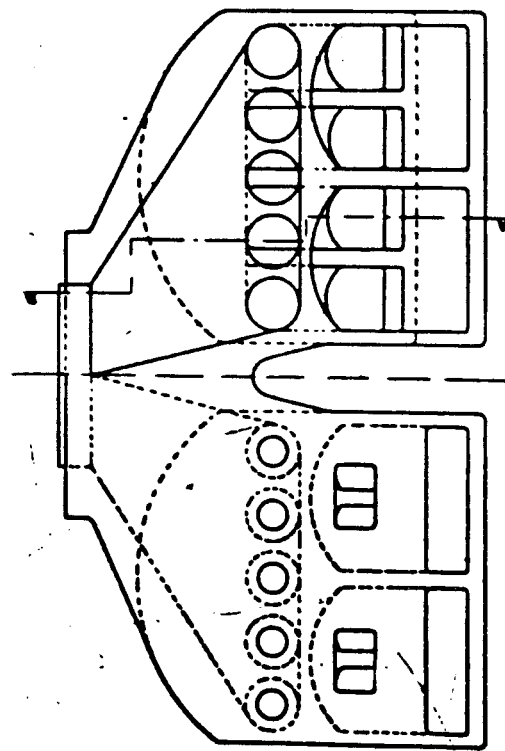
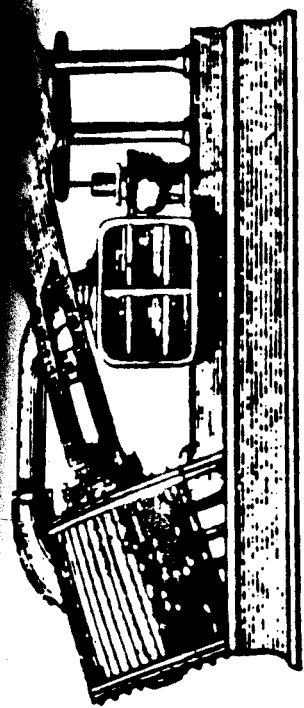
The Michigan's engines proved to be one of the most remarkable aspects of the vessel for they lasted without a breakdown until 1923. The two direct action condensing engines were placed side by side at an inclination of twenty and one half degrees from the keel. The cylinders were supported by oak frames which attached to the keelsons. Two piston air pumps were placed inboard of the engines at the same angle as the engines. The diameter of the steam cylinders was thirty six inches and the diameters of the air pumps were 29 1/2 inches. The stroke of the pistons was eight feet (for more statistical information see Appendix B).

53

The operation of the engines was simple and the slow revolutions per minute (22) may have been the secret to the machinery's longevity.

54

The pistons were connected directly to the paddle wheels crank shaft at the previously mentioned angle, with the head of the piston as low down in the hold as was possible (see diagram 4, page 46). "The inclined engine was the



Engines and Boilers

TOP: A direct acting inclined engine of the type used by the Michigan. The low center of gravity of this engine made it preferable for vessels that would encounter rough weather.

BELOW RIGHT: A longitudinal cross section of the original boilers. The fire box is at the lower left and the chimney is directly above it.

BELOW LEFT: Facing the fire doors of both side boilers. One chimney serves both boilers.

Engine illustration from Lane's American Paddle Steamboats. Boiler sketches from Bartol's Treatise and redrawn by Henry Penton.

successful attempt of the engine designers to lower the center of weight of the power plant, and it became very popular on ocean going paddle vessels or inland boats operating in rough waters." ⁵⁵

The engines alone weighed over eighty eight tons and produced a slightly over 333 horse power maximum and 110 horse power minimum. ⁵⁶ This was very efficient for the times. Part of

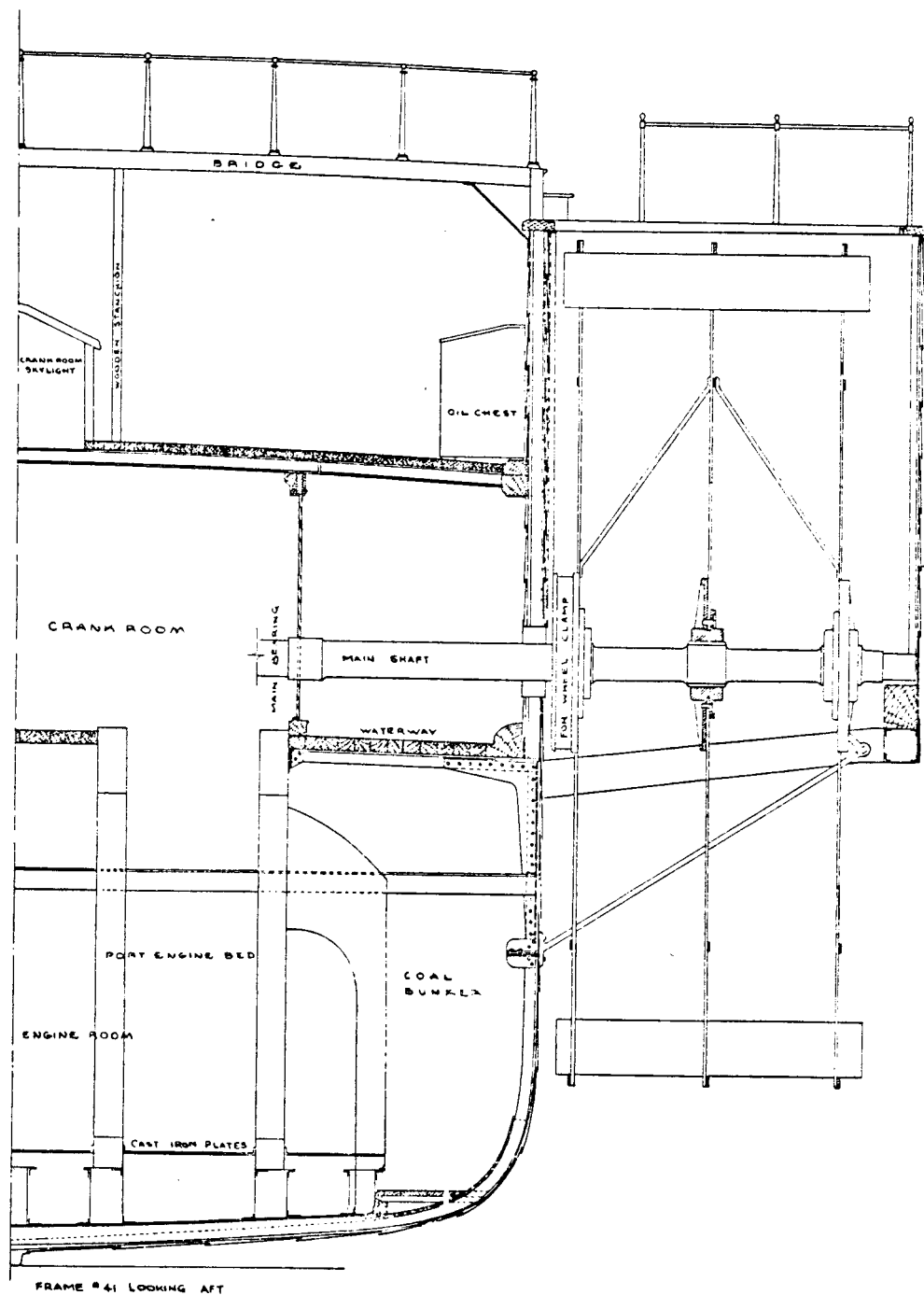
the reason for the engine's efficiency was the use of a new cut off valve system called the Sickel's Patent Cut-Off Valve. ⁵⁷

This poppet valve system cut off the steam being injected into the cylinder after the piston had moved only three feet six inches from the head of the cylinder. The steam already in the cylinder then expanded the piston to its full eight foot ⁵⁸

stroke. The most serious weakness of the Sickel's Cut-Off Valves were their inability to work in reverse. In order to back the ship, the valves had to be worked by hand with ten foot iron levers. The engineers needed timing to operate the ship in reverse and it could only be accomplished so long as their arms ⁵⁹ held out.

The Michigan originally carried two iron boilers that sat side by side in the engine room. These boilers were situated so that the fire doors faced the stern of the ship and one chimney serviced them both (see diagram 4, page 46). The boilers were nineteen feet long, eight feet six inches wide, and nine feet three inches in height. They produced an average of fifteen pounds per square inch steam pressure for the engines (for more ⁶⁰ statistical information see Appendix B).

The boilers are variously described as flue, leg, or lag



Paddle Wheel

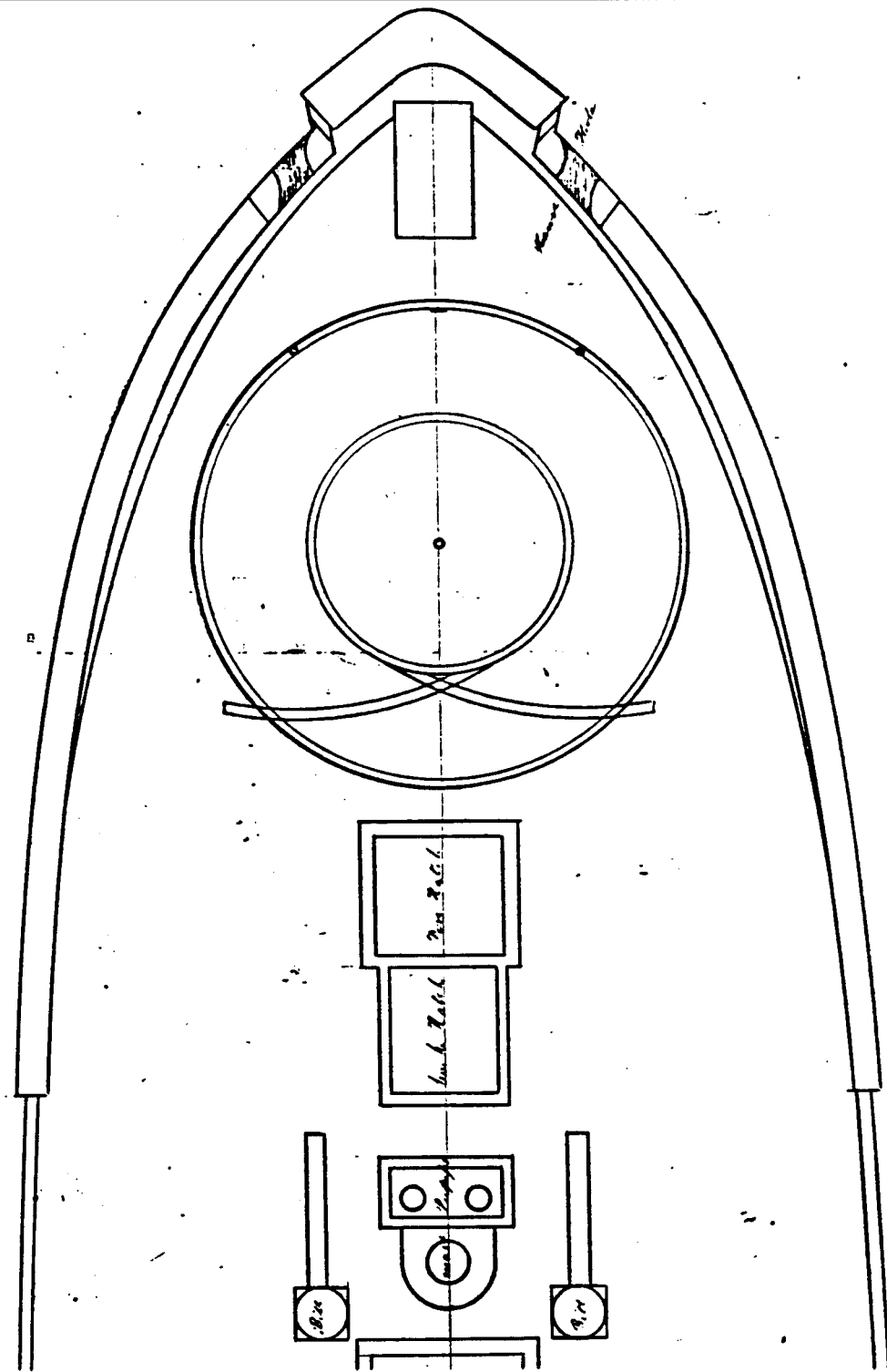
Ship's section of the *Michigan* showing the paddle box, wheel and engine room supports. Taken from H.R. Spencer's "The Iron Ship."

boilers. That means that the boilers were fastened internally with large lag bolts with the heads of the bolts on the outside of the boiler. As pressure builds in the boiler, these bolts tend to keep the outer iron shell of the boiler from exploding outwards. The strength of this type of boiler, therefore, comes from the inside of the boiler rather than the pressure shell. The term flue refers to the venting of the bituminous coal fire gas through tubes in the water jacket of the boiler. This increases the surface area of the water exposed to heat (see diagram 4, page 46).

The Michigan could carry up to 120 tons of coal. At an average consumption of coal of 1400 pounds per hour, she could cruise for a little over seven days continuously. ⁶¹ This gives the vessel a 2000 to 2400 mile range. Although this range is not adequate for crossing oceans it served well in the Great Lakes.

The power produced by the Michigan's engines was converted to momentum by the two side paddle wheels. Paddle wheels were a very efficient means of moving ships through water especially if the ships were equipped with very low revolution per minute engines. High rpm engines are needed in order for ships to be driven with propellers. The higher the rpm of an engine, the greater the chance of maintenance problems. The Michigan's paddle wheels on the other hand, only rotated at a maximum of ⁶² twenty two revolutions per minute. This meant that each piston traveled up and down about every three seconds and at this rate friction and lubrication is not much of a worry.

The pistons were connected to the crankshaft of the vessel via two, 24-foot connecting rods. The crankshaft which



Spar Deck

This is a sketch of the bow spar deck of the steamer Michigan.
 The pivot gun tracks are clearly illustrated.
 National Archives RG-19, 79-7-15-0.

Diagram 6

joins the two paddle wheels, was forty-seven feet long and twelve inches in diameter (see Diagram 5, page 48). The weight of the crankshaft was supported by bearings which were connected to the keelsons via A frames of large timbers.⁶³ The diameter of the paddle wheels was twenty-one feet ten inches with a two foot eight inch dip for each paddle (for more statistical information see Appendix B).⁶⁴ Each paddle wheel was protected by iron paddle boxes made of the same plates used to construct the hull.

There were two drawbacks to the use of paddle wheels. Although side wheelers were much better in rough water than stern wheelers, neither type of ship could keep its paddles in the water one hundred percent of the time in high seas. Since propellers are located below the water line they tend to stay under water even during rough weather. Secondly and most importantly for warships like the Michigan, paddle wheels are always much more exposed to enemy fire than propellers.

The hull of the U.S.S. Michigan was pierced for fourteen guns not including the two gangway ports (see Diagram 2, page 42). The ship's most powerful ordnance were mounted on pivots placed on the gun deck at the bow and stern of the ship (see Diagram 6, page 50). A full complement of cannon for the ship would have been sixteen guns, fourteen of which would have been mounted in broadside and two mounted as pivots on the bow and stern. However, the Michigan did not carry that large a battery until the Civil War. The vessel was originally equipped with four 32-pound carronades and two 8-inch pivot guns.⁶⁵ The broadside battery of carronades was complemented by the much longer range and power of the 8-inch 64-pounder pivot guns.⁶⁶



U.S.S. Michigan painting by Charles Paterson
(photograph of painting courtesy U.S. Naval Historical Center)

In battle the Michigan was designed to catch and close with ships that had inferior fire power. She could also run away from or harass more powerful vessels using her speed and long range guns. The advantage of having the 8-inch guns mounted on pivot allowed these two guns to shoot with nearly a 360 degree arc of fire.

Throughout the Michigan's history the ship's complement seldom rose above 120 officers and men with an additional fifteen marines. A sailing frigate of comparable size would have needed a much larger crew. The reason for the Michigan's economy of crew is the ship's design. A steam ship needed a smaller and, on the whole, a less skilled crew than did a sailing vessel. It takes fewer men to operate steam machinery than to man the rigging of a ship-rigged vessel. The barkentine rig that the Michigan carried required far less handling than the ship rig and, as was mentioned earlier, she seldom set her sails.

The Unlearned Lessons

With the success of the design innovations embodied in the U.S.S. Michigan it is surprising that more ships of her type were not constructed and modified for the ocean. However only two other iron ships were constructed for the navy prior to the Civil War, the Water Witch and the Alleghany. Both ships proved to have many engineering faults.

Another reason, besides the failure of Water Witch and Alleghany, contributed to the navy's slowness in accepting iron as a suitable building material for warships. In 1846, the British Navy conducted a test on the old iron merchant ship Ruby.

During the test the Ruby was subjected to a naval bombardment and then examined by a board of naval ordnance experts. The board concluded that iron was not a suitable building material for warships because it splintered and shattered too easily. Iron advocates realized, too late to stem the bad publicity, that the Ruby was a poor test of the worth of iron because she was in such bad shape structurally and her plates and frames were not up to the standards demanded of iron warships.⁶⁸

Perhaps the greatest setback to iron warship construction in the United States was the death of Abel P. Upshur on February 28, 1844. Upshur, who was then the Secretary of State, was killed along with his replacement as Secretary of the Navy, Thomas W. Gilmer, when an experimental cannon exploded during a test aboard the U.S.S. Princeton.⁶⁹ It was Upshur more than any other single man who attempted to promote the use of iron in naval ship construction.

Chapter 2 Endnotes

1. Claude H. Hall, Abel Parker Upshur, Conservative Virginian 1790-1844 (Madison, 1964), 122. Hereafter cited as Hall, Upshur.

2. Hall, Upshur, 123-124.

3. Hall, Upshur, 124; Charles Oscar Paullin, "Naval Administration Under the Navy Commissioners, 1815-1842," The Proceedings of the United States Naval Institute, XXXIII (1907), 639-641. Hereafter cited as Paullin, "Navy Commissioners."

4. Statement in relation to the building of the U.S.S. Michigan, AC, Construction of the U.S.S. Michigan 2 of 2, RG-45, National Archives. The bureau known as the Bureau of Construction, Equipment and Repair, assumed supervision of the work on the iron steamer. Hereafter cited as Statement in relation to the building of the U.S.S. Michigan.; Paullin, "Navy Commissioners," 639-641.

5. Callahan, Anglo American Relations 123; House Executive Document #65, 1.

6. Senate Document #1, 27 Congress, 2 Session, 379-382, December 4, 1841, SS-395. Report of the secretary of the navy. Hereafter cited as Senate Document #1.

7. House Document #238, 27 Congress, 2 Session, 2, July 7, 1842, SS-404. Hereafter cited as House Document #238.

8. Herbert R. Spencer, "The Iron Steamer," American Neptune, IV (July, 1944), 184. Hereafter cited as Spencer, "The Iron Steamer."

9. Letter from Lewis Peterson to Upshur, February 11, 1842, AC, 1 of 2, RG-45, National Archives. Hereafter cited as Peterson to Upshur.

10.. Peterson to Upshur.

11. House Report #985, 27 Congress, 2 Session, 1, August 2, 1842, SS-411.

12. House Document #238, 2.

13. House Document #238, 1-2.

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15. Senate Document #211, 27 Congress, 2 Session, 1, March 28, 1842, SS-397. Hereafter cited as Senate Document #211.
16. Letter from Hartt to Warrington, March 25, 1842, AD, Box 42 Design and General Characteristics, RG-45, National Archives. Hereafter cited as Hartt to Warrington, March 25, 1842.
17. House Document #238, 4.
18. Senate Document #88, 1.
19. Contract for ship, April 20, 1842, AC, RG-45, National Archives. Hereafter cited as Contract.; House Document #238, 14-15.
20. House Document #238, 9. This document also contains the original iron schedule delivered to the navy commissioners on April 12, 1842.
21. Letter from Hartt to Warrington, June 4, 1842, AC, RG-45, National Archives. Hereafter cited as, Hartt to Warrington, June 4.
22. Letter from Hartt to Warrington, June 23, 1842, AC, RG-45, National Archives. Hereafter cited as, Hartt to Warrington, June 23.
23. Letter from Hartt to Warrington, July 4, 1842, AC, RG-45, National Archives.
24. Contract.
25. Niles National Register, (March 23, 1843), 309.
26. Letter from B. Rennan to Samuel Humphreys, May 9, 1843, AC, RG-45, National Archives.
27. Graph of estimate of sundry wood materials required for building and completing the iron steamer on Lake Erie, 1843, AC, RG-45, National Archives; Rough draft of a contract with Joseph Long, AC, RG-45, National Archives.
28. House Document #238, 10.
29. Emmons, The Navy, 29-30.
30. Statement in relation to the building of the U.S.S. Michigan.

31. Edgar S. Chellis, "The First Iron Ship in Our Navy," Seven Seas, Vol. 1-3 (May, 1916), 26. Hereafter cited as Chellis, "The First Iron Ship."; Walter E. Brown, "The Daddy of 'Em All," United States Naval Institute Proceedings, L (October, 1924), 1688. Hereafter cited as Brown, "The Daddy of Em All."

32. Statement in relation to the building of the U.S.S. Michigan.

33. The Entire cost of the U. S. Steamer Michigan, so far as can be ascertained by vouchers, in the hands of Purser William A. Bloodgoode, January 7, 1845, AC, RG-45, National Archives. The entire document has been reprinted in Appendix A.

34. House Document #227, 2.

35. Emmons, The Navy, 31; House Executive Document #65, 3.

36. Sir Westcott Abel, The Shipwright's Trade (London, 1948), 108. Hereafter cited as Abel, Shipwright's Trade.

37. Average of several log entries, Logbook U.S.S. Michigan, September 29, 1844 to March 20, 1846, RG-24, National Archives. Hereafter log entries will be cited according to log entry date followed by the dates covered in the logbook.

38. House Executive Document #65, 12.

39. Abel, Shipwright's Trade, 110.

40. Plans of the U.S.S. Michigan, 79-7-15-B, Profile, Birds Eye View and Cross Section by S. Hartt, September 30, 1844, RG-19, National Archives. Hereafter cited as Profile, Cross Section or Birds Eye View.

41. Hartt to Warrington, March 25, 1842.

42. House Document #238, 5.

43. Hartt to Warrington, March 25, 1842.

44. Spencer, "The Iron Steamer," 187.

45. Spencer, "The Iron Steamer," 185.

46. Spencer, "The Iron Steamer," 186.

47. Hartt to Warrington, March 25, 1842.

48. Hartt to Warrington, March 25, 1842.

49. Spencer, "The Iron Steamer," 185.

50. Emmons, The Navy, 31.

51. House Executive Document #65, 15.
52. Spencer, "The Iron Steamer," 187.
53. B. H. Bartol, A Treatise on the Marine Boilers of the United States (Philadelphia, 1851), 16. Hereafter cited as Bartol, Treatise on Marine Boilers.; Charles B. Stuart, The Naval and Mail Steamers of the United States (New York, 1853), 27. Hereafter cited as Stuart, Naval and Mail Steamers.
54. Bartol, Treatise on Marine Boilers, 16.
55. Carl D. Lane, American Paddle Steamboats (New York, 1943), 208.
56. Letter from Charles W. Copeland to Charles Morris, USN, September 10, 1844, EM, Box 170, RG-45, National Archives; Stuart, Naval and Mail Steamers, 28; House Executive Document #65, 3.
57. Spencer, "The Iron Steamer," 191.
58. Bartol, Treatise on Marine Boilers, 16; Emmons, The Navy, 34.
59. Spencer, "The Iron Steamer," 191.
60. Bartol, Treatise on Marine Boilers, 16; Stuart, Naval and Mail Steamers, 27.
61. House Executive Document #65, 9; Bartol, Treatise on Marine Boilers, 16.
62. Bartol, Treatise on Marine Boilers, 16.
63. Spencer, "The Iron Steamer," 192.
64. Bartol, Treatise on Marine Boilers, 16; Stuart, Naval and Mail Steamers, 26.
65. Callahan, Anglo-American Relations, 125. Carronades were powerful short range cannon. Callahan lists the 8-inch guns as paixhan, or shell guns. For further details see Appendix D, Ordnance of the U.S.S. Michigan.
66. J.A. Dahlgren, Shells and Shell Guns (Philadelphia, 1857), 24.
67. James Phinney Baxter III, The Introduction of the Ironclad Warship (Cambridge, 1933), 37-38. Hereafter cited as Baxter, Introduction to the Ironclad Warship.
68. Baxter, Introduction to the Ironclad Warship, 37-38.
69. Baxter, Introduction to the Ironclad Warship, 31.

Chapter 3. The First Fifteen Years

Commissioning Controversy

The Michigan's shakedown cruises in Lake Erie continued throughout the spring and summer of 1845. The marine engineers found during this time that a reduction in the number of paddles per wheel increased the vessel's speed.¹ On August 10, 1844, the Nile's National Register reported, "She floats on the water beautifully, and on the first trial of her speed, she made twelve miles an hour, against a strong head wind with only ten inches of steam. It was thought at the time that her wheels only needed a little more dip to increase her speed to fifteen miles per hour."² This adjustment was also apparently accomplished by the marine engineers as the Michigan's speed was increased to fourteen miles per hour, making her the fastest vessel under steam in the U.S. Navy. Sails added only a knot or two to the vessel's speed. The second fastest steam vessel in the navy, at that time, was the Princeton, which could steam at 11 1/2 miles per hour.³

The shakedown crew soon discovered that the vessel lacked rudder response. This, coupled with the fact that reversing was a difficult task and the helm was located at the stern of the ship, just behind the mizzen mast, made the ship unwieldy. However, sailors at that time were not used to being able to

reverse a ship because sailing vessels rarely sailed in reverse, and the stern was the traditional place for the steering wheel on a sailing vessel. Therefore, the only real problem with the ship, a problem which could not always be compensated for, was the ship's lack of rudder sensitivity. This problem was eliminated by the addition of a one-foot-wide plate to lengthen the rudder, giving it more leverage in the water.⁴

It was also during this period that the Michigan's ordnance was installed. Although she carried less than one third the number of guns she was designed for she exceeded the provision for ordnance set forth in the Agreement of 1817 (for the Agreement see Chapter 1, page 14). The Michigan also outweighed the total tonnage of all four United States ships allowed under the agreement. The Rush-Bagot Agreement stipulated that no warship exceed 100 tons and should not carry more than one 18-pound cannon. The Michigan displaced 582 tons and each of its six guns was considerably more powerful than an 18-pounder, vintage 1812.

The relations between Britain and the United States had been swinging like a pendulum since the disputes of 1837. Disputes such as those concerning the Maine and Oregon boundaries as well as the trial of Alexander McLeod, on charges of murdering the American killed in the burning of the steamer Caroline, seemed to continually strain relations between the two countries. The Maine dispute was eventually settled with the Webster-Ashburton Treaty of 1842, and the acquittal of McLeod also contributed to eased tensions.⁵ The launching of the Michigan, however,

introduced new ripples into the pond of diplomatic tensions.

It should be recalled that United States secretary of state, Daniel Webster, had asked British minister Henry Fox, late in 1841, if the British had annulled the Agreement of 1817. Since 1837, the British had maintained six war vessels on the Great Lakes to guard against armed intrusions into Canadian territory from the United States. Fox had explained that the vessels were strictly for defensive purposes, but he had to consult with his government as to whether they planned to abide by the Agreement of 1817 in the future. In reply to this inquiry, the British foreign secretary, George Aberdeen, instructed Fox on March 31, 1842, to inform Webster that the British wished to maintain the agreement but it was necessary for them to keep this force for a while longer.⁶ This ambiguous reply from the British minister provided the United States' justification for building the Michigan. The contract for the iron vessel was let within a month of the British reply.

The construction of the Michigan went unnoticed by the British government. The British, having received no further U.S. protests since their response of March, 1842, believed that the matter was settled. Over a year later, in September, 1843, the Royal Navy finally laid up the six ships it had patrolling the Great Lakes, because the border had been quiet since the Webster-Ashburton Treaty. The laid up British ships included the 500-ton steamer-of-war Mingo⁷ and the first iron-hulled war vessel on the lakes, the Mohawk. Ironically, this act occurred only four months before the launching of the Michigan and the consequent renewal of diplomatic friction.

Finally, in the winter or spring of 1844, the British government discovered the presence of the Michigan by reading Pittsburgh newspaper advertisements calling for ordnance supplies. In particular these advertisements called for 32-pound chambered guns and ammunition for same to be delivered to the American warship on Lake Erie. The British also believed that two other ships of the same class as the Michigan were on the ways at Cleveland and Oswego, on Lake Erie and Lake Ontario respectively. ⁸ These may have been the fifty-ton revenue cutters Ingham and Harrison, which certainly were not of the same class as the Michigan.⁹

Sir Charles Metcalfe, the new governor general of Canada, confirmed the launching and arming of the Michigan in his report to the British colonial secretary, Lord Stanley. He also stated that the available British force of laid up ships was incompetent to deal with the powerful new American "ships," no ships of sufficient size could as yet pass the St. Lawrence, and no armed merchantman could challenge the new vessels. Metcalfe conceded that the United States had acted in response to the British naval dominance of the lakes since 1837. Regardless of the reason, however, the British had traditionally considered United States' naval increases as preludes to war. ¹⁰ Therefore, the Michigan was to them an alarming development.

Early in 1844, Sir Richard Parkenham, British minister to Washington, informally approached the State and Navy Departments to inquire why the Michigan exceeded the 1817 agreement limitations. The reply from Secretary of State John Calhoun was

that the ships were for revenue purposes and the 1817 limitations in tonnage and weight of ordnance were inappropriate for iron ships and modern ordnance. Calhoun mistakenly grouped the navy ship Michigan with the two revenue cutters previously mentioned.

He suggested that the agreement be revised.¹¹ Calhoun's suggestion indicates an important reason why the fitting out of the Michigan had continued despite the U.S. violation of the Agreement of 1817. The warship could be used for leverage in getting Britain finally to own up to its recent domination of the lakes in clear violation of the 1817 agreement. Calhoun wanted to force Britain to the bargaining table in order to negotiate a new agreement.

Great Britain, however, had no intention of spending the sums of money it would take to match the American cruiser, although the British would have liked to come to the bargaining table as equals. Her Majesty's officials did not feel that Canada was worth the expense of increasing her military defenses at that time.¹² The British government did lodge a formal protest concerning the Michigan via their minister, Parkenham, on July 23, 1844.¹³ This protest and the diplomatic channels through which it traveled gave the British time to compute a new course of action, a course they preferred would cost them as little money as possible.

The State Department immediately requested, from the Navy Department, information concerning the Michigan and how she related to the Agreement of 1817. The secretary of the navy, James Y. Mason, replied on September 4. He also ordered the Michigan not to leave Erie until this matter was cleared up. The

vessel had passed her sea trials and had been officially given over to the navy. The reply included two letters from U.S. Navy personnel who had recently been in Canada. These men reported observing several apparent British warships that carried only one gun although they were pierced for more. Mason informed the secretary of state that the information provided by the American sailors proved that the British still exceeded the Agreement of 1817. At the same time, he would be willing to consider reducing the Michigan's armament in order to prevent additional difficulty with Great Britain.

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The following day, September 5, 1844, Calhoun wrote Parkenham that even though iron steamships were not included in the Agreement of 1817, the navy department had agreed to reduce the Michigan's armament to one gun, or the same number of guns carried by the British vessels.

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On the same day Calhoun wrote the above to Parkenham, British foreign secretary, Lord Stanley, contacted Prime Minister Sir Robert Peel:

I think you will agree with me that the excuses made by the United States are as futile as the Act itself is unfriendly: and that we must take some step, and can hardly allow our Trade on those Lakes to be left completely at the mercy of the United States. On the other hand it is, I know, the Duke of Wellington's opinion, and it was that of Kempt, [General Sir James Kempt, administrator of the government of Canada 1828-1830] and of Sir B. Martin, on which Lord Grey's Government acted in 1831, that in the event of war, it would be hopeless to attempt to maintain the Naval superiority of the Lakes, with the local advantages possessed by the United States:

al agreed that "the construction of vessels of such size, and

the supply of shot and shells for them in time of profound peace can hardly be considered consistent with the spirit at least of the agreement." Peel had reservations however, that the "Convention" did not extend to steamers, so he conceded that the Americans may have been within their rights.¹⁶ The question was then referred to the admiralty, as was the problem of how to nullify the strategic advantage posed by the U.S. warship.

The admiralty responded to the foreign office's inquiry in October, 1844. They surprisingly agreed with the U.S. contention that iron vessels had made the agreement obsolete. They also decided that new agreements would be impractical for the same reasons that the Agreement of 1817 was impractical, namely that, continued new developments in ship construction and armament could evade any new agreement.¹⁷ Their last conclusion proved to be prophetic. Since then, navies have spent more time thinking about how to circumvent arms limitation agreements than diplomats have had time to make them.

In November, the British government decided to take certain action in order to demonstrate to the United States, that further United States armament on the Great Lakes would be offset by the British. The admiralty subsidized the construction of three steamers by the Niagara Harbor and Dock Company. Though these vessels were merchant ships they were designed to be converted into powerful steamers-of-war should the need arise.¹⁸ The admiralty had concluded that these vessels plus the ships that had been laid up in 1843 could counter the Michigan.

The British had also quietly let their diplomatic protests

drop with the United States' concession to remove all but one of the Michigan's guns. By the end of September, with only one mounted eight-inch smooth bore pivot gun the Michigan was free to sail.

The 1840's

Although the Michigan was handed over to the navy in August, she was detained in Erie by Mason's orders until the end of September because of the diplomatic dispute over her size and armament. The first logbook entry was labelled, "Rough Log, U.S. Steamer Michigan, William Inman, Esquire Commander, Erie Harbor, Friday September 29, 1844," and included a list of all the personnel on board the ship. With a crew of 106 officers and men the vessel's first official destination was Detroit, Michigan. A parade was held there on October 3, 1844, to honor the new ship and crew.

Since the vessel had been manned by navy personnel since August, the officers and crew had adequate time to become familiar with the vessel although she could not leave the vicinity of Erie due to Mason's orders. The U.S.S. Michigan had the usual teething problems that any new ship experiences. For example, as the ship left Detroit and headed up Lake Huron a leak was discovered near a stern storeroom. This leak was easily fixed by October 20, with the use of sheet lead and caulk.

The Michigan's first patrol cruise was short due to winter. The winters on the northern lakes restrict the navigation season by their severity. Although Lake Erie is the only lake that

freezes over completely, the ice, cold and storms on all the lakes make sailing impossible or impracticable. Typically, the Michigan could not sail from the end of November until April or May of the following year. To prepare for winter in the 1840's the vessel was stripped of her rigging, including topmasts and yards. The rigging was placed in a store house on shore.²³

During this procedure and throughout the winter the ship was tied securely to her wharf in Presque Isle Bay at her home port of Erie. The crew spent the winter months on the ship maintaining it and carrying out various shipboard drills. Living conditions on board the Michigan were rated by the navy as good, which was the navy's highest rating. A rating of fair or worse yet, tolerable, would probably have made the northern winters an intolerable burden on the sailors.²⁴

Throughout the Michigan's long life she spent only one winter, 1847-1848, away from Erie. During that winter, the vessel was inexplicably stationed at Buffalo, New York.²⁵ It is possible that Presque Isle Bay had frozen over before the ship could enter the bay to secure for winter, forcing her to stay at the nearest open port which probably was Buffalo.

By 1849 the officers, at least, were spending the winters at the privately owned U.S. Hotel at Erie.²⁶ This hotel was also known as the Reid House. Since the officers' quarters were at the stern of the ship and the galley stove used to heat the vessel was forward of the engine room, the officers quarters' may have become too cold to live in during the winter months.

The patrols of the Michigan in the 1840's were uneventful. The typical sailing season saw her crisscross Lake Erie several

times visiting such places as Buffalo, Detroit, Black Rock, Put-in-Bay and Cleveland. She took only one or two extended cruises per season up the lakes stopping at places like Mackinac Island, Port Huron and Green Bay on Lakes Huron and Michigan. The vessel's assumed task, aside from routine patrol, seems to have been the rescue of stranded ships. Normally rescue work is carried out by the Revenue Service. However, coming to the aid of endangered vessels was a very old unwritten law of the sea, a law that the Michigan's commanders adhered to steadfastly. Such was the case on June 4, 1849, when the Michigan's cutter was used to pull the stranded schooner Vermont off the beach near Erie before a storm could destroy the helpless ship. 27

The 1840's ended on a sad note for the crew of the Michigan. On August 27, 1849, two gunners were killed while firing a salute in honor of the Vice President Millard Fillmore. Fillmore had arrived in Erie that day on board the steamer Fashion, from Buffalo, in order to visit President Zachary Taylor who was visiting Erie while convalescing from an illness. The single eight-inch gun was used to fire the salute. Unfortunately after the tenth gun report, a spark was missed by the sponger and the powder bag blew up while it was being rammed home, killing Gunner Gilbert and mortally wounding John Robinson. 28

Beaver Island Incidents

The Mormon Church, also known as the Church of Latter Day Saints, expanded greatly in the 1840's. This expansion was destined to leave a stain on the history of Beaver Island,

Michigan, and the U.S.S. Michigan. Beaver Island is the largest island in Lake Michigan, measuring approximately fifteen miles by six miles. It is located thirty-five miles east south east of the Straits of Mackinac.

In 1844, Joseph Smith, one of the Mormon founders, was assassinated. James Jesse Strang, a follower of Smith's, appointed himself Smith's successor. Strang's authority, however, was challenged and a great deal of political infighting within the church ensued. Finally, Strang and his followers were outlawed by Brigham Young and the other officials of the church. Undaunted, Strang set up his own Mormon community in Voree, Wisconsin. As this new Mormon community grew, Strang's power and influence also grew. By 1846 he had become the most effective rival of Young and the other church officials.

In the summer of 1846, Strang told his followers that he had had a vision from God. In this vision God had promised to give the Mormons all of the islands in Lake Michigan. Strang was a shrewd man and had been a certified lawyer before he became a Mormon. He knew that the islands of the Beaver Island group were being surveyed by the federal government and would be up for sale when the survey work was completed. Strang reasoned that the isolation afforded by an island would protect his community from persecution and insure his complete dominance.

On July 17, 1848, the land on Beaver Island was put up for sale. The island was already home for a small non-Mormon community. This community now felt itself threatened by the Mormons as they began to purchase land and settle on the

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island. Within two years all of Strang's followers had settled there. The Mormon community was concentrated at the north end of the island, and the non-Mormons generally lived at the south end. Relations between the two groups gradually worsened. On July 4, 1850, a fight occurred that typified the strained relations between the communities. Fishermen from the area joined the islanders at a place called Whiskey Point to attempt to drive the Mormons off the island. The first shot, however, was fired by the watchful Mormons from a cannon that they had brought to the island. This was also the last shot fired in "The Battle of Whiskey Point," as the fishermen took to their boats and the native islanders fled to their homes. Four days after this confrontation, Strang was crowned "King" in order to serve, as he put it, as "God's Vicegerent on earth."³²

The hostility between the two communities was interrupted by the first intervention of the Michigan in the summer of 1851. At this time President Millard Fillmore was visiting his brother in Detroit and heard of the disturbances on Beaver Island. He urged the Detroit District Attorney, George C. Bates, to make a complete investigation. Bates in turn contacted the county judge of the area, James M. Greig. Greig resided over Mackinac Island, but in this case was also given jurisdiction over Beaver³³ Island.

Greig immediately put out a warrant for the arrest of Strang and several other Mormons charging them with treason, counterfeiting, mail robbery and trespassing on public lands. To aid Greig in arresting Strang, the Michigan, under Commander Oscar Bullus, was sent with forty army troops to reinforce the

Michigan's sailors and marines. The vessel first stopped at Mackinac Island to pick up Greig, before proceeding to Beaver Island.³⁴ The Mormons surrendered peacefully and were taken on board ship for the trip to Detroit where they were to be tried.

The trial lasted for twenty days. Strang and the other Mormons were acquitted, primarily due to Strang's considerable powers of oratory and his experiences as a lawyer. The non-Mormon community on the island, disillusioned, began to sell their property and move. By November, 1852, only Mormons lived on the island.³⁵

After his acquittal, Strang's power grew considerably. With the support of the Mormon population on the island he was able to secure a seat in the 1852 and 1854 Michigan state legislature. The Mormon community did not, however, use this time to buy up the remaining land on the island and secure their legal control over Beaver Island. This and their dependence on Strang's leadership led to the Mormon community's downfall.

In the summer of 1856, the Michigan again arrived at Beaver Island because of rumored trouble in the Mormon community. On Monday, June 16, the Michigan, having sailed the previous day from Milwaukee, entered the harbor at St. James.³⁶ Apparently to find answers to the rumors, Commander Charles H. McBlair ordered his pilot, Alexander St. Barnard, to invite Strang to the ship to talk. Strang complied and as the pilot and Strang walked toward the Michigan, moored in front of H.D. McCulloch's store, two other men, having run from the nearby storefront, shot Strang several times, mortally wounding him.³⁷ W.W. Queen, the officer

of the watch aboard the Michigan, later reported that, "Alexander Wentworth and Thomas Bedford came on board and asked for protection, they having shot James J. Strang." The two men were placed in confinement. The next day, the vessel with the prisoners on board, sailed to Mackinac Island where the prisoners were turned over to the civil authority.

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Before the Michigan left for Mackinac, Strang was examined by the ship's surgeon, who reported that he doubted that Strang would recover. Strang survived long enough for his followers to return him to Voree where he died on July 9, twenty-three days after the attack.

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Strang's assailants were later released at Mackinac and transported back to Beaver island on board the Michigan to help round up more Mormons. Greig also ordered the ship to bring Strang back to Mackinac "dead or alive" to answer allegations of his illegal behavior.

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The questions concerning this incident are manifold. Why did Commander McBlair sail to Beaver Island from Milwaukee? If he had received orders to arrest Strang he would have been sailing from Detroit or Mackinac. Secondly, why did the Michigan anchor in front of Dr. H.D. McCulloch's store? This was apparently not the Michigan's usual anchorage. The question also remained as to what part McCulloch played in the episode, as the killers were given free use of his store? Wentworth and Bedford were both members of the Mormon community who had recently been punished by order of Strang rather than referred to civil authorities.

In light of these facts it seems that Strang generated his own downfall through his high handedness both

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toward his followers and the non-Mormons living in the area. The answer to the question of conspiracy is now only conjecture, but the complicity, of at least some of the Michigan's officers, seems to be strongly indicated by the evidence.

Further evidence of gross ignorance or complicity on the part of the local authorities is the fact that after the assassination, the Michigan sailed back to Erie before the turbulence surrounding the murder had subsided. This allowed a large group of vigilantes, under a local fisherman named Archie Newton, to land on Beaver Island and forcibly remove the leaderless Mormons.⁴² Since the Mormons had no legal claim to most of the land they were living on, the eviction seemed justified - at least to the vigilantes.

The 1850's

By 1850, the Michigan's rigging had begun to wear out. The cold fresh-water climate that seemed to preserve metal did not help preserve the woodwork on the vessel. During the summer of 1850, the ship's engineers began using the rotted gaff booms for fuel.⁴³ By 1853 the vessel had to be entirely re-rigged. The sail plan was changed slightly to that of a topsail schooner, by the addition of a gaff sail on the foremast, in order to improve her sailing qualities.⁴⁴

In 1853, the Michigan's appearance was altered further by the construction of a bridge between the paddle boxes. A small charthouse was also constructed on the bridge just forward of the smoke stack. This gave the ship more of the appearance of a

steamship. Before these modifications were made, only the stack and paddle wheels indicated that she was a steamer. At the same time that the charthouse and bridge were built, the captain's cabin was enlarged to form sort of a poop deck on the stern of the vessel. A bathtub was also installed in the cabin which, with the carpeting listed as installed when the vessel was new, must have been luxurious compared to captains' cabins on board other warships of the time.

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Aside from the Beaver Island incidents, the seasonal cruises of the Michigan continued to be routine throughout the fifties.

By August, 1856, these patrol cruises had extended to Lake Superior. The Sault Ste. Marie locks were completed in 1855, allowing ships to enter Lake Superior from Lake Huron without

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having to travel up the rapids of the River St. Mary. When not on patrol the ship aided the Revenue Service in pulling stranded vessels off of sand bars, sunken vessels, and beaches near Erie. A typical example occurred on November 10, 1856, when

the Michigan hauled the propeller driven steamer Racine off the

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beach near the lighthouse on Presque Isle. The Michigan did so much towing, in fact, that she began to be called a "tug" by the sailors of the ocean navy. This onerous title did not sit well with the men of the Michigan and led to disputes when the fresh-water sailors and ocean sailors came into contact.

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Winters were also routine in the 1850's for the sailors and marines on board the Michigan. In 1856, when the ship docked for the winter at Erie, a portable house was built over the vessel in order to make winter quarters more comfortable for the crew and

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less damaging on the ship's forward decks. Target practice with the eight-inch gun, and endless drills occupied much of the crew's time while in winter quarters.

The Michigan was still the cause of some controversy between Britain and the United States in the 1850's. On April 8, 1857, the British minister, Lord Napier, wrote to Secretary of State Lewis Cass to complain about the size and armament of the Michigan. Cass, apparently believing the Michigan to be a revenue cutter, passed the complaint to Secretary of the Treasury Howell Cobb, who replied to Lord Napier that although the Michigan was a naval vessel and not a revenue cutter, she did not undermine existing treaty limits. Lord Napier apparently accepted this argument; no further correspondence seems to have taken place on the subject.

The condition of the Michigan after her first fifteen years of service was impressive. With respect to repairs, the Michigan was the most economical steam vessel in the United States Navy. Until 1853 the Michigan had required no repairs beyond routine maintenance. Other steam vessels of the fleet generally needed extensive work done every few years. By 1853 the Princeton, which had commenced building the same year as the Michigan, needed refitting that cost half the initial price of the vessel. By the late 1850's, however, much of the equipment and some of the Michigan's machinery was in need of repair or replacement. As a case in point, on June 4, 1857, as the vessel approached the docking pier at Erie, the bell rope, which communicated messages from the bridge to the engine room, gave way. The ensuing collision with the pier slightly damaged the

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starboard paddle wheel. Also at the end of the sailing season of 1859, the Michigan's boilers had corroded to the point of being nearly useless if not outright dangerous.

Isherwood's Experiments

The Navy Department ordered major repairs to commence on the vessel because of the ship's deteriorating condition, which included the replacement of the boilers. Boiler replacement was a long and extensive process. Therefore, the sailors and marines were detached from the ship and sent to other naval ships and stations. On December 28, 1859, Commander Joseph Lanman was detached from the command of the Michigan and ordered by the Secretary of the Navy to superintend the repairs to the vessel. 53

On January 13, 1860, Chief Engineer Theodore Zeller arrived in Erie to supervise the repairs and replacement of the boilers. Work was immediately started on tearing up the spar deck over the boilers so that they could be removed. The overhaul continued throughout most of 1860. Zeller finally completed the installation of the new boilers in November. 54

The Michigan's new set of boilers were vertical water tube boilers. Although they were virtually the same dimensions as the first boilers they contained a much larger water heating surface. This was achieved by running 810 vertical brass tubes, each of two inches in diameter, through the five horizontal flue gas tubes pictured in the old boilers (see Diagram 4, page 46). 55

On November 19, a board of naval engineers, appointed by the

Secretary of the Navy, convened on board the Michigan. The board consisted of chief engineer and presiding officer Benjamin Franklin Isherwood, and Chief Engineers Robert Long and Allan Stimers.⁵⁶ The board was instructed to experiment on the

Michigan's engines in order to scientifically "ascertain the most economical method of using steam in the reciprocating steam engine of the period."⁵⁷ The results of these experiments made Isherwood the most famous and controversial engineer in the navy.

The first experiment began at 3:30 p.m. on November 30, 1860. Steam was raised by 5:00 p.m. and the engines were started at 5:45 p.m. - for the first time in over a year. The experiments continued through January, 1861. In order to run the engines while the ship was moored, the paddle wheel buckets were removed.⁵⁸

"What Isherwood [and the navy board] wanted to do was to simplify the steam engine and make its operation reliable by basing it on practical principles."⁵⁹ For the experiments the board used only the port engine. During the course of these experiments Isherwood found that the Michigan's engines were most efficient when the steam was cut off 7/10's of the way into the stroke of the piston, or when the piston had been expanded 5 1/2 feet. The previous cut off for the steam had been at 3 1/2 feet (see Appendix B). Isherwood concluded that in the practical application of steam in the engines which existed at that time, steam expansion did not contribute substantially to an engine's power.⁶⁰

Traditional steam engineers criticized Isherwood's findings

because they overturned the previous theories on steam expansion. These critics stated that Isherwood had used boilers with too little steam pressure, had used engines which were not insulated, and had not superheated the steam before it entered the cylinder.⁶¹ Isherwood believed in taking the practical into

account, however. Boilers of that time generally carried a steam pressure of twenty to thirty pounds. The Michigan's new boilers carried 19 1/2 to 22- pounds of pressure. It was also true at the time that there were few vessels with insulated engines and superheating the steam was very unusual. Therefore, it was Isherwood's conclusion that if vessels did not implement these measures, it was impractical to base the operating procedures of the average engine on what was normal for an extraordinary

engine.⁶² Isherwood's work, though challenged, stood the test of time. It was reported in the Transactions of the Society of Naval Architects and Marine Engineers of 1908 that "Isherwood's works are to this day quoted as authority."⁶³

During and after Isherwood's experiments and the reactivation of the Michigan, a political conflict was culminating in the secession of the southern states. Hostilities began in April, 1861, with the attempted resupply and subsequent bombardment of Fort Sumter. The Civil War had begun.

Chapter 3 Endnotes

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Chapter 4. The Civil War

Patrol and Recruitment, 1861-1862

The American Civil War was our nation's first modern war in that like all modern wars it affected far more than the combatants themselves. The entire nation experienced political, social, economic and moral strife. Even the Great Lakes region, though hundreds of miles from the major fighting, felt the effects of the Civil War. The U.S. Michigan played a major role during the Civil War in the lakes region.

Had either side foreseen the bloody struggle that lay ahead it is doubtful that they would have chosen the path to war. The southern states began to secede shortly after the election of Abraham Lincoln in November, 1860 and by the time Lincoln had taken office, in March of 1861, the Confederacy had been formed. President James Buchanan had done little in the intervening months to force the southern states back into the Union.

Indeed, military force to preserve the union seemed an after thought to the leaders of the United States and even when a military struggle became inevitable, with the Confederate capture of Fort Sumter in April, 1861, few people believed it would be costly or long. Virtually no one in 1861 knew what this war would entail or how it would affect the non-combatant areas of the country. Secretary of State William H. Seward's comments in

the fall of 1861 reflected the general feeling of most Americans when he explained to Francis A. Roe, a future commander of the Michigan, that there would be a few skirmishes with the South and all would be quiet again.¹

The effects of the Civil War were slow in coming to the northern lakes. In March, 1861, the Michigan was ready to resume her annual cruises to various ports in the lakes. It had been a year since she had last been on patrol because of the installation of new boilers and the subsequent experiments performed on her engines by Benjamin F. Isherwood. On the first of March the new ship's captain arrived and eleven officers reported for duty.² Commander John C. Carter wasted little time in securing supplies and, in keeping step with the times, he held the reactivated vessel's first routine gunnery practice on the 19th.³

The Michigan's first war orders were received on May 9. Commander Carter was instructed to proceed with his vessel to various large city ports on the lakes for the purpose of enlisting men into the United States Navy.⁴ On the 15th the Michigan sailed for Buffalo, New York, where Commander Carter communicated with the recruiting office there.⁵ It was in Buffalo that the vessel's recruitment activities and schedule were given to Carter in detail. During the course of the Civil War, the Michigan recruited well over 4,000 men and officers from the Great Lakes region to serve in the Union navy. Most of these recruits served with Admiral David D. Porter's Mississippi Squadron.⁶ The Michigan's recruiting activity was the major way

that she contributed to the Union war effort.

During the early months of the war there was little indication on board the Michigan of the deepening struggle taking place in the southern region of the country. On May 5, the first reading of the Articles of War was intended to remind the crew of the vessel that they were indeed at war. As a further reminder, the officers and crew were administered the Oath of Allegiance by the United States district judge in Buffalo on June 17.⁷

Although the United States Navy imposed a blockade on southern ports, the Navy Department found itself woefully short of ships for the task. In order to help alleviate this deficiency, the Treasury Department transferred five of the six revenue cutters that it had maintained on the Great Lakes to the Navy. The ships were then sent to the Atlantic seaboard by November, 1861. The Michigan would also have joined naval units operating on the Atlantic seaboard but for her size. Although the Lacine Canal on the St. Lawrence could admit the ship, the Welland Canal, which bypasses Niagara Falls between Lakes Erie and Ontario, could not allow a ship larger than 150 feet in length and twenty six and one half feet in breadth.⁸ The Michigan was nearly 170 feet in length and fifty feet wide at the paddle boxes. Consequently she was destined to stay in the lakes throughout the war years.

U.S.-British Relations, 1861-1862

In the fall of 1861 the first signs of strained relations

between the United States and Great Britain began to show. Britain received some of her industrial raw materials, particularly cotton, from the South. The Union blockade of the Confederacy put many Britons out of work. As the blockade continued, The working class in Britain became increasingly frustrated and hostile toward the United States which they blamed for their economic debilitation. There was, therefore, some popular sentiment in Britain to aid the Confederacy.

Problems in Anglo-American relations naturally resulted in tensions on the Great Lakes, since they formed the major boundary between the British provinces of Canada and the United States. Indeed the greatest threat to peace in the lakes region during the Civil War was not from the Confederate military but from renewed tensions between Britain and the United States.

The Michigan had been rated as a first class steamer-of-war ever since her launching, even though she carried only one eight-⁹ inch pivot gun. Had the vessel been armed as designed, with sixteen to eighteen large caliber guns, she would have been the fastest, most powerfully armed steam vessel in the U.S. Navy, at least until just before the war. Possibly due to the fact that relations between the two countries were strained, British officials complained once again on August 31, 1861, that the Michigan exceeded the Rush-Bagot Agreement limitations. In reply, Secretary of State Seward stated that the ship was only used for recruiting purposes. This answer seems to have placated British officials, as there is no evidence that the complaint was renewed.
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A much more serious effect on Anglo-American relations

occurred on November 8 of the same year. On that date Captain Charles Wilkes of the U.S.S. San Jacinto stopped and boarded the British steam packet Trent which was sailing between Cuba and Britain. Two Confederate diplomatic agents, J.M. Mason and John Slidell, who were on their way to Southampton, England, were removed from the vessel and imprisoned. This incident created a diplomatic crisis. Had it not been for the cool heads of Queen Victoria and her consort Prince Albert, the Trent affair might have led to war between the United States and Great Britain. Prince Albert softened Foreign Secretary John Russel's strongly worded demands and protests while Victoria clearly conveyed to the leaders of the United States that she wanted to maintain
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peace.

The Trent affair did not cause Britain to forsake her neutrality between the warring factions in the United States nor did it lead to official British recognition of the Confederacy. However, not surprisingly, the incident did lead to greatly heightened tensions on the Great Lakes. One month after the Trent Affair, with the two Confederate officials still incarcerated, Great Britain committed 10,000 infantry with accompanying artillery, rifles and ammunition to Canada. Including officers this force amounted to over 11,000 men. Winter posed great problems in transporting these troops, as the lakes were closed to shipping. Nonetheless, the threat of imminent war with the United States spurred the transport of all
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of these troops by January, 1862.

The release of the two captured Confederate emissaries early

in 1862, and the United States' admission that Captain Wilkes had overstepped his authority, improved diplomatic relations between the United States and Great Britain.¹³ However, British troops in Canada were to remain for the duration of the Civil War. Obviously Britain felt uneasy with the vast armies warring to the south of her provinces. Also should Great Britain have ever felt free to recognize the Confederacy, thereby greatly angering the United States, it needed some insurance that Canada would not fall immediately to a marauding Union army.

Riot Control and Guard Duty, 1863 - 1864

As 1861 passed and 1862 wore on, the battles of the Civil War became ever larger, bloodier and less decisive. The need for more troops on both sides became acute. As evidence of the manpower shortage that was occurring, Michigan's officer on duty reported in the ship's log, "passed John McGregor a recruit with three fingers, exercised him with a musket."¹⁴ In July, 1863, Commander Carter requested that he "be permitted to enlist ten boys, over and above the complement of this ship, these boys to be between the ages of thirteen and sixteen."¹⁵ The fact that in 1864 the quartermaster of the ship was only twelve years old suggests that Carter's request was accepted.¹⁶

The Michigan's wartime routine of visiting lake cities for recruitment purposes continued throughout 1862. In 1863, however, there occurred a definite, though not an abrupt, change in her wartime role.

The federal government realized that the war was becoming

unpopular but was likely to continue for quite sometime. Therefore, in order to insure that the army would continue to have enough men, federal mandatory conscription laws were passed by the government on March 3, 1863. Before this time, state and local conscription had been used to fill in the gaps in the army left by falling numbers of volunteers. Even with the federal draft laws in effect, some northerners escaped conscription by hiring substitutes, which was legal under the commutation clause.¹⁷ This was not an alternative for most men, who, because of a sense of duty or lack of money, did not hire a replacement. For those that did not want to fight, fear and anger, were the logical consequences of the draft. The large cities of the Great Lakes were now plagued by the threat of draft riots. The mayors of these cities had readily available help if the violence threatened to overwhelm their police forces; they would call on the U.S.S. Michigan for protection.

On July 28, 1863, Commander Carter reported,

The visit of this ship to Detroit, Michigan, at this time was opportune. I found the people suffering under serious apprehensions of a riot in consequence of excitement in reference to the draft, probably brought about by unscrupulous sensational newspapers predicting such riots. The presence of the ship perhaps did something toward overawing the refractory, and certainly did much to allay the apprehensions of an excited, doubting people. All fears in reference to the riot had subsided before I left. 18

By the end of August the Michigan had to perform the same duty in Buffalo, New York, and Milwaukee, Wisconsin. Reporting from Detroit, Carter related,

I was called to Buffalo, New York, by urgent information that great danger was apprehended

when the draft was to take place; that there was an organization of some 7000 ruffians determined to fire and destroy all the elevators, containing millions of bushels of grain, in the vicinity of the creek. I proceeded immediate to that place and put my ship in the best possible position to act in case of necessity. 20

Four days after Carter's report, the navy increased the Michigan's armament in the form of two 12-pounder Howitzers plus shrapnel and grape shot ammunition. These Howitzers were equipped with boat carriages and field carriages and could be used for both on and off ship action. The addition of grape and shrapnel ammunition, for anti-personnel purposes, strengthened the Michigan for riot control. By September 25, these guns were mounted on the forecastle and promenade deck in order to be as visible as possible. 22

On October 22, 1863, the Michigan was ordered to proceed to Sandusky, Ohio. A federal prisoner of war camp had been established on Johnson's Island in Sandusky Bay. The Michigan was ordered to cooperate with the army in guarding the Confederate prisoners incarcerated there. While the sailors of the Michigan fired the new guns in target practice, the marines performed guard duty on the island itself. 24

On the last day of October the Michigan was ordered to remain at Sandusky throughout the winter. Carter however, having learned of the local ice, shoal and weather conditions, requested that the vessel be allowed to return to Erie because it was too dangerous to remain in Sandusky Bay during the winter. The Navy Department agreed to Carter's request so long as conditions remained calm on the island. The vessel returned to 26

27

Erie early in December.

In November, 1863, Secretary of War Edwin M. Stanton gave an ominous warning to the mayors of the cities located on the Great Lakes. Stanton warned that the Confederacy intended to carry the war to the heart of the north in the form of ship borne raids from the provinces of Canada. ²⁸ On November 12, 1863, the Navy Department informed Commander Carter that, "Reliable information is furnished this Department that a project is on foot in Canada to fit out steamers and attempt a rescue of the prisoners confined on Johnson's Island.... Rifled guns will be sent to ²⁹ you."

These guns arrived only eleven days later. In total the Michigan received five 20-pound Parrott rifles mounted on Marsilly Carriages, six 24-pound Dahlgren Howitzers, and one 30-³⁰ pound Parrott rifle on a Marsilly Carriage. These guns combined with the two Howitzers and one eight-inch pivot already carried on the vessel gave the ship a total of fifteen guns. In December, with the vessel making short cruises out of Presque Isle Bay into Lake Erie, the crew had plenty of time for target practice with the new guns until the ice conditions prevented any ³¹ ship movement.

The Murdaugh Plan

The Confederate high command was desperately seeking a way to weaken the Union. Northern armies had invaded the South in several locations and the only Confederate thrust into Pennsylvania, in July 1863, had been driven back. The

Confederacy needed to find a way to weaken the morale of the North. The Confederates reasoned that dissension in the Northern cities would put political pressure on the federal government to accept Southern independence. This dissension could be caused by battlefield loses or, with less cost in lives to the South, covert operations aimed at disheartening the people of the North. Some Confederate leaders believed that a blow struck directly at the relatively unassailable cities in the north by raiders operating out of Canada might be the key to the collapse of Union morale.

Lieutenant William H. Murdaugh, CSN, submitted a plan which the Confederate high command believed gave the most promise for success. Murdaugh drew up his plan on February 7, 1863, while serving on board the C.S.S. Beaufort. Central to the plan was the capture or destruction of the U.S.S. Michigan by Confederate manned steamers operating out of Canada. Once the Michigan was captured she would be used to release the Confederate prisoners confined on Johnson's Island. Then the warship could serve as a Confederate raider to disrupt shipping and shell the lake port cities.

Since the Michigan was the only warship on the upper lakes, the successful execution of the plan would have had devastating effects on the North. It would have taken the Union some time to arm and equip enough vessels to counter the Michigan and guard the lake ports. In the meanwhile, Great Lakes shipping and urban areas would be subject to attack at any time by the Confederates.

Confederate Secretary of the Navy Stephen R. Mallory approved the plan. Unfortunately, funding the operation took

several months. Finally \$25,000 was approved and a makeshift crew was put together. The crew consisted of sailors and officers from the scuttled and burned C.S.S. Virginia, more
34
popularly known as the Merrimack.

Confederate President Jefferson Davis did not allow the plan to proceed beyond this point however, because of his fear of the unfortunate political consequences that might arise between Britain and the Confederacy. Davis was concerned that British irritation over Confederate agents operating out of neutral Canada might result in the discontinuation of work on a
35
Confederate armored cruiser then being built in Britain.

By August, 1863, the deteriorating strategic situation of the South outweighed the bad political implications of the Murdaugh plan, for it was again considered. Confederate Secretary of War James A. Seddon and Naval Secretary Mallory called in Confederate Navy Lieutenant Robert D. Minor to review the plan. Minor had carefully documented Murdaugh's plan and
36
gave the details to the secretaries.

The Murdaugh Plan was approved in September 1863 and appropriations were made for the operation. At this stage of the war, the plan was considerably more expensive than the first attempt would have been. Funding amounted to \$35,000 in gold, supplemented by the profits from a cargo of cotton that the Confederate agents sold in Britain for \$76,000. The expedition of twenty-two men under command of Lieutenant John Wilkinson left Smithville, North Carolina, on October 7, 1863. They traveled to Nova Scotia on board the blockade runner Robert E. Lee and from

there split up to make their way individually to Montreal to meet
37
at the agreed upon date of October 21.

In Montreal the Confederate agents were able to purchase 100
colt revolvers and two 9-pound cannons. The Confederates, in
a seemingly naive attempt to allay suspicion by the local
authorities, bought dumb bells as ammunition for the cannons
rather than shot. Minor did not explain in his later
correspondence with his superiors where the cannons were hidden.
Volunteers were sought among approximately 180 Confederate
escapees in Montreal but only thirty-two agreed to participate in
the expedition. The entire Confederate force amounted to fifty-
38
four men.

While the Confederate rescue force in Canada was arming and
organizing, the prisoners on Johnson's Island were notified of
the rescue attempt in advance. The Confederate agents in
Montreal had a contact in Baltimore whom they could rely on to
put their messages in the New York Herald personal columns. The
prisoners on Johnson's Island apparently had access to the New
York Herald and could read the code in which the message was
39
written.

The next step in the plan involved commandeering a steamer
bound for Chicago from St. Catherines, Canada. The steamer would
then be taken into Sandusky Bay at dawn and made to
"accidentally" run into the Michigan. The warship would then be
boarded and as a signal to the prisoners on the island that the
vessel was in Confederate hands, a cannon shot would be fired
40
through the Union officers quarters on the island.

The Confederate plans had advanced to the stage of buying

passage on a steamer bound for Chicago when Canadian governor general, Lord Monck, warned the United States government of the plot.⁴¹ Apparently the Confederate agents were not as unobtrusive in Montreal as they had hoped to be. The Canadian government, concerned about the threat to its neutrality, felt obligated to report the Confederate activity. With the plan revealed and the Michigan alerted, the Confederate raiders abandoned the rescue attempt and made their way back to the southern states.⁴²

Had Murdaugh's plan been carried out earlier in 1863, with more secrecy, it would have had a greater chance for success. Until September of that year, the sole long range weapon of the Michigan was one eight-inch gun which probably could not have turned away a determined surprise ramming attempt even if the Michigan's crew had time to bring it to bear. Also, the small arms carried on the vessel were obsolete; they included thirty-five flint lock naval pistols and twenty-five outdated Merrill's carbine rifles.⁴³ The Michigan was also equipped with steam vents to clear the decks and repel boarders.⁴⁴ The steam vents, however, only worked if the vessel had steam up and the pipe vents worked indiscriminately scalding friend and foe alike. The lax atmosphere on the Great Lakes earlier in the war, before the seriousness of the conflict was perceived, might have also contributed to Confederate success. The Michigan's crew probably believed that they would be the last in the navy that would be facing a Confederate attack. After the warning by Canada the ship maintained a continuous alert with ammunition ready at hand.

The Philo-Parsons Incident

On March 28, 1864, the Michigan's commander was informed of yet another apparent plot. The Navy Department reported to Carter that the Confederates were rumored to have secured and armed a schooner at Rondeau, Ontario, with which they intended to raid lake cities. The schooner was to be towed by a steamer that would be hijacked out of Windsor, Ontario. To guard against this plot, Carter was ordered to "have the Michigan prepared for active service as soon as the ice will permit." ⁴⁵ The Michigan was still ice bound at the end of March, however, the rumored new Confederate plan failed to materialize and no further information came from the Navy Department to enlighten Carter.

Although the Navy Department warning set an ominous tone for the new cruising season on the lakes, the Michigan's spring and summer cruises were routine. On May 26, 1864 in Buffalo, Carter ⁴⁶ reported that the bottom of the Michigan was to be cleaned.

This is the first indication that the hull below the water line would be cleaned. The last time the ship was out of the water was before her launching, some twenty years before. Except for the boiler replacement the vessel had sailed for twenty years without major repairs or an overhaul and was beginning to show her age.

Commander F.A. Roe, who took over for Commander Carter at the end of 1864 reported, "Every bit of wood-work in her was rotten, and it was not known when the vibrations of the steam engines would shake yards and masts all together in a mass on deck...Her decks

⁴⁷ leaked like a sieve." The Michigan, however, would not be

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overhauled for another year. During war, details like keeping non-essentials replaced, and the comfort of the crew became secondary to the maintenance of the guns and steam machinery. The Michigan's guns were new and her boilers were only three years old.

The summer sailing season of 1864 saw the Michigan in Lake Superior in June, only to be ordered back to Johnson's Island by July. The Michigan arrived at Johnson's Island on July 15. Guard duty proved extremely tedious for Commander Carter and probably for his crew also. In less than a month Carter requested that his ship be allowed to leave the Johnson's Island vicinity. He explained that since the prison had been established only seven men had escaped, yet twenty-two had escaped on August 9, 1864, just two days previous to his report, although all of them were recaptured. Carter attributed the guards inattentiveness to the fact that the prison guards relied increasingly on the assistance of the Michigan. Commander Carter was probably also nervous about having his vessel stationary for so long a period of time. Any Confederate plot involving the seizure of his ship would depend to a great deal on their being able to locate the vessel. This was easily accomplished when the ship was always at Johnson's Island. The confines of Sandusky Bay also made it easier for an enemy to attempt a boarding. Given the proximity and volume of nearby ship traffic Carter's fears may not have been unfounded. If the Michigan was boarded she would be unable to stand off in order to use her gun battery at long range. The Confederate agents had also surmised the Michigan's predicament and made plans

accordingly.

Jacob Thompson, former President Buchanan's secretary of the interior, was a Confederate agent living in Canada. Thompson had funded several projects to demoralize the Union including public peace rallies in Peoria, Chicago and Springfield, Illinois.

Confederate money to carry out these activities was donated to the Sons of Liberty, an organization of Northerners opposed to the continuation of the war. Thompson was also looking for a more direct approach to undermine the morale of the northern cities. He persuaded Captain Charles H. Cole, a recently escaped Confederate prisoner of war, to examine the possibility of capturing or destroying the Michigan in Sandusky Bay.

Cole presented a proposal similar to the ill-fated Murdaugh plan of commandeering a steamer out of Canada and using it to board the Michigan and overpower her crew. Unlike the previous plan, however, this time the Confederates would attempt to have an inside man. Cole was to go to Sandusky, Ohio, and assume the role of a businessman. He would then attempt to ingratiate himself with the officers of the Michigan. According to the Confederate time table, the takeover attempt would occur on September 19, 1864. On that date Cole would go on board the vessel and attempt to incapacitate the ship's officers. Cole believed that this could be accomplished by getting them drunk. A party of Confederates under the command of Acting Master John Y. Beall, having commandeered a steam vessel out of Canada, and having received a go ahead for the plan via a messenger sent by Cole, would board the Michigan and subdue the crew. As with the

Murdaugh plan, a cannon shot fired through the Union officers' quarters would signal the Confederate prisoners that the Michigan was in Confederate hands.

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The plan called for an attack on the town of Sandusky and the capture of all available boats and ships. These vessels, convoyed by the Michigan, would transport the released prisoners to Cleveland, which would also be attacked. At Cleveland the Confederates would disembark and proceed overland to Wheeling, West Virginia, and then to Virginia and safety.

55

Cole arrived in Sandusky sometime in August, 1864. He proceeded to carry out his part of the plan and soon introduced himself to the Michigan's officers. Originally he naively planned to try and buy the vessel outright by offering the Michigan's officers \$2000 apiece. The bribery attempt, however, was dropped as impractical.

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Meanwhile Beall was proceeding with his side of the plan. On Sunday September 18, he secured passage on board the steamer Philo-Parsons out of Detroit. In an attempt to allay suspicion Beall's party of twenty nine confederates boarded the vessel at various stops. On Monday the 19th, the Philo-Parsons left Detroit with Beall on board. At the next stop, Sandwich Island, four men boarded the vessel and at Malden, Ontario, twenty more men got on board carrying a large chest. Early in the afternoon Beall's men, using the revolvers, hatchets, and knives contained in the chest, took control of the ship.

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The seizure of the vessel was bloodless. The crew was ordered by Beall to proceed to Kelly's Island which was only five miles from Johnson's Island and the Michigan. Four more men got

on board the vessel at Kelly's Island, though none of these men was the messenger that Cole was to have sent to the island to inform Beall of how the plans were proceeding. 58

By that afternoon the Philo-Parsons was running low on fuel so Beall ordered that she be sailed to Middle Bass Island to pick up more wood. At 4:00 p.m. the steamer Island Queen made the mistake of pulling along side the Philo-Parsons to acquire firewood. 59 Beall and his men were shocked to see blue coated soldiers on board the Island Queen but attacked the vessel nonetheless. The fight was short and no one was seriously injured. The soldiers turned out to be A.W.O.L. men from the Toledo 130th Infantry Regiment, who offered little resistance. 60 Of the dozen or more shots fired, by far the most serious was the shot aimed at the Island Queen's engineer. The engineer later stated, "I heard someone exclaim, shoot the son of a bitch, and was immediately shot, the ball passing my nose and through my left cheek." Haines was not badly hurt, however; his injury was described as a "flesh wound." One other person suffered an ax wound but it was not serious. 61

Beall realized that he could not afford to use any of his small band of men to guard prisoners. He therefore decided to strand the passengers on Middle Bass Island by scuttling the Island Queen. The messenger from Cole had not been at the agreed upon location so Beall had no idea if the plan was still on schedule. At 8:00 or 9:00 p.m. the Philo-Parsons approached Sandusky Bay. From their vantage point the Confederates could see the Michigan silhouetted by the lights of Sandusky. 62 It was

probably still possible at this point that a light signal from Cole on board the Michigan could have brought Beall's men in to attempt to board the ship. No signal was given, however.

Without Cole's inside help, the attack of twenty-nine lightly armed men on a heavily armed warship had almost no chance to succeed. The Michigan's officer of the watch would have been alerted of the approach of a suspicious looking vessel by the lookouts, and the crew called to battle stations. Realizing that something had gone wrong, Beall reluctantly turned his commandeered vessel around and headed back toward Canada. The Confederates passed Fort Malden, on the Canadian side of the Detroit River, at approximately 4:00 a.m. Tuesday morning and marooned the remaining crew members of the Philo-Parsons on Fighting Island between Detroit and Windsor. Beall and his men then proceeded up the Detroit River to Sandwich, which is part of present day Windsor.

At Sandwich, Beall's crew took their frustrations out on the Philo-Parsons by looting the vessel and then scuttling her while she was tied to the wharf. Most of the Confederate party then escaped, but British authorities arrived in time to arrest two of Beall's men who were slow to leave the scene. One of these men was Beall's second in command Bennett G. Burley.

Beall and his companions were fortunate that they did not attack the Michigan. Just as with the Murdaugh Plan, federal officials had been tipped off in advance of the attack. The officers and crew of the Michigan were waiting for the Confederate attempt on the evening of September 19.

On Saturday, September 17, Lieutenant Colonel B.H. Hill,

provost marshall for the State of Michigan, was contacted by unidentified informants and told that there would be an attempted hijacking of the U.S.S. Michigan in order to release the prisoners on Johnson's Island. Hill contacted Commander Carter at midnight the next evening, possibly hoping that by delaying the telegraph message, he could keep the Confederates from knowing that he was on to their plot. Hill felt that the attempt was too weak to succeed, but he might at least be able to capture the Confederate agents involved, by allowing Commander Carter seemingly to go on with his routine until the last minute.

Two hours after the warning, at 2:00 a.m. on Monday, September 19, Carter sent Ensign James Hunter to arrest Cole. It was reported a short while later that a "barge returned with Cole a prisoner." In the meantime Commander Carter prepared the ship for battle:

At 4:45 called the 1st and 2nd division to quarters and gave them their arms at 6:30. Started fires in the Engine Room. Buoyed the anchor ready for shipping. At 7:00 sent the Barge in charge of Acting Master E.G. Martin to bring in a sloop going out of the Bay. At 7:50 the barge and sloop returned, the sloop anchoring on the starboard quarter of the ship. At 7:50 the engineer reported steam up and gave the Engine a turn ahead.

One of the Michigan's cutters checked out all vessel traffic going out of the harbor. In this way suspicious vessels could be checked without alarming or possibly scaring away the Confederate agents who might be observing any movement of the warship.

This trap set by Carter, may well have worked had Cole sent his messenger to Kelley's Island as planned. As it turned out,

Carter realized after midnight on the morning of the 20th that the Confederates must have fled. He was, however, unable to give any immediate pursuit of the Philo-Parsons because of an early morning Navy Department dispatch, which ordered his vessel to remain and guard Johnson's Island.
69

Within hours of this dispatch, however, Commander Carter received permission to pursue the Confederates and got his ship underway. The Michigan found and picked up several of the stranded passengers from the Island Queen and the Philo-Parsons. On the basis of information given by these individuals the Michigan proceeded to the mouth of the Detroit River arriving by 10:00 a.m., two hours after the Philo-Parsons had been scuttled at Sandwich a short way up the river. Not wanting to encroach on Canadian territorial waters, Commander Carter had the Michigan reverse course back to Middle Bass Island where more refugees were picked up. The officer of the watch noted that he "saw Island Queen ashore on Check-a-Beona Reef, but the water is too shallow to get at her."
70

At 2:40 p.m. the Michigan returned to Sandusky. Commander Carter ordered a detachment of marines ashore to arrest John Robinson, a man who had been implicated in the plot by Cole. Within an hour Robinson was in irons along with Cole on board the Michigan.
71 More than likely Robinson was the messenger that was to contact Beall at Kelly's Island on the 19th.

Wednesday the 21st, the Michigan was again out patrolling Lake Erie looking for the Philo-Parsons. Commander Carter was not aware that the Philo-Parsons had been scuttled early the

previous day. When the lookout shouted that he spotted the Philo-Parsons, the Michigan went to general quarters and three of the 24-pound Dalgren Howitzers were loaded. A shot was fired over the bow of the small side wheeler which hove to. A party of sailors and marines boarded the steamer where they were apparently informed of the vessel's movements. Her owner discovered her scuttled in the Detroit River and placed her back into service less than twenty four hours later. ⁷²

September 22, Commander Carter requested that his prisoners be turned over to the provost marshall. ⁷³ A fluke of nature, which struck the island shortly after Carter's request, gave evidence that the Confederate plan was known by the prisoners on Johnson's Island. A locally destructive storm hit the island and blew the roof off the officers quarters. The prisoners, thinking that the damage had been caused by the Michigan's guns in the hands of fellow Confederates, attempted unsuccessfully to escape. ⁷⁴

Philo-Parsons Aftermath and Anglo-American Relations

The Island Queen was refloated shortly after the Philo-Parsons and was working by the end of the month. ⁷⁵ The capture and subsequent trial of Acting Master Bennett G. Burley was a great embarrassment to the Confederacy. Burley was charged by the British with robbery and piracy and faced extradition to the United States under the same charges. The trial of Burley also meant the possible expulsion from Canada of Jacob Thompson. In order to prevent Burley's extradition, Jefferson Davis announced

on December 24, 1864, that Burley was an acting master in the Confederate States Navy and that his actions constituted "a proper and legitimate belligerent operation" against the United States.⁷⁶

The effect of Davis's proclamation was to disturb relations between the United States and Great Britain. The document in effect stated that the Confederacy was now operating out of Canada. If these Confederate actions were shown to be unopposed by the British authorities they would demonstrate that Britain was no longer neutral.

Anglo-American relations had already been strained by incidents such as the Trent affair. To exacerbate matters, just one month after the Philo-Parsons incident, a band of men riding out of Canada raided St. Albans, Vermont. These men, claiming to be Confederates, killed one man and left another wounded while robbing three banks of \$200,000.⁷⁷

These actions dashed Confederate hopes that England would recognize the South as a free and independent country but did cause added friction between the U.S. and Britain which the Confederacy hoped would lead to war. In a February 13, 1865, communication from the British Foreign Office, Lord John Russel complained to Confederate diplomats James M. Mason, John Slidell and A. Dudley Mann that the Confederacy was not respecting British neutrality.⁷⁸ It is probable that by late 1863, some Southern leaders had already conceded that Great Britain would not recognize the South unless it won the war. The Confederate willingness to go ahead with plans for attacks on the United States from Canada in 1863 and 1864 may be an indication of this

political reality.

The only two Confederate casualties of the various raids on the lake states were Charles Cole and John Beall. Though Beall escaped capture in the Philo-Parsons affair, he was later caught during a train wrecking attempt in New York. Both men were tried and hung for espionage in February, 1865.⁷⁹

Despite the arrests made and warnings given by British authorities to stop Confederate raiders from using Canada as a staging area for raids into the United States, President Lincoln decided to annul the Agreement of 1817 in order to demonstrate the United States' displeasure over the inability of Canadian authorities to stop the illegal actions. Lincoln annulled the agreement on November 23, 1865. The Rush-Bagot Agreement was to⁸⁰ be void effective May 23, 1865, six months after the notice. The decision to formally abrogate the agreement was more of a political warning to Britain than an act in itself. In the past the agreement had been upheld only when it was convenient for either side to do so, and the Michigan, even when she was lightly armed, did not comply with the agreement specifications.

Early in 1865 Congress approved Lincoln's action in regard to the Agreement of 1817. However, the recent British attempts to stop Confederate raiders by warning the U.S., the warning given to the Confederates to abide by British neutrality and the quiet state of affairs on the northern boarder after the St. Albans Raid was recognized by the Congress as a sign of Britain's peaceful intentions. Only a few days after Lincoln's abrogation decision was upheld, Congress countermanded their

decision and recommended that the president reinstate the
81
agreement.

On March 8, 1865, Secretary of State Seward informed the British foreign office that the United States preferred that the Agreement of 1817 remain "practically" in place. The Canadian government believed this to be an ambiguous reply in that Seward did not state whether the actual agreement was in place or only, as Seward stated, the practical stipulations of ship size and armament. The Canadian officials reasoned that this might give the United States a future excuse to build warships on the lakes without the six month notice time. The secretary of state, in two letters written in June and August, 1865, assured the British
82
foreign office that this was not the case.

The Georgian Incident

After the Philo-Parsons incident, the possibility of further Confederate raids out of Canada, was taken more seriously by U.S. officials. The patrols of the Michigan became more active and less predictable. She stopped all suspicious looking ships with
83
shots across their bows or blank cartridges. In October, 1864, the Michigan searched vessels in various lake ports for gun powder, arms and ammunition in an effort to thwart threats of
84
violence from the draft resistance.

On November 9, 1864, just ten days before the St. Albans raid, Commander Carter received another warning from the Navy Department. A letter from the War Department was transmitted to Carter in Erie stating that the propeller ship Georgian was

rumored to have been purchased by Confederate agents in Canada
and was being armed for an attack on lake cities. ⁸⁵ Carter had

sent a report two days earlier stating that he did not believe
that the rumors originating out of Buffalo about an armed

Confederate raider were true. ⁸⁶ Carter also knew that Detroit's
Provost Marshall Hill had armed two tug boats and was watching
every move that the Georgian made. Carter had also assigned two
of his men to infiltrate Canada and attempt to sign on as crew
members of the Georgian. Apparently they were successful.

Commander Roe, who replaced Carter as Commander of the Michigan
on November 20, stated that they "were on board the Georgian from
day to day, swearing that they would like nothing so well as to
have a fight with the Yanks, and they would release every
prisoner at Johnson's Island." ⁸⁷

Despite Carter's assurances that the Georgian was harmless,
the Navy Department ordered him to capture and search the vessel
if she were found in United States waters. ⁸⁸ This was
accomplished on the same day Roe assumed command of the Michigan.
Hill's tugboats spotted the Georgian on Lake St. Clair and
boarded her. The Georgian was searched, but nothing out of the
ordinary was found so the vessel was allowed to pass. ⁸⁹

The Georgian spent the winter at Collingwood, Ontario,
where, true to the rumors, she was fitted out with a ram bow.
The Michigan's two crew members were still on the Georgian and
informed commander Roe of the ram. Roe immediately informed the
State Department. Secretary of State Seward wrote to the British
authorities, who confiscated the vessel and delivered her to U.S.
officials. ⁹⁰

The Miner Strikes of Houghton and Marquette

When the ice began to melt in the spring the Michigan's new commander began to prepare his vessel for the 1865 operating season. Lieutenant Commander Roe had served for most of the Civil War with Admiral David Farragut's Squadron in the Gulf of Mexico. ⁹¹ Bad health, in the form of bilious fever, forced Roe

to transfer to a less active command, hence his orders to replace Carter. ⁹² With a change in commander the Michigan's summer routine would also change slightly. The Navy Department ordered Roe to use the port city of Detroit as the vessel's summer station instead of Erie. From Detroit the ship could easily run ⁹³ up or down the lakes as the need arose.

By May, 1865, the Civil War was nearly over and Abraham Lincoln had become a casualty of the war, shot while attending a play at Ford's Theater in Washington. The disorder, fear and apprehension caused by the war did not, however, disappear immediately. This was particularly true on the Great Lakes where the war was slow to be felt and slow to end.

The Michigan arrived at Detroit on May 2, 1865. Throughout May and the first half of June, she cruised across Lake Erie to Buffalo and then back to Detroit via Sandusky and Johnson's ⁹⁴

Island. While in Detroit on June 22, Commander Roe reported,

Hearing that rebel emissaries were going to some points on Lake Superior for the purpose of organizing a piratical raid down all the lakes, I proceeded across Lake Huron up into Superior, passing around Grand Island, and on the 3rd of July I anchored at Marquette, Michigan. ⁹⁵

As the Michigan passed the beautiful and uninhabited shores of the Pictured Rocks, on Lake Superior, she anchored for a time in the lee of Grand Island. After being involved for four years in the bloodiest war in the history of the the United States, the total solitude of Superior must have been almost frightening.

Commander Roe related,

Here at anchor for a few days,- in the Solemn silence, the darkness of the enormous forest, the absence of all human life, strife, and activity,- it was hard to conceive that in a far-away State the clangor and crash, the roar and noise of war were going on. It was an almost unearthly relief to find one's self cut off utterly from the railway, the telegraph, the mails and the haunts of men. 96

The Michigan's stopover at Marquette, in Michigan's Upper Peninsula, was in stark contrast to the silence of Grand Island. Before the ship could be moored to a berth the crew noticed the towns people crowding the shore shouting and waving white flags and linen. A strike was underway at a nearby iron ore mine. 97 Apparently victims of the post war economic slump, the miners decided to take their frustrations out on the town of Marquette. 98 The arrival of the Michigan was a relief to the frightened people.

Roe immediately armed his sailors and marines with newly supplied pistols and Sharp's breach loading rifles. The sailors and townspeople then worked together loading the Michigan's two 12-pound Howitzers onto two railroad platform cars. The guns were placed at the front of the cars and an armored casemate of boiler iron was built around them. Once this was done the Michigan's landing party, under Roe's command, boarded a train

carrying the two guns and proceeded to the miners' camp. Once there, Roe issued an ultimatum to the miners that they were to go back to work within twenty four hours or "the encampment would be stormed by shot and shell."⁹⁹

The miners were probably surprised to see federal troops and cannon arrive so quickly. The strike immediately collapsed and iron ore began moving out of the mine by the following day. The Michigan remained in Marquette for several more days to make sure that there was no more trouble. The landing party and the two Howitzers were then loaded back on board the vessel and the warship left for the towns of Houghton and Hancock.¹⁰⁰

Houghton and Hancock were copper mining centers located at the base of the rocky and mountainous Keweenaw Peninsula of Michigan's Upper Peninsula. A narrow cut, called Lake Portage, separated the peninsula from the mainland. The Michigan demonstrated the usefulness of her shallow draft on July 8, by sailing through Lake Portage to reach Houghton. Roe remarked that "The branches of the overlapping trees swept the hurricane deck as she steamed through. To a sailor reared and bred on the ocean it was a novel experience."¹⁰¹

The Michigan arrived at Houghton to find that much of the same thing was going on as had occurred at Marquette. The copper miners were on strike. Roe realized that the region was too mountainous for the vessel's artillery to support armed operations by the Michigan's landing party, so rather than risk an armed confrontation, he used psychological pressure on the miners. The Michigan's crew were ordered to set up target ranges for small arms and the big guns. A few days of

cannonading and small arms fire from the vessel convinced the
102
miners to go back to work.

Within a few days Roe had decided that the mines in Houghton and Hancock were working smoothly enough for the vessel to leave. A course was plotted back to Marquette and the Michigan arrived there by July 13. During the interval when the Michigan was at Houghton the miners had again gone on strike. Not only were they refusing to work but they had also cut all rail communication by barricading the railroad lines to the mine and the lines between
103
Marquette and Green Bay, Wisconsin, the nearest city.

Once again a party of marines and sailors armed with the two 12-pound Howitzers were placed on the railroad flatcars. This time, however, Roe wired the army for reinforcements and did not attempt to approach the mining camp. Ten days later, on July 23, an infantry company arrived from Chicago. The arrival of the army signaled the end to the strike. Although the army stayed to make sure there were no further disturbances, the Michigan
104
returned to Detroit.

While in Marquette, Roe entertained the Prussian minister to the United States, Baron Gerolt. Gerolt was apparently visiting Marquette when the mining troubles broke out. A little over a month later, on August 31, 1865, another notable, General Ulysses S. Grant, boarded the Michigan for a short cruise near the mouth of Lake Erie. Roe speculated that the purpose of this cruise was
105
to reconnoiter the Canadian side of the lake.

In September, the Michigan arrived in Buffalo, New York. Although the war had ended several months before, the fear of

Confederate reprisal had not completely disappeared. Roe reported that "The continued presence there of the Michigan was of the greatest importance, for even yet the fear that the city might be fired was ever present and ever pressing."¹⁰⁶

By the time the winter months arrived after the Michigan ended her 1865 cruising season, Roe reported to the Navy Department that the warship had steamed 2492 miles that year. He also informed the Navy Department that the ship had burned 165.572 tons of soft coal and although the vessel was in need of repairs, which would take place over the winter months, she was "the most economical ship I ever knew in fuel; she is a good steady ship, and has cost the government less money than any other gunboat in its service."¹⁰⁷

Chapter 4 Endnotes

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6. Rear Admiral David D. Porter's testimony, John C. Carter Papers, file number VMF 1227, 16, Ohio Historical Society. The 4000 men figure is for Commander Carter and does not include recruits during F.A. Roe's command. Hereafter cited as John C. Carter Papers.
7. Rough Log, March 1, 1861 - December 8, 1862.
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10. J.M. Callahan, "The Northern Lakes Frontier During the Civil War," Annual Report of the American Historical Association (1896), 338 - 339. Hereafter cited as Callahan, "The Northern Lakes Frontier During the Civil War." The British had previously complained in 1844 and again in 1858 about the Michigan being in violation of the Rush-Bagot Agreement.
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17. J.G. Randall, David Donald, The Civil War and Reconstruction, 2nd Edition (Boston, 1961), 314. Hereafter cited as Randall and Donald, The Civil War and Reconstruction.

18. Report of Commander Carter to the Navy Department, July 28, 1863, ORN, ser. 1, vol. 2, 415.

19. Paper 1, Written Testimony, John C. Carter Papers.

20. Report of Commander Carter to the Navy Department, September 3, 1863, ORN, ser. 1, vol. 2, 435.

21. Rough Log, December 8, 1862 - July 23, 1864.

22. Rough Log, December 8, 1862 - July 23, 1864.

23. Commander Carter to the Navy Department, October 28, 1863, ORN, ser. 1, vol. 2, 478 - 479.

24. Log entry, October 26, 1863, rough log, December 8, 1862 - July 23, 1864.

25. Navy Department Order, October 31, 1863, ORN, ser. 1, vol. 2, 488.

26. Report of Commander Carter, November 20, 1863, ORN, ser. 1, vol. 2, 499.

27. Navy Department Order, December 2, 1863, ORN, ser. 1, vol. 2, 508; Rough Log, December 8, 1862 - July 23, 1864. The Michigan left Sandusky for Erie on December 2, 1863.

28. Letter of Lieutenant Minor, Confederate States Navy, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser.1, vol. 2, 826.

29. Navy Department Dispatch, November 12, 1863, ORN, ser. 1, vol. 2, 496.

30. Rough Log, December 8, 1862 - July 23, 1864.

31. Rough Log, December 8, 1862 - July 23, 1864. It was reported on December 26, that the pivot gun was used for target practice at 1260 yards range.

32. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 823.

33. Lieutenant William Murdaugh's Plan, February 7, 1863, ORN, ser. 1, vol. 2, 828.

34. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 823.

35. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 823.

36. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 823.

37. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 824.

38. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 824.

39. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 825.

40. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 826.

41. Lieutenant Minor, CSN, to Admiral Buchanan, CSN, February 2, 1864, ORN, ser. 1, vol. 2, 826.

42. Navy Department Dispatch, November 12, 1863, ORN, ser. 1, Vol. 2, 496.

43. Roe, "Lake Frontier During the War of the Rebellion," 545.

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47. Roe, "Lakes Frontier During the War of the Rebellion," 544.

48. Commander F.A. Roe to Navy Department, September 13, 1865, ORN, ser. 1, Vol. 3, 590 - 591.

49. Log entry, June 3, 1864, rough log, December 8, 1862 - July 23, 1864; Navy Department Order, July 8, 1864, ORN, ser. 1, Vol. 3, 96.

50. Log entry, July 15, 1864, rough log, December 8, 1862 - July 23, 1864.

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54. Thompson's Report, 716.

55. Thompson's Report, 716.

56. Thompson's Report, 716.

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70. Log entry, September 20, 1864, rough log, July 24, 1864 - August 30, 1866.
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72. Log entry, September 21, 1864, rough log, July 24, 1864 - August 30, 1866.
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85. Navy Department Communication, November 9, 1864, ORN, ser. 1, vol. 3, 352.
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94. Roe, "Lake Frontier During the War of the Rebellion," 548.
95. Commander F.A. Roe to Navy Department, September 13, 1865, ORN, ser. 1, vol. 3, 590.
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97. Roe, "Lake Frontier During the War of the Rebellion," 549; Commander F.A. Roe to Navy Department, September 13, 1865, ORN, ser. 1, vol. 3, 590.
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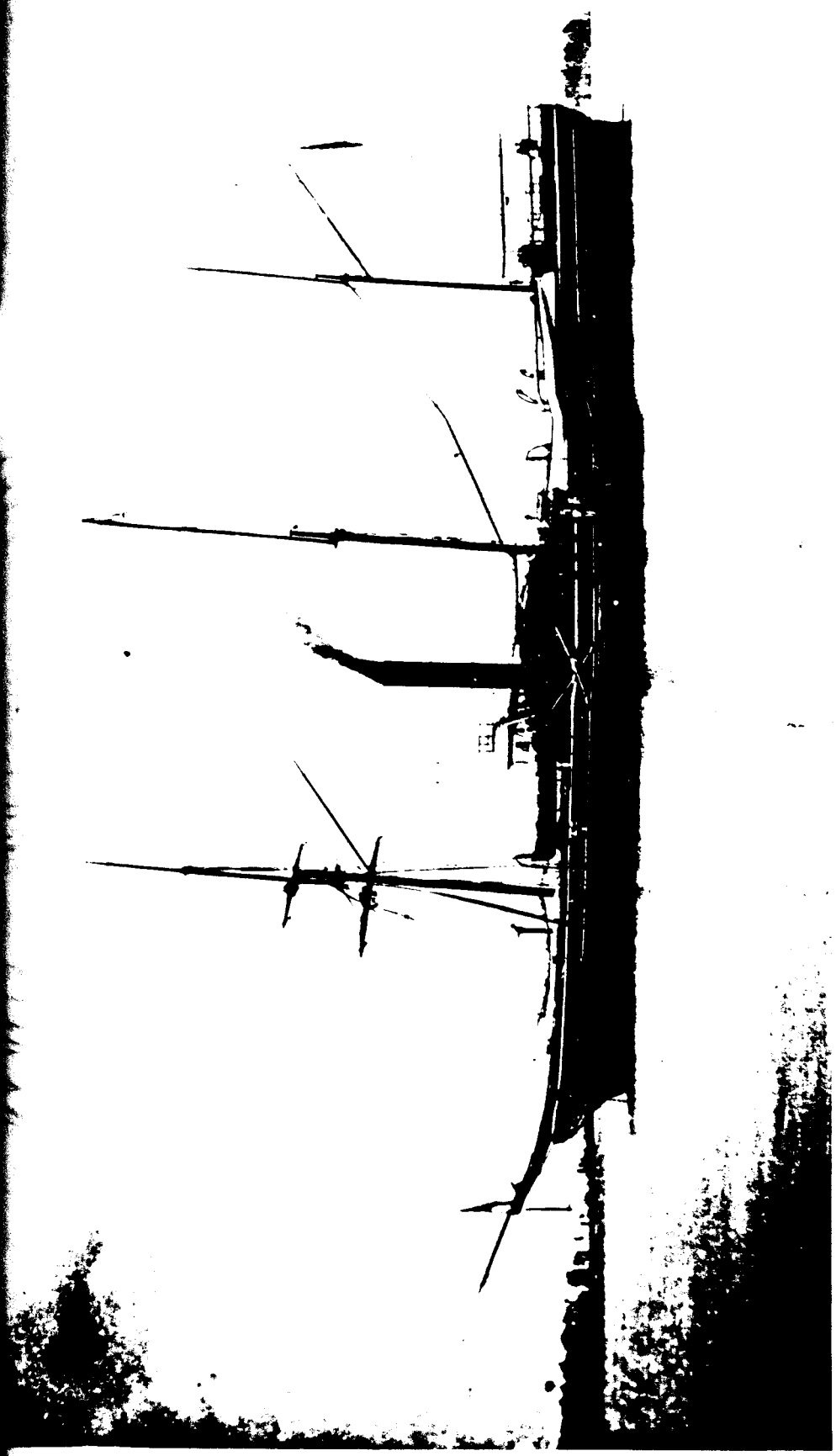
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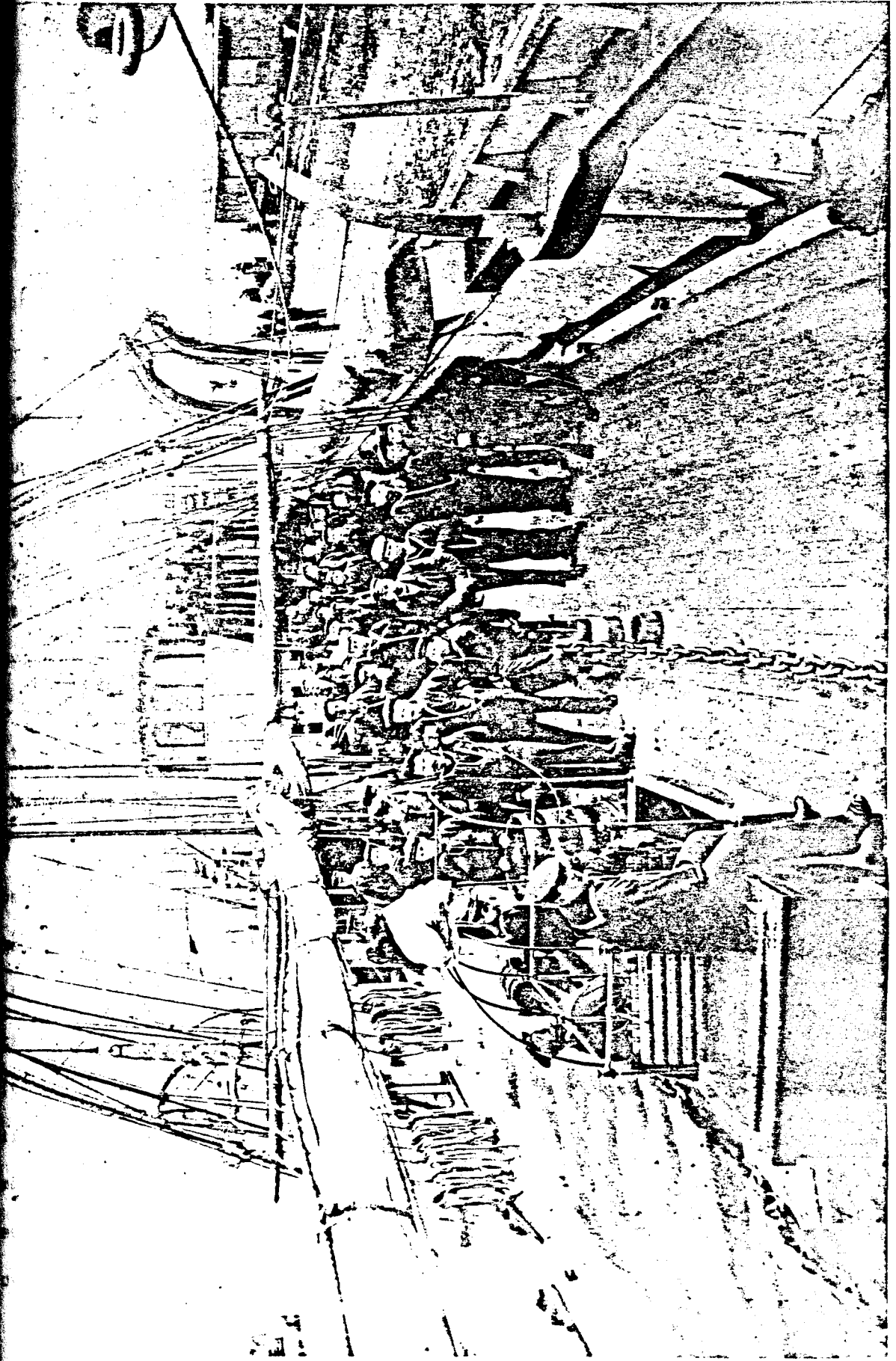
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The U.S.S. Michigan as she appeared on September 17, 1868. The crossed items on the paddle box below the star shaped vent are mooring fenders which are lowered to a vertical position to prevent the vessel from chafing against wharves. (photograph courtesy U.S. Naval Historical Center)



The crew of the Michigan at ease, late 1860's or early 1870's.
(courtesy Mariner's Museum, Newport News, Virginia)

Chapter 5. The Victorian Age, 1865 - 1905

Fenian Invasion of Canada

During the Civil War large contingents of foreigners, mostly Irishmen, were allowed into the United States to serve as volunteers and substitutes in the Union army. Immediately after the war these trained Irish soldiers were released from Union service to begin lives as citizens of the United States. Some of these men however, proved to be as much a bane to the country as they were a help during the Civil War.

The end of the Civil War did not bring an end to hostilities on the Great Lakes. Resentment smoldered in the North over British financial aid given to the South during the war. Also, the influx of Irishmen into the Union army during the war and the subsequent discharge of thousands of them after the war would intensify feelings on the lake border between Canada and the United States. Large numbers of the discharged Irish veterans settled in New York and the northeast. Irish resentment of Great Britain was strong. Although Ireland had fallen under British political control in the eighteenth century, the Irish people remained largely unpacified and continued to resent the British presence in Ireland. The nearby British provinces in Canada provided an obvious focal point for their bitterness.

The Fenian Society, or Irish Revolutionary Brother

public, was formed by Irish-American veterans of the Civil

This society worked in conjunction with the Irish Phoenix Society, based in Ireland, in an attempt to break Great Britain's ¹ hold on Ireland. The Fenians' plan was to capture lower Canada.

They reasoned that with lower Canada in their possession they would use it as a bargaining point to secure the freedom of Ireland from Great Britain. To achieve this end the Fenians' specifically targetted the Canadian shore along the Niagara River ² and the Welland Canal for invasion and capture.

By the spring of 1866 the federal government was aware of the Fenian plan to invade Canada. Indeed, by April 4, 1866, Fenian raids and recruitment were so widespread that the Navy Department warned Lieutenant Commander Francis A. Roe, the U.S.S. Michigan's captain, "to check any movement which violates the ³ neutrality laws and faith of the country." Shortly after this warning Captain Andrew Bryson replaced Roe as commander of the Michigan. It was up to Captain Bryson and the crew of the Michigan to prevent the Fenian attacks on Canada.

On June 1, 1866, a 1,500-man Fenian force, commanded by John Neil, crossed the Niagara River above the falls. They intended to occupy old Fort Erie on the Canadian shore in order to use it as a base of operations for conquering the surrounding Canadian territory, including the Welland Canal. Within a day of their arrival a force of Canadian militia attacked the invaders. The ensuing "Battle of Ridgeway" was sharply contested but had no ⁴ victor, since both sides withdrew.

The Michigan arrived on the scene too late to prevent the

sion but not too late to end it. The Fenians received
supplies from the American shore via boats towed by steamers.
These vessels attempted to resupply the Fenians after the
battle of Ridgeway, they found their path blocked by the
Michigan and two armed tugboats. ⁵ These tugs were possibly the
vessels used to patrol the Detroit river during the Civil

In the face of increasing Canadian armed pressure and the
complete termination of supplies and reinforcements from Buffalo,
the Fenians decided to retreat across the river to the United
States on June 3. The Niagara River between Buffalo and Fort
Niagara is less than a mile wide and dotted by sand bars and
shoals, less than ideal conditions for the operation of a
ship. Nevertheless, the Michigan's shallow draft allowed her
to operate there and much to Fenian dismay, Bryson used the
Michigan to block their line of retreat to the American shore.
The Fenians were forced to surrender to the Michigan's superior
fire power. Their weapons were confiscated and the Fenian
leaders were taken into custody. ⁶ Bryson must have reasoned that
without leaders and weapons, the Fenian "army" would no longer be
a threat to Canada. An added determinant in Bryson's decision
may have been the size of the Fenian force. The arrest,
imprisonment and trial of all of the Fenians may have been
impractical. Bryson let the leaderless Fenians go free.

The arrest of the Fenian leaders seemed to defuse the
situation. However, the federal government appeared unwilling to
take any chances. By the end of June, General George Meade was
dispatched to the area with a small detachment of army regulars

as artillery. Meade was instructed by Lieutenant General
ant "to use all vigilance to prevent armed or hostile forces
organizations from leaving the United States to enter British
7
vinces."

The Michigan continued to patrol the lakes during the summer
fall of 1866. Her mission apparently was to cooperate with
army in watching for new Fenian activity. Bryson's
assessment of the value of arresting the Fenian leaders, seemed
be proven correct by lack of renewed hostility. However, the
st and only successful boarding of the U.S.S. Michigan by an
friendly faction occurred later that year. At 11:00 a.m. on
ember 5, while the vessel was tied up at "Pratts Wharf" near
ack Rock, New York, a delegation of women, noted in the log
ck as "Ladies Members of the Fenian Sisterhood," boarded the
8
p and demanded that the crew return a certain Fenian flag.
s flag was probably a prize taken after the surrender of the
ians on June 3 of that year. It was not noted in the logbook
ether or not the women's demands were met.

The British government, like the United States government,
ck no chances in regard to renewed Fenian activity. By the
mer of 1867, the British government had deployed fifteen armed
ps and troop transports on the Great Lakes under Admiral Sir
es Hope. The British army in Canada, 11,000 strong since
9
62, was reinforced by four additional infantry battalions.

The show of force by the United States and Great Britain,
ong with the Michigan's timely intervention in arresting the
ian leaders, put an end to the Fenian invasion attempts. By

By 1870 all hostile Fenian activity had disappeared. British and American relations improved as the wounds of the Civil War began to heal. The Treaty of Washington, signed on May 8, 1871, went a long way towards stabilizing the strained British-American relations brought about by the Civil War and the Fenian raids to Canada. After the treaty of 1871, the armed ships and forts on both sides of the Great Lakes were abandoned. The United States' retention of the U.S.S. Michigan, proved to be the exception, possibly due to her inoffensive role as a training ship for the navy.

Internal Crises Aboard Ship

Ironically, as political tensions on the Great Lakes began to ease, internal strife and conflict on board the Michigan began to increase. Starting in the fall of 1866, the ship's logbook reflects for the first time a large number of desertions and brawls. For example, on October 4, 1866, while the ship was at her home port of Erie, the logbook records that coal heavers John Meridan and John Howard were put in single irons on bread and water rations for quarreling and creating a disturbance. On the same day, Richard Davis and Edward Collins were declared deserters. To be labelled a deserter a man had to be absent without leave for ten days. So many men deserted the ship in the years immediately following the Civil War that their clothing and belongings were auctioned off.

The desertion problem continued throughout the 1870's and into the 1880's. The desertion and discipline problems were not

ned to the Michigan. The entire navy experienced dissension
14
to low pay, bad food and living conditions. Frequently,
police found the deserters in nearby taverns and returned
sailors to the ship. However, the problem grew to such
proportions that the Michigan's commanding officer began issuing
a dollar reward to anyone who facilitated the return of
15
runaway sailors. Ten dollars was a considerable sum of money
at that time. In 1882, the reward for the return of runaway
sailors was increased to twenty dollars, although the desertion
16
rate was decreasing.

At times sailors did not even wait until they were given
a trial before deserting; they simply jumped ship the minute she
arrived in port. The most spectacular case of jumping ship
occurred on April 6, 1879. John Cronan, who was confined to
the stocks and bread and water rations for five days for a
disciplinary offense, asked to be allowed to go to the ship's head. As
the guards escorted Cronan, he leapt down the gangway and ran
down State Street in downtown Erie. The marines followed in hot
pursuit. However, Cronan was apparently a fast runner. The
marines reported to the Michigan's commander, George Hayward,
that he had outdistanced them and they last saw him running
through McBrier's lumber yard. Hayward offered the usual ten
dollar reward for Cronan's capture and for several days afterward
Michigan's marines went ashore in disguise to search for the
deserter. This was apparently to no avail as Cronan was not seen
17
again.

Other punishable offenses that frequently occurred during
the late 1860's and throughout the 1870's were drunkenness,

respectful language and quarreling. The commanders of the Michigan generally sentenced the offenders to five days confinement in single or double irons on bread and water rations. This punishment was lenient compared to other navy vessels where, confinement to "sweat boxes," being triced up by posts or thumbs, and thirty days solitary confinement on bread and water rations were not uncommon.

"Loan sharking" was another problem that frequently involved Michigan's crew. An investigative report by a junior officer sent to Commander Albert Kautz on August 13, 1883, concluded that coal heaver or "Jack of the Dust" Carl H. Olwens was a loan shark. The report outlined Olwen's activities by stating that he loaned money to the crew at an interest of ten to twenty percent interest per month. Olwens, on at least one occasion, issued government clothing to a crew member and wrote it up on government paper though he charged the man for it. He also used "irregular methods" to obtain the repayment of loans from private accounts.

Olwens was court marshalled, found guilty and discharged from the Michigan on September 10, 1883. The court also banned Olwens from future naval service. This action probably constituted the most stringent sentence handed down to a sailor aboard the Michigan.

Life Aboard Ship: The "Stationary Period"

Life in the Great Lakes region, as it is anywhere else, is controlled to a certain extent by the climate. The extremely cold winters in the lakes area generally makes cruising from December to March or April of the following year impossible. The Michigan, therefore, could not sail during a minimum of four months out of the year. The sailors of the Michigan called winter the "stationary period."²²

Life during the stationary period was a unique experience for the newly transferred salt water sailors serving on the Michigan. A winter in Erie, Pennsylvania, more than likely shocked many of the sailors who came from more southerly coastal climates, by its severity. The Michigan was not insulated and the iron hull did no more than block the icy winter wind. Commander Francis Roe commented, "the ship was not habitable in that fierce winter climate. Not sheathed below [the gun deck], every morning the iron sides of the berth-deck were white with the rime of frost."²³

By the 1850's, a temporary house had been constructed over the foredeck each winter in order to help make the ship more habitable during the bitterly cold winter months. This construction gave the vessel an ark like appearance. The officers and crew also used portable coal or oil heaters throughout the ship.²⁴ Despite these winter measures, however, many of the officers opted to live ashore during the winter months. Occasionally, these men purchased homes in Erie but most often they and their families lived at the Reid House.²⁵

The Reid House was one of Erie's principal hotels, and was located only a short distance from the Michigan's winter berth. As Commodore E.B. Underwood related of his younger days assigned to the Michigan, "In going from our quarters [the Reid House] to the ship, we frequently had to encounter an air both usually nipping and eager, and sometimes had to plough through snow above our knees." The hotel also provided prepared food for the vessel, but Underwood failed to say whether the meals were only for officers or the entire crew. ²⁶ It is likely that this prepared food was only for the officers as the crew seldom if ever enjoyed any of the priviledges afforded to officers.

Erie winters must have seemed long to sailors who were accustomed to warm weather and frequent changes in scenery. On the other hand, winters offered the Michigan's men an opportunity to enjoy family life. Robert Coontz related that when he served on the vessel in the 1890's, as many as fifty-five of the Michigan's officers and former officers had married Erie women. ²⁷ This figure constituted a large percentage of the vessel's officers and former officers during the Victorian Age since the Michigan carried no more than ten officers on her roster at any one time. So many of the ship's officers and men married local women that Erie citizens dubbed the city "the Mother-in-law of the Navy." ²⁸

Coontz related one instance of how men and women met aboard the Michigan. The ship was stationed for a time, in the 1890's, near Detroit. The Michigan Naval Reserve was out along with the Michigan in Lake St. Clair for target practice with the heavy guns.

At one of the target practices there were several young ladies on board, and one of them obtained the captain's permission to touch off the lanyard when one of the thirty-two pounders was fired. The Detroit newspapers published the story with the scare headline, "Miss Mary Brady Fires the Gun." The captain [Lt. Commander R.M. Berry] was worried for a time, but we assured him that Washington rarely learned of such happenings and might never know of it. His fears were relieved, and a little later he married Miss Mary Brady! 29

The economic status of naval officers in the later part of nineteenth century seems to be quite high. After 1870, the Michigan's officers made \$200 or more per month for sea duty and \$5 or more per month for shore duty during the winter. Since inflation was low after the Civil War, officers' pay probably remained constant, at least until the turn of the century. Officers' salaries seemed adequate enough to provide for a family. Living expenses for an officer's family, at that time, included hiring of servants and nurses, and the purchase of a house or renting of rooms at the Reid House. Coontz, for example, bought a house in Erie and brought his family's Russian nurse with them whenever he was transferred to a new ship. The houses the officers purchased frequently were not small. The Michigan's surgeon, Maxwell Wood, entertained President Zachary Taylor and his entourage at his house for several days in 1849, while the president recovered from an illness.

It seems apparent that the Michigan's officers were included in the upper echelons of society. The social status of the common seamen, however is unclear. Some of the crew's pay rates for month in 1893 were: master at arms sixty-five dollars,

boatswain's mate thirty dollars, bugler thirty-three dollars, man eighteen dollars, and green hand ten dollars and fifty cents. Possibly, these men ranked with working class or blue collar society. Probably a large percentage of them also married women. Whirlwind romances, short courtships, and fast marriages more than likely became the rule rather than the exception between the sailors of the Michigan and the women of the town. Amelia Brown, wife of Chief Gunner's Mate George Brown, stated that they met one Saturday and were married on the next Saturday.

The "stationary period" brought other changes in the lives of the Michigan's seamen other than trying to survive cold weather and possibly indulging in a stint of family life. Many of the sailors took winter jobs as hotel porters and laborers. City watches for the sailors on board the vessel usually ran one day on and one day off. This scheduling permitted the men enough time to work at other jobs. Watch officers, on the other hand, generally had one day on and two or three days off. It is doubtful, however, that officers took jobs on shore as they were adequately paid and did not need the extra money provided by moonlighting."

A typical day on board the Michigan during the "stationary period" started with reveille at 5:30 a.m. Within twelve minutes the men hastened to dress and lash their hammocks to the gun deck beams. In battle these hammocks offered some protection from shell and shot splinters. At 6:00 they had coffee and followed the boatswain's orders until 7:30 when breakfast was served. The boatswain's orders included routine maintenance such as painting,

scraping paint, polishing the brass and holystoning the decks. Holystoning involved scouring the decks with sandstone blocks. At 8:45 the crew turned to for the 9:00 inspection. Inspection lasted for a half an hour after which the crew mustered to quarters. General quarters drills filled the rest of the morning. These drills included fire quarters, manual of arms, dress parade, single stick or foil practice, and every few weeks target practice with the "great guns." At 12:30 p.m. each day during the "stationary period," all officers except the officer of the watch could leave the vessel and were not required to return until the following morning. The departure of the officers in the afternoon was the main difference between the daily routine of the "stationary period" and the sailing period.

The Michigan's commanding officers realized that the general quarters drills on board ship were essential to an efficiently organized crew. During the long winter months, boredom, due to inactivity associated with the harsh winter months, tended to generate a lackadaisical attitude among the crew. Fire drills were among those most frequently carried out. The Michigan was equipped with several means to fight fires. On December 20, 1883, the vessel's logbook records the results of a timed fire drill. Within two minutes and thirty seconds after the fire alarm sounded, a bucket line had formed which could have reached the furthest extremities of the ship. At three minutes after the alarm sounded the steam water pumps were supplying fire hoses with water. The auxiliary hand pumps were supplying water at

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four minutes after the alarm. Meanwhile, two other parties of men stationed themselves in the ship's powder magazine and shell room, located on the orlop deck below the water line. In the event that a fire threatened the gun powder and explosives stored there, these sailors were instructed to flood the magazine and shell room, by opening valves in the hull called flood cocks. The rushing water would thereby render the explosives harmless.

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The fire drills proved their usefulness on at least one occasion. On January 19, 1878, at 9:50 p.m. the officer of the watch observed a fire at a nearby saw mill in Erie. The Michigan's men were signaled to fire quarters by the ship's alarm and attempted to fight the blaze. Strong winds hampered their efforts and the vessel's hoses apparently could not reach the saw mill. The winds freshened even further bringing sparks toward the ship, wharf and nearby warehouses. Alarmed by the new threat to the vessel herself, the watch officer recalled the crew and stationed them "in all parts of the ship, docks and on top of the warehouses." One of the warehouses caught fire but prompt action by the Michigan's sailors saved the building. Lookouts were stationed for the rest of the night to insure that the saw mill fire did not spread.

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Manual of Arms drill and single stick and foil practice insured that the Michigan's crew would be proficient in the use of the vessel's small arms. By 1885 these arms included Springfield rifles with bayonets, Colt revolvers, cutlasses and boarding pikes. Although the rifles and pistols carried by the Michigan changed over time, from muzzle-loading muskets to

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breach-loading rifles, and flint lock pistols to Colt cartridge six-shooters, this basic inventory of small arms remained essentially the same throughout the long history of the ship. Since it was too dangerous to practice with actual cutlasses and boarding pikes, foils were used to simulate cutlasses and long sticks were used to simulate boarding pikes.

The gun battery of the Michigan changed many times during the vessel's career after the Civil War (see Appendix D, Armament of the U.S.S. Michigan). Regardless of the heavy ordnance carried on the ship however, it is quite likely that the Michigan's gunners were proficient. Not only did they practice often but rewards were given for good target practices. By 1895, this reward could amount to as much as two dollars, or the equivalent of two days pay, for a good practice session.

In the afternoon during the "stationary period" the crew concentrated on shipboard maintenance. Brass fixtures and mahogany paneling gave the Michigan an atmosphere of stately elegance. Seaman Grant F. Crowley remarked, "She was loaded with brass. We on the crew used to have competition shining it. The whole floor of the crank room was brass...all the rails and hatches were brass and all of the pipes. She was a beautiful ship." The brass, of course, needed constant shining and probably looked its best after the stationary period when the crew had plenty of time to work on it.

Ice buildup during the winter months created another maintenance problem for the crew. Each year the Michigan's hull became ice locked or frozen into an ice sheet which covered

Presque Isle Bay. A ship locked into ice can be severely damaged as the ice shifts, rides up and moves due to currents and wind. Ice movement has been known to crush ships' hulls. In order to combat this problem, the Michigan's crew continually chopped the ice free from around the hull.

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During the days of the sailing navy, sailors spent a great deal of time maintaining the ship's rigging. The Michigan, although primarily a steamship, had all of the maintenance problems of a sailing vessel because she was fully rigged to sail. Her iron hull, however, required almost no maintenance. Even the constant scraping and painting required on other metal hulled navy ships was not needed due to the fresh water environment. The Michigan's crew like crews on contemporary wooden vessels spent many hours sewing. The Michigan's sails, though seldom used, needed to be kept in good condition. The crew maintained, repaired, and even made their own clothing until late in the ship's history when manufactured clothing proved more economical.

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Erie winters were not all drudgery, work and boredom for the sailors of the Michigan. The vessel housed a good library and frequently received cases of books from the Navy Department's Bureau of Equipment. In 1890, the Michigan's library contained some of the best sellers of the period, including Henry M. Stanley's In Darkest Africa, The History of the U.S. Marine Corps, and Emin Pasha. The library also contained practical maritime books on navigation, such as Magnetic Observations of U.S. Naval Observatory, 1888-1889.

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The Michigan's crew was relatively small for a warship,

nevertheless, she was assigned a ship's band and recruited musicians for other navy vessels. The Michigan's band had ample time to practice during the winter "stationary period." Coontz related that while he served on board the ship, "when a man appeared on board ready to enlist he was asked, do you play any musical instrument?"⁴⁹ The ship's band participated in numerous parades, commemorative activities, and funerals in Erie and around the Great Lakes area. For example on June 15, 1882, the band participated in the Detroit parade for the reunion of the Army of the Potomac. The ship's log records that the Michigan was "dressed in rainbow style" for the occasion, apparently covered in red, white and blue bunting.⁵⁰ On February 2, 1891, the band was part of a funeral party sent from the ship along with a marine honor guard to pay last respects to one of their shipmates.⁵¹ In September of that same year, "the Michigan's band played national airs in honor of visiting Attorney General William H. Miller."⁵²

Outdoor winter activities for the crew included the usual cold weather sports such as ice skating and ice fishing. The Michigan always carried a supply of fish hooks.⁵³ In the "Gay Nineties" the officers' ward room was the starting point for many skating parties.⁵⁴ However, ice skating was not always the safest of activities near the ship. On January 31, 1882, Watch Officer Isaac Yates reported in the logbook that at 4:05 p.m. Master Thomas L. Plunkett fell through the ice while skating near the ship. Plunkett was recovered in fifteen minutes and the ship's surgeon, N. Penrose, tried for over an hour to resuscitate

him, to no avail. It is interesting to note that the escort of Plunkett's body to the Park Presbyterian Church was commanded by Lt. Commander G.V. Gridley. ⁵⁵ Gridley went on to become famous as the Captain of the United States Flagship Olympia during the Battle of Manila Bay during the Spanish-American War.

Another outdoor recreational activity for the Michigan's crew was provided by the ship's ice boat. The earliest mention of the ice boat is by Commodore E.B. Underwood, who served on board the vessel in the late 1870's. ⁵⁶ The ice boat was a sail propelled vehicle equipped with blades on outriggers to enable it to travel at great speeds across the ice. In the mid 1890's sailing the ice boat remained a very popular winter activity for the crew of the Michigan. ⁵⁷

Despite winter activities and tasks, the Michigan's crew undoubtedly looked forward to the close of the "stationary period." One of the attractions of the navy is that it allows men to see the world. However, for four or five months out of the year all the sailors of the Michigan saw was the town of Erie, Pennsylvania. March and April witnessed a revitalized crew preparing the Michigan for the new years cruising season.

Life Aboard Ship: The Cruising Season

In December, rigging was removed from the Michigan so that only the main, fore and mizzen masts with their supporting shrouds remained. All of the yards, topmasts, blocks, tackle and ropes were placed in the storehouse for protection. ⁵⁸ Snow, ice and sleet were very hard on unprotected rigging; unsheltered

ropes and lines became brittle, weathered and unsafe. Therefore, in the spring, as their first task, the Michigan's crew rerigged her.

Replacing the yards and masts made the job of refitting the ship much easier. The masts and yards were used as cranes to lift supplies on board ship. The ship's heavy ordnance could not be lifted if it were not for the ship's rigging. The guns were stored only during the two coldest months from mid-January to the end of February.⁵⁹ Since they were dismounted for only two months, the gun crews continued to practice during December and early January.

Coal and supplies were procured in the spring cruising season and replenished throughout the season. Routine supplies included food items such as raisins, flour, sugar, beans, cheese, beef and vegetables. Non-food supplies included candles, tallow, shoe thread, brooms, soap, paper, pencils, paint, rope of ten different thicknesses and description, hammock canvas, needles and thread. These items are just examples of the necessities for the crew of the vessel during the cruising season.⁶⁰

In the late 1870's, Sarnia, Ontario, across the St. Clair River from Port Huron, Michigan, became a favorite port for the Michigan's sailors. At Sarnia the Michigan laid in her "wet sea stores" such as beer, wine, liquors, tobacco, cigars and cigarettes, because these products were cheaper in Canada than they were in the United States.⁶¹ Food on board the Michigan was not free for enlisted personnel. By 1895 sailors paid nine dollars per month for meals.⁶² The "wet sea stores" undoubtedly cost extra too, though these items were probably cheaper aboard

ship than elsewhere.

The patrols, or more realistically the training cruises, of the Michigan, must have seemed full of adventure to the young sailors who had just signed on. In contrast these cruises were probably routine or even dull to the old hands from the regular navy. Life on the sea, especially the often ill tempered inland seas, does not stay routine forever. The Michigan and her crew survived storms, collisions with other vessels, and groundings, and helped innumerable stranded vessels.

The Michigan carried six boats: one steam cutter, one gig, three fish cutters and one dinghy. The steam cutter was a large enough vessel to carry a three-inch breach loading rifle. The steam cutter was a powerful boat. Frequently the Michigan's crew used this boat to pull stranded ships off shoals, beaches and submerged objects. On July 28, 1871, the Michigan's crew helped free the steamer Atlantic from a shoal near Sault Ste. Marie, Michigan.

Even the Michigan would run aground several times during her career. Usually the crew succeeded in freeing the ship without outside assistance. On at least one occasion, however, the Michigan had to be towed free by other vessels. By far the most serious grounding of the Michigan occurred at 11:05 a.m. on Thursday August 2, 1894. Commander R.M. Berry was just beginning to bring the ship to the mouth of the Detroit River from Lake Erie when the ship grounded near Amherstburg, Ontario. The vessel seemed to be held fast under the port side and although the hull did not seem to be damaged, the officer of the watch

ported that the Michigan was "pounding and grating considerably." The steam launch and kedge anchor were tried in effort to pull the ship to starboard. The kedge anchor was an anchor carried away from the ship in one of the ship's boats. The anchor was dropped and the capstan was used by the crew to haul on this anchor, like a winch. This attempt to free the ship, however, proved unsuccessful.

66

In an effort to lighten his ship, Commander Berry instructed the engineers to drain the port side boiler. The starboard boiler was not drained so that it could still operate in order to supply steam to the Michigan's engines. Even with the engines in reverse and the kedge anchor and steam launch pulling, the ship would not budge. Berry then sought outside assistance. He hired the tug Home Rule from the Canadian Hackett Line, for thirty dollars the first hour and fifteen dollars per hour afterwards. The Home Rule did not arrive until 9:30 p.m. The tug first pulled the Michigan to starboard and then to port at which time the ship slid only about twenty-five feet, but that was all. At 1:30 a.m. on August 3, the Home Rule gave up for the night.

67

At 8:00 a.m. the next day Home Rule returned with another tug, Dave and Mase, and a lighter. A lighter is a shallow draft vessel into which a stranded ship can unload some of its cargo in order to lessen its draft. Even when the Michigan lightened her load, used her kedge, and was pulled by both tugs, the ship refused to come free. Finally, at 11:20 a.m., almost exactly twenty-four hours after the accident, the tugs managed to free the Michigan which slid into deeper water.

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As a credit to the

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's builders the hull seemed no worse for wear and no repairs needed.

Dangerous storms were also characteristic of the Great Lakes. Although the Michigan was a sturdy vessel, she was comfortable in heavy seas. Crewmember Ray Jewell explained that "she would move like a corkscrew because of the side wheels...when one wheel would dig in and get a good bite [of water], the other wheel would be three-quarters out of the water and the ship would lurch to the direction of the wheel that was out of the water."

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An indication that the Michigan was encountering high seas was her tendency to blow the trap doors open on the paddle boxes. This occurred when the ship rolled from side to side trapping air in the paddle boxes. If the air was compressed with sufficient force it would blow the trap doors open and air would escape, like the natural phenomena of blow holes located above caves near surf zones.

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There were star shaped vents near the tops of the paddle boxes. But at times the vents did not permit enough air to pass to keep the trap doors from blowing open (see photograph of ship in profile page 121).

After June 7, 1886, large ornately carved eagle emblems covered the vents, making it necessary to cut two more vents near the top of each paddle box.

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The most damage sustained by the Michigan occurred during a storm on June 5, 1868. The storm struck without warning while the vessel was on her way from Erie to Buffalo. The officer of the watch reported that the ship encountered, "a heavy squall from the starboard quarter." The storm reportedly, "carried away

the starboard cathead, a portion of the monkey sail, the jibboom
at the cap [capped end of the bow sprit] and bent the awning
72
stanchions on deck." The monkey sail was caught by the
tremendous wind which ripped the sail, wrecking the jibboom in
the process. The cathead is a very substantial beam from which
the anchor is raised and lowered, and would be difficult to
break. However, the cathead received damage in a collision with
the schooner S.H. Kimball a few months before the storm finally
73
tore it loose.

Collisions with other ships and harbor facilities were
another dangerous, though all too familiar, aspect of life aboard
ship during the cruising season. The Michigan would collide with
other ships on several occasions. Nevertheless, she did not
receive any serious or life threatening damage. The Michigan's
most vulnerable parts were her bowsprit and jibboom, which
protruded nearly twenty-five feet over the vessel's bow. These
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74
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Life as a sailor on board the Michigan had its proverbial
ups and downs. Fortunately storms and collisions with other
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The beauty and solitude of the lakes interspersed with shore
leave in the metropolitan centers made life as a fresh water
sailor exciting or contemplative; the sailors had their choice.

In November of each year the Michigan's cruising season
began to come to a close. The ship returned to Lake Erie like a
homing pigeon and did not stray far from her home port. November
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the starboard cathead, a portion of the monkey sail, the jibboom at the cap [capped end of the bow sprit] and bent the awning stanchions on deck." The monkey sail was caught by the tremendous wind which ripped the sail, wrecking the jibboom in the process. The cathead is a very substantial beam from which the anchor is raised and lowered, and would be difficult to break. However, the cathead received damage in a collision with the schooner S.H. Kimball a few months before the storm finally tore it loose.

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In November of each year the Michigan's cruising season began to come to a close. The ship returned to Lake Erie like a homing pigeon and did not stray far from her home port. November is perhaps the most dangerous month of the year for shipping on

the Great Lakes because of sudden winter storms that sweep in from the north and west. These storms caught many ships trying to make the last run of the season and the results were at times disastrous. The Michigan's, commanding officers, aware of the November peril, used extreme caution when it came to planning extended lake cruises in that month. By December, the year had come full circle and the vessel was once again prepared for the winter "stationary period."

The "Gay Nineties"

The affluence and attitudes of the "Gay Nineties" had a definite impact on life on board the Michigan. Leisure time seemed to have increased and even the hard fair of the enlisted man seemed to have diminished, as evidenced by a significant lowering of the desertion rate. Commander George E. Wingate, the Michigan's commander in 1892, was ordered in to take his vessel to Chicago in order to help survey the grounds for the 1893 World's Fair. While a topographical party worked on this task, a hydrographic party took soundings and drew charts of the Calumet River in Chicago. ⁷⁵ The Michigan's crew worked in Chicago for several months out of each year until the World's Fair ended. During this period of her career, beginning May 22, 1893, the Michigan was painted white in order to match the new color of United States Navy ships. She was destined to remain white for ⁷⁶ the rest of her career.

The Michigan's crew received other duty assignments at the World's Fair. Twelve sailors were assigned the task of manning

the Spanish government's present to the United States: replicas
of Columbus's ships, the Nina, Pinta and Santa Maria.⁷⁷ Other
crewman of the Michigan worked on board a full-scale battleship
model called the battleship Illinois.⁷⁸

When the ship was not in Chicago during the early 1890's, she still cruised the lakes to recruit and train new sailors. During one of these cruises there occurred an amusing sidelight to the crew's leisure time. This incident was the attempt by one of the vessel's officers to become the navy's first aviator. This far-sighted man manufactured a pair of wings and attempted to fly from the heights of Bios Blanc Island near the Straits of Mackinac. Though he could glide for a short distance, he explained, "I could not sustain myself in the air for any appreciable length of time." Ironically, though his experiment failed, Robert Coontz's career did turn to aviation. He eventually became chief of naval operations, at a time before the Bureau of Naval Aeronautics was established. In his capacity as Chief of Naval Operations he was in charge of naval aviation.⁷⁹

One last incident seems a fitting climax to the "Gay Nineties" on board the Michigan. The ship's captain, Lieutenant Commander Richard Reesh had piloted his ship to Mackinac Island, a place that still keeps its "Gay Nineties" essence, in order to pick up an important passenger. The passenger was none other than the assistant secretary of the navy, Theodore Roosevelt. Roosevelt boarded the Michigan at 8:45 a.m. July 17, 1897, to preside over the recently instituted Great Lakes Naval Reserve activities. For the next week, the ship cruised Lakes Huron and

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...ie allowing Roosevelt to visit various naval reserve units.

...from Whale Oil to Light Bulbs

The United States Navy experienced many changes during the Victorian age. The Michigan witnessed them all and, in her own way, changed along with the rest of the navy. The technology of ship design was finally catching up to the Michigan. Iron ships were produced for the navy in quantity during the Civil War. However, the first real improvements over the design of the Michigan were the propeller driven, gun turreted, steel cruisers constructed for the navy in the 1880's and 1890's, at which time the Michigan was completing half a century of service.

Technical improvements accelerated after the Civil War. The first noticeable advances on the Michigan came in the form of weaponry, a natural occurrence after a war. Breach loading rifled weapons replaced the old smooth bore muzzle loaders in both the small arms and large ordnance on board the ship (see Appendix D, Ordnance of the U.S.S. Michigan). Gatling guns, the predecessors of the machine gun, also made their appearance in the ship's arsenal.

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The techniques of lighting the ship at night also improved. Lighting on the Michigan changed dramatically over the years. The first lighting was furnished by sperm whale oil lamps (see Appendix A, miscellaneous stores). However, whaling declined after the 1860's due in part to the ravages of Confederate raiders on the Northern whaling fleet during the Civil War and the advent of petroleum lamps. Candles were used considerably

after the war. A typical supply of candles for the vessel
amounted to 500 or 600 pounds.⁸² Kerosene lanterns probably were
used for external signal and deck lights until electric lighting⁸³
became a reality aboard the ship by 1906.

Communications made dramatic improvements during the
Victorian Age. On February 1, 1887, the Michigan received her
own "telegraphic outfit" from the Navy Department's Bureau of
Navigation.⁸⁴ Since the new outfit was not a "wireless" or
radio, the vessel attached telegraph lines when in port. This
communications system obviously was inoperable while the ship was
at sea.

Refrigeration posed no problem on board the Michigan. As
early as 1861 the food supplies included perishables such as
fresh meat, butter and vegetables.⁸⁵ The ship probably contained
some sort of ice chest as fresh meats and vegetables were
procured in cities that had large ice storage facilities.⁸⁶ Ice
was cut from the fresh water lakes in the winter and stored in
vast warehouses so that it could be purchased at any time during
the summer.

Time inexorably infringed on the mechanical condition of the
Michigan. Her boilers, woodwork, and rigging needed periodic
replacement. The vessel's second set of boilers, new in 1861,
had nearly worn out by 1892. The maximum steam pressure that
could be maintained in the old boilers in 1892 was only nine
pounds per square inch and the paddle wheels could revolve at
full speed, sixteen times per minute.⁸⁷ The Michigan, once the
fastest steamship in the navy, was now a much slower vessel. On
March, 25, 1892, a board of survey from the Navy Department's

Bureau of Construction and Repair examined the hull and fittings⁸⁸ to ascertain the feasibility of installing new boilers.

New boilers were installed during the winter months of 1892-⁸⁹ 1893, while the crew of the vessel worked at the World's Fair.

Not only were new boilers installed but new paddle wheels of a smaller diameter replaced the old wheels. The crew found upon their return to the ship, in the spring of 1893, that she now displaced 695 tons and drew nine feet of water instead of seven⁹⁰ and one half. The new paddle wheels were necessitated by the

ship's added displacement. Due to the fact that the ship rode 1 1/2 feet deeper in the water, the diameter of the wheels had to be three feet less in order that the buckets have the same dip.

The insertion of unusually large and ill-fitting boilers may have been a cost cutting measure by the Navy Bureau of Construction and Repair. The new boilers provided twenty pounds of steam pressure which turned the new wheels at eighteen⁹¹ revolutions per minute. The added steam power, however, was offset by the fact that the boilers added 113 tons to the vessels displacement. The Michigan now steamed at a maximum of 10 1/2 knots. This unfamiliar added displacement was probably responsible for the ship running aground during the summer of 1894.

The added weight from the new boilers doomed the ship to never again achieve the speed and impressive lines of the once powerful warship of the mid-nineteenth century. To add insult to injury, a rectangular chart house, extending the breadth of the ship, was built over the deck cabin in April, 1897.⁹² The

charthouse allowed the crew to lay out three by five foot navigation charts for survey work. Survey work was occupying much of the ship's time by the late 1890's.

The size of the charthouse gave the ship a top-heavy appearance. The sleek, black warship whose lines had been compared to those of a clipper ship had been converted to an unlikely and ungainly looking vessel. The inescapable fact that the ship was no longer esthetically pleasing became a contributing factor in the eventual demise of the U.S.S. Michigan.

Chapter 5 Endnotes

1. Randall and Donald, The Civil War and Reconstruction, 49.
2. "Niagara Frontier," Buffalo and Erie County Historical Society, XXVII, Nos. 1, 2, 3 (1980), 15. Hereafter cited as "Niagara Frontier."
3. Hulce, "Michigan at Sea," 102.
4. Hulce, "Michigan at Sea," 103; "Niagara Frontier," 15; The Growth of the American Republic, 770.
5. Hulce, "Michigan at Sea," 103.
6. Hulce, "Michigan at Sea," 103; George Meade, The Life and Letters of George Gordon Meade (New York, 1913), 286. Hereafter cited as Meade, The Life and Letters of Meade.
7. Randall and Donald, Civil War and Reconstruction, 650; Meade, The Life and Letters of Meade, 285.
8. Log entry, November 5 & 6, 1866, Smooth Log August 31, 1866 - September 16, 1867.
9. Bourne, Britain and the Balance, 290-291.
10. Growth of the American Republic, 771.
11. Log entry, October 4, 1866, Smooth Log, August 31, 1866 - September 16, 1867.
12. Log entry, January 1, 1872, Logbook, January 1, 1872 - December 31, 1872. By 1870 the logbooks had become standardized and were no longer separated into rough and smooth logs.
13. Log entry, September, 17, 1867, Smooth Log, September 17, 1867 - August 27, 1868.
14. Peter Karsten, The Naval Aristocracy. The Golden Age of Annapolis and the Emergence of Modern American Navalism (New York, 1972), 81. Hereafter cited as Karsten, The Naval Aristocracy.
15. Log entry, July 5, 1870, Logbook, April 1, 1870 - December 31, 1870. This log entry seems to be the first instance of the ten dollar reward offer. The reward offers, however, are a

continuing theme throughout the 1870's and 1880's.

16. Log entry, October 30, 1882, Logbook August 4, 1882 - August 10, 1883.

17. Log entry, April 6, 1879, Logbook, July 2, 1878 - July 16, 1879.

18. The peak of desertion and other punishable offenses seems to have occurred in 1872. Nearly every log entry in Logbook, January 1, 1872 - December 31, 1872 has a list of men being punished or declared deserters.

19. Karsten, The Naval Aristocracy, 85.

20. Log entry, August 13, 1883, Logbook, August 10, 1883 - August 15, 1884.

21. Log entry, September 10, 1883, Logbook, August 10, 1883 - August 15, 1884.

22. Commodore E.B. Underwood USNR, "Wolverine nee' Michigan - A Bit of the Old Navy," United States Naval Institute Proceedings, L (April, 1924), 599. Hereafter cited as Underwood, "A Bit of the Old Navy."

23. Roe, "Lake Frontier During the War of the Rebellion," 545.

24. Log entry, Friday December 12, 1856, Smooth Log, April 12, 1856 - October 17, 1857, "Crew employed in white washing the house over the ship"; "Lake Frontier During the War of the Rebellion," 545.

25. Underwood, "A Bit of the Old Navy," 598.

26. Underwood, "A Bit of the Old Navy," 599.

27. Robert E. Coontz, From the Mississippi to the Sea (Philadelphia, 1930), 174. Hereafter cited as Coontz, To the Sea.

28. Ann Morrison Brooke, A short unpublished biography of William Leverett Morrison, Wolverine file, Erie Historical Society. Hereafter cited as William Morrison.

29. Coontz, To the Sea, 173. Although Coontz reports that the guns being fired were 32 pounders, the Michigan carried 30 pounder Breach Loading Rifled Parrott Guns, of 4.2 inch caliber.

30. Karsten, The Naval Aristocracy, 62.

31. Coontz, To the Sea, 174; The Naval Aristocracy, 58. Most wardroom officers had servants on board ship and until 1914, their own "wine mess."

32. H.E. Spalding MD, "Maxwell Wood," Wolverine file, Erie County Historical Society.

33. Coontz, To the Sea, 173. Coontz describes the parties in 1894 that the Michigan's officers attended while they surveyed Grasse Island in the Detroit River; Harriet H. Jarecki, "Scrapping of the Wolverine Recalls Interesting Memories to Writer," Erie Times, May 14, 1942. Mrs. Jarecki related that, at that time [1887] 35 of Erie's "most charming young women had married officers at one time or another who were stationed here." This statement implies that the Michigan's officers mingled with and were accepted by Erie's more respected citizens.; The Naval Aristocracy, 52. Karsten relates that rank often determined social standing during the last half of the nineteenth century.

34. Log entry, April 19, 1893, Logbook, November 9, 1892 - May 21, 1893; The Naval Aristocracy, 81.

35. Mary Benson, "Woman's husband was on Wolverine, Old warship holds many memories," Erie News, December 3, 1984.

36. Roe, "Lake Frontier During the War of the Rebellion," 545.

37. Underwood, "A Bit of the Old Navy," 598.

38. Underwood, "A Bit of the Old Navy," 598; "U.S. Government Service on the Great Lakes," The Bethel Visitor, December 30, 1895, reprinted in Inland Seas, XXIV - XXV (Spring, 1968), 59. Hereafter cited as "Government Service."

39. Log entry, December 20, 1883, Logbook, August 10, 1883 - August 15, 1884.

40. Log entry, January 30, 1882, Logbook, August 1, 1881 - August 3, 1882. The flood cocks are not specifically mentioned in regard to the fire drill but their constant maintenance indicates that they were an important safety feature of the ship.

41. Log entry, January 19, 1885, Logbook, January 1, 1885 - July 1, 1878.

42. Log entry, January 1, 1885, Logbook, January 1, 1885 - July 9, 1885. The logbooks now list all arms carried aboard the ship plus their caliber and number.

43. "Government Service," 60. Rewards varied from \$.25 to \$2.

44. Jim Thompson, "Wolverine's sailor recalls warship's brassy career," Erie Times, July 27, 1979.

45. Log entry, January 13, 1864, Rough Log, December 8, 1862 - July 23, 1864. "Work crew cutting ice around ship"; Log

entry, January 27, 1884, Logbook, August 10, 1883 - August 15, 1884. These are but two examples of the fact that the ice around the ship had to be cut.

46. Log entry, September 1, 1866, Smooth Log, August 31, 1866 - September 16, 1867, "Officers of division made out lists of men's clothing. Remainder of the watch crew employed making and mending clothing."

47. Log entry, August 22, 1887, Logbook, August 6 1887 - February 13, 1888.

48. Log entry, December 21, 1890, Logbook, September 30, 1890 - April 9, 1891.

49. Coontz, To the Sea, 170.

50. Log entry, June 15, 1882, Logbook, August 1, 1881 - August 3, 1882.

51. Log entry, February 2, 1891, Logbook, September 30, 1890 - April 9, 1891.

52. Log entry, September 10, 1891, Logbook, April 10, 1891 - October 20, 1891.

53. Log entry, August 21, 1869, Smooth Log, August 3, 1869 - March 31, 1870.

54. Coontz, To the Sea, 171.

55. Log entries, January 31 to February 2, 1882, Logbook, August 1, 1881 - August 3, 1882.

56. Underwood, "A Bit of the Old Navy," 597.

57. Coontz, To the Sea, 172.

58. Log entry, November 28, 1846, Rough Log, May 21, 1846 - July 10, 1848.

59. Log entry, January 13, 1864, Rough Log, December 8, 1862 - July 23, 1864.

60. Log entry, July 18, 1867, Smooth Log, August 31, 1866 - September 16, 1867; Log entry, August 21, 1869, Smooth Log, August 3, 1869 - March 31, 1870; Log entry, June 3, 1857, Smooth Log, April 12, 1856 - October 17, 1857; Log entry, August 23, 1868, Smooth Log September 17, 1867 - August 27, 1868.

61. Underwood, "A Bit of the Old Navy," 599.

62. "Government Service," 59.

63. Preface to log entry, January 1, 1885, Logbook,

January 1, 1885 - July 9, 1885.

64. Preface to log entry, February 14, 1888, Logbook February 14, 1888 - August 22, 1888.

65. Log entry, July 28, 1871, Logbook, January 1, 1871 - December 31, 1871.

66. Log entry, August 2, 1894, Logbook, June 18, 1894 - December 24, 1894.

67. Log entry, August 2, 1894, Logbook, June 18, 1894 - December 24, 1894.

68. Log entry, August 2, 1894, Logbook, June 18, 1894 - December 24, 1894.

69. Bill Welch, "Seaman's Scrapbook - Wolverine Crewman Recalls Near Disaster," Erie Morning News, April 14, 1980.

70. William L. Morrison, "His Own Beaufort's Scale," Inland Seas (Winter, 1953), 297.

71. Log entry, June 7, 1886, Logbook, January 14, 1886 - July 22, 1886.

72. Log entry, June 5, 1868, Smooth Log, September 17, 1867 - August 27, 1868.

73. Log entry, October 4, 1867, Smooth Log, September 17, 1867 - August 27, 1868.

74. The following six log entries all contain instances between 1865 and 1905 where the Michigan collided either with another vessel or a port facility. Log entry, September 10, 1866, Smooth Log, August 31, 1866 - September 16, 1867; Log entry, September 27, 1867, Smooth Log, September 17, 1867 - August 27, 1868; Log entry, October 4, 1867, Smooth Log, September 17, 1867 - August 27, 1868; Log entry, May 20, 1871, Logbook, January 1, 1871 - December 31, 1871; Log entry, July 4, 1878, Logbook, July 2, 1878 - July 16, 1879; Log entry, September 6, 1892, Logbook, May 1, 1892 - November 9, 1892.

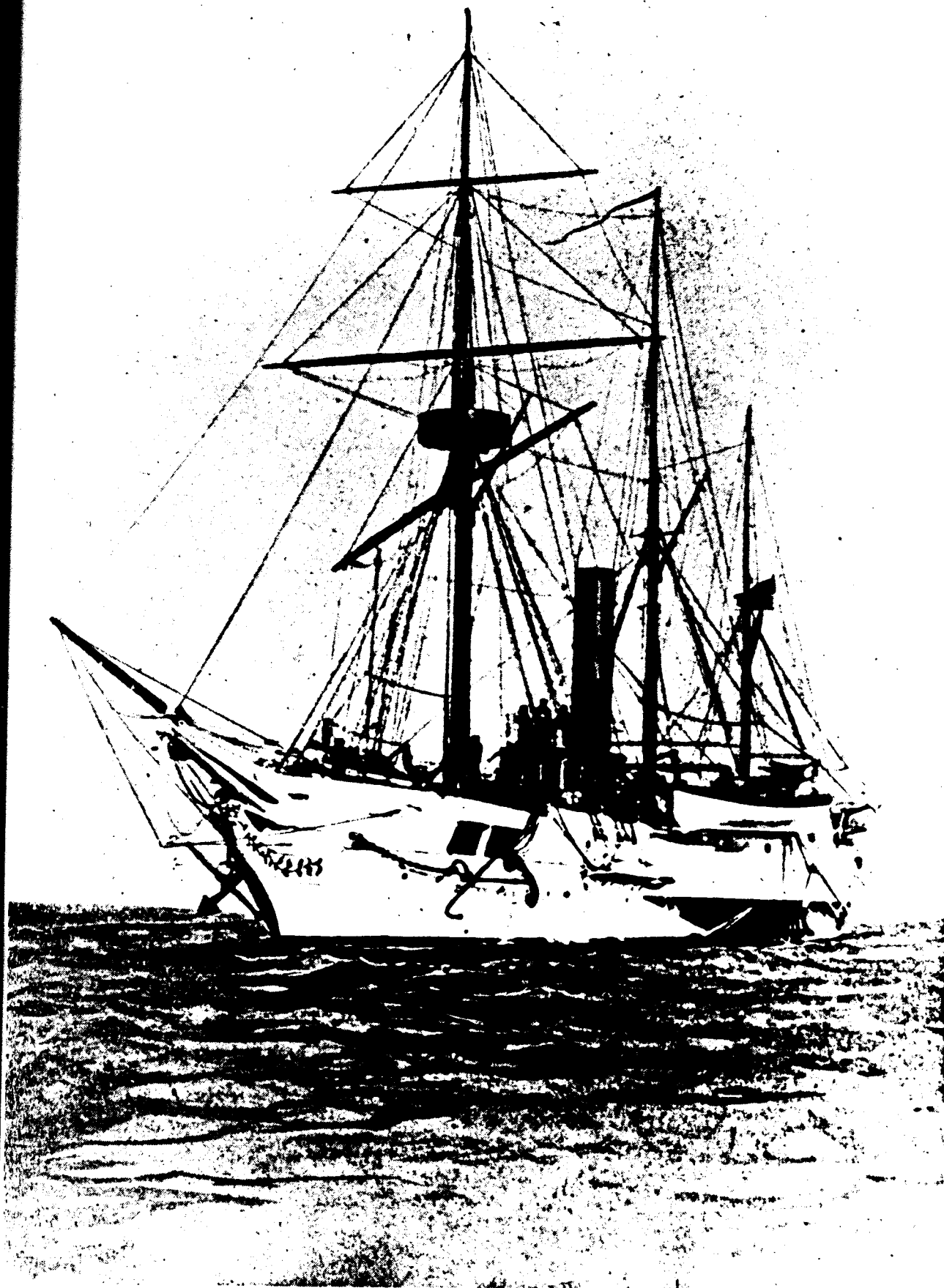
75. Log entry, July 7, 1892, Logbook May 1, 1892 - November 9, 1892.

76. Log entry, May 22, 1893, Logbook May 22, 1893 - December 5, 1893.

77. Log entry, September 12, 1893, Logbook, May 22, 1893 - December 5, 1893.

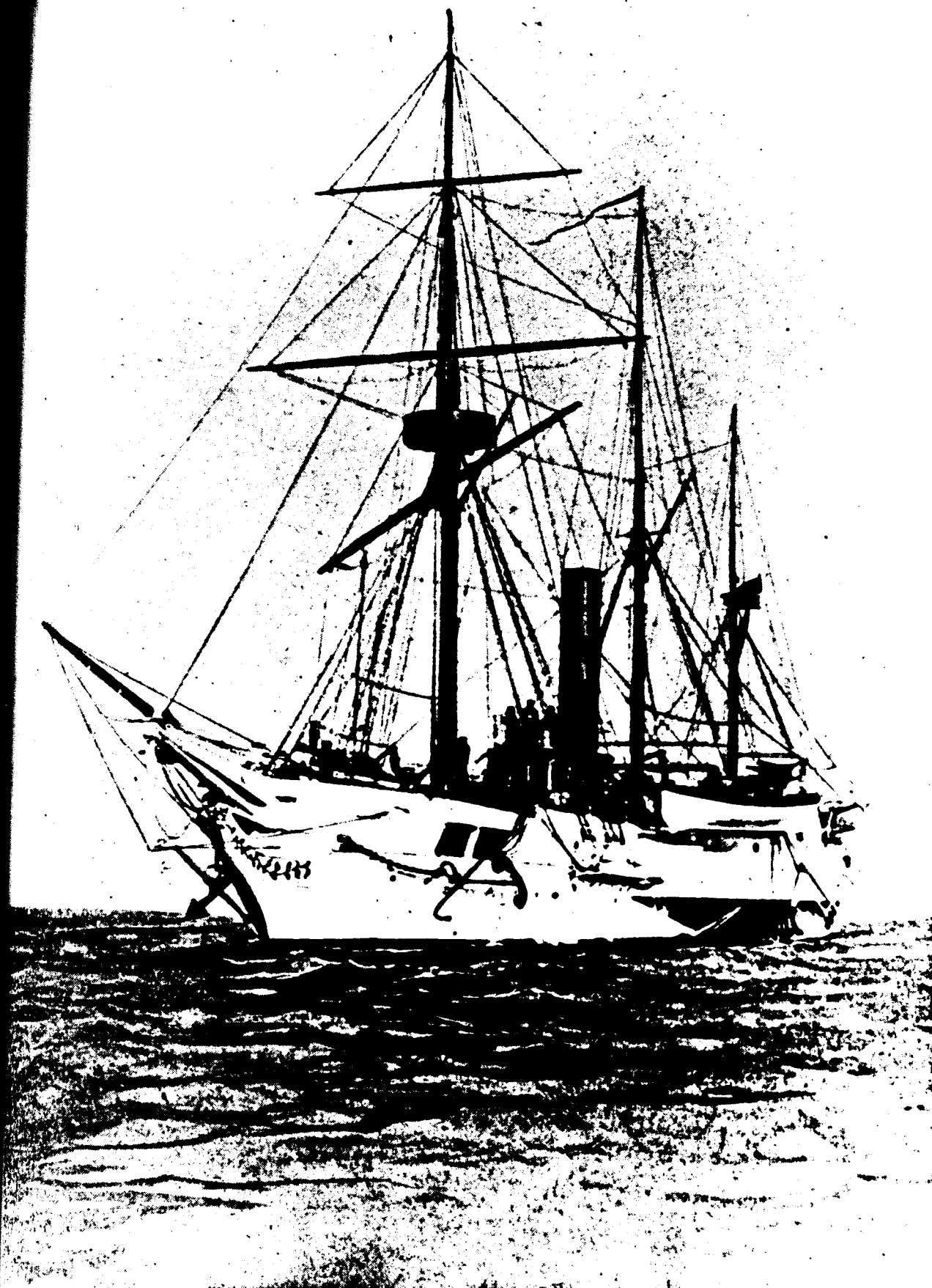
78. Log entry, November 9, 1892, Logbook, November 9, 1892 - May 21, 1893.

79. Coontz, In the Sea, 171.
80. Log entries, July 17, 1897 through July 22, 1897, Log Book, February 11, 1897 - August 23, 1897.
81. Log entry, September 8, 1884, Logbook, August 15, 1884 - December 31, 1884, "Received 30 new Schaghticoke rifles (1874); Log entry, October 9, 1884, same logbook, "received 3 inch breach loading rifled howitzers and a gatling gun."
82. Log entry, July 18, 1867, Smooth Log, August 31, 1866 - September 16, 1867, "received 540 pounds of candles."
83. The log entries from Logbook December 1, 1906 - July 31, 1907, show that reading the electric meter was part of the routine on board ship. Whether this electricity was produced on board ship or whether the ship was wired into the Erie city grid is not indicated.
84. Log entry, February 1, 1887, Logbook, January 28, 1887 - August 5, 1887.
85. Log entry, March 9, 1861, Rough Log, January 5, 1861 - March 19, 1861.
86. Log entries, August 23 - 25, 1868, Smooth Log, September 17, 1867 - August 27, 1868. The ship stayed at the city of Green Bay, Wisconsin, loading fresh food until August 26.
87. Log entry, April 22, 1893, Logbook, November 9, 1892 - May 21, 1893.
88. Log entry, March 25, 1892, Logbook, October 21, 1891 - April 30, 1892.
89. Log entries between November 26, 1892 and April 22, 1893, Logbook November 9, 1892 - May 21, 1893.
90. Penton, "The War Eagle." 9.
91. Penton, "The War Eagle," 9.
92. Log entry, April 29, 1897, Logbook, February 11, 1897 - August 23, 1987.
93. Bill Welch, "Ships Passed in the Night - Too Close for Comfort," [Erie] Times News, April 21, 1980.



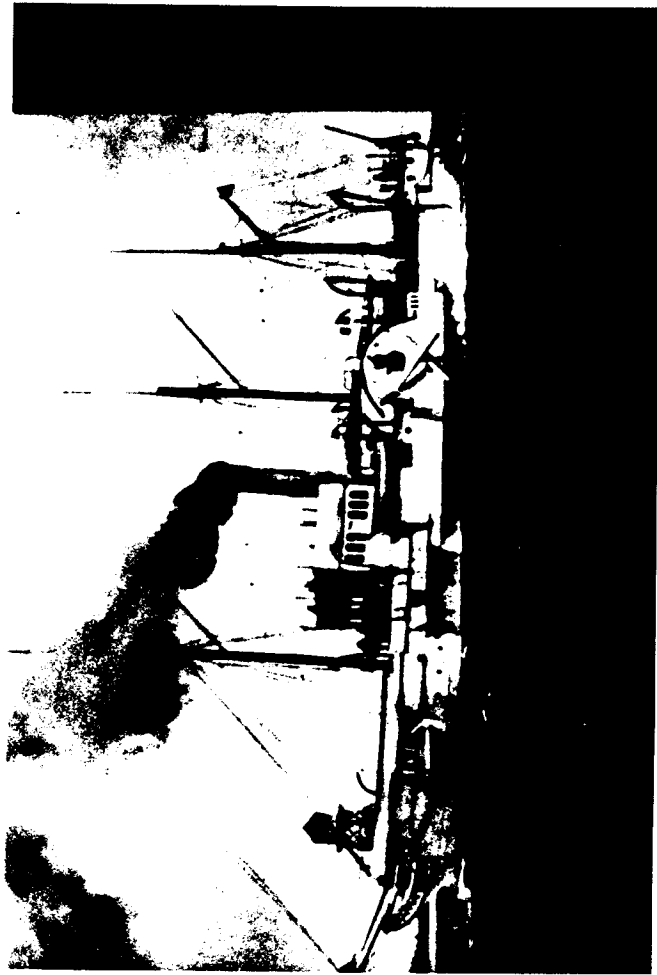
Port bow view of the U.S.S. Michigan as she appeared after being painted white in 1893 but before the large rectangular chart house was constructed in 1897.

(photograph courtesy of the U.S. Naval Historical Center)

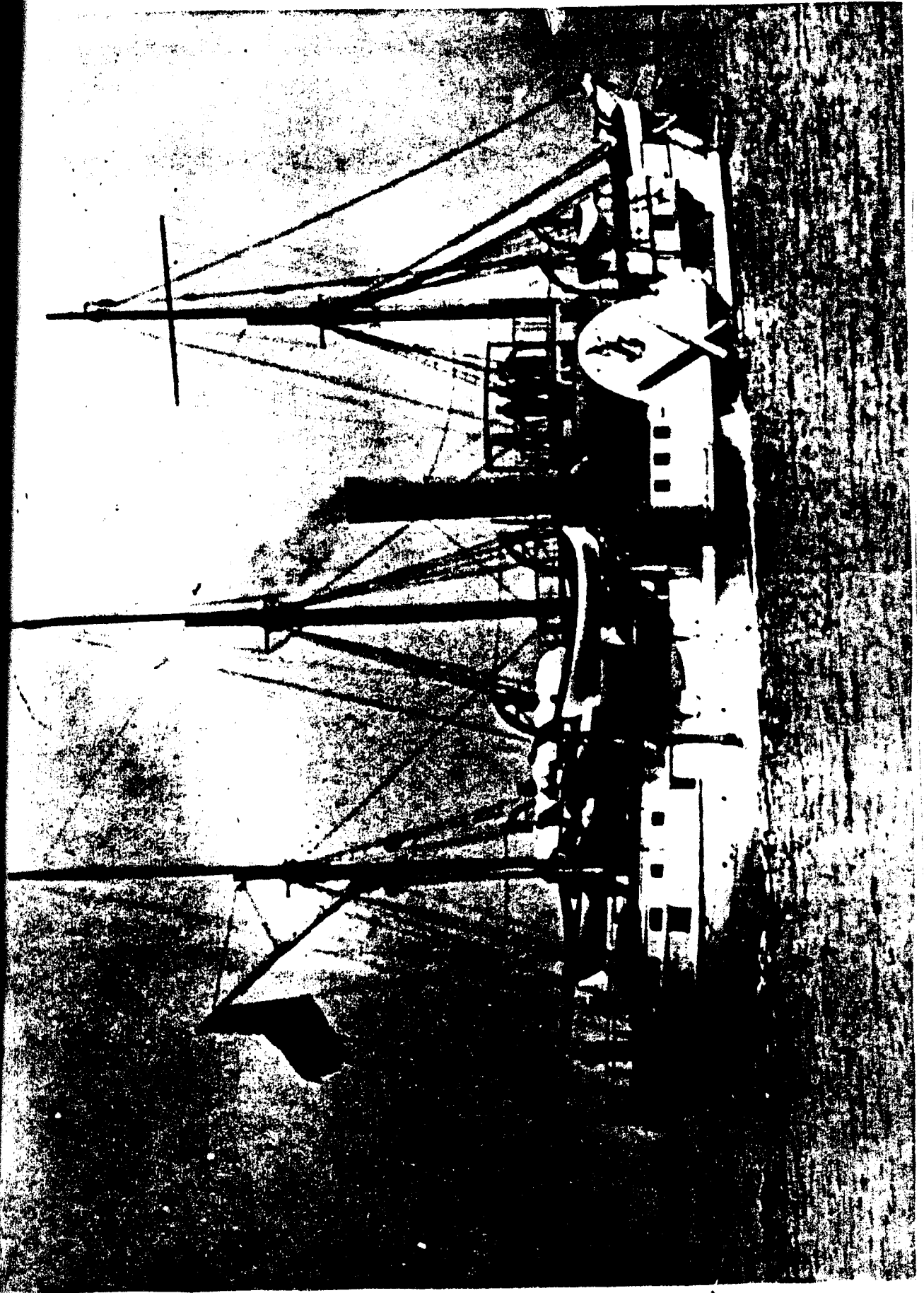


Port bow view of the U.S.S. Michigan as she appeared after being painted white in 1893 but before the large rectangular chart house was constructed in 1897.

(photograph courtesy of the U.S. Naval Historical Center)



Two views of the Michigan as she appeared after 1897. In June, 1905, she was renamed the U.S.S. Wolverine in order that a new battleship, BB-27, could be named U.S.S. Michigan.
(photographs courtesy of the Erie Historical Museum)



Deck of a ship (Courtesy of Sgt. H. J. ...)

Chapter 6. The Final Years

The Wolverine

According to folk lore, "once christened, a ship's name must never be changed or disaster will fall upon craft and crew alike." ¹ Though only folk lore, the curse imbibed by changing a ship's name appropriately describes the final years of the U.S.S. Michigan. The United States Navy Department, not being a superstitious organization, changed the name of the Michigan on June 17, 1905. The U.S.S. Michigan was renamed U.S.S. Wolverine in order that battleship number twenty-seven, could be named Michigan. ² A wolverine is a small northern carnivore whose fierce reputation allowed it to be adopted as the nickname of people from the State of Michigan. Apparently the Navy Department reasoned that Wolverine was an appropriate new name for the Ex-Michigan.

The political motives behind naming the new 16,000 ton pre-dreadnought, U.S.S. Michigan are uncertain. Since battleships take the names of states, nearly forty choices were available for the new ship. It was odd that the navy chose to name the new vessel Michigan since the name was already in use.

In the early 1900's the navy gave the Michigan a new designation from a fourth class steamer-of-war to an unarmored, unprotected cruiser. This change in classification indicated her

obsolescence as a warship. In September, 1905, her outside hull below the water line was painted and found to be free of corrosion and other damage.³ By the time the old Michigan had become the Wolverine, she had been in commission for sixty-one years. This was several times the average lifetime of any navy ship, wooden or steel. The old iron ship's hull and engines remained unchanged and undamaged, but her superstructure, boilers, and white color teamed to make a sham of her once beautiful lines. Regardless of her appearance, the Wolverine was still a stout vessel. Three years after her hull inspection her engines, though sixty-five years old, were still listed by the Bureau of Construction and Repair as "good."⁴

The U.S.S. Wolverine had a very short career of six years and eleven months as a commissioned naval vessel. She continued to cruise the lakes and train sailors. Technical innovations continued to be installed on board. One such device was the ship's rotary spark gap wireless. Although this type of wireless was the "latest technology" in the first decade of the twentieth century, it proved to be virtually useless for communication with other vessels, for no other ships on the Great Lakes possessed a similar device for several years.⁵ The wireless was obviously for training purposes only.

Article number 930 of the U.S. Navy regulations passed in 1909 set periodic underwater body inspections for naval vessels. In order to comply with the new regulation the Wolverine was dry docked in the "old dock of the Toledo Ship Building Co.," in Toledo, Ohio. This dry docking took place on May 9, 1910. A

previous underwater hull inspection of the Wolverine was done only four years and eight months before this inspection. The new schedule apparently called for a new underwater body inspection every five years. Frequent underwater hull examinations were new to the ship. In the nineteenth century the Michigan was very seldom put in dry dock. Lieutenant S.L.H. Hazard, who was in charge of the inspection, reported:

The underwater body was found to be in very good condition, with the exception of the plates under the boilers and under the fore hold. Under the fore hold the plates were corroded through in two places; under the boilers the plates were generally weakened and several rivets had been knocked out while chipping the inner skin. All this corrosion was internal.

All holes mentioned in paragraph 4, were plugged with rivets and a coat of cement from 2 inches to 3 inches in thickness was put on the ship's bottom, under the boilers from frames #28 to frame #44. 6

Despite being in the lakes for sixty-seven years, the hull of the Wolverine appeared in amazingly good condition. Most of the corrosion found on the vessel was located under the boilers. This corrosion could be accounted for as the effects of the acids given off by coal gas in the boilers. Another corrosive factor was the possible spillage of boiler water due to steam condensation and day to day workings in the machinery spaces. Acids are deliberately added, by the ship's engineers, to the boiler water to reduce scaling inside the boiler. The new cement layer acted as a buffer in order to prevent the acids from contacting the hull plates. Lieutenant Hazard attributed the lack of corrosion and fouling to the ship's career in fresh
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water.

Although the ship's hull was in good condition, the Navy Department had no further use for the Wolverine. On June 7, 1911, she was decommissioned and placed in the reserve fleet.

The Wolverine's reserve status was an interim measure and lasted for less than a year. The logbook entry for May 6, 1912, stated, "The U.S.S. Wolverine was placed out of commission this date and loaned to the Naval Force of Pennsylvania." The Pennsylvania Naval Militia was a branch of the United States Naval Reserve. Though the Wolverine was de-commissioned she still belonged to the navy.

The U.S.S. Michigan's naval service of sixty-one years combined with nearly seven years that she operated as the U.S.S. Wolverine, totalled sixty-eight years that she had been continuously commissioned in the United States Navy. The Michigan's total commission time is likely the third longest in the history of the U.S. Navy behind the Constitution, and Independence.

The Pennsylvania Naval Militia

The Wolverine became the headquarters for the First Battalion, Divisions C and D of the Pennsylvania Naval Militia. The Wolverine's militia duties consisted of only one, two week cruise per summer. In addition to this summer cruise, the sailors of the Pennsylvania Naval Militia attended weekly drills on board ship in the summer. During the winter the sailors drilled in an armory located at the corner of Fifth and State Streets in Erie.

In 1908, the citizens of Pennsylvania began to plan activities to commemorate Oliver Hazard Perry's victory over the British fleet during the War of 1812. Pennsylvania's Perry's Victory Centennial Commission was established to organize a celebration of the Perry Centennial. In 1912 the commission authorized Lieutenant Commander William L. Morrison, commander of the Pennsylvania Naval Militia ship Wolverine, to send a "hard hat" diver to explore Misery Bay, located off Presque Isle Bay across from the city of Erie. Although small, Misery Bay had been an anchorage for Perry's fleet between 1812 and 1815. There was some evidence that one of Perry's vessels, the 480 ton brig Niagara lay in the mud on the bottom of Misery Bay.

The diver procured by Morrison, located part of a wooden lower hull section of a ship resting in Misery Bay. After the diver's report, the Perry Centennial Commission concluded that enough of the hull was intact for them to fund raising, and rebuilding the vessel. On November 10, 1912, despite the onset of winter, work began to raise the wreckage. On March 6, 1913, the hull section was recovered with the help of the Wolverine's crew. Despite the lack of original plans for the 1812 warship and a dispute as to the vessel's identity and original appearance, Morrison reconstructed the wreck according to plans that he had drawn from personal research. The reconstruction was completed in two months from the time the hulk was raised. On July 12, 1913, the reconstructed vessel, under tow of the Wolverine left Presque Isle Bay for a tour of the Great Lakes.

Although the Pennsylvania Naval Militia routinely sailed on board the Wolverine for only two weeks out of the summer, the

Summer of 1913 proved to be an exception. The ship, towing Morrison's version of the Niagara, cruised to all the major cities on the lakes during July and August. On September 10, 1913, the tour ended with a visit to Put-in-Bay on South Bass Island, in Lake Erie, where 100 years before, Commodore Perry and his men defeated the British fleet.

The tour proved to be very popular with the people of the Great Lakes. However, the great enthusiasm they had for the reconstructed Niagara produced at least one potentially dangerous incident. Ray Jewell, who was a seventeen year old enlistee in 1913, recalled that in Cleveland, Ohio, so many people wanted to see the reconstructed ship that a crowd surged down toward the brig, which was tied to the pier at the foot of East Ninth Street. The crowd eventually became too large and unruly for the police to control. Commander Morrison was asked by the police to help curb the crowd, which was fast becoming a surging mob, before people were pushed off the pier and drowned. The Wolverine's crew was too small to push back the people so Morrison had the fire hoses of the Wolverine turned on the crowd. The tactic was successful as the pressurized streams of water drove the people away from the edge of the wharf.

As if the tour was stalked by ill fate, another potentially dangerous event occurred in August 1913, while the touring vessels were visiting Lake Michigan ports. The Wolverine was proceeding, with her tow, up Lake Michigan from Chicago to Green Bay when she encountered a fierce storm head on. At the height of the storm the Wolverine could make no head-way. Commander

arrison decided to turn the ships back to Chicago but the vessel came caught in the trough of the sea, or sideways to the wind. Normally the Wolverine could have made the turn easily, but she proved to have too little power to complete the turn hampered by the vessel in tow. The ships did finally come about however, and 14
ced before the storm safely back to Chicago.

Ironically, financial debilitation inflicted more damage on the Wolverine during her days as a militia ship than storms, unruly crowds, or collisions. Robbed of the honor of a warship damaged in the line of service, the Wolverine slowly deteriorated as lack of funds for upkeep and repairs insidiously damaged her internal structure. Edwin Foehlmann reported that while he served on board from 1913 to 1916 "when we didn't have funds for some repair, the crew would take out some brass pipe and sell it, 15
replacing the removed part with steel." Steel, though stronger than brass, was cheaper and did not last as long, thereby, weakening the vessel in the long run.

When the United States entered World War I on April 8, 1917, one of the first contingents to be called for active duty 16
was the First Battalion of the Pennsylvania Naval Militia. The federal government also called the Pennsylvania Naval Militia ship Wolverine back to service. The U.S.S. Wolverine operated as a training ship in 1917 and 1918 out of Great Lakes Naval 17
Station near Chicago, Illinois.

After the war the ship was once again de-commissioned and loaned to the State of Pennsylvania. She returned to her usual dockage on the east side of the public wharf in Erie. Since the facility was built in 1908, the navy, and after 1912, the

Pennsylvania Naval Militia, apparently paid rent to the city for the pier's use. After the war's end the ship was not used during the 1919 navigation season because the reserves, having gone to war, were no longer organized to train, maintain the ship, or pay rent to the city for the docking space. Therefore on April 21, 1919, the Erie City Council gave consent to have the vessel tie up at the public dock without cost. ¹⁸ By early the next year, however, starting February 27, 1920, the Pennsylvania Naval Reserve organized sufficiently once again to call the Wolverine to use as a station ship for training Naval Reserves at the public dock. ¹⁹

Although the ship was of museum piece vintage, she remained in use for the two week training cruises of the Pennsylvania Naval Reserve. On her second cruise into Lake Michigan that summer the ship suffered her first and last major breakdown while passing through the Straits of Mackinac. On 15 August, 1923, the port connecting rod broke off three feet from the crank shaft. The weight of the piston, left unsupported, allowed the it to fall down through the cylinder head stopping only six inches from the hull plates on the bottom of the ship. The vessel came about and limped to Harbor Beach, Michigan, on August 16. Commander William Morrison, who was once again in command of the vessel after his return from serving in Europe during World War I, telegraphed the Navy's Bureau of Construction and Repair for assistance. Morrison wired the bureau because the ship still technically belonged to the navy. The navy, however, could not honor a request for damage assistance from a vessel which was no

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longer in commission.

On August 17, having received no reply from the navy, Morrison decided to try to return to Erie on one engine.

Although the Wolverine had masts her sails were too worn to be used. Besides, naval training by World War I did not include the old art of sailing. The Wolverine accomplished the several hundred mile journey without mishap in six days. It is interesting to note that the port engine, which broke down, was the engine used exclusively in Benjamin F. Isherwood's experiments of 1860 and 1861 and had more hours on it than the starboard engine.

The Final Years

Commander Morrison sent a full damage report to the Bureau of Construction and Repair from Erie. Again, the navy did not acknowledge the report. The vessel remained at the public dock in Erie without repairs, maintenance or upkeep. Because the Wolverine technically belonged to the U.S. Navy, state funding was not available for repairs even though the loss of the ship seriously impaired the activity of the Pennsylvania naval reserve unit in Erie.

In January, 1926, the federal government offered the Wolverine on temporary loan to Erie as a historical artifact. The Erie City Council, however, saw this as an effort on the part of the navy to dump the financial responsibility for the ship's upkeep on the city. The city rejected the navy's offer. Sadly, few if any of the people of the community knew the long-standing

historic significance of the ship. This ignorance coupled with the ship's dilapidated appearance, led to a veritable tennis match between the city and the navy, each attempting to pass the responsibility for the vessel on one another. Had people remembered the ship as the once beautiful and powerful U.S.S. Michigan instead of the ungainly Wolverine, or as it had been dubbed in World War I, the "Mechanical Duck," there may have been more of an effort expended to save the ship. ²⁴

On June 10, 1926, the navy announced their decision to sell the Wolverine. The naval reserve unit in Erie, however, through Congress, apparently pressured the navy into keeping the ship. On January 6, 1927, the navy, having failed in their attempt to sell the vessel, made an effort to give full ownership of the ship to the city under Public Law 532 of the 69th Congress. H.R. 12853, which was passed on December 21, 1926, stated:

That the Secretary of the Navy is hereby authorized and directed to turn over to the municipality of Erie, Pennsylvania., the gunboat Wolverine, for use in connection with the training of the Naval Reserve Organization of the City, Provided, That no expense to the Government shall be involved. ²⁵

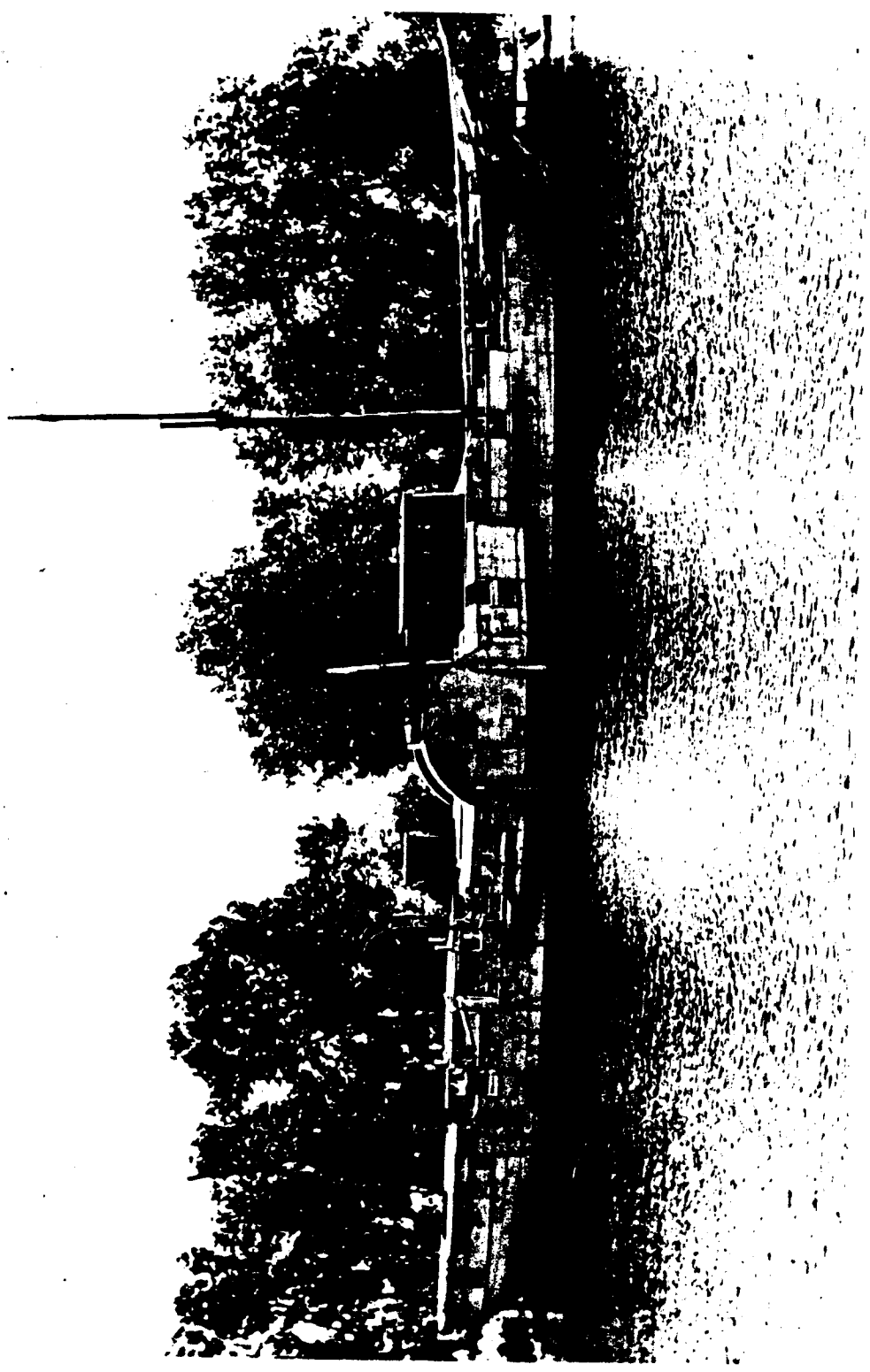
The Erie City Council, however, continued to refuse responsibility for the vessel. It appears that the Council's tactic, to ascertain what the navy would do about the ship, was to hesitate for several months before attempting to reply to Congress. The navy in the meanwhile, believing their responsibility for the ship had ended via the newly passed law, struck the vessel from the navy register and put the ship up for sale on March 12, 1927. ²⁶

No buyers for the ship were found and on July 19, 1927,

possibly influenced by the naval reserve, the Erie City Council, in a carefully worded reply to Congress stated, "His Honor, the Mayor be and hereby is directed to ... thankfully accept the offer of the loan of the Wolverine.²⁷ The ambiguity of the statement "turn over to" found in Public Law 532 sealed the fate of the Wolverine. For now, the navy believed that they were no longer responsible for the ship and the City Council of Erie interpreted the term, "turn over to," to mean on loan from the navy.

Since the city considered the vessel to be on loan, the city council did not feel compelled to spend the funds necessary to repair or restore the vessel. After her engine failure of 1923, the ship remained intact and in working order except for her engines. In 1927, the ship had been turned over to the city with all its equipment, except for the guns, which the navy had removed. Nevertheless, the ship had been neglected during the period between 1923 and 1927 leaving her in a deplorable condition. Vandals had stripped much of the brass from the ship while it was tied to the public dock.²⁸ The decks had begun to leak and the steel pipes and fittings put in since 1900 were rusting, leaky, and unsafe.²⁹

Finally, in November 1928, the Wolverine's last commander William Morrison with a friend, Captain J.P. Grant made an effort to protect the ship from vandalism. The two men had the Wolverine towed to Crystal Point in Misery Bay, where she would come under the jurisdiction of the Presque Isle State Park Police.³⁰



Boat on the River, the Great Falls of San Francisco

In 1929 the Erie Historical Association initiated an investigation into the cost and necessary measures needed to save the vessel and restore her to her former proud lines. The architect hired to ascertain the feasibility of the restoration, Frank F. Fowle, concluded in his report that the cost to restore the ship would be \$100,000 to \$200,000. The price of maintenance per year was estimated at \$5000 to \$10,000. Fowle suggested that if the price of restoration and maintenance was considered too expensive, she could be scrapped. The vessel's engines could be donated to the Smithsonian Institute or Julius Rosenwald's proposed Chicago Museum. ³¹ Mr. Fowle did not estimate the revenue or economic potential to the community of use of the ship as a museum. Without including any positive factors to balance the cost of restoring the ship, the price was considered too high for the community to undertake without federal help. Although apparently asked for, federal financial aid was not forthcoming. The government was preoccupied with the stock market crash and subsequent Great Depression.

There were other efforts made to save the Wolverine. In 1929 Henry Ford offered to restore the vessel at his new Historic Greenfield Village in Michigan. ³² In the early 1930's the state of Michigan and the City of Detroit, both having close connections with the ship, offered to financially back ³³ restoration. These proposals were of no avail. The City Council of Erie continued to maintain that the navy actually held title to and ownership of the vessel. Efforts to contact the navy apparently revealed their belief that the city of Erie

controlled the fate of the ship.

Years would pass while the Wolverine rested in Misery Bay, seemingly out of sight and out of mind. Nevertheless, a small but dedicated group of people in Erie continued to approach the federal government about funding her rehabilitation. They stressed that the jobs generated by the ship's restoration would be helpful to the people of Erie who were suffering from the depression. In response to these requests W.P.A. funds were made available for the restoration of the Wolverine. Once again, however, the navy refused to take responsibility for restoring the ship and the funding was shelved.

In an apparent reversal of the their contention that they were not responsible for the ship, a navy board of inspection examined the vessel on November 1, 1939. The board valued the ship at \$100 and recommended that she be sold as a hulk to be scrapped. In January 1940 the vessel was closed to the public since the decks and rigging were unsafe. The recommendation for scrapping the ship was not carried out. The delay in the scrapping the vessel may have been caused by President Roosevelt's proposal to create a maritime museum in Washington called, "The Port of Missing Ships." The ships which would have been collected for this museum were the Constitution, Constellation, Hartford, Michigan and Boxer. Congress however, did not appropriate money for the project.

On December 7, 1941, the United States entered into another war, the fifth major conflict since the U.S.S. Michigan was launched. For the first time in a hundred years the Michigan was unable to respond to the emergency by offering training

facilities for new recruits. In the fervor to prepare the country for the struggle which lay ahead no resource which might help win the war was overlooked. This included the neglected hulk lying in Misery Bay. In April 1942 First Lieutenant M.K. Henderson of the Ordnance Bureau sent a letter urging Mayor Charles R. Barber to release the ship to be scrapped to make shells and other war material. James Purcell, the president of the Niagara association, however, rallied the historical groups of the city to fight the proposed scrapping. The Niagara Commission had since 1913 maintained the reconstructed Niagara as a historic attraction. Purcell envisioned a restored Michigan placed alongside the reconstructed Niagara in a maritime history theme park.

The controversy raged in Erie for several months. The consensus of opinion in the community, however, was summed up by Harold Sullivan when he stated that although the loss of the vessel would be a shame, "may part of her one day find herself in the bomb that lands on the mad painter." For years the mayor and city council had claimed that the ship belonged to the navy and therefore could not be given to groups who wished to restore her. It would have been interesting to see if the same reasoning applied in preventing the ship from falling into the hands of the scrap yard. The timely intervention of President Franklin D. Roosevelt saved the mayor from making a decision. In a letter to Ralph Tillotson of the Curtiss Organizing Co., a company which strongly advocated the scrapping of the ship for war materials, F.D.R. stated,

It is my opinion that memorials such as the Wolverine constitute a distinct morale factor which is of greater value than the metal which would be made available by their reduction to scrap metal.

It is, therefore, the present intention to retain the Wolverine in its present status under loan to the city of Erie, Pennsylvania. 39

Although the Wolverine was saved by the president, her name was taken in 1942 by the navy to be placed on a paddlewheel aircraft carrier used to train pilots in the Great Lakes. 40 The nameless hulk remained unrepaired and neglected in Misery Bay.

In March, 1944, the Senate agreed to consider a proposal from a newly organized group called, "The Foundation For the Original United States Ship Michigan Incorporated." The proposal entailed legislative action to vest title to the corporation so that it could take responsibility for the vessel without the city and navy interfering. The Foundation proposed to do one of four possibilities. They planned to either salvage, sink, scrap or restore the vessel. The bill was reported on favorably in Senate Committee, particularly since the Foundation's proposal involved no federal expenditure what-so-ever. 41 Pre-occupation with the war apparently prevented Congress from acting on the bill. The bill died when Congress adjourned in December 1944. 42

The U.S.S. Niagara Commission was also attempting to straighten out the legal entanglement which surrounded the vessel. Unlike The Foundation for the Original U.S.S. Michigan, the Niagara Commission definitely wanted to save the ship for posterity. The Commission encouraged federal legislators to pass a law vesting full title of the ship to the City of Erie.

The Commission operated under the assumption that the city of Erie would donate the ship to them because they had the facilities and resources to restore the hulk and locate it next to the rebuilt Niagara.⁴³ It is ironic that so far as the navy had been concerned, until 1939, the Wolverine had already been donated to the city on December 21, 1926.⁴⁴

Unfortunately the Niagara Commission's plans to save the Michigan came too late. In the summer of 1948 the Foundation For the Original U.S.S. Michigan Incorporated came across a seldom used law which had been passed in 1883. This law stated that the navy could sell a ship to a municipality or a non-profit corporation for cultural purposes, with the president's approval. President Roosevelt was no longer living and his predecessor Harry Truman, perhaps not as historically conscious, approved of the sale on June 22, 1948.⁴⁵

The Foundation consulted their constituents as to what should be the fate of the ship. Ninety-eight percent of the respondents called for the scrapping of the ship in order to pay for a memorial. Spurred on by this mandate, the Foundation made immediate plans to scrap the ship and use the proceeds to erect a token monument to the Michigan. The engines of the vessel were offered to the Smithsonian Institute but the offer was not accepted.⁴⁶

Early in 1949, the Michigan was pumped out in order to make her last voyage. Although her decks and woodwork were rotted her hull was found to be virtually free of leaks and totally free of rust. In 1944 an analysis performed on a section of the Michigan's keel, by the Republic Steel Corporation, had

demonstrated that after 100 years there was no deterioration due to oxidation of the iron measured to a thousandth of an inch. The keel was .625 inches in thickness or as was specified in 1843, ⁴⁷ 5/8 inch.

The Michigan was towed with difficulty across Presque Isle Bay to the wrecking yard. Nearing the yard, she rammed and swamped the tug that towed her. Nevertheless, the U.S.S. Michigan was scrapped with the forward ten feet of the bow being saved for a monument. Some of her bolts studs and spikes were melted down by the Erie Foundry Co. and made into letter openers and paper weights which the Foundation For the U.S.S. Michigan sold in order to help pay for the monument. The money raised from the sale of the Michigan as scrap metal, donations, and souvenirs amounted to \$2432, enough to erect the bow section upright in a concrete base as a memorial to the ship (see page ⁴⁸ 184).

Conclusion

It is ironic that although the Michigan survived five major wars, she was destroyed during peace time for no apparent reason; destroyed by an organization who's name indicated the opposite of it's intent. The hull was in no immediate danger of deterioration and although her woodwork was rotted, restoration of the ship to its original appearance necessitated the woods removal rotted or not. It is possible that had the vessel survived just a few more years, the attitudes, perceptions and general interest about the history of the ship, the navy, and the

Great Lakes in general may have led to her restoration.

The U.S.S. Michigan represented the link between the old sailing navy and the modern steam and steel navy. Each integral part of the Michigan, including her engines, hull, ordnance, and men were the direct predecessors of what was to come and yet, contained elements of what went before.

The Michigan's importance was not merely a function of ship's mechanics. Historical lessons can be learned by the presence of what was once the fastest and most powerful steam vessel in the United States Navy. The story of the vessel's construction challenges the popular misconception that all was quiet and peaceful on the Great Lakes after the War of 1812. People of this century knew the Michigan as the harmless and obsolete "Mechanical Duck" or Wolverine, rather than the powerful warship she once was. Therefore, it is not surprising that the misconceptions of the quiet lake frontier and peaceful role of the Michigan continue.

Another important consideration in the history of the U.S.S. Michigan is the men who sailed in her and the lives of the people affected by her presence. The history of the Michigan is in many ways interwoven with the history of Erie, Pennsylvania. The vessel's sailors lived out at least part of their lives on the Great Lakes and were therefore isolated from the rest of the United States Navy. Their social history, therefore, is unique to the lakes area.

The forlorn memorial erected in Erie to the ship's memory can in no way demonstrate the historical significance of the

Michigan. The memorial can, at best, show what part of the ship looked like during the small part of her career as the whitewashed Wolverine.

The U.S.S. Michigan survived for 106 years. For over a century she affected the lives of the people that saw her in passing and the men who served on board her. But as fate would have it,

No wind blows in favor of the ship that has no port of destination.- Montaigne.

Chapter 6 Endnotes

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2. Dictionary of American Naval Fighting Ships, IV (Washington D.C., 1969), 351.
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4. Penton, "The War Eagle," 9.
5. Bill Welch, "Ships Passed in the Night - Too Close for Comfort," [Erie] Times News, April 21, 1980. Welch relates an interview with seaman Ray Jewell.
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18. Miscellaneous Bills, S. - 1720, Senate pamphlet, 1, 78 Congress, 2 Session, Docket No. 141, Wednesday March 15, 1944. Hereafter cited as S. - 1720.
19. S. - 1720, 1.
20. Herbert R. Spencer, "The Foundation For the Preservation of the Original U.S.S. Michigan Incorporated," Steamboat Bill of Facts, Journal of the Steamship Historical Society of America, XVI (April, 1945), 288. Hereafter cited as Spencer, "Foundation For...." ; Herbert R Spencer, "The Iron Steamer," American Neptune, IV, No. 3 (July, 1944), 192. Hereafter cited as Spencer, "The Iron Steamer."
The accounts of the breakdown seem to be divided into those that say the breakdown occurred on August 12, and those that say it occurred on August 15. Spencer uses both days depending on the article. In "Foundation For....," he acknowledges the assistance of William Morrison who was the commander of the Wolverine at the time of the engine trouble and is therefore likely to be the most accurate account.
21. Spencer, "Foundation For....," 288.
22. Spencer, "Foundation For....," 288. The vessel's history after her breakdown is not well documented and many of the sources are contradictory.
23. S. - 1720, 1.
24. Hulce, "Michigan at Sea," 104.
25. S. - 1720, 2; Spencer, "Foundation For....," 289.
26. S. - 1720, 2; Spencer, "Foundation For....," 289.
27. S. - 1720, 2; Spencer, "Foundation For....," 289.
28. Open Letter to Dr. S.K. Stevens, Chairman of the Pennsylvania State Historical and Museum Commission, 1962, author unknown, Wolverine file, Erie Historical Society. Hereafter cited as Stevens Letter. ; Carlos C. Hanks, "An Iron Patriarch Passes," United States Naval Institute Proceedings, LXVIII, Nos. 5-8 (August, 1942), 106. Hereafter cited as Hanks, "Patriarch Passes."
29. Spencer, "The Iron Steamer," 192.
30. Hanks, "Patriarch Passes," 106.

31. Report of A.A. Culbertson to the Erie Historical Society relating information gathered by Frank F. Fowle, June 25, 1929, Wolverine file, Erie Historical Society.
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34. S. - 1720, 2.
35. S. - 1720, 2.
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40. John H. Bascom, Rev. Edward J. Dowling, S.J. Peter, B. Worden and Dr. Richard J. Wright, Great Lakes Ships We Remember, revised edition (Cleveland, 1984), 353.
41. S. - 1720.
42. Report of Capitols Foundation for the Original U.S.S. Michigan Incorporated, January 10, 1945, Wolverine file, Erie Historical Society. The Capitols Foundation for the Original U.S.S. Michigan Incorporated and the Foundation for the Original U.S.S. Michigan Incorporated are the same organization.
43. Letter to James H. Duff from the Secretary of the U.S.S. Niagara Commission, September 26, 1946, Wolverine file, Erie Historical Society; Letter to Senator Francis J. Meyers from the Secretary of the U.S.S. Niagara Commission, June 7, 1948, Wolverine file, Erie Historical Society.
44. S. - 1720, 2; "Foundation For.....," 289.
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46. Spencer, "Report to Foundation."

47. Report of the fate of the Michigan by H.R. Spencer, January 9, 1953, Wolverine file, Erie Historical Society. Hereafter cited as Spencer, "Report of the Fate." Spencer, "The Iron Steamer", 189. The following statistics concerning the analysis of the iron hull of the Michigan are from, "The Iron Steamer," 189.

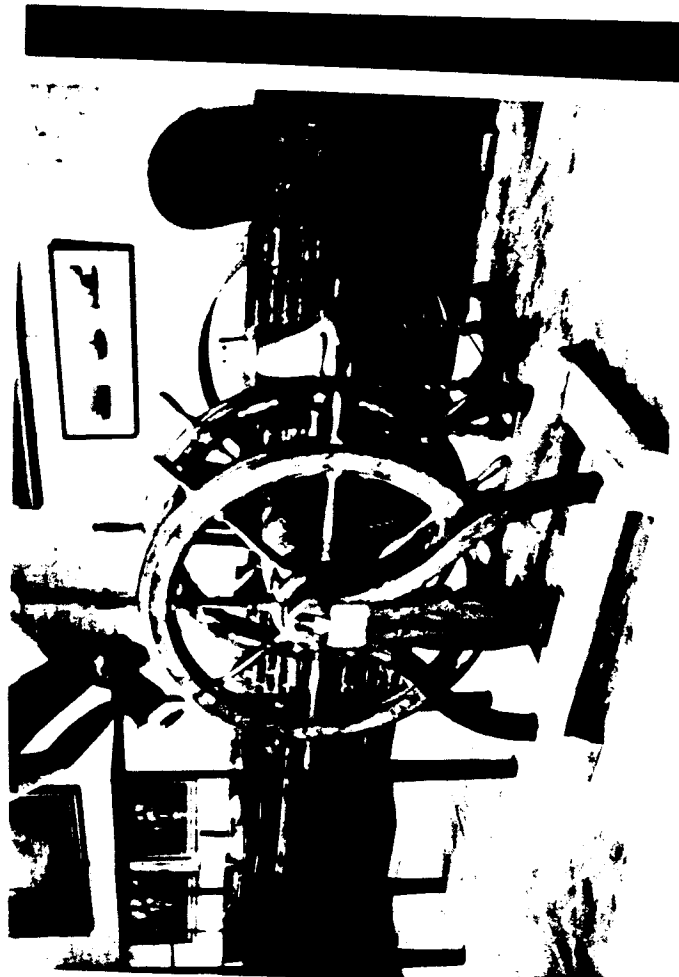
Chemical Analysis in percent

Carbon	.02
Manganese	.02
Phosphorus	.119
Sulphur	.016

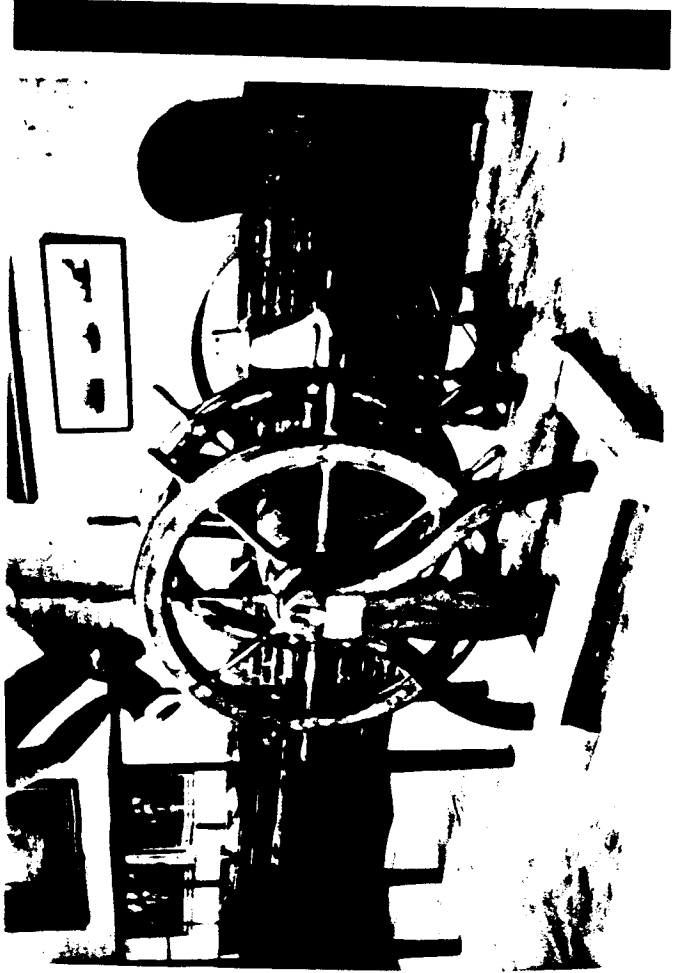
Physical and Metallographic Properties

Gauge	.625 inches
Hardness - Rockwell B	53-59
Grain Size	2 M3/1
Inclusions	Many large stringers in both directions

48. Spencer, "Report of the Fate."



Artifacts from the U.S.S. Michigan. Upper left and right - the bow section memorial located in Erie, Pa. Ship's wheel and gangway ornamentation located at Mariner's Museum, Newport News, Va.



Artifacts from the U.S.S. Michigan. Upper left and right - the bow section memorial located in Erie, Pa. Ship's wheel and gangway ornamentation located at Mariner's Museum, Newport News, Va.

Appendix A

The entire cost of the U.S. Steamer Michigan, so far as can be ascertained by vouchers, in the hands of Purser William A. Bloodgoode.

Hull, Stackhouse & Tomlinson's bills, as rendered by Purser Andrew I. Watson (507,387 lbs. at 13 and 3/4 cents)...\$31,061.25.

Stackhouse & Tomlinson's bills, paid by William A. Bloodgoode, as for contracts.....\$38,704.46.

Stackhouse & Tomlinson's bills, paid by William A. Bloodgoode as for contracts.....\$311.46.

Stackhouse & Tomlinson's bills, for engines, as rendered by Purser A.I. Watson.....\$31,559.89.

Stackhouse & Tomlinson's bills, paid by Purser W.A. Bloodgoode.....\$29,268.02.

Gun Deck, contract of Reed & Richards, for timber, as rendered by Purser A.I. Watson.....\$1,678.77.

Gun Deck, so far as can be ascertained, being bills paid by Purser W.A. Bloodgoode.....\$805.39.

Joiners, so far as can be ascertained, being bills paid by purser W.A. Bloodgoode.....\$571.99.

Masts and Spars, so far as can be ascertained, being bills paid by Purser W.A. Bloodgoode.....\$171.81.

Rigging, 17,418 lbs.....\$1,818.71.

Blocks, bills paid by Purser W.A. Bloodgoode.....\$246.90.

Sails, Freight on awnings, Sails & c & c from New York....\$34.69.

Sails, bills for Canvass, Hammock blocks & c & c.....\$495.72.

Boats, Bill for 5 boats, including materials and spars...\$734.22.

Labour, on Monthly Pay Rolls of Mechanics & c for Sept., Oct., Nov. & December 1843 and for Jan., February, March, April, May, June, July, August, and September 1844.....\$8,835.85.

Steering Wheel & Rope.....\$173.88.

Anchors, Bills for Anchors, as per Contract, & proving [do]..... \$1,136.91.

stores of different kinds, Transportation, Fitting cabin and
 officer's quarters, brooms, Stationary, office rent, Stoves,
 candles, Whiting, Glass, labour, Rent of Loft, wharfage, Postage,
 Mastain bars, Linseed oil, Hawling Shells to magazine, ships
 library, Brasses for signal Lamps, Lead Pipe, Lamp Globes, Dish
 covers, Jack screw, Carpet for Cabin, Tallow, sheet lead, Lamps,
 Sheet Iron, Wood, Copper Pipe, Block Tin, Repairs of tools, use
 of Scow, Lamp black, Rent of yard, Carpenters tools, Carpenters
 Stores, Anvil, Iron, Lanterns, Emory, Files, Packing Yarn,
 Whiping stuff, Sheet brass, White Lead, Paint Brushes, corn
 brooms, Sperm oil, Spirits Turpentine, Pig Lead, Scrub brushes,
 Log Books, Black Paint & c & c.....\$4,868.79.

Total.....\$152,478.71.

U.S. Steamer Michigan
 Erie, Penn. January 7, 1845
 W.A. Bloodgoode

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Appendix B

Engines

Diameter of cylinders.....	36 inches
Stroke of pistons.....	8 feet
Space displacement of both steam pistons per stroke.....	113.088 cubic feet
Diameter of air pumps.....	29 1/2 inches
Stroke of air pump pistons.....	31 1/2 inches
Space displacement of both air pump pistons, per stroke.....	24 5/10 cubic feet
Capacity of condenser.....	21 cubic feet
Capacity of hot well, or reservoir.....	21 1/2 cubic feet
Diameter of feed pump.....	5 1/2 inches
Stroke of feed pump piston.....	31 1/2 inches

Boilers

Length of each boiler.....	19 feet
Breadth of each boiler.....	8 feet 6 inches
Height of each boiler (exclusive of steam chimney.....)	9 feet 3 inches
Area of the total heating surface in the two boilers ..	1976 square ft.
Area of the total grate surface in the two boilers.....	84 square ft.
Area of 1st Flues at back end.....	20 square ft.
Area of 2nd Flues at back end.....	14.3 square ft.
Area of Chimney.....	14.2 square ft.
Aggregate cross area of the lower flues at back of boiler in both boilers.....	14,848 square ft.
Cross area of the smoke chimney.....	14,186 square ft.
Height of smoke chimney above grates*.....	37 feet 3 inches
Capacity of steam room in the two boilers.....	430 cubic feet
Number of furnaces in the two boilers.....	4
Width of each furnace.....	44 1/2 inches
Weight of the two boilers, chimney, & c.....	68,000 lbs.
Weight of the water in both boilers.....	50,000 lbs.
Ratio of fire surface to cubic foot of Cylinder.....	15 to 1
Ratio of fire surface to Grate Surface.....	19.75 to 1
Consumption of Bituminous Coal per hour.....	1400 lbs.
Water evaporated by 1 lb. of Coal.....	6.44 lbs.
Coal per hour to a square foot of Grate.....	16.5 lbs.

*Listed as 54 feet in Bartol's Treatise.

Paddle Wheels

Diameter from outside to outside of paddles.....	21 feet
Length of paddles.....	7 feet 6 inches

Width of paddles.....26 inches
Immersion of lower edge of paddle at 7 feet 7 inches
draft.....3 feet 1 inch
Number of paddles in one wheel.....16
Number of paddles in water in one wheel.....3
Area of two paddles.....32.5 square ft.
Area of immersed paddle surface.....97.5 square ft.

From Stuart's Naval and Mail Steamers and Bartol's Treatise on the Marine Boilers of the United States.

Appendix C

Commanders of the U.S.S. Michigan*

		9/1844 to 11/1845
1844	Captain William Inman.....	11/1845 to 4/1848
	Commander Stephen Champlin.....	4/1848 to 12/1849
	Commander James M. McIntosh.....	12/1849 to 12/1851
1850	Commander Oscar Bullus.....	12/1851 to 2/1854
	Commander Abraham Bigelow.....	2/1854 to 9/1855
	Commander John S. Nicholas.....	9/1855 to 10/1855
	Commander G.H. Scott.....	10/1855 to 12/1857
	Commander Charles H. McBlair.....	12/1857 to 3/1861
1860	Commander Joseph Lanman.....	3/1861 to 11/1864
	Commander John Carter.....	11/1864 to 4/1866
	Lt. Commander F.A. Roe.....	4/1866 to 4/1868
	Captain Andrew Bryson.....	4/1868 to 9/1870
1870	Commander J.E. Jouett.....	9/1870 to 10/1873
	Commander George Brown.....	10/1873 to 5/1876
	Commander James H. Gillis.....	5/1876 to 7/1876
	Lt. Commander & Commander Arthur H. Wright.....	and 12/1876 to 8/1877
	Commander Charles H. Cushman.....	7/1876 to 12/1876
	Commander George W. Haywood.....	8/1877 to 8/1880
1880	Commander Albert Kautz.....	8/1880 to 8/1883
	Commander John J. Reed.....	8/1883 to 4/1887
	Lt. Commander J.J. Hunker.....	4/1887 to 2/1888
	Commander Henry F. Picking.....	2/1888 to 11/1889
	Commander George H. Wadleigh.....	11/1889 to 12/1891
1890	Commander George E. Wingate.....	12/1891 to 5/1893
	Lt. Commander R.M. Berry.....	5/1893 to 12/1894
	Lt. Commander B.S. Richards.....	12/1894 to 5/1896
	Lt. Commander E.H. Leutze.....	5/1896 to 4/1897
	Lt. Commander Richard Rush.....	4/1897 to 3/1898
	Lt. Commander W.H. Everett.....	3/1898 to 4/1898
		and 8/1898 to 8/1899
	Lieutenant J.A. Shearman.....	4/1898 to 4/1898
	Lieutenant J.B. Blish.....	4/1898 to 4/1898
	Boatswain Charles Miller.....	4/1898 to 8/1898
	Lt. Commander C.F. Perkins.....	8/1899 to 4/1900
1900	Lt. Cmdr. & Cmdr. William Winder.....	4/1900 to 2/1904
	Commander Charles Laird.....	2/1904 to 2/1905
	Commander Henry Morrell.....	2/1905 to 6/1907

Commanders of the U.S.S. Wolverine from June 21, 1905

		6/1907 to 11/1908
	Commander H.W. Harrison.....	11/1908 to 5/1910
1910	Commander William F. White.....	5/1910 to 10/1910
	Lt. Commander W.D. McDougall.....	10/1910 to 6/1911
	Lieutenant S.L.H. Hayward.....	6/1911 to 5/1912
	Chief Boatswain Edwin Murphy.....	

Pennsylvania Naval Reserve May 6, 1912

Lieutenant N.F.P. William L. Morrison.....5/1912 to 1/1914
 and 7/1920 to 1923
 Ensign N.F.P. J.P. Smart.....1/1918 to 1/1918
 Lieutenant U.S.N.R.F. H. Vanderwerp.....1/1919 to 7/1919

*Taken from the individual logbooks of the vessel (1844-1923).

Appendix D

Ordnance of the U.S.S. Michigan

<u>Year</u>	<u>Number and Type</u>	<u>Serial Number</u>	<u>Weight</u>
1843	2, 64-pounder 8-inch pivot *	NA	6300
	4, 32-pounder Caronades (not mentioned in ship's log)	NA	3200
1844	1, 64-pounder 8-inch pivot	NA	6300
1863	1, 64-pounder 8-inch pivot	NA	6300
	1, 30-pounder Parrott rifle	NA	NA
	6, 24-pounder Dahlgren Howitzers	NA	NA
	5, 20-pounder Parrott rifles	NA	NA
	2, 12-pounder Howitzers	5167	NA
1871	6, Breach-loading rifled Howitzers 3-inch	NA	NA
	2, 12-pounder Howitzers	5167	NA
1878	6, Breach-loading rifled Howitzers 3-inch	NA	NA
	1, Gatling gun	NA	NA
1882	6, Breach-loading rifled Howitzers 3-inch	NA	NA
	2, Gatling guns	NA	NA
1885	4, Breach-loading rifled Parrott guns 4.2-inch 30-pounders	17 41	3337 3324
	converted Civil War muzzle-loaders.	124 126	3338 3340
	1, Breach-loading rifled Howitzer 3-inch	350	NA
	1, .45 caliber Gatling gun	13	NA
	4, Breach-loading rifled Parrott guns 4.2-inch 30-pounders	17 41 124 126	3337 3324 NA 3340
1887	3, Breach-loading rifled Howitzers 3-inch	28 29 350	NA NA NA

	2, .45 caliber Gatling guns	13 29	NA NA
1897	4, 6-pounder D.S.R.F.'s (Mark 1, 1893)	88 89 90 91	NA NA NA NA
	2, 6-pounder Hotchkiss rapid fire guns (1892-1893)	NA NA	NA NA
	2, 1 pounder Hotchkiss rapid fire guns	101 106	780 792
	2, .45 caliber Gatling guns	13 29	NA NA
1903	4, 6-pounder D.S.R.F.'s (Mark 1, 1893)	88 89 90 91	NA NA NA Na
	4, 6-pounder Hotchkiss rapid fire guns, 2(1892-1893), 2(1901)	NA NA 624 625	NA NA NA NA
	2, 1-pounder Hotchkiss rapid fire guns	101 106	780 792
	2, .45 caliber Gatling guns	13 29	NA NA
1908	6, 6-pounders	NA	NA
	2, 1-pounder Hotchkiss rapid fire guns	101 106	780 792
	2, .45 caliber Gatling guns	13 29	NA NA
1918	2, 3-pounders	NA	NA

NA- Not available.

*Some sources list the 8-inch guns as Paixhan Guns. Paixhan guns were strictly shell firing guns which were too light to fire solid shot. According to J.A. Dahlgren, however, in his book Shells and Shell Guns (1857) Paixhan Guns or shell guns were never used as pivot guns because of their limited range and penetrating power. Since Caronades and Paixhan guns are both

relatively short range weapons, it makes no sense to match these types of short range weapons on this vessel. Therefore, I believe that the 8-inch guns aboard the Michigan were not Paixhan Guns but regular 8-inch pivot guns capable of firing solid shot as well as shells.

Most contemporary sources list the 8-inch guns as 68-pounders. Dahlgren points out, however, that the United States 8-inch guns from this time period were actually 64-pounders. The English 8-inch guns were 68-pounders because they had a slightly larger bore than the U.S. guns.

This list of heavy ordnance is based on an analysis of the logbooks of the U.S.S. Michigan later known as the U.S.S. Wolverine. In many instances the records are incomplete. Therefore, this list is intended to be a general record in order to give the reader some idea of the vessel's weaponry, as it changed through time.

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