



Official Newsletter of the Michigan Company of Military Historians & Collectors  
**January` 11, 2016**

*“The history of the United States can be told in eleven words: Columbus, Washington, Lincoln, Volstead, two flights up and ask for Gus.”* **New York Evening Sun, 1928.**

Afghan village elder’s response when asked if there are any Taliban nearby: *“I am Taliban. When Americans are around I am not Taliban. But when they are not here, I am Taliban.”* Simple statement encapsulates Afghanistan, like Vietnam. Survival not politics is all that matters.

*“History is the record of what one age finds worthy of note in another.”* Jacob Burckhardt, greatest philosophical historian of the 19th century.

*“My seamen are now what British seamen ought to be...almost invincible; they really mind shot no more than peas.”* Admiral Nelson, February, 1794.

*“One of the primary purposes of discipline is to produce alertness. A man who is so lethargic that he fails to salute will fall an easy victim to the enemy.”* General George S. Patton.

*“The disappearance of the horse from war does not suggest the withdrawal of riding from an officer’s education. It suggests exactly the opposite.”* General Sir John Hackett, 1960, lecture to the Royal United Services Institute (RUSI)

Our speaker for January is Bob Nagy. A forward observer during the Korean Conflict. He worked along side and officer as the radio operator who relayed coordinates to units that could make a difference. Contrast his role with this issue’s second article.

**MEETINGS** take place the second Monday of every month at the **Riverfront Hotel Grand Rapids** 270 Ann St NW, Grand Rapids, MI 49504 (616) 363-9001. Socializing begins at 6:00 (1800), dinner at 7:00 (1900), business meeting 7:15 (1915), and program at 8:00 (2000).

GENERAL STAFF  
OFFICERS OF THE  
COMPANY

Commandant - Gary Brown  
Executive Officer -Bruce Whitman  
Adjutant - Fern Obeshaw  
Judge Advocate -Jay Stone  
Mess Officer - Mike Krushinsky  
Sgt-at-Arms - Richard Foster  
Editor Cannon Report - Kingman Davis  
Editor Emeritus - Jose Amoros  
Open Mess Chairman - Jay Stone  
Membership - Kingman Davis  
Archivist - Richard O’Beshaw

**Company Notes**

- ◆ **Slate of new officer candidates. Vote on 1/11/16**  
**Commandant: Bruce Whitman**  
**Executive Officer: Fern O’Beshaw**  
**Adjutant: Greg Metternich**
- ◆ **Silent Auction—Bring any books or militaria you wish to offer for the Good of the Company**
- ◆ **Dues are still being collected. \$40.00**

# Forests And Sea Power

In 1924 Robert Greenhalgh Albion wrote about the timber problem of the Royal Navy 1652-1862 for his doctoral dissertation at Harvard. He later became their first professor of Oceanic History and inspired two generations of maritime historians in the United States. Highly respected, he was often referred to as the 'dean of American maritime historians.' After publishing Forests and Sea Power in 1926, it has had two reprints, 1965 and 2000. A copy of this exhaustively researched scholarly text is a must for anyone interested in early naval history.

Albion's main assertion was that the heads of the English Navy were always concerned about timber shortages. The years 1652 and 1862 form the natural boundaries for the problems of timber supply, naval construction and sea fighting. From the First Dutch War in 1652 to the battle of Hampton Roads in 1862 there was little change during this era of wooden fighting ships. Although ships did get bigger and carried more guns, their construction was essentially the same and two types of wood were used that were critical in their fabrication. Oak for the hull and fir for the masts, but it was the quality of the timber employed that determined the effectiveness of the ships produced.

England had basically two types of fighting vessels: ships of the line and frigates. The ships of the line formed the backbone of the Navy, for they were the capital ships which could form a line of battle and wreck havoc on the enemy.

## Royal Navy rating system in force during the Napoleonic Wars

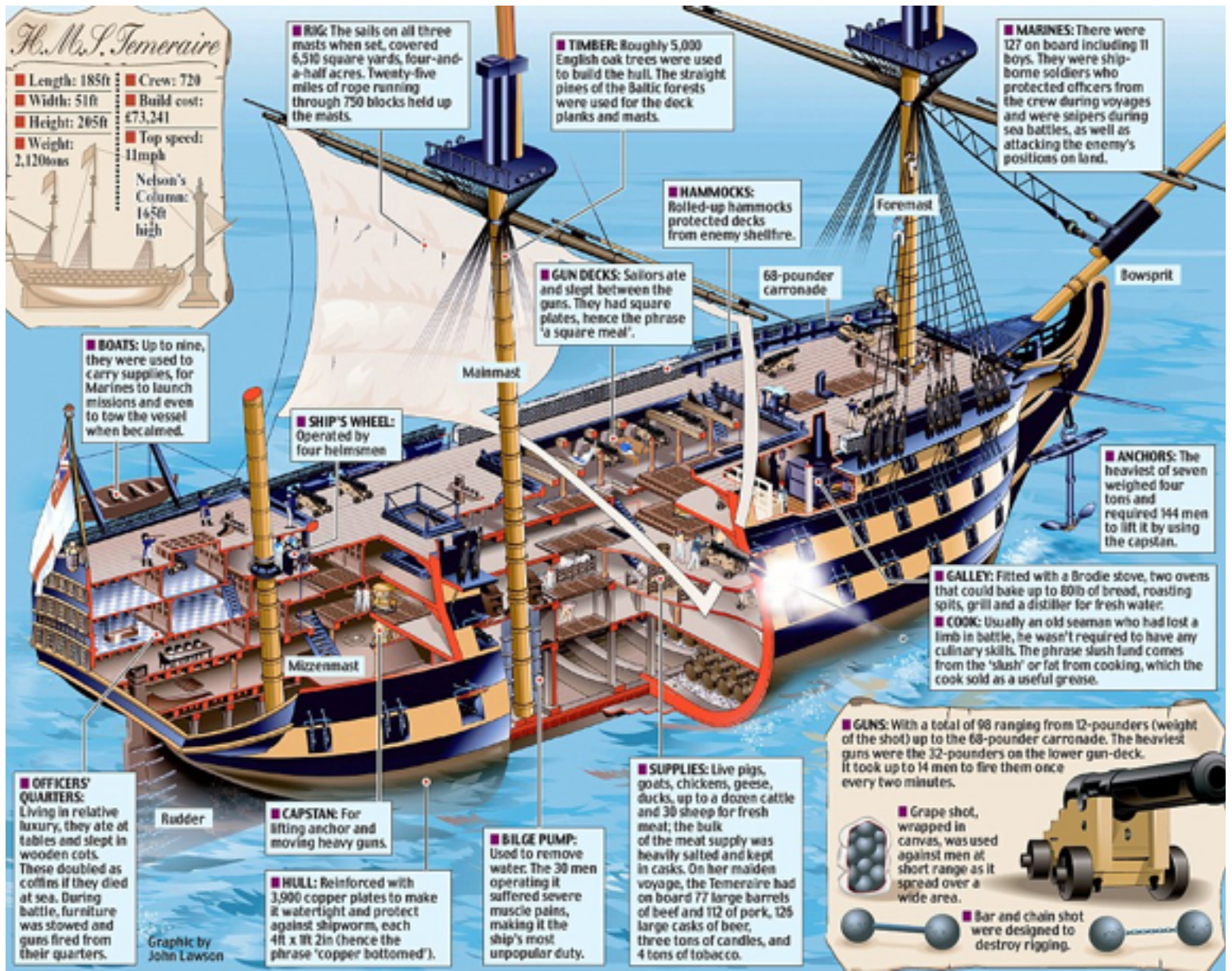
Type	Rate	Guns	Gun decks	Men	Tonnage
Ship of the Line	1st rate	100+	3	850-875	2,500
	2nd rate	90-98	3	700-750	2,200
	3rd rate	64-80	2	500-650	1,750
	4th rate	50-60	2	320-420	1000
Great Frigate	5th rate	32-44	1-2	200-300	700-1450
	6th rate	28	1	200	450-550
Frigate	6th rate	20-24	1	140-160	340-450
Sloop-of-war	unrated	16-18	1	90-125	380

The first two rates were great, lumbering, three-decked ships, whose hulls ranged some 200 feet from the figurehead under the great bowsprit to the ornate windows of the cabin in the stern. Broad in proportion to her length, her beams were more than 50 feet between the bulging sides. This breadth robbed her of the speed capable of the smaller frigates, but they had the strength to withstand the terrific pounding in battle and the ruggedness to remain at sea while on blockade duty. The bulk of the Navy's battle fleet lay in the dozens of 3rd rate seventy-fours. They were considered the largest ship that could sail well and yet still fight under nearly all conditions, and its role in the growth of British sea power was tremendous. The fourth rates, or "sixty-fours," were used ordinarily for convoy duty or for service on distant stations.

The supply of timber for hulls and masts presented separate problems throughout this period. The inexorable demands of the sea eliminated the wood of most trees as unfit for ship timber. Even the size and shape of good timber was a necessary qualification. In dealing with the hull, straight timber could be used; but certain parts required logs of exceptional size and shape. The need of large and crooked timber exerted a retarding influence on the development of naval architecture. There was little difference between a ship built in 1637 and one just before 1860. Crooked timber was essential to the construction of wooden warships, and the cleverest shipwright could not entirely dispense with them. It was said that "the limitations of the tree proved the limitations of the ship." Albion writes that "these important, exceptional pieces were known as 'great' and 'compass' timbers. The great

timber presented a serious problem because they had to come from trees which had passed the stage where it was most profitable to harvest them.” Oaks were usually cut down between 80-120 years of age when they were between 15-18 inches in diameter. If allowed to live longer they were liable to decay at the center and become less valuable for the landowner. Therefore, the Navy suffered for timber above the average. “Curved or ‘compass’ timber came chiefly from isolated trees that displayed more individuality in shape than those in groves or forests. Grown alone in the hedgerows which separated cultivated fields, the English oak produced good compass timber, trees whose branches extended out from the trunk at odd angles. But the Enclosure Movement cut down this source of crooked timber by reducing the number of hedgerows in order to join more fields together. Young saplings could be pinned down or tied together in order to produce curved timber in its later years, but this demanded more foresight than could be expected from most of the landowners.

These pieces of great and compass timber were used in the frame or skeleton of the ship. The backbone was the keel, going forward to the stem and aft to the stern-post. Crossing the backbone at right angles were frames or ribs—60-70 in number for a ship of the line. At the bow and stern many special pieces of particular shapes were required. The decks were supported by beams attached to the ribs by ‘knees’, special L-shaped pieces which varied in size and angle as one moved from the bow to the stern. The keel was composed of a dozen or more pieces over 20 inches thick and elm could be substituted for the more valuable oak. The stern post was the problem. It had to bear the strain of the rudder and the rear mast. It could not be pierced and a single stick, 40 feet long and 28 inches thick



was required. The outside skin of the ship, or planking was 2-8 inches thick, an inner layer called the ceiling was somewhat thinner. The unit of timber measurement was called a 'load', or 50 cubic feet. It was the equivalent of 600 board feet where a board foot was a piece of wood 1 foot long, 1 foot wide and 1 inch thick. It took almost 3200 loads of English oak and 400 loads of other woods to build a 3rd rate ship. Oak was necessary, for its high tannic acid content discouraged the *teredo navalis*, or sea worm, that bored into the planking making sieves of many ships. The acid also disallowed the use of iron fasteners, therefore, nails made from oak were required to join the various pieces together.

Until the American Revolution, when copper sheets were attached to the hull, hull inspections were a necessary chore, especially in the warm waters of the Caribbean. To inspect the hull a ship would pull close to shore at high tide, position herself so when the tide receded it would heel over exposing the hull for examination. In 1782 the *Royal George*, a 100 gun 1st rate, underwent an inspection at Portsmouth and her bottom fell out. Several hundred of her crew along with Admiral Kempenfeldt drowned.

Oak also presented a problem if it was not properly seasoned, or thoroughly dried. It was necessary to let the wood stand under cover for almost a year to be completely seasoned. If that proved impractical then the hull was partially constructed and kept under cover. Oak contained sap, and if not properly prepared dry rot would occur. This was a destructive fungus growth which penetrated the wood with small white cottony fibers. They would gradually rob the timber of its vitality and eventually reduce it to powder. It betrayed itself on the surface by a toadstool growth, which gradually fructified and spread the little white fibers to neighboring timbers which might be sound. Dry rot could be more insidious by eating out the heart of the timber while the exterior remained apparently sound. The most vulnerable part of the ship was the section just above the waterline. There the planking was exposed intermittently to air and water, and the rib timbers were subjected to a severe strain. Those parts were usually the first to decay. Wherever stagnant air collected—in the spaces between the ribs, in the magazine and bread-rooms, and around the extreme bow and stern, dry rot appeared. It required a moderate mixture of air, moisture, and heat in order to flourish. An excess of any of these elements would kill the spores. Timbers constantly below the water or in a dry position, freely exposed to air were relatively immune. The Navy never found a simple remedy for dry rot and it was the curse of wooden ships for centuries. Only careful selection and application of materials could forestall dry rot, but it was inevitable even with timely inspections. Fleets would rot prematurely when placed in Reserve without adequate precautions.

The other important wood needed was fir, for masts and spars (the longitudinal timber that carried the sails). Fir had several advantages over oak for hull construction. It was capable of rapid application for it contained resin instead of sap and required less time for seasoning. It was a softer wood and could be worked into forms easier, and fir vessels were lighter and consequently faster. But these advantages were more than offset by certain defects which prevented the regular use of fir for hull construction. It was far less durable and it splintered much more freely in battle, creating havoc in the interior spaces when the hull was penetrated by cannon fire. The acquisition of masts and spars presented an entirely different set of problems unlike oak. The Navy could claim English oaks with a military mark call the Broad Arrow, /|\, that signified a primary claim on a tree unless later inspection proved it unsuitable. Fir had to be imported from the Baltic forests and size was the sole criterion. The mainmast on a 1st Rate 120 needed to be 40 inches in diameter and 40 yards long, a 3rd Rate 74 was 36 inches in diameter 36 yards long, and a 28 gun frigate required a 24 yard long mainmast 20 inches in diameter. If a single stick could not be obtained a composite or "made mast," was created. Several shaped, longitudinal pieces from a number of trees were formed around a central spindle and joined together, or arranged in quarters to secure the required dimension and held together by iron

rings. After 1652, the Navy Board began to draw on the forests of New England for great masts, sufficient in diameter to form a “single stick.”

The problem with fir was transporting it to the construction sites in England. Special, purpose built ships were made, called Mast Ships, where the square stern was fitted with large ports to facilitate the stowage of giant single-stick masts. The longer pieces were bundled into rafts and towed by the mother ship to England. Two trips were planned for the shipping season in order to have an adequate supply and avoid the winter weather of the North Atlantic. Arriving in England the wood was placed in pools of fresh water called mast ponds and cached till they were needed. The high resin content was prolonged by this method of storage and large areas did not have to be set aside for curing unlike the oak. Baltic fir would still be used but their supply was unreliable depending upon the year. Three wars with the Dutch, sporadic fighting with the French and Spanish did not favor a consistent inventory. Blockades and ship seizures prevented an adequate reserve to repair vessels damaged by the weather let alone combat. Plus the English had established repair facilities in the Caribbean to service her ships and they required some stock to effect even the most rudimentary patching.

Wood was a strategic resource whose utilization was critical to the survival of a nation’s navy. In the late 17th century as the demand for this resource was not only sought after by the various European navies but Dutch and English mercantile interests required even greater amounts as they expanded trade routes in the Caribbean, the west coast of Africa, and newly developed trading partners in India, the Malaysian archipelago, and China. Historians have long neglected the ramifications of insufficient timber supplies as the cause of battle losses. The First Anglo-Dutch War (1652-54) lulled the English into a feeling of supremacy and taught the Dutch the need to have bigger and stronger ships. A great deal of money was needed not only to build a navy but also to maintain it. England did not have the necessary funds for several reasons. Her trading policy was based on tariffs and duties while the Dutch practiced free-trade. Dutch merchants had a decided advantage because her mercantile partners were not saddled with profit robbing expenses while the English were always on the lookout for smugglers which further reduced her income. In 1665 English privateers had seized over 200 Dutch merchant ships and took them to English ports. Some ships were sold to the East India Company and others to the Navy to be converted to warships.

During this period of marine warfare, ships of dubious utility were converted into fireships or hellburners. Fireships were vessels filled with combustibles and stationed around the perimeters of important harbors. In case of attack these ships would be launched toward an enemy fleet to disrupt their attack and hopefully destroy some of the enemy ships. Hellburners were ships filled with explosives and sailed into an enemy force. They were often disguised as a men-of-war with fake cannons and appeared as if they wanted to engage in combat. Meanwhile a skeleton crew escaped out of a rear portal and rowed away in a dinghy after lighting a fuse. The success of both types of ships were limited but they did manage to create some panic and blunt the full force of an invasion.

The Second Anglo-Dutch War (1665-1667) resulted from a mercantile conflict between the Dutch and English traders. England needed money and privateers provided it. The Dutch with the aid of the French managed to blockade the entrances to the Baltic and Mediterranean Seas further hampering any English attempt to trade. In 1666 the Great Fire of London cost the monarchy their large tax base and further necessitated expenses for rebuilding. Leaving little money available to maintain a fleet in fighting condition let alone launching new men-of-war. Besides, most of the timber resources were directed to building merchantman for foreign trade. The stage is now set for the greatest defeat of the English navy until World War II when the *Bismarck* ran amok in the North Atlantic, 1941.

# 21st Century Combat

Few books capture what the infantrymen of today experience when they go into combat. In Level Zero Heroes, Michael Golembesky writes a memoir of his six months in Afghanistan (2009-10) as a Joint Terminal Attack Controller (JTAC) attached to a 22 man Marine Special Operation Team (MSOT 8222). Prior to 9/11 USMC Reconnaissance Teams were not authorized to control aviation assets without having a officer-qualified Forward Air Controller embedded with the unit, very hard to get. Realizing the importance of having these highly trained men serve with forward units, enlisted Marines were now able to qualify as air ordnance controllers and given their own unique call sign upon graduation and qualification in their respective theaters of operation. Golembesky (Halo 14) and men like him have forever changed the landscape of precision airstrikes.

Sent to the remote Badghis province, their outpost was less than 10 kilometers from Turkmenistan and sat astride the main supply route used by the Taliban to bring supplies and drugs into Afghanistan. It was also the primary R&R site for Taliban fighters in the western area of Afghanistan during the winter season (a fact previously unknown). Earlier Coalition Forces, Italian and Spaniards, never ventured more than 1000 meters from their outpost. Their country's Rules of Engagement forbid them to fire their weapons unless they were fired upon. So for eight years there existed a truce in the valley of the Murghad River until November, 2009. Two hundred miles northwest of Herat was a Forward Operating Base (FOB) manned by an infantillery company of the 82nd Airborne and some Italians. Infantillery was a new term floating around the U.S. Military. The Army needed more boots on the ground to patrol, but the service was spread so thin and so short-handed that artillery battalions were being converted into makeshift infantry units. In Iraq, a lot of National Guard artillery outfits had been turned into military police companies. The Army now took it a step further in Afghanistan. The FOB was named after Sergeant First Class David Todd, killed as a member of a Quick Reaction Force (QRF) responding to a Taliban attack on Spanish engineers repairing a bridge in August, 2009. The Spanish left the field *en masse* leaving behind a depleted force that needed supplies and reinforcements. Hence, units of the 82nd, a company of the Afghani army, and a USMC special operation team (Dagger 22) were sent to commence patrolling the valley.

A convoy was formed in Herat with the supply trucks being driven by Afghani civilian contracted personnel. The road was little better than a goat track and it took 10 days for the units to reach FOB Todd, taking fire on the last five. Their experiences are left for the interested reader to enjoy but what this writer found compelling was the level of technology employed by our troops. The Mine Resistant Ambush Protected vehicle (MRAP) with its remotely controlled, roof mounted M2 (50 cal machine gun) with video and night-vision capability. The gunner watches a TV screen within the protective cocoon of the MRAP. They had Armored Ground Mobility Vehicles carrying mini-guns, a six-barrel machine gun with a high rate of fire (2,000 to 6,000 rounds per minute of .308 ammo). Along with your assorted personal weapons, like the SAW, the M4, automatic grenade launchers, and various configurations of the .50 cal sniper rifles. Also, EVERYONE was equipped with their own NVGs (night vision goggles). The biggest surprise was what the JTAC had available at his fingertips. He could work with anything from B-1 bombers, flying in from Qatar (over 2000 miles away); A-10 Warthogs who always travel in pairs; drones, armed with Hellfire missiles piloted by men and women sitting in air-conditioned suites somewhere in the United States; AC-130 gunships carrying a 40 mm cannon that can fire 120 rounds per minute, a big 105 mm cannon, normally a field artillery weapon and Gatling gun firing 20 mm cannon shells; F-16 and F-18 jets; and any other aircraft flown by NATO forces. The truly amazing feature enjoyed by this 21st century warrior is that he could see what any sensors aboard the various aircraft saw! If there was cloud cover, the JTAC would upload

his targeting map to any supporting aircraft and accurately pinpoint the target he wanted destroyed. From 20,000 feet a B-1 could drop a 2000 pound Cluster Bomb with pinpoint precision. Depending upon the availability and allocation of assets, a U.S. soldier can be protected almost around the clock.

As historians who study warfare, this first person narrative should be required reading. Technology still requires men of intelligence, training, and stamina, who when engaged in combat, can go for 48 to 72 hours without sleep under the most trying circumstances in order to stay alive.

## Raid on Medway (1667)

Just south of where the Thames River enters the North Sea the Medway River joins its estuary. The waters of the Medway flow slowly without strong currents and are free of rocks, while the surrounding hills provide shelter from the south-west wind. These characteristics made the section of the river a desirable anchorage for large ships, as they could be anchored safely and grounded for repairs. The complexity of the channel's navigation also provided it with defensive advantages. During Henry VIII's reign, the upper Medway gradually became the principal anchorage for ships of the Royal Navy while they were "in ordinary," or out of commission. They were usually stripped of their sails and rigging while in this state and the opportunity was taken to refit and repair them. Storehouses and servicing facilities were built in the Medway towns of Gillingham and Chatham which eventually became the nucleus of the Chatham Dockyard. By the time Elizabeth I came to the throne in 1558, most of the royal fleet used this section of the Medway, known as Chatham and Gillingham Reaches, as an anchorage, and laid up in the dockyards of their main naval base in Chatham.

The Raid on Medway, sometimes called the Raid on Chatham or the Battle of Chatham, was a successful Dutch attack on the largest of English warships. It took place in June 1667 during the Second Anglo-Dutch War. The Dutch bombarded and then captured the town of Sheerness, sailed up the River Thames to Gravesend, then up the River Medway to Chatham. There they burned three capital ships and ten lesser naval vessels and towed away the *Unity* and the *Royal Charles*, pride and normal flagship of the English fleet. The raid led to a quick end to this second war and a favorable peace for the Dutch. It was one of the worst defeats in the Royal Navy's history, and one of the worst suffered by the British military.

In 1667 Charles II's active fleet was in a reduced state due to recent expenditure restrictions, with the remaining "big ships" laid up. The Dutch seized this opportunity to attack the English. They had made earlier plans for such an attack in 1666 after the Four Days Battle but were prevented from carrying them out by their defeat in the St James's Day Battle. Peace negotiations had already been in progress at Breda since March, but Charles had been procrastinating over the signing of peace, hoping to improve his position through secret French assistance. Based on these assumptions the Dutch thought it best to end the war quickly with a clear victory, hopefully ensuring a more advantageous settlement for the Dutch Republic. Most Dutch flag officers had strong doubts about the feasibility of such a daring attack, fearing the treacherous shoals in the Thames estuary, but they obeyed orders nevertheless. The Dutch made use of two English pilots who had defected, one a dissenter named Robert Holland, the other a smuggler who had fled English justice.

On June 6 a fog bank was blown away and it revealed the Dutch task force, sailing into the mouth of the Thames. The attack caught the English unawares. No serious preparations had been made for such an eventuality, although there had been ample warning from the extensive English spy network. Most frigates were assembled in squadrons at Harwich and in Scotland, leaving the London

area to be protected by only a small number of active ships, most of them prizes taken earlier in the war from the Dutch. As a further measure of economy, on March 23, the Duke of York had ordered the discharge of most of the crews of the prize vessels, leaving only three guard ships at the Medway; in compensation the crew of one of them, the frigate *Unity* (former Dutch *Eendracht*, the first ship to be captured in 1665, from the privateer Cornelis Evertsen the Youngest) was raised from forty to sixty crew members; also the number of fireships was increased from one to three. Additionally thirty large sloops were prepared to row any ship to safety in case of an emergency.

Sir William Coventry, Secretary of the Admiralty, had earlier declared that a Dutch landing near London was very unlikely. At most, the Dutch only wanted to bolster their morale and would probably launch a token attack on some medium-sized and exposed target like Harwich (30 miles up the coast from Sheerness). Harwich had been strongly fortified earlier that year for that eventuality. Initially there was no clear line of command with most responsible authorities giving hasty orders without bothering to co-ordinate them first. As a result there was much confusion. Charles didn't take matters into his own hands, deferring mostly to the opinion of others. English morale was low. Not having been paid for months or even years, most sailors and soldiers were less than enthusiastic to risk their lives to meet this attack. England had only a small army and the few available units were dispersed as Dutch intentions were unclear. This explains why no effective countermeasures were taken though it took the Dutch about five days to reach Chatham (9 miles from Sheerness), slowly maneuvering through the shoals, leaving the heavier vessels behind as a covering force. They could only advance in jumps when the tide was favorable.

After raising the alarm on June 6, at Chatham Dockyard, Commissioner Peter Pett seems not to have taken any further action until June 9, when, late in the afternoon, a fleet of about thirty Dutch ships was sighted in the Thames off Sheerness. At this point the Commissioner immediately sought assistance from the Admiralty, sending a pessimistic message to the Navy Board, lamenting the absence of Navy senior officials whose help and advice he believed he needed. The thirty ships were those of Van Ghent's squadron of frigates. The Dutch fleet carried about a thousand marines and landing parties were dispatched to Canvey Island in Essex and opposite on the Kent side at Sheerness. They were soon driven off by English militia, and found themselves under threat of severe punishment

upon returning to the Dutch fleet.

The king ordered the Earl of Oxford on June 8, to mobilize the militia of all counties around London (only 39 miles from Sheerness); also all available barges were be used to lay a ship's bridge across the Lower Thames, so that English cavalry could quickly switch positions from one bank to the other.





On June 9, a Dutch raiding party had come ashore on the Isle of Grain (a peninsula where the river Medway in Kent, meets the River Thames). Musketeers from the Sheerness garrison opposite were sent to investigate. Only in the afternoon of June 10 did the King instruct Admiral George Monck, Duke of Albemarle to go to Chatham and take charge of matters. Three days later he ordered Admiral Prince Rupert to organize the defenses at Woolwich, just east of London. Albemarle went first to Gravesend where he noted to his dismay only a few guns were present, too few to halt a possible Dutch advance upon the Thames. To prevent such a disaster, he ordered all available artillery from the capital to be positioned at Gravesend. On June 11, he went to Chatham, expecting the place to be well prepared for an attack. When Albemarle arrived, he found only twelve of the eight hundred dockyard men expected and those were in a state of panic; of the thirty sloops only ten were present, the other twenty having been used to evacuate the personal possessions of several officials, such as ship models. No munitions or powder were available and the six-inch thick iron chain that blocked the Medway had not yet been protected by artillery. This chain system had been built during the English Civil War to repel a possible attack by the Royalist fleet, replacing earlier versions, the first dating back to 1585. Albemarle immediately ordered cannons to be moved from Gravesend to Chatham, which would take a day.

The Dutch fleet arrived at the Isle of Sheppey on June 10, and launched an attack on the incomplete Garrison Point Fort near Queensborough. Captain Jan van Brakel in *Vrede* followed by two other men-of-war, sailed as close to the fort as possible to engage it with cannon fire. Sir Edward Spragge was in command of the ships at anchor in the Medway and those off Sheerness, but the only ship able to defend against the Dutch was the frigate *Unity*, which was stationed off the fort. The *Unity* was supported by a number of ketches and fireships at Garrison Point, and by the fort, where sixteen guns had been hastily placed. The *Unity* fired one broadside, but then, when attacked by a Dutch fireship, she withdrew up the Medway, followed by the English fireships and ketches. The Dutch fired on the fort; two men were hit. It transpired that no surgeon was available and most of the soldiers of the Scottish garrison now deserted. Seven remained, but their position became untenable when some 800 Dutch marines landed about a mile away. With Sheerness thus lost, its guns being captured by the Dutch and the building blown up, Spragge sailed upriver for Chatham on his yacht the *Henrietta*. Many officers were now assembled there: Spragge himself, Monck and several men of the admiralty board (all chiefs, no indians). Orders were issued countermanding those of the others so that utter confusion still reigned.

As his artillery would not arrive soon, Monck on the 11th ordered a squadron of cavalry and a company of soldiers to reinforce Upnor Castle, where one end of the chain was anchored. Several ships were deliberately sunk downriver from the chain to force any advancing Dutch ships to sail closer to English shore based artillery. Upriver of the chain more ships were sunk to funnel any enemy vessels toward the *Charles V* and the *Matthias* (former Dutch merchantmen *Carolus Quintus* and *Geldersche Ruyter*), to enable them to bring their broadsides to bear upon. The *Monmouth* was also moored above the chain, positioned so that she could bring her guns to bear on the space between the *Charles V* and the *Matthias*.

Van Ghent's squadron now advanced up the Medway on June 12, attacking the English defenses at the chain. First *Unity* was taken, then the fireship *Pro Patria* broke through the chain. The *Matthias* was destroyed in the ensuing fire. The fireships *Catharina* and *Schiedam* sailed on and attacked the *Charles V*; the *Catharina* was sunk by shore batteries but the *Schiedam* set the *Charles V* alight and captured her crew. The *Royal Charles*, with only thirty cannon aboard was abandoned by her skeleton crew when they saw the *Matthias* burning. Irishman Thomas Tobiasz boarded her and carried the ship off to the Netherlands despite an unfavorable tide. Only the *Monmouth* escaped.

Seeing the disaster Monck ordered all sixteen remaining warships further up to be sunk to prevent them from being captured, making for a total of about thirty ships deliberately sunk by the English.

The following day, the whole of the Thames side as far up as London was in a panic – some spread the rumor that the Dutch were in the process of transporting a French army from Dunkirk for a full-scale invasion – and many wealthy citizens fled the city, taking their most valuable possessions with them. The Dutch continued their advance into the Chatham docks with the fireships *Delft*, *Rotterdam*, *Draak*, *Wapen van Londen*, *Gouden Appel* and *Princess*. The English crews abandoned their half-flooded ships, mostly without a fight. Three of England's four 1st Rates were totally destroyed along with ten other 2 and 3 Rate ships. Fearing a stiffening English resistance the Dutch decided to forego a further penetration and withdraw, towing the *Royal Charles* along as a war trophy; the *Unity* also was removed with a prize crew. This decision saved the sunken-off capital ships the *Royal Katherine*, the *Unicorn*, the *Victory* and the *St George*. However Dutch demolition teams rowed on boats to any ship they could reach and burn then down as much as they could, thus ensuring their reward money. One boat even reentered the docks to make sure nothing was left above the waterline of the *Oak*, the *James* and the *London*. Chatham Dockyard escaped a destruction which might have prevented the rebuilding of the English navy for decades. Now the English villages were plundered – by their own troops. The Dutch fleet, after celebrating by collectively thanking God for "a great victory in a just war of self-defense" tried to repeat its success by attacking several other ports on the English east coast but were repelled each time. On June 21, an attempt to enter the Thames beyond Gravesend was called off when it became known that the river was blocked by blockships and five fireships awaited a Dutch attack. On July 21 a peace treaty was signed.

The damage caused by the raid was estimated at about £20,000, apart from the replacement costs of the four lost capital ships; the total loss to the Royal Navy was close to £200,000. Total losses for the Dutch were eight spent fireships and about fifty casualties. For a few years the English fleet was handicapped by its losses during the raid, but by around 1670 a new building program had restored the English Navy to its former power. The Raid on the Medway was a serious blow to the reputation of the English crown. Charles felt personally offended by the fact the Dutch had attacked while he had laid up his fleet and peace negotiations were in progress, conveniently forgetting he himself had not negotiated in good faith. His resentment was one of the causes of the Third Anglo-Dutch War.

There were some very important lessons learned from this conflict. England expanded her ship building facilities to include the south coast towns of Plymouth and Portsmouth. They were less susceptible to be blockaded by any enemy fleet and easier to defend. The added attraction was their close proximity to the fabled English oak forests much desired by her shipwrights. It was finally accepted that a new source of fir had to be found. The Baltic forests were unreliable as a consistent source of masts plus the cost was inching higher as all nations used this area for their own sailing requirements. Fortunately the American colonies were discovered to have an abundant source of exemplary fir in the forests of present day Maine. So much prime timber was available that England became an exporter of mast timber. Nascent shipyards were established in Falmouth on Casco Bay, and New York. As the colonial population increased additional yards were added in Philadelphia and Charleston. As British possessions multiplied in the Caribbean, timber repositories were established in several of the Windward Islands and Jamaica. In combat the most vulnerable part of a ship was her masts and spars, when they were lost it was like losing an engine in 20th century warfare. Having replacements so close was an invaluable advantage for the English navy for over 100 years. The American Revolution changed that advantage most dramatically and Halifax became the fall back port for British ships needing repair in the Northern part of her empire.

