

The History and Development of the Thames Sailing Barge around the Dengie and Blackwater Estuary



EDUCATIONAL INFORMATION PACK

Produced by the Thames Sailing Barge Trust



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Introduction—The Story of the Thames Sailing Barge



Thames Sailing Barge Trust



Information Sheet

I

Introduction—The Story of the Thames Sailing Barge

The barge is a very ancient vessel. It is a simple construction, a flat-bottomed design which draws very little water, has hardly any keel and can, therefore, navigate into shallow rivers and creeks.

The first barges were small and box-like, with a single mast and known as a 'Hoy'. These developed during the eighteenth-century with the addition of more sails and the distinctive leeboards on the side. These adjustable boards prevent the vessel from sideways drift, serving as a keel substitute, but still allowing journeys into shallow waters.

The craft evolved in three ways – as a Narrow Boat on the canals, as a Wherry on the Norfolk Broads and eventually into the Thames Sailing Barge on the East Coast rivers.

Sailing barges of the early 1800s were entirely open and with no decks. They were small – about 20 tons. Decks then began to be fitted from about 1810. Rounded bows (the front) replaced square ones and the distinctive squared transom (the back) came in from around 1860.

Wheels began to replace tillers from 1880 and the all important topmast (for the topsail) was added after 1890. Bowsprits were also popular from 1900. Sometimes iron replaced wood as an overall building material.



Parker's barges at The Quay, Bradwell on Sea

Most barges were built and worked along the south east coast and there were major building centres at Maldon and Ipswich. No other sailing vessel survived in trade in Britain as long as the barge. They were cheap to build and run at a

time when next day delivery was not an overriding factor and they became a very successful means of transportation.

They were bulk carriers and transported everything and anything always hoping for a return cargo. East Anglian grain and hay was taken to London on the so-called "stackies" and manure brought back for the fields. There were "brickies" carrying bricks and tiles, cement barges, "colliers" and coke barges, refuse carriers, "muddies" full of clay for more bricks and tiles, beer barges and the list goes on.

Great rivalry and competition developed amongst the barges and their crews and barge races were the result. These started in the 1860s and winning meant honour, money and increased freight business.

The height of the barge trade was around the start of the Great War and there were in excess of 2000 of them working at that time. A social group and cultural heritage sprang up – involving the masters or skippers, mates, third hands, owners, builders and their families. Barge related family history is now a specific branch of genealogical research.

The numbers of barges reduced drastically in the late-1920s and 1930s with improvements in the road network. Many of them were out of work, "laid up" or turned into houseboats. Those that survived had engines fitted, were de-rigged and turned into motor barges.

Some of the survivors were pressed into service in May and June 1940 to form part of the fleet of Little Ships that helped with the evacuation of Dunkirk. That event was only one chapter in a distinguished war service provided by barges during both world conflicts.

Nowadays trade has given way to preservation, recreation and charter. Sailing barge Centaur continues to be a part of that movement and offers special education experiences to a wide range of people who wish to continue to be part of the story of the barge.

History of Centaur



Thames Sailing Barge Trust



History of Centaur

Centaur was launched by John and Herbert Cann on 15 February 1895 at their Bathside yard in Gashouse Creek, Harwich, for Charles Stone of Mistley who, with his wife, held 56 of the 64 ownership shares in the vessel.

Centaur, built of wood, was a coasting barge – able to trade all around the British coast and to the near continent. This meant she was larger than the river barges and had a more seaworthy hull form – the generous sheer and shapely transom contributed to her handsome appearance. James Stone, then aged 41, was her master. For crew he enlisted W. Smith, aged 37, as mate and James Smith, aged 18, as boy. Initially the barge traded to Calais from London, Portsmouth and Southampton. She also entered barge races – winning the 1898 Harwich race, in which five barges participated, and the 1899 Medway match.

In 1898-99 her trade took Centaur to Dunkirk, Calais, Antwerp, Ostend, Alderney, Bruges and the Netherlands, from a variety of home ports including Dover, Rochester, London, Lowestoft, Goole, Shoreham, Southampton and Newport.

In 1903 George Langley became the managing owner, with his partner William Rogers in command of the barge, which continued in the cross-Channel trade. Accidents at sea were not unusual for coasting barges. Centaur was towed into Portland in January 1905 with a broken sprit and other damage when bound for Exeter from London with sugar. In December 1906 she lost both anchors off Terneuzen, in the Netherlands, and had to put back. In the same year William Rogers became the managing owner. However cargoes became more difficult to find and in August 1911 Rogers sold Centaur to Edward Hibbs of Brightlingsea to work for the oil mills at Colchester. She traded between there and Millwall, taking linseed oil in drums to the London River and returning with raw linseed and cottonseed. Reportedly the oil mill barges were always very smartly turned out, and none more so than Centaur.

An incident during the First World War involving Centaur is related by Frank Carr in 'Sailing Barges'. The barge was sailing in the Channel in a light air and thickish fog when the skipper heard the roar of a coastal motor boat's engine nearby. A few moments later the sleek hull of the CMB – an early form of motor torpedo boat – travelling at speed shot out of the mist and, striking the barge amidships, leapt on deck and settled down on top of Centaur's main hatch. This

came as quite a shock for both skippers but the barge made port without problem and unloaded her unusual cargo.

After the First World War a trade in coke and pitch to the near continent provided profitable business. Whilst the ownership of shares in the barges changed regularly one skipper, Ephraim "Chick" Cripps, was associated with her for over 20 years. His records for 1928 and 1930 show that all of the barge's passages were between London and the Essex and Suffolk coasts, with Colchester still the principal port.



Centaur loading grain in her trading days

In October 1933 Centaur joined the Colchester fleet of Francis and Gilders Ltd and entered the grain trade between the London Docks and Ipswich, Yarmouth and Felixstowe. In May 1940 she went to Dover to join the ships preparing

History of Centaur

for the Dunkirk evacuation, but was damaged by a tug whilst berthed at Dover and began taking in water. She was unable to sail for Dunkirk and had to return to Maldon for repairs. Centaur resumed trade around the Thames and East Anglia for the rest of the war, and afterwards continued in the grain trade. Francis and Gilders were left as the last 'seeking' fleet, finding cargoes wherever they could: these cargoes were secured either by the masters of the barges or by the company's agents in the city. Once a year the barges went on the blocks for maintenance, either at the company's own yard in Colchester or at Cook's yard in Maldon.

In January 1952 Centaur was on passage from the Surrey Docks to Felixstowe with wheat when her steering gear broke and, in winds of force 6 – 7, the sea was breaking right across the hatches (which was not that difficult considering the low freeboard of a loaded barge). A tow was needed and distress rockets were fired. Before the Walton lifeboat could arrive Centaur was taken in tow by the sailing barge Saxon and taken into the Colne.

In March 1951 Francis and Gilders merged with the London and Rochester Trading Company Ltd but their barges



Centaur at Fingeringhoe near Colchester

continued to fly their purple and gold bob. However the new owners were soon intent on selling the acquired barges. Amongst Centaur's last cargoes in 1954 – 55 were timber to Colchester and Maldon, sugar beet from Ipswich to Silvertown, ballast from Fingeringhoe to London, cement from Halling to London, and 40 gallon oil drums from Grain to

London. The last four remaining Colchester barges still under sail – Centaur, George Smeed, Kitty and Mirosa- were sold to Brown and Son of Chelmsford, for use as unrigged timber lighters. In October 1955 Centaur's registration was closed since as a lighter she was no longer required to be registered. She joined a fleet of former sailing barges bringing timber from ships moored off Osea Island to the Heybridge Basin, where it was transhipped to canal lighters for transport to Chelmsford.

Centaur continued in this work for nine years before being sold in 1965 to Richard Duke who converted and re-rigged her for leisure charter work from Pin Mill and Maldon. A galley, saloon, toilet and four four-berth cabins were created in the hold, and the charters ranged along both the south and east coasts. She was also entered into barge races from 1965 onwards, with some success. In 1974 the barge was purchased by the Thames Barge Sailing Club which offered crewing experience, cruises and charters to both members and non-members. Initially she was based at Faversham, and later at Maldon. In the winters the club began a long and extensive phased restoration of the barge, which involved replacing most of the frames and planking and was not completed until 1995. In the winter of 1988/89 the Ruston auxiliary engine and gearbox, which had become unreliable, were replaced with a Bedford 500 six-cylinder diesel truck engine and a marine gearbox, together with a new propeller. This gave Centaur a speed under power of 9 knots, an improvement on her previous 3.5 knots.

Centaur continued to race regularly: in 1993 she won the Inter Match Trophy for the best overall performance in the four leading matches, the Medway, Blackwater, Pin Mill and Southend. She still works out of Maldon for the Thames Sailing Barge Trust (as the club has been renamed) with charters and cruises between May and October each year, taking up to 12 passengers. Her rig is typical of an Essex trading barge, rather than the bigger racing rig used by some restored barges.

Centaur is based at Maldon and on certain days of the year is open to the public to visit as well as to charter her for sailing trips.

Local Industries



Thames Sailing Barge Trust



Local Industries

Early Fishing

Since early times fishing was carried out on the Blackwater Estuary by nets and wicker traps. The remains of Saxon fish traps can still be seen in one or two places, now just wooden skeletons sticking out of the mud. They would catch flounders, salmon, bass, mullet, plaice and sprats and herring in the winter. Eels were also an important 'catch'.

Smacks & Bawleys

Smacks and Bawleys look very picturesque on the river nowadays when they meet up for Regattas, but they were originally designed as fishing boats. The fishermen had a hard life on the water especially in the winter, casting their nets in all weathers to make a living. There was a large well in the middle of many of the boats for keeping the fish alive and fresh until they had enough to take them ashore for sale. Bawleys had 'boilers' on board so that shellfish could be cooked fresh.

Mollusca (Shellfish)

Mussels, cockles, whelks, shrimps, and oysters were all harvested on the River Blackwater with oysters, often known as Essex Gold still being an important harvest today.

Oysters

Oysters have been found on the Essex coast from time immemorial as indicated by the number of fossils which have been found, however, it was the Romans who first made them famous and started the farming process. In the mid 1800's they were considered to be a cheap and nutritious meal for the poor of London. Now they are more a 'gourmet's delight'.



Oysters have hinged bi-valve shells dissimilar in shape made out of a horny organic material known as conchyalin. They provide protection for the animal within. An oyster breathes feeds and breeds entirely through the medium of water with the valves opening to admit water and nutrients for feeding and to release waste products, and in the summer months spawn.

The oyster harvest begins in September, when any spawning will have been completed. The oysters are collected from the river bed with a dredge or drudge. This was once hand operated, but is now larger and is attached to power winches on the oyster boats. The catch is tipped either on to the floor of the boat or on to special trays and sorted. Back on shore they are purified before they can be sent to market.



Local Industries

Salt Making

The Maldon Crystal Salt Company stands on what is believed to have been the site of a mediaeval salt works. However legend has it that the secret of salt making was discovered during the period when the Romans ruled Britain 2,000 years ago. Cassius Petox, then commander of the Legion based in Maldon enjoyed taking hot sea water baths. He noticed that one day when the water had been left boiling for too long, small white crystals formed in the bottom of the bath – salt. The present salt works building in Maldon was first established in 1823 by Mr. Robert Worraker. In 1882 the Salt Company was bought by Mr. Thomas Elsey Bland. In 1992 James Rivers and his wife Nellie Eliza, grandparents of the present owners took over and the business is now run by grandson Clive Osbourne.

How Maldon Salt is Made



Water for processing is taken from the river after a period of dry weather on the fortnightly highs, commonly known as 'spring tides', when the salt content is invariably at its maximum. The water is transferred to large holding tanks where it is allowed to settle. After careful filtering it is then pumped to storage tanks to be drawn off as required to fill the salt pans.

The three large evaporating salt pans have stainless steel sides and measure approximately 3 metres square. They are mounted on an enclosed system of brick flues designed to give the specific heating pattern required. Today the furnaces are fired by natural gas rather than coal and in spite of thermostatic controls, skill in maintaining the correct temperature is still required. This involves listening to the tell-

tale sounds of the steaming pan and carefully watching the surface liquid and the formation of salt crystals.

After the pans have been filled, the contents are brought to a 'galloping boil'. During this period certain trace impurities rise to the surface as froth (lees) and are skimmed off. The heat is then reduced to just below boiling point and as the mother liquor concentrates, crystals begin to appear on the surface. These form as tiny hollow pyramid-like structures which are unique to the Maldon process. As the crystals become heavier they fill with liquid and sink to the bottom of the pan. After 15/16 hours the pile of accumulated crystals reaches the surface of the liquid and heating is stopped.

The pans are allowed to cool slowly overnight and are then 'drawn'. This involves harvesting the crystals by carefully raking them to the side of the pan using traditionally made wooden hoes, a process requiring great dexterity. The salt is then shovelled into shallow drainage bins where it remains for 48 hours. It is then transferred to the salt store where the drying process is completed before packaging.

Maldon Sea Salt is sold all over the world.

Wildfowling



Wildfowler, Walter Linnett of Bradwell

People around the Blackwater were very keen wildfowlers and until the 1930s several punt gunners spent the winter

Local Industries

nights seeking fowl for the market. Many punts were built by their owners, whilst others were built by local boat builders such as John Howard of Maldon, who was reckoned to build the best.

Traditionally the Blackwater and the Colne punts were open, varying between 16-10 feet in length and pointed at each end. They were usually planked in English Elm, two strakes on each side on oak frames. Local tradition decreed that if the punt leaked on launching day the builder stood



the owner as much beer as she took in. This led to considerable care in construction.

Some punt guns were breach loaders but those favoured by the fisherman-fowlers were muzzle loaders about 8-9 feet long and about 1.25 inch bore, firing about three-quarters of a pound of shot. The barrel of the gun rested in a score in the stern head and its stock on the gunbeam or a thwart, to which it was made fast with rope breeching.

Punts were rowed, poled or moved with hand paddles or setting sticks. The punter tried to get within 60-70 yards of the fowl before firing and it took considerable skill and fortitude in a winter's dawn or sunset to manoeuvre in range and fire at the birds.

Wildfowling often contributed something to a fisherman's living on the Blackwater. The opening of the wildfowling season was traditionally on the last night in September. Bulkily clad, thigh booted figures tramped down to the hards after the pubs closed and rowed, poled and sculled off to a favourite creek to await midnight, when a heavy salvo was discharged to greet the new season. Having alarmed every bird for miles, they continued to use all their considerable skill and guile to "set to fowl" and really blazed away at the dawn flight, after which they returned to shore.

In the old days the local gunners within a parish fiercely guarded their territories, and there were intense local rivalries over the best fowling grounds, even within the same estuary system. In the early 20th century Essex was a favourite destination for visiting 'gentleman gunners' and some local fowlers eked out a living by acting as shooting guides. One such individual was Walter Linnett, who lived in a weather boarded shack below the sea wall next to the Saxon chapel at Bradwell on Sea. .

The following list of wildfowl could be shot:

Geese

Greylag Goose
Pinkfooted Goose
White fronted Goose
Canada Goose

Ducks

Mallard
Wigeon
Teal
Pintail
Gadwall
Shoveler
Tufted Duck
Pochard
Goldeneye

Shooting Season

Grouse	12 August - 10 December
Ptarmigan	12 August - 10 December
Black Game	20 August - 10 December
Partridge	1 September - 1 February
Pheasant	1 October - 1 February
Capercaillie	1 October - 31 January
Snipe	12 August - 31 January
Woodcock	
(Engl & Wales)	1 October - 31 January
Wild Duck and Geese	
(Inland)	1 September - 31 January
(Below high water mark)	1 September - 20 February

Thames Barges as Transporters



Thames Sailing Barge Trust



Barges as Transporters

The origins of the Thames sailing barge lie in the 17th and 18th centuries when flat-bottomed wooden craft evolved for use in the River Thames and its Kent neighbour the River Medway. They were used to transport cargo from ships to the wharves along the banks of the rivers in the developing ports of London and Rochester.

The ships were too deep to lie alongside the shore and had to anchor in deep water where the cargo was loaded into the lighter which was then rowed to the wharf and unloaded.

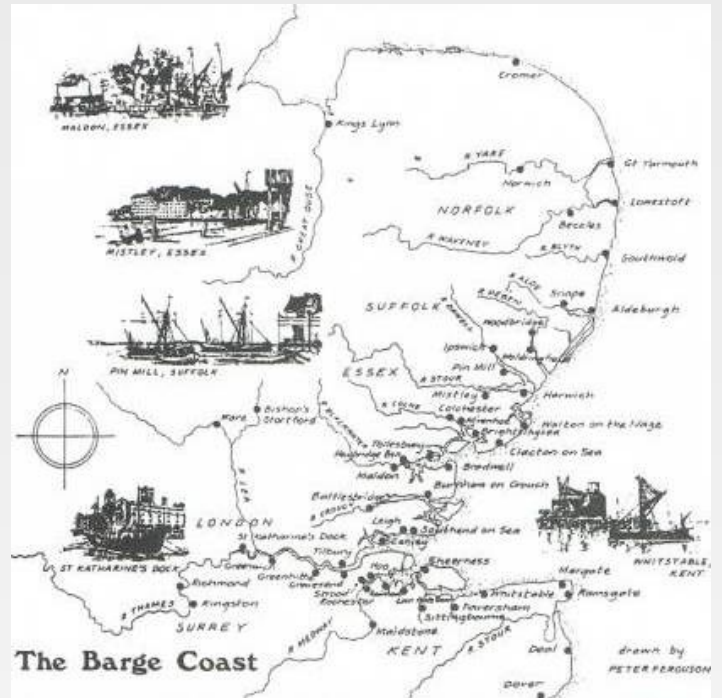
The craft were flat-bottomed with flat 'swim' heads and 'budget' sterns. They were literally floating wooden boxes. The Thames sailing barges that had so evolved were actually coasting craft capable of taking cargo that arrived in London from all over the British Empire and delivering it along the coast.

By the 1890s the development of the Thames sailing barge was at its peak with the small coasters built in Ipswich and Harwich developing a style of their own. These were true ships that traded across the North Sea to Holland and Germany, down the English Channel to Belgium, and France. They delivered cargoes down the East Coast from the River Humber down to the South Coast with freights to Cornwall becoming quite normal.

In 1907 there were 2090 Thames sailing barges registered. They covered a wide variety of sizes from small river barges that carried less than 100 tons of cargo to large coasters that could carry 300 tons. A typical barge would carry about 140 to 170 tons.

Cargo

Thames sailing barges were unique for so many reasons. No other craft was ever developed that could sail light without ballast with her shallow flat-bottomed hull giving the ability to get up shallow creeks of Essex and Kent drawing as little as two feet unloaded. Because of their unique rig barges could be sailed by in the case of a 'small' river barge, a man and a boy and even in the case of the larger barges by two men and a boy. Barges were very handy and manoeuvrable so they handled well both at sea and in the London Docks. With their large cargo hatches, cheap construction and the unique rig which stowed all the sails out of the way of load-



The routes in East Anglia and Kent where most barges worked

ing and unloading cargo. Thames sailing barges were perfect for the job they were designed to do. No other craft in Europe ever attained the numbers that the Thames sailing barge did.

Barges would pick up cargoes from farms and rural wharves, from creeks and backwaters, from local ports and harbours, and sail through the channels and swathways of the Thames Estuary and up the London River to the docks. They would carry grain, hay (for London's horses), timber, bricks, stone, sand and gravel one way — returning with rubbish (for the brickworks), cement, animal feeds, fertiliser and manure (for the farms), paraffin, coal and acid (for heating and processing). It was a constant cycle of general trade.

London depended then upon thousands of horses for its transport and it was the Thames sailing barge that delivered the huge requirements of hay and straw from the farms of Suffolk, Essex and Kent. Essex and Maldon in particular evolved a special variety of barge called the "stackie" designed to be shallow and wide for sailing with a haystack on deck. Barges also carried timber, stone, sand, cement, ballast,

Barges as Transporters

bricks, oilcake, oil, plastics, in fact everything that small ships can carry, was carried regularly by barges.

Where did they trade?

The spritsail barge was mainly built on, and traded from, the south-east coast of England, although some were built further afield. The main barge-building centres were at Harwich and Ipswich, Maldon on the river Blackwater, various places along the river Thames, the river Medway, and the Kentish creeks as far as Whitstable.

Coastal barges also worked up as far as the Humber and around the South coast as far as Plymouth.

Many barges also travelled to the continent. During the Second World War, barges were involved in the evacuation of soldiers from Dunkirk. Some vessels went to Scotland to carry supplies and help with the war effort.

Some barges were built for specific types of cargoes, gunpowder barges were built so that they were capable of navigating the River Lea to Waltham Abbey where there was a large gunpowder works.

Loading and unloading a barge

Quays for large barges were established at Pidgeon Dock, Mayland, the Quay, Bradwell on Sea, the Quay, Burnham on Crouch and Stokes Hall, Althorne. Smaller barges tied up at many places on the riverbank to load hay and corn from farms to be taken to the mills and fresh flour, wildfowl and produce to go to London markets.

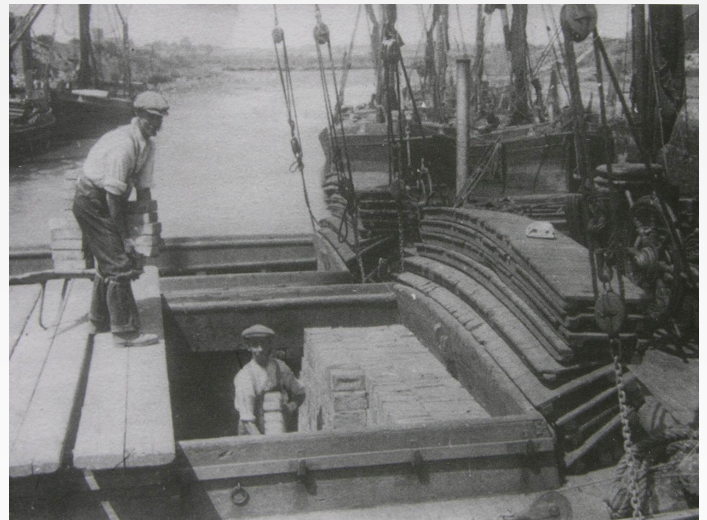
Barges were often loaded and unloaded by hand. Carts and horses were the main form of transport, although in later years, lorries took over this role. A barge carried most of the cargo in a hold under the mainsail. Loading and unloading was made easier by using the sprit as the jib of a crane with a block and tackle roped to it.

By the 1920s, some steel-hulled barges had already been in use for many years, but the great majority of barges were still timber-built. Steel barges offered the chance to load more cargo into a hull of the same overall size (because steel scantlings [structure] take up less volume than timber, for

the same strength). They were also lighter in weight, giving increased speed of response, and had a longer life.



A typical scene at Bradwell Quay



Unloading bricks from a Barge in the London Docks

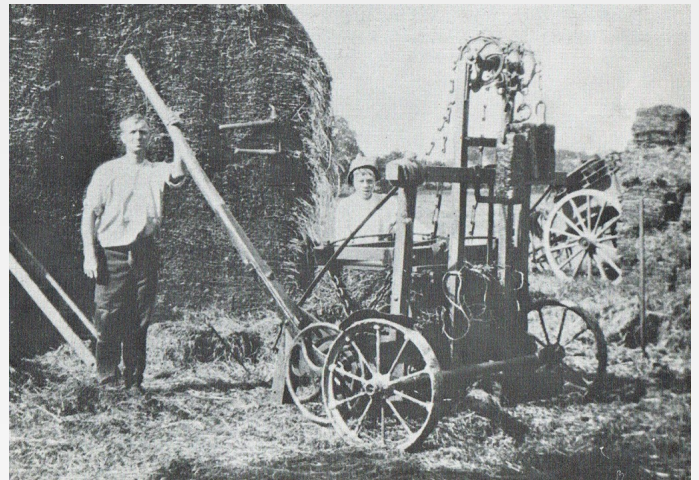
Barges as Transporters

Hay Trade

Maldon barges transported a wide variety of cargoes to and from the town – including coal, cement, bricks, beer, but also agricultural products such as hay, grain, corn and manure. Foremost amongst all of these cargoes was hay and straw – as one author put it “hay and straw were king in the Blackwater”.

This was old time rural barging “in the days of plough and sail” but the demand was generated from the City. It was, at that time, still a horse-drawn world and the vast amount of London horse traffic kept up a continual demand for hay (for fodder) and straw (for bedding). Throughout the 19th (there is an engraving of 1829) and early 20th centuries (right up until the introduction of cars and motor-buses but some as late as the 1930s) the barges were employed to get it to the metropolis and were loaded ten to twelve feet or more above the deck – sometimes half-way up the mainmast – with an overhang either side beyond the rails. They resembled floating haystacks and so became known as “stackies”. Usually the hold would be filled with root crops (such as

stricted and to allow access to the foredeck. In common with other routes, the stackies always hoped for a return cargo. Sometimes this might be timber but, more often than not it was the by-product of those horses -muck (stable manure) to bring back to spread on the farm lands of Maldon, the Dengie and beyond. As a result the trade route along the Blackwater and “the London River” (the Thames) became known locally as the ‘Hay Up – Dung Down’.



The hay cutter would cut the bales 39 inches long to fit into the barge’s width. Here Steve Gurton and his son Henry, of Tillingham, are pressing the cut hay bales in their home-made press to ensure that each one has the correct weight for a given size.



Stackies at Anchor in the London River

mangel-wurzels) but all of the above deck area was given over to the hay, eight or nine “trusses” high. The last thing a skipper wanted was the stack to slip or collapse out at sea. The bales or trusses were, therefore, built into a typical stack that was pitched inwards for stability and secured with stack irons and ties known as “breechings”. Hatch covers were placed on top, stack cloths covered the structure and a ladder allowed the barge’s mate to climb up to give occasional directions to the skipper whose view was greatly re-

Victorian Building in the Industrial Revolution



Thames Sailing Barge Trust



Victorian Building in the Industrial Revolution

Increased building in the 1800's led to a demand for bricks and thus brickyards sprang up at Latchingdon and Green Lane, Burnham on Crouch. A large brickworks was built on Bridgemarsh Island at Althorne.

Foundries sprang up in many towns. In Burnham, Mildmay Ironworks started (later known as Booth & Brookes Foundry). The foundry was situated at a location which could profit from imports of pig iron and coke which would be transported by barges to the nearby Quay.

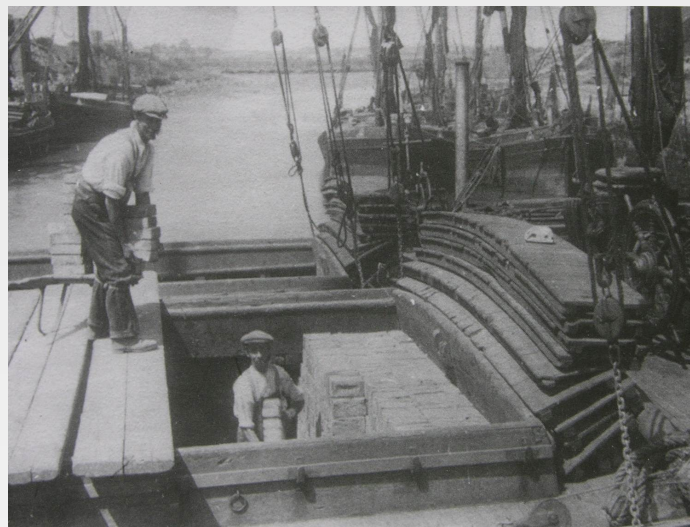
Brickmaking & Bridgemarsh Island

The best earths for brickmaking are windblown clays with large amounts of sand and silt, as the presence of sand reduces the shrinkage that occurs when the plastic clays are burnt. Large areas of the Dengie peninsula are covered in this kind of material. Brickmaking therefore became an important industry. Farming on Bridgemarsh Island was supplemented by clay extraction. This led to the development of a brick and tile works which was fed by a tramway linking the works to the quay on the riverside. This was serviced by Thames barges. Frederick Brabrook and James Bates worked the site in 1870 and then The Bridgemarsh Brickfields Co. Ltd worked the site from 1878 to 1882.



A brickmaking gang

When fired, the completed bricks would be taken by barge to towns in the Dengie for house and factory construction as well as going to London.



Unloading bricks from a Thames sailing barge

Coal

During the Industrial Revolution coal was used extensively for the manufacture of goods in factories and foundries. Often coal had to reach small towns at the end of rivers and creeks. A local coal merchant on the Dengie was Clement Parker who ran his business from Bradwell Waterside. The Parker family owned and operated a fleet of 29 barges which operated from Bradwell Quay and carried coal and other goods to various towns and ports which could not be reached by larger vessels.

The family insisted that their barges were kept very smart and the fleet had black woodwork picked out in yellow with a grey deck and white quarter boards.

Timber

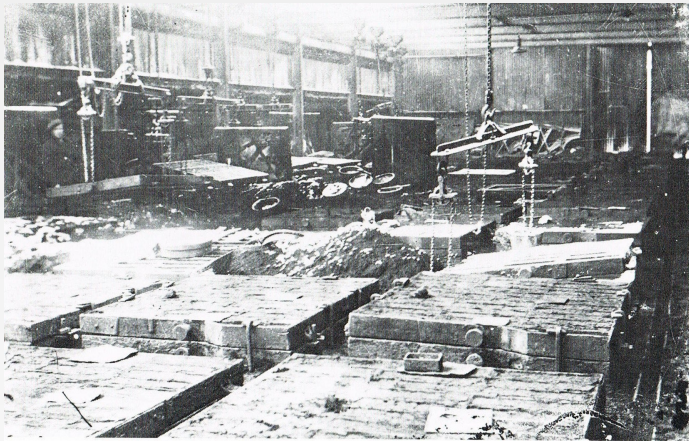
Timber was also an important material during the Industrial Revolution. It was often shipped from overseas to local ports and then transferred to barges which would take it up river for unloading. With the growth of towns like Chelmsford, timber would have been carried by barge to Heybridge Basin and then placed onto lighters which would have taken it to Chelmsford on the Chelmer & Blackwater Navigation.

Victorian Building in the Industrial Revolution

Booth and Brookes Foundry

Booth and Brookes foundry was started in 1899 by James Booth. The site of the old foundry in Foundry Lane, Burnham on Crouch is now a builders yard, shops and Fiveways Supermarket.

The foundry was sited at a location which would allow the import of pig iron and coke by barges to the nearby quay and easy access to the Crouch Valley Railway Line which ran alongside the foundry.



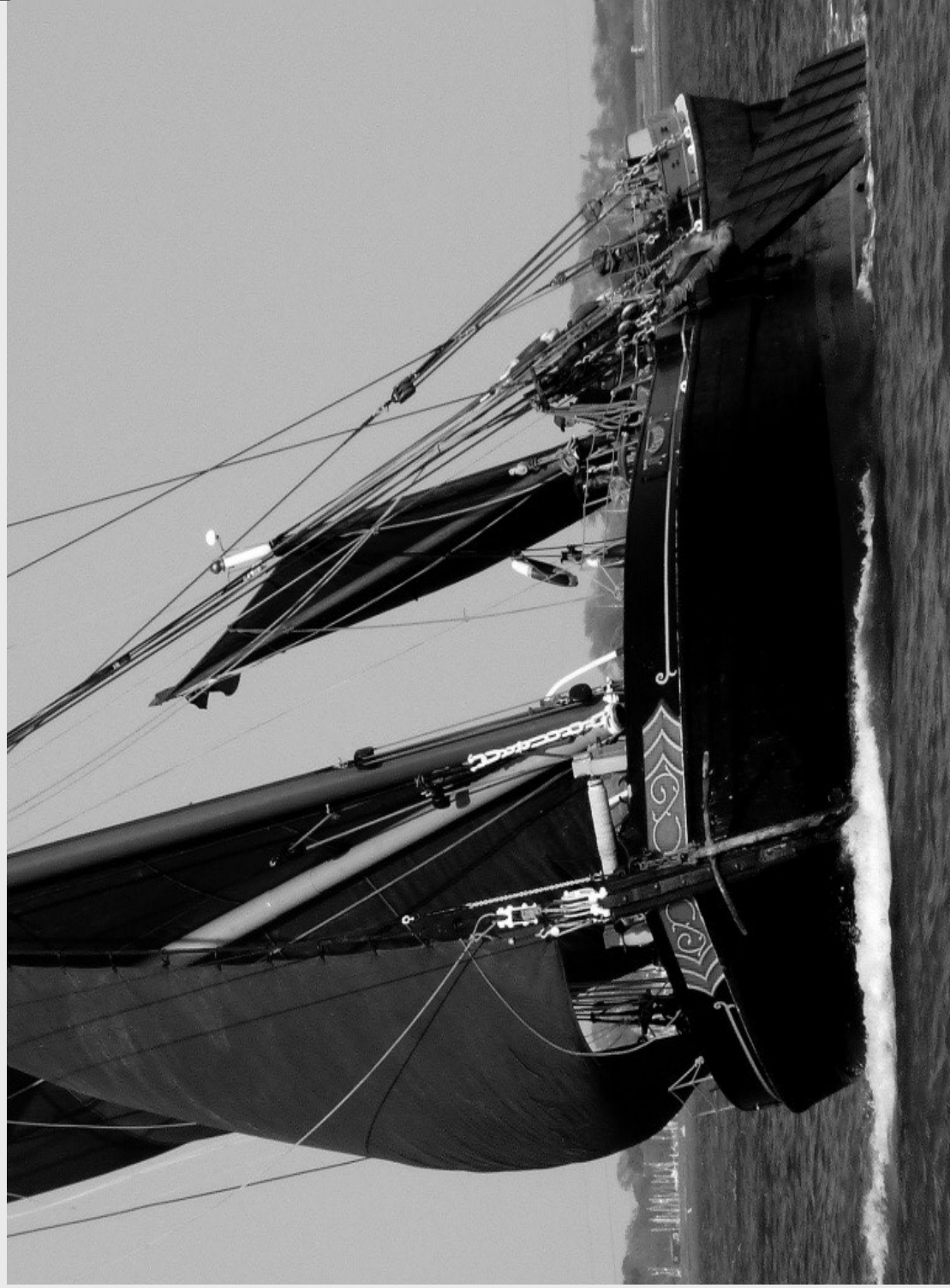
The casting shop of Mildmay Iron Works (Booth & Brookes) where the chief manufacture was piano frames.

They made smaller castings, such as frames for sewing-machines and parts for gas stoves as well as decorative castings. Among their customers were the Essex firms of Marconi and Cromptons.

The Design of the Thames Sailing Barge



Thames
Sailing
Barge
Trust



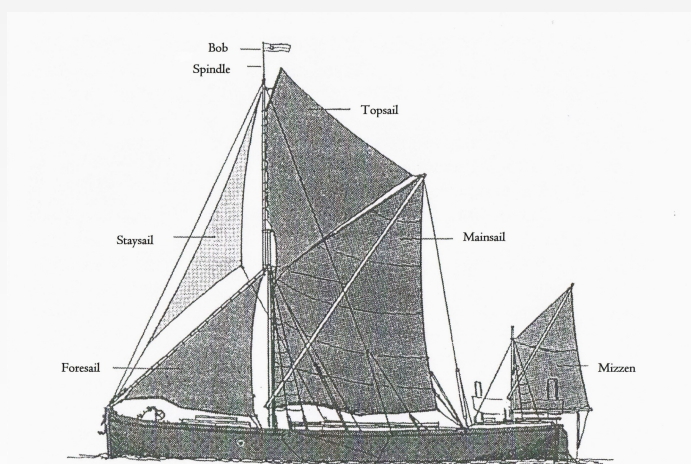
The Design of a Thames Sailing Barge

The Thames Sailing Barge hull is distinguished by its flat bottom and box shape which is both simple to construct and maximises carrying capacity. It was developed initially from a 'lighter' hull, the lighter being an unrigged hull used for 'lightening' ocean going ships of their cargoes. The shape of this hull gradually evolved and a rudder and leeboards were added. Likewise the rig developed from a small mast and square sail to the sprit rig of today.

Features of the Hull Design:

1. The largest possible carrying capacity for a given set of dimensions
2. Good carrying capacity on shallow draft
3. The ability to take the ground safely on any reasonably flat berth
4. Simple construction with minimum curves
5. Can sail well empty as well as fully laden

Sails and Running Rigging:



Sailing barge fully rigged

Barge sails were traditionally made of flax canvas with lightweight staysails being made of cotton canvas. To guard against rot an annual 'dressing' was required. The traditional dressing was a mixture of red ochre, fish oil and salt water plus individual sail makers' own secret additions.

All the gear and rigging was simply designed with crab winches to operate the leeboards, a windlass for the anchor, blocks and tackles for the sails etc. enabling everything to be

operated by very small crews, often only two people.

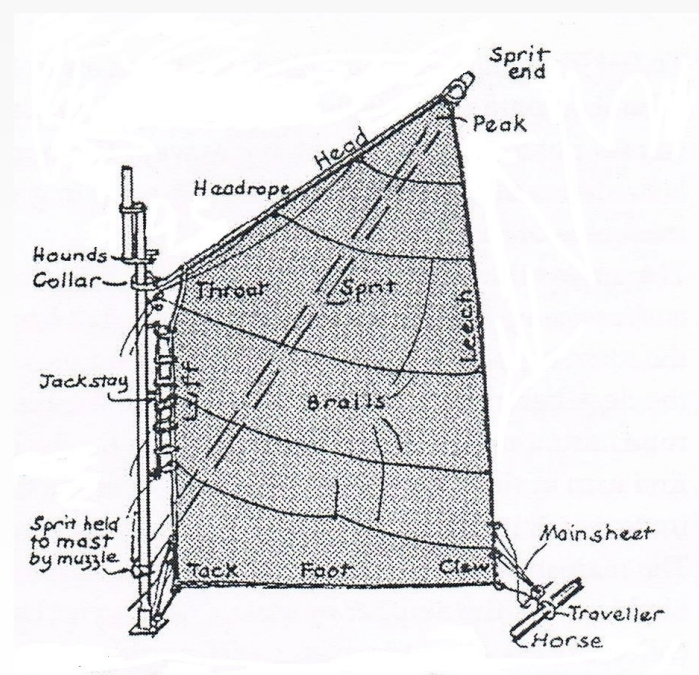
However, very few sailing barges were built to plan and very few were alike. Cann built barges like Centaur were heavily lined to withstand coastal passages, but they were also fast and graceful. Barges built for river trade, were much broader being designed to carry as much cargo as possible.

Wooden barge building and sail making were craftsmens jobs. Using simple tools, like the auger and adze and by steaming planks in steam chests to enable them to be curved and pliable, the shipwright built a wooden vessel by rule of thumb from the keel up.

The Sails of a Thames Sailing Barge

A staysail barge like Centaur usually has five sails. These are all set (got ready for sailing) from deck level using ropes and a series of blocks and tackles. A tackle is an assembly of two blocks with a rope threaded through the pulleys. A block and tackle system amplifies the tension force in the rope thus reducing the effort. This means that each sail can be easily set by one person. The ropes connected to the blocks and tackles on a barge are called halyards, sheets, tacks or brails depending on the job they do.

Mainsail



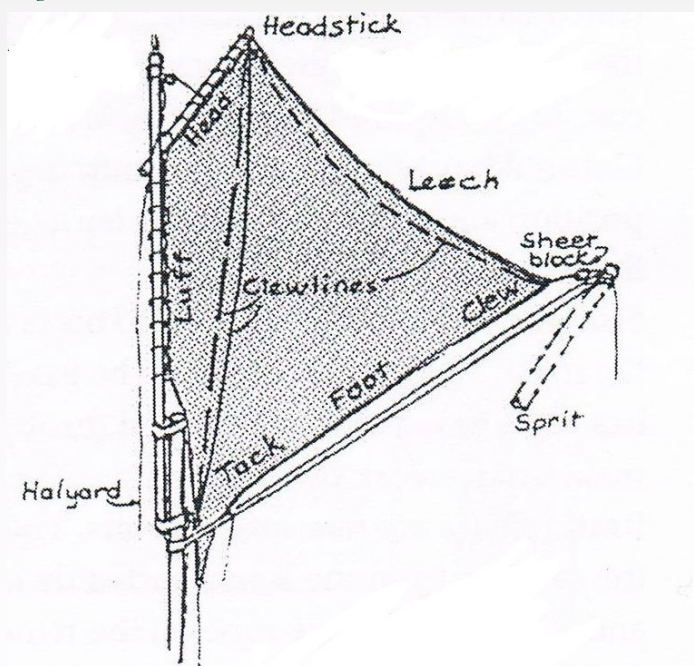
The Design of a Thames Sailing Barge

The mainsail hangs loose-footed from the head rope to which it is permanently attached. It is fixed to the mainmast jackstay with a series of shackles. At the foot it is fixed with a tackle to the main mast case at the tack end. At the other end, the clew, is the mainsheet and the mainsheet block which is attached via a traveller, a large metal hoop, to the main horse. The traveller allows the sail to move across the main horse from one side of the barge to the other when tacking.

The mainsail is set by letting go a series of ropes called brails which hold it into the mainmast in its stowed position and the mainsheet is hauled out and attached to the traveller on the main horse.

When the mainsail is stowed, it is brought back up to the mainmast by hauling on the brails and the mainsheet. It can be likened to a theatre curtain opening.

Topsail

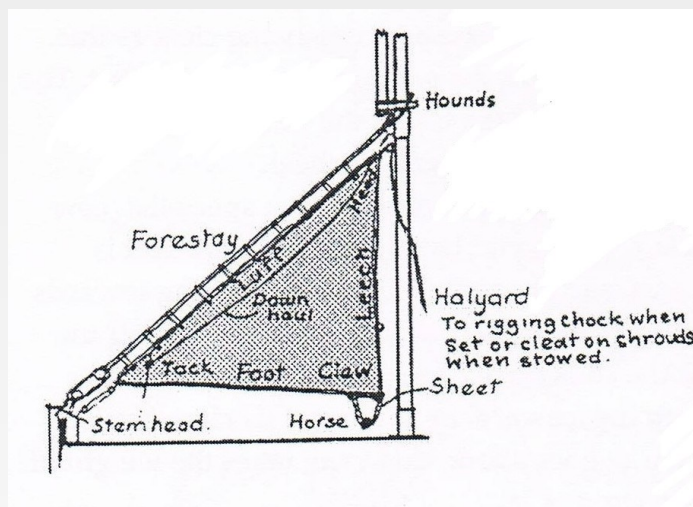


The topsail is attached to a headstick which holds the top of the sail in the correct position when sailing. Below the headstick the sail is attached to the topmast with rings.

When setting the topsail the topsail sheet is hauled out so that the sail is pulled out to the end of the sprit. Then the halyard is hauled up which raises the sail to the top of the mast.

It is stowed in two stages. Firstly the halyard is let go which releases the sail allowing it to travel down the mast on its rings. When the sail reaches the bottom of the topmast the headstick capsizes which has the effect of folding the whole sail in half. Then the sheet is let go allowing the outer end of the sail to fall inwards to the mast leaving the sail hanging in a slim folded parcel which remains aloft.

Foresail

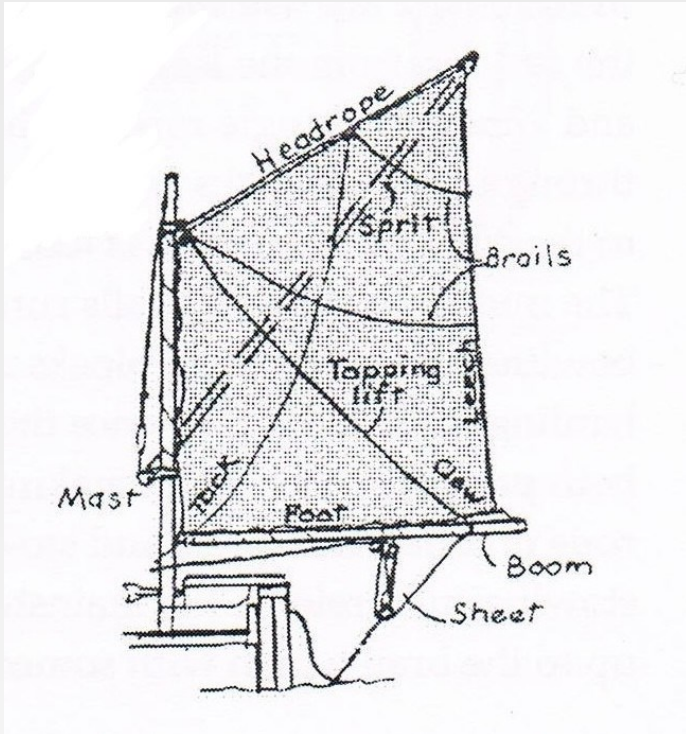


The foresail is attached to the forestay with hanks (rings). A halyard is used to haul it up the forestay as far as the mainmast to set it. This halyard is let go to bring the sail back down to the deck when stowing up. The forward corner called the tack has a tackle on it which is used to keep it down tight when sailing. The clew has a chain attached to it which goes round the forehorse. This allows the sail to travel from one side of the barge to the other when tacking similar to the mainsail travelling across the main horse.

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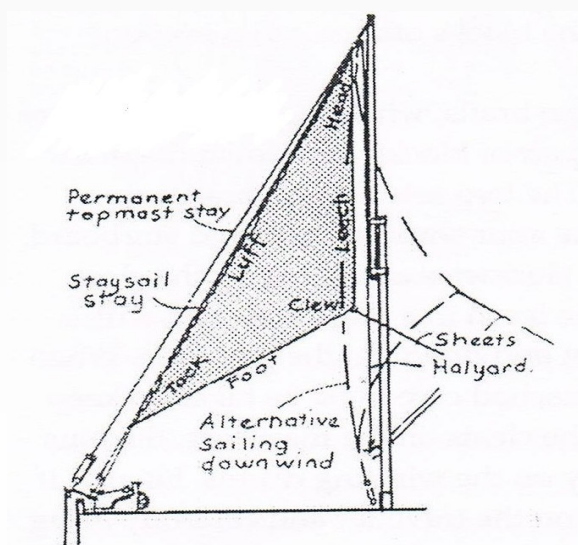
The Design of a Thames Sailing Barge

Mizzen



The mizzen is the stern sail, a smaller version of the main-sail with its own mast, sprit and head rope, but it has a boom rather than being loose-footed. A tackle attaches the end of the boom to the outer end of the rudder. When tacking, or 'going about' as the rudder, operated by the wheel moves across, it hauls the sail with it helping the barge to tack more easily

Staysail



The staysail is an extra sail used mainly in light airs to allow the barge to travel faster. It runs up and down its own stay with rings and is set in a similar manner to the foresail.

Pulley, Block and Tackle



A pulley is a wheel on an axle that is designed to support movement of a cable or belt along its circumference. Pulleys are used in a variety of ways to lift loads, apply forces, and to transmit power.

A pulley is also called a sheave or drum and may have a groove between two flanges around its circumference. The drive element of a pulley system can be a rope, cable, belt, or chain that runs over the pulley inside the groove.

Hero of Alexandria identified the pulley as one of six simple machines used to lift weights. Pulleys are assembled to form a block and tackle in order to provide mechanical advantage to apply large forces. Pulleys are also assembled as part of belt and chain drives in order to transmit power from one rotating shaft to another. In sailing barges they are used to raise and lower sails.

A set of pulleys assembled so that they rotate independently on the same axle form a block. Two blocks with a rope attached to one of the blocks and threaded through the two sets of pulleys form a block and tackle.

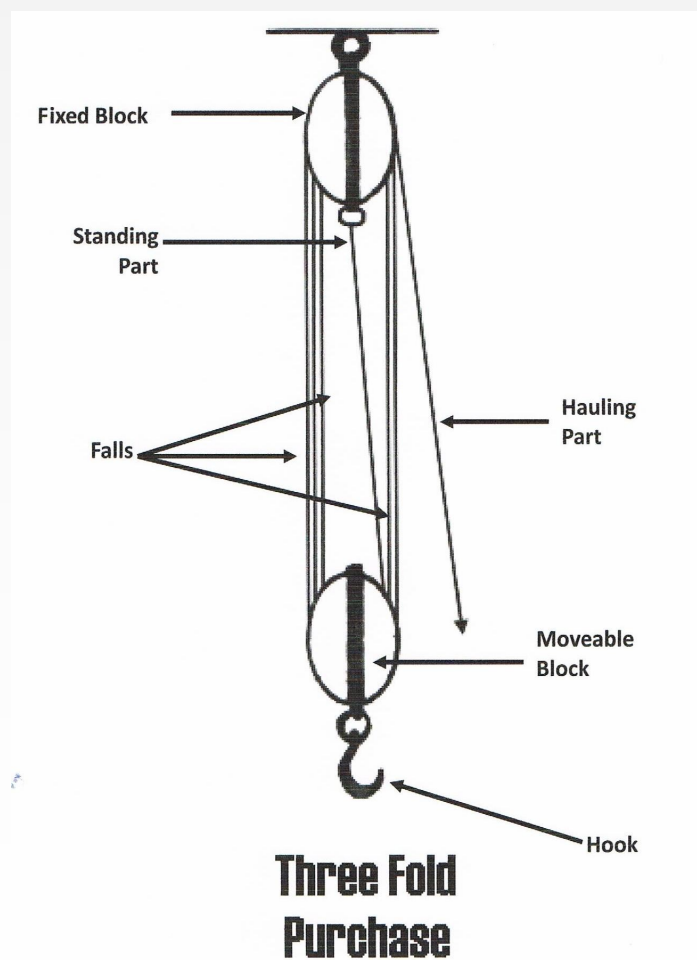
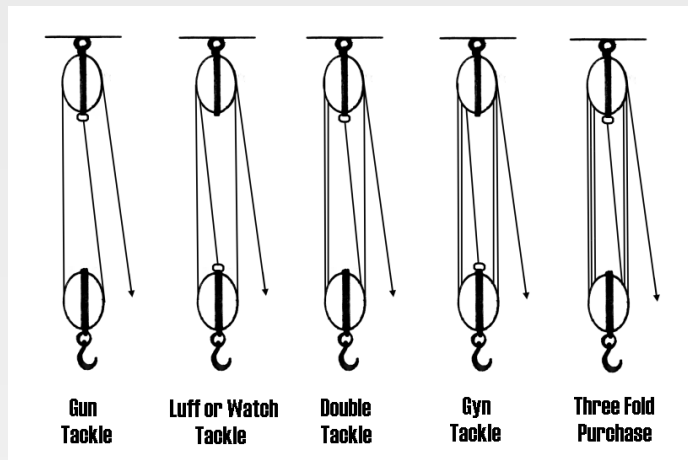
The Design of a Thames Sailing Barge

A block and tackle is assembled so one block is attached to fixed mounting point and the other is attached to the moving load. The mechanical advantage of the block and tackle is equal to the number of parts of the rope that support the moving block.

In the diagram below the mechanical advantage of each of the block and tackle assemblies shown is as follows:

- ◆ Gun Tackle: 2
- ◆ Luff Tackle: 3
- ◆ Double Tackle: 4
- ◆ Gyn Tackle: 5
- ◆ Threefold purchase: 6

A rope and pulley system—that is, a block and tackle - is characterised by the use of a single continuous rope to transmit a tension force around one or more pulleys to lift or move a load—the rope may be a light line or a strong cable.



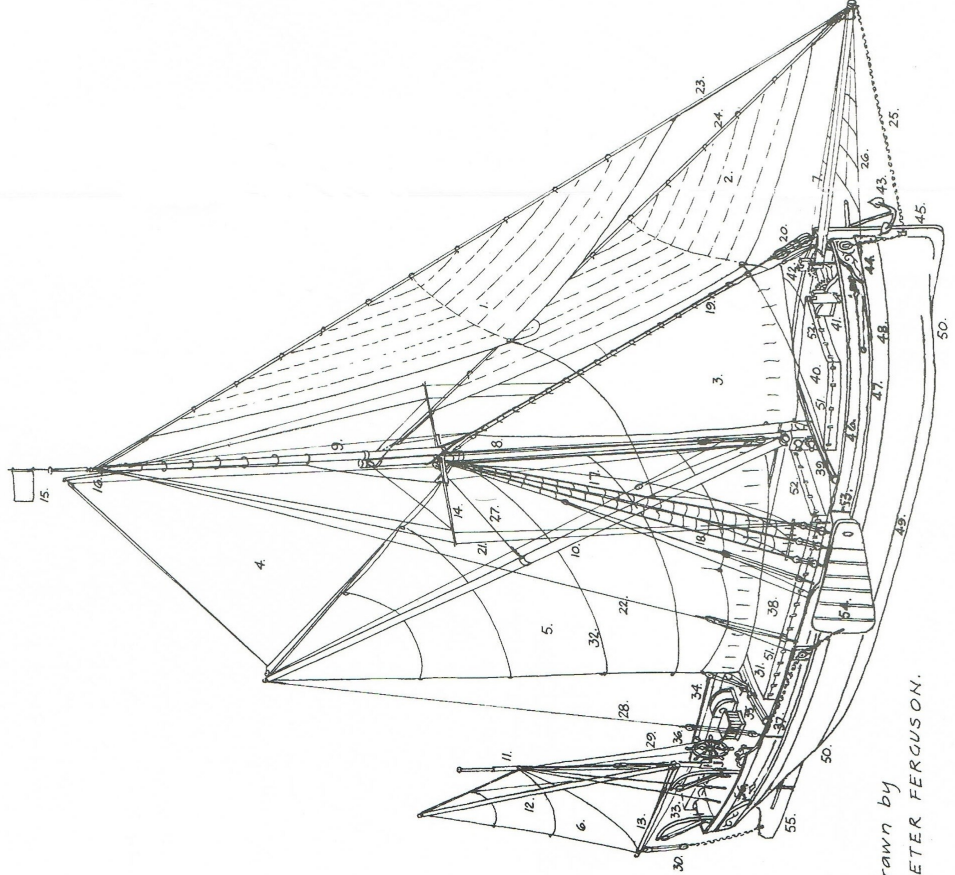
Sailing a Thames Barge

(This sheet is best read as part of a visit on a Thames sailing barge)



Thames Sailing Barge Trust

- KEY :
- | | |
|-------------------------|-------------------------|
| 1. Staysail/Jib Topsail | 29. Mizzen shrouds |
| 2. Jib | 30. Mizzen sheet |
| 3. Foresail | 31. Main sheet |
| 4. Topsail | 32. Main brail |
| 5. Mainsail | 33. Davits |
| 6. Mizzen | 34. Cabin scuttle hatch |
| 7. Bowsprit | 35. Cabin skylight |
| 8. Mainmast | 36. Wheel |
| 9. Topmast | 37. Main horse |
| 10. Sprit | 38. Main hatch |
| 11. Mizzen mast | 39. Fore horse |
| 12. Mizzen sprit | 40. Fore hatch |
| 13. Mizzen boom | 41. Fore'sle hatch |
| 14. Cross trees | 42. Windlass |
| 15. Bob | 43. Anchor |
| 16. Headstick | 44. Bow badge |
| 17. Star-board shrouds | 45. Stem |
| 18. Main runners | 46. Rails |
| 19. Fore stay | 47. Covering board |
| 20. Stayfall tackle | 48. Wale |
| 21. Standing backstays | 49. Chine |
| 22. Running backstays | 50. Run |
| 23. Topmast stay | 51. Coamings |
| 24. Jib stay | 52. Head ledge |
| 25. Bob stay | 53. Rigging chock |
| 26. Bowsprit shrouds | 54. Lee-board |
| 27. Yard tackle | 55. Rudder |
| 28. Wing | 56. Quarter board |



drawn by
PETER FERGUSON.

Coastal Sailing Barge circa 1900

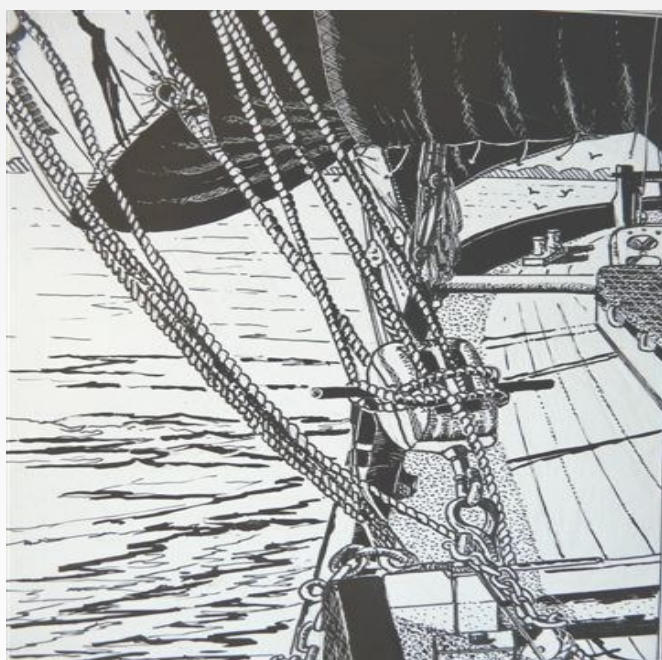
Sailing a Thames Barge

Setting Sail

Setting the Topsail

1. Release the clewlines from the cleats at the starboard (right hand) shrouds.
2. Haul out the topsail sheet as far as possible and make up to the cleat on the side of the sprit.
3. Haul up the top of the sail which is attached to the headstick using the halyard tackle until it is right up and make fast to the cleat on the port (left hand) side of the mast.
4. Tidy up ropes by flaking them down at the foot of the mast in large figures of eight.

Setting the Mainsail



Sailing showing the mainsheet block arrangement

1. Release the brails – peaks, lowers and middles
2. Take the mainsheet and mainsheet block aft
3. Hook the mainsheet block on to the traveller on the main horse and mouse it – tie it on securely - to prevent it becoming unhooked
4. Release the main brail and haul out the mainsheet
5. Make the mainsheet fast to the pin on to the mainsheet

block

6. Coil surplus mainsheet across main hatch

Setting the Foresail



Foresail and Foredeck

1. Lower the sail until it can be reached by releasing the halyard
2. Untie the downhaul line with which it is parcelled
3. Hook the tackle on to the tack
4. Haul the sail up by heaving on the halyard and make it fast to the cleat on the inside of the port rigging chock
5. Coil surplus clockwise down on to deck
6. Pull in tack and make tight to cleat on inside of starboard rail

Setting the Mizzen

1. Release brails
2. Ease topping lift out to lower the boom

Sailing a Thames Barge

3. Haul in the mizzen sheet

Setting the Staysail

1. Get staysail out of fo'c'sle
2. Hank it on to the staysail stay attaching the head to its halyard normally kept attached to forestay
3. Haul up on the staysail halyard and tack it down

Its two sheets are taken aft, one each side of the barge.

They go inside the topmast backstays, outside the shrouds and main runners, through the fairlead blocks then under the main horse ready to be made fast on the warping barrel of the appropriate crabwinch



Sails being stowed

Getting Away from Anchor

This process has many variations depending on the strength of the wind and tide, other craft moored close-by and the course the barge needs to take. As a general principle a barge should have sufficient sail set to make her manoeuvrable when getting under way.

When 'getting underway' or preparing to leave an anchorage the anchor is wound in, in stages, using the windlass on the foredeck until it is ready to break out of the mud/sand which has been holding it. The topsail is set and the lashings taken off the foresail. The bowline is put on the foresail on the side opposite to that to which the skipper wants the barge to swing. The anchor is then got fully up and the foresail pulled up, with the bowline keeping the sail to

weather. When the wind comes on the beam the bowline can be let go to allow the foresail to draw. On other occasions the topsail, mainsail and mizzen can be set also before the anchor is broken out, or these sails can just be made ready for use. Sometimes a leeboard will be lowered to help with this manoeuvre. Then the barge is off, sailing to windward, close hauled or free, reaching or running – a language all of its own.

Sailing a Barge to windward

No vessel can sail straight into the wind so it has to be sailed in a zigzag pattern towards the wind. Each line of the zig zag is known as a tack. Each time the barge changes direction it presents the other side of its sails to the wind. This is called tacking and the procedure for this manoeuvre is:

1. The bowline is put on the foresail
2. The skipper puts the helm down and as soon as the foresail starts to shake the bowline is pulled in tight
3. The mainsail, topsail and mizzen cross to the other side of the barge by the weight of the wind
4. As the barge comes through the wind the leeboard for the new tack is lowered and the weather leeboard hauled up using the leeboard winch

When the topsail has filled on the new tack the bowline is released

As a rule of thumb a barge is sailed to windward with the bob (burgee) at such an angle that it lies parallel to the head of the topsail.

Glossary of Barging Terms (just some of the many)

About To go about). To put the bow across the wind as in tacking

Aft Behind in the sense of being nearer the stern of the boat

Astern Behind off the stern of a ship. At or toward the stern

Backstay On a barge the topmast shrouds are sometimes known as "standing backstays" and the topmast backstays as

Sailing a Thames Barge

“topmast running backstays”. They stop the mast from toppling forward.

Barge Boat The traditional boat carried in the davits

Bilge The space between the bottom hull planking and the ceiling of the hold.

Block A pulley with one or more sheaves (grooved rollers) through which a rope is rove, and which can be used to change the direction of moving ropes, or pairs to form a tackle.

Bob The Flag mounted on the topmast truck, bearing the owner’s colour scheme or other device. It is made up both of the flag itself and a steel frame. It is used to indicate wind direction and for helming.

Bowline An important knot used to form an eye in the end of a rope.

Bowsprit A spar extending forward of the stem on which the jib and staysail may be set. The bowsprit on a barge is pivoted so that it may be steeved up in docks and harbours.

Brails Ropes and wires used to stow the mainsail and mizzen by drawing it up to the mast in a manner similar to that used in opening a traditional theatre curtain.

Ceiling The inside planking forming the floor of a barge’s hold, on which the cargo was carried.

Chine The angle where the barge’s bottom planks meet the side planking.

Davit The iron cranes used to hoist and lower the barge boat.

Dolly Winch The small portable winding drum used to tension the handling a long, light but very strong ‘tracking line’ in warping the barge around docks, unloading her.

Fast Secured or fixed, as a rope when made up on a cleat.

For’ard (forward). At or near or directed toward the bow.

Gear The masts, sails and rigging

Gybe To put the stern of the barge through the wind.

Halliard Rope used to hoist sails.

Helm The act of steering the barge.

Hold The space where cargo is stored.

Horse A wood or steel beam across the deck carrying the fore sheet, or main sheet on its traveller.

Keelson A large baulk of timber or steel girder fitted on top of the floors to form the central internal backbone of the barge.

Lee The side of the barge away from the wind.

Leeboard A large fan-shaped wooden board fitted at each side of a barge and pivoted at its forward end. When the board on the lee side is lowered it increases the effective draught of the barge and serves to reduce the amount of leeway when sailing close-hauled. It operates in a similar way as the centreboard on a yacht.

London River The Thames.

Mast Case The steel box in which the heel of the mast rests.

Port the left side of the barge when facing forward.

Sailorman The traditional name for the Thames Barges and their crews.

Sprit The large spar used to extend the peak of the spritsail. It extends between the peak of the sail and the foot of the mast.

Starboard The right side of the craft when facing forward.

Stumpy An old fashioned barge without a top mast.

Transom The blunt stern of the barge with the name and port of registry carved into it.