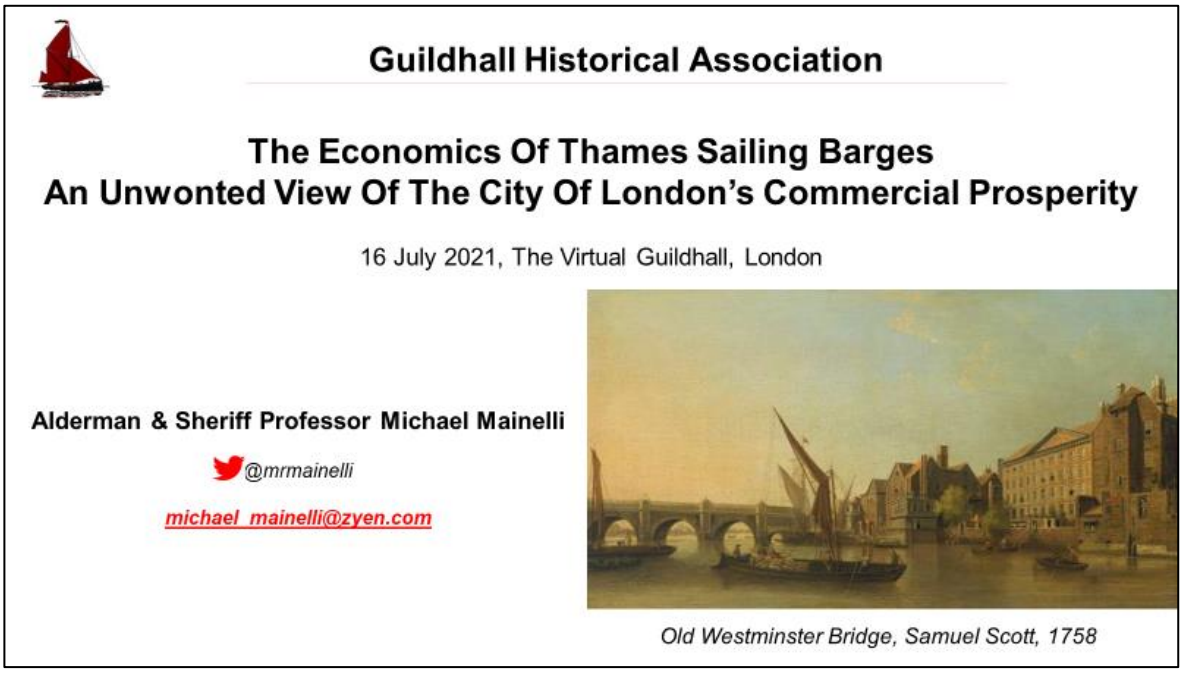



# The Economics Of Thames Sailing Barges
# An Unwonted View Of The City Of London's Commercial Prosperity

Professor Michael Mainelli
The Virtual Guildhall, 16 July 2021

***"There are two things scarce matched in the Universe –***
***the Sun in Heaven and the Thames on Earth."***
Sir Walter Raleigh (1552-1618)

President, Fellow Historians, Ladies & Gentlemen,

## Outline

- The Thames
- London
- Tacking a bit on English boatbuilding
- Hayday (sic)
- Tidal talk
- A shipping forecast
- To the chase
- Not so fast…
- Back to the future?

F West, Westminster Bridge 1745

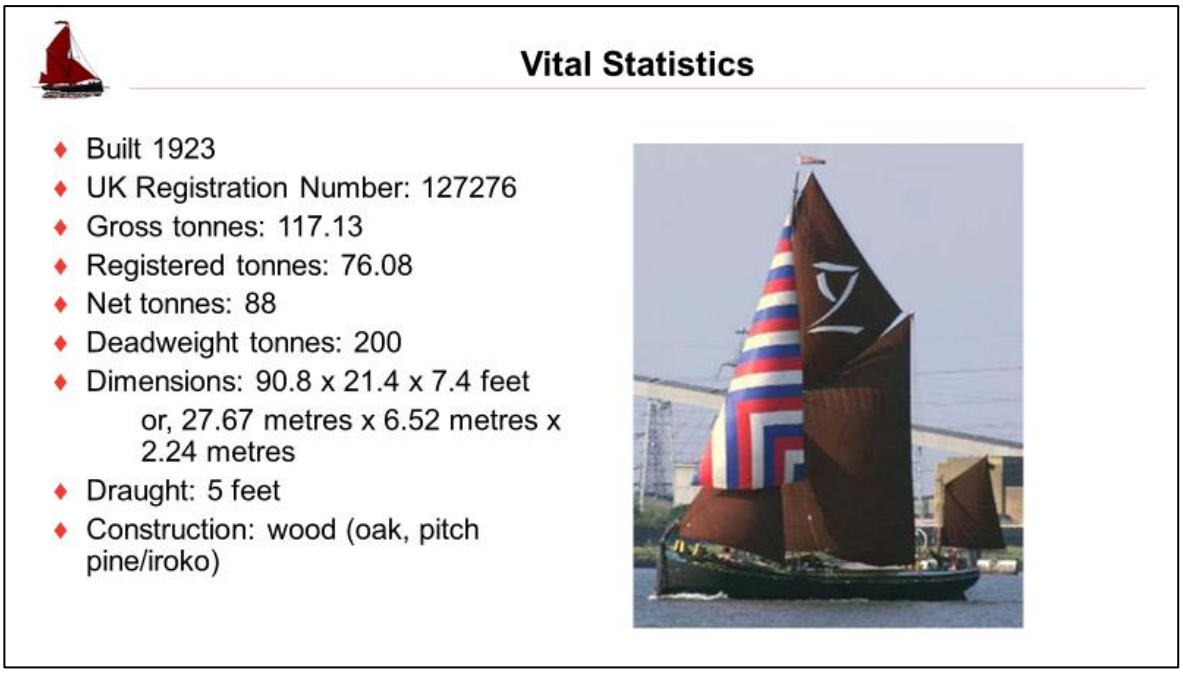
## Background

Today I will ask you to focus on an overlooked bit of London's unwonted history. 'Unwonted' in the sense of unusual or unaccustomed. We're going to examine the 17th through 19th century equivalent of lorries, the Thames Sailing Barges. We're going to highlight their overlooked economic importance. My conclusion will be that London's geography shaped London's destiny perhaps more than social historians might appreciate. Thames sailing barges were the mechanism by which Londoners took advantage of their geography.

## Sweet Bird Of Youth

[Launch of SB Lady Daphne, Rochester (see Rochester Castle in background), January 1923]

My background to this subject is most influenced by the fact that my wife, Elisabeth, and I owned and proudly restored a Thames Sailing Barge over 21 years from 1996 to 2017. In addition, I have been a trustee since 1999 of the world's oldest sailing racing body, the Thames Match[1], as well as being a member of the Association of Bargemen, Sailing Barge Association, Thames Sailing Barge Trust, and Company of Watermen & Lightermen. Further, thanks to Historian Galloway, I served as a London Waterways Commissioner for eight years. Oh, and on plastic boats I'm a long-standing racer and member of the Royal Ocean Racing Club.

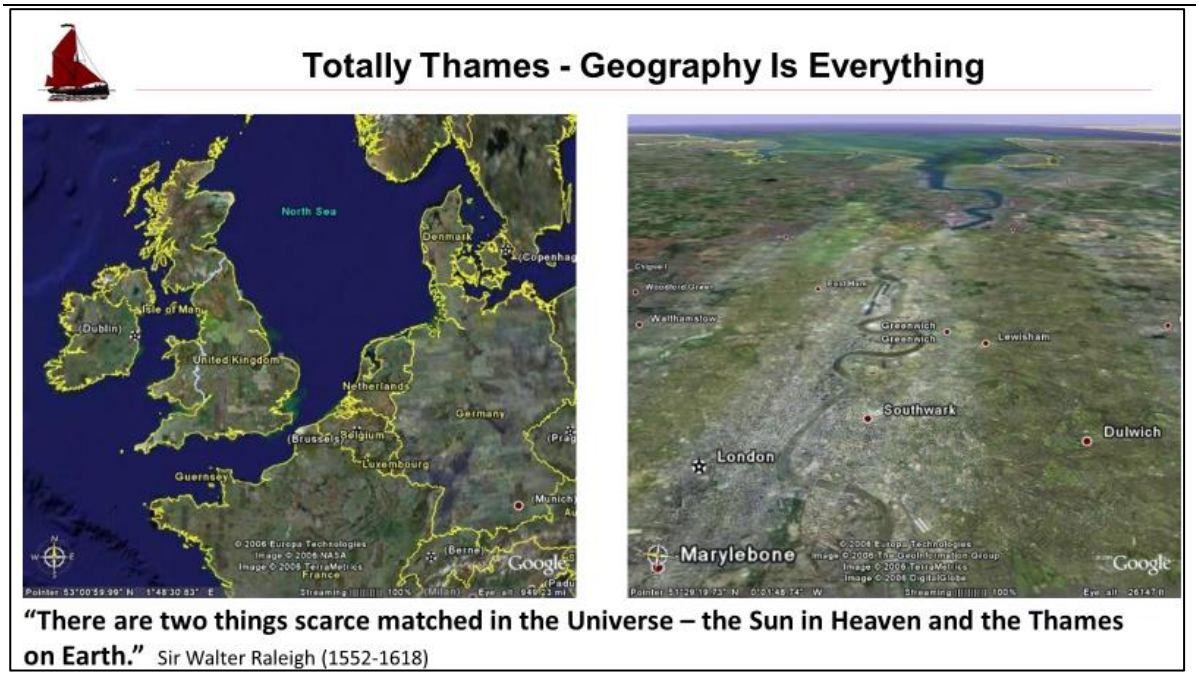



I can get passionate about barges, not least racing one of them less than a fortnight ago. To some degree, this passion makes me push some unwonted arguments, but hopefully you should have no need to take this talk with a pinch of salt water.

## The Thames

A wonderful 1984 book on "The Thames Barrier", by Stuart Gilbert and Ray Horner, initially struck me as rather pretentious by beginning with the Thames in Roman times. However, they convinced me that this is the right place to start today, the Roman conquest of Britain in 43 AD.

[1] https://thamesmatch.co.uk/

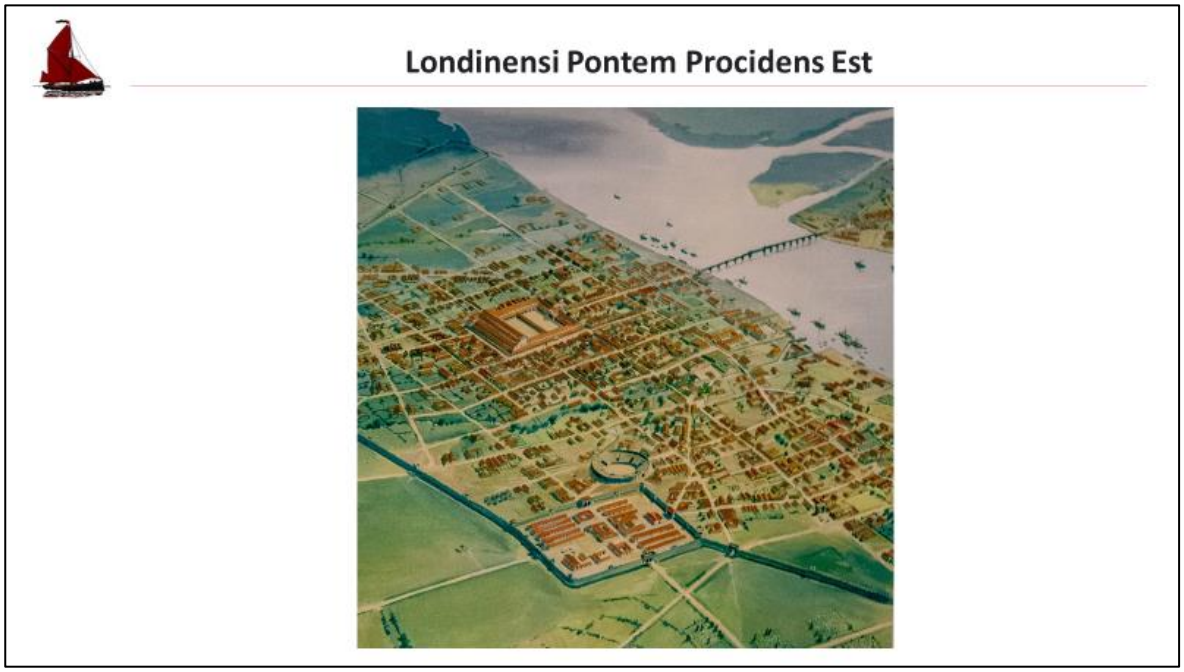



**"There are two things scarce matched in the Universe – the Sun in Heaven and the Thames on Earth."** Sir Walter Raleigh (1552-1618)

'Old Man' Thames is the largest river basin in SE England, pointing back towards Rome. It has a high tidal range of 7 metres. Of the Thames' 346 km (215 miles) total length, 160 km (99 miles) is tidal, close to half. Along its tidal stretch the river bottom is almost all mud. In other words, a flat-bottomed vessel can sit safely without overturning or being pierced by rocks.

In Roman times the eastern Thames was much broader. Salt marshes, particularly to the east of today's City, absorbed much of the tidal waters. The Thames flowed more slowly. Today's swifter Thames, flowing back and forth at about four knots, is due to containment and scouring reinforced by containment. The Thames Estuary itself is full of tight creeks and mud flats providing access to farms.

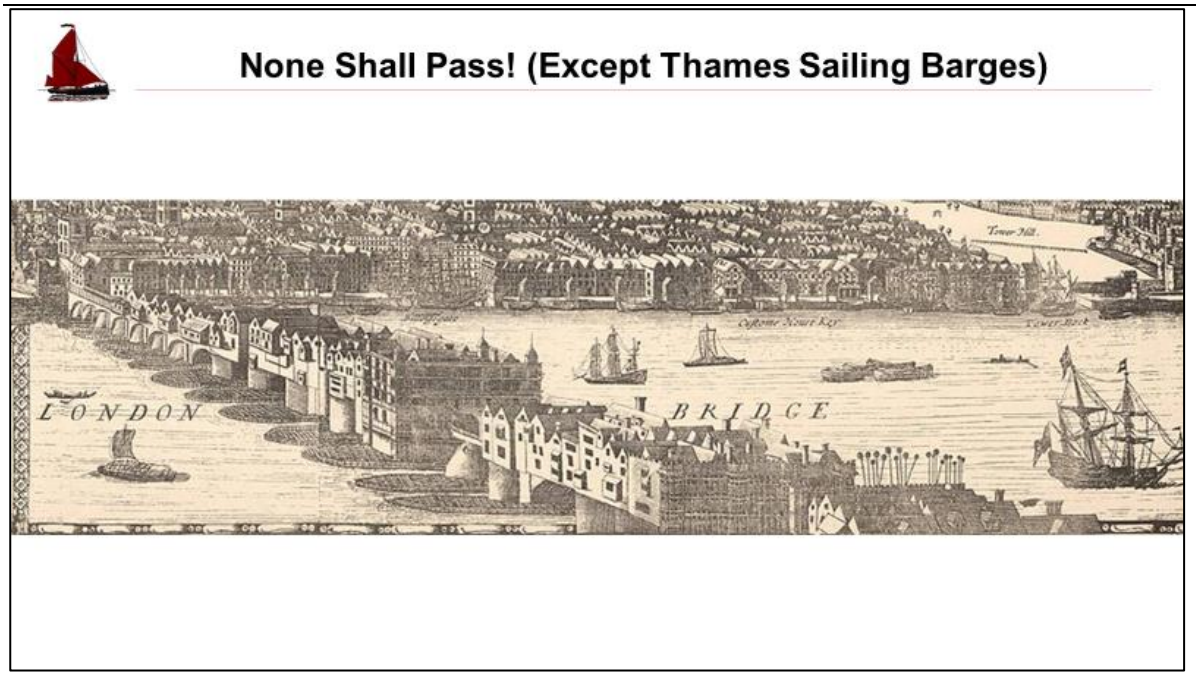
## London




London was founded in 48 AD. The Romans built on Cornhill and Ludgate Hill to take advantage of both high ground and fresh water. More important may have been that London was the furthest east they could construct a bridge connecting Kent and Essex using the technology of the time, saving days of travel. London Bridge was erected in 52 AD. By 60 AD London was the largest and most important city in Britain. Though London was destroyed in 60 or 61 AD, the Romans remained convinced of London's future and rebuilt. London remained the centre of Roman operations till they ceased direct control of Britain around 410 AD.[2]

Barges first get a mention in the building of London Wall. To a sailor, 'barge' strictly just means 'without a keel'. The Romans would steer these barges full of stone floating upriver on one tide, then anchor, sit on the mud as the tide drained out, await the turn of the tide, and float upriver again. The Roman wall was about 4 km in length. The Romans built the landward wall between 190 and 225 AD, the riverside wall between 250 and 270 AD. The ragstone was quarried near Maidstone in Kent, a 127 km sailing trip up the Medway. It was a massive project. 1 million stone blocks about the size of breeze blocks; 85,000 tonnes of stone; approximately 3,000 barge loads for 30 tonne barges.

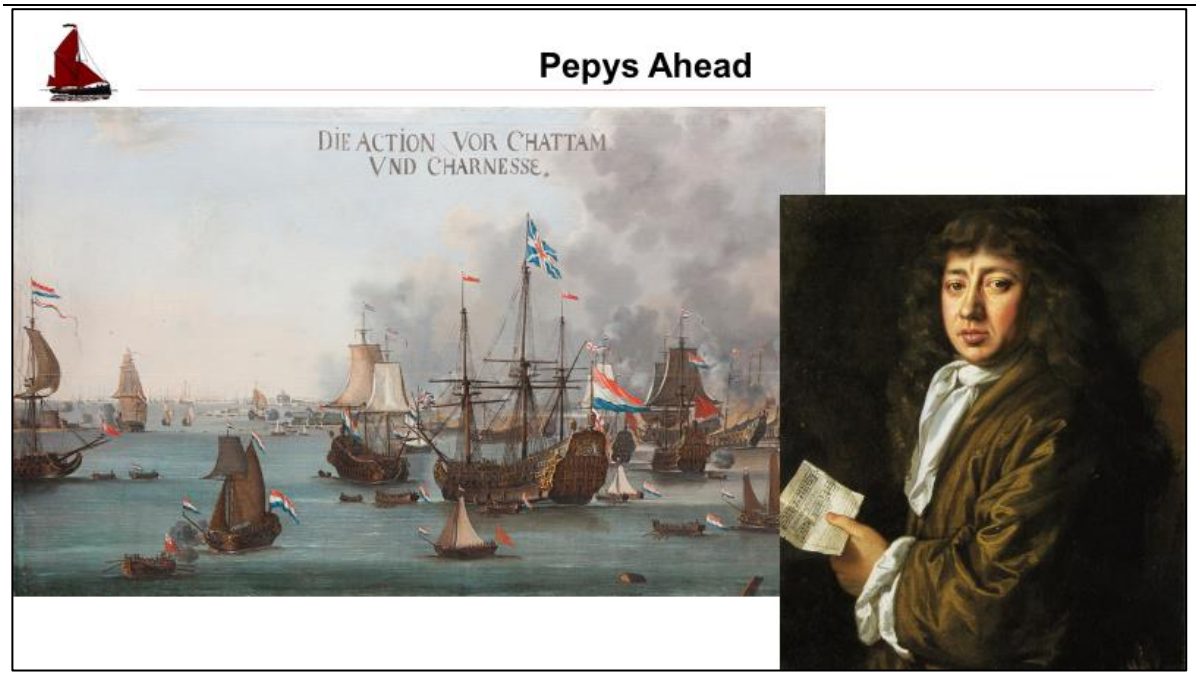
"[2] Archaeology At Bloomberg", Museum of London Archaeology (2017) - https://www.mola.org.uk/archaeology-bloomberg




London remained the first point where the tidal Thames was spannable by the technology of the day, so when stable governance permitted rebuilding in the 9th century, it was pretty much at the same spot. This meant that London Bridge has formed a barrier to sailing ships who can't lower their masts for well over a millennium, right up to the present day.

**Tacking A Bit On English Boatbuilding**

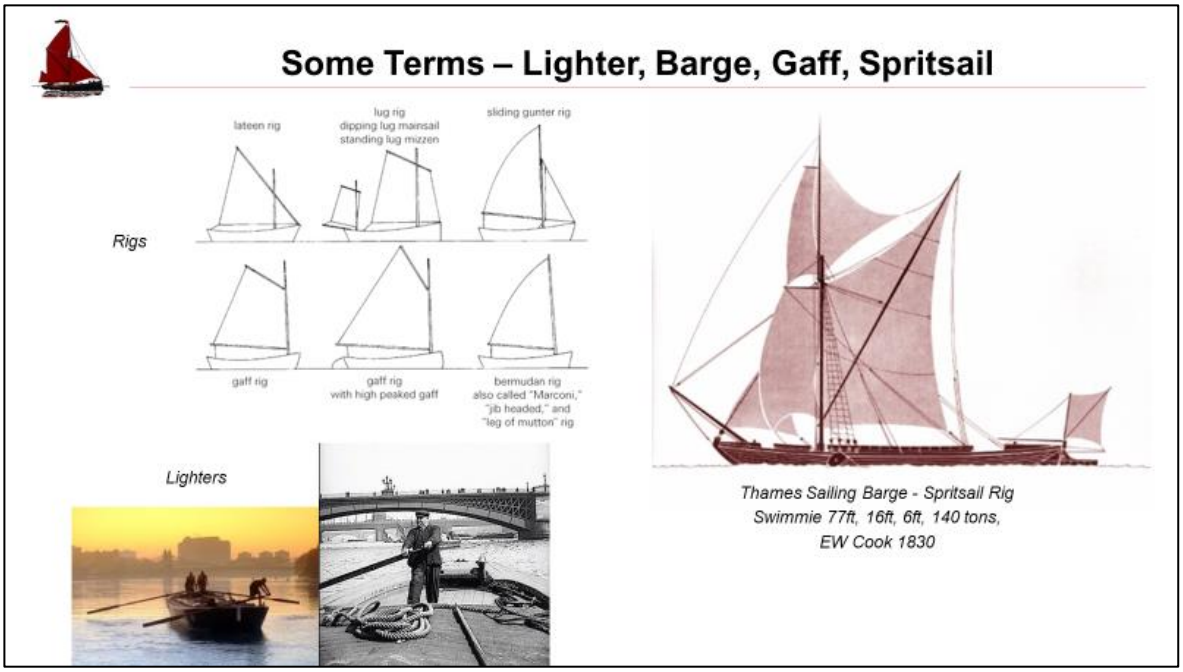
Barges remained important. Interestingly, the old Buckerel family property opposite today's Mansion House was known in the 16th and 17th century as "the olde Barge" (Stow, 1603, page 262) on the south side of Bucklersbury, the north side of today's Bloomberg site. Thomas More (1477-1535) lived at the Barge from 1505 till 1525 before moving to Chelsea.




England's maritime myth and England's actual boatbuilding prowess don't really converge until the early 18th century. Henry VIII's Mary Rose, Elizabeth I's deference to Grace O'Malley (c 1530 – c 1603), Drake's inability to sink any Spanish ship in direct combat, and the Dutch Raid on the Medway in 1667, indicate a nation perhaps a bit less seaworthy than some. Stung by the Dutch Raid, Charles II and Samuel Pepys revolutionized boatbuilding by importing Dutch designers and shipwrights, particularly for naval construction. We see the enormous influence of the Dutch on the English in many fundamental sailing terms, deck, keel, skipper, vang, yacht.

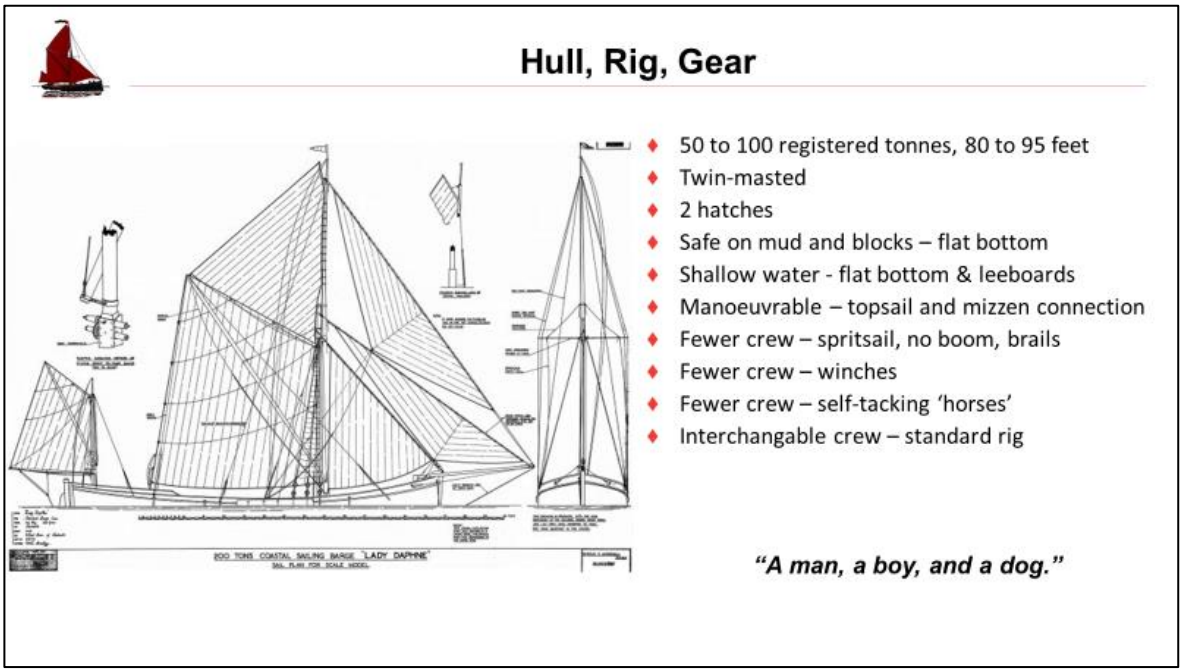
As the English navy comes into its period of superiority during the 18th century, quietly, and at the same time, the Dutch leave their mark on commercial vessels. For the first time, particularly on the Thames, the English adopt Dutch sailing barge designs for widespread use.


For those of you who've observed the Samuels collection at Mansion House, those Dutch paintings show the very vessels the English began copying, the Dutch spritsail rigs, at the very time the English began copying them.




The spritsail rig consists of a mast with a permanent sprit (pronounced "spreet", though pronounced "sprit sail") mounted at about 60 degrees

vertical. The sail is stowed by being 'brailed' into the sprit, a bit like an old cinema curtain. This contrasts with a gaff rig which is more like raising or lowering a telephone pole perpendicular to the mast for each sailing. However, the English were not constrained by narrow Dutch canals, so they built larger, longer, and wider.

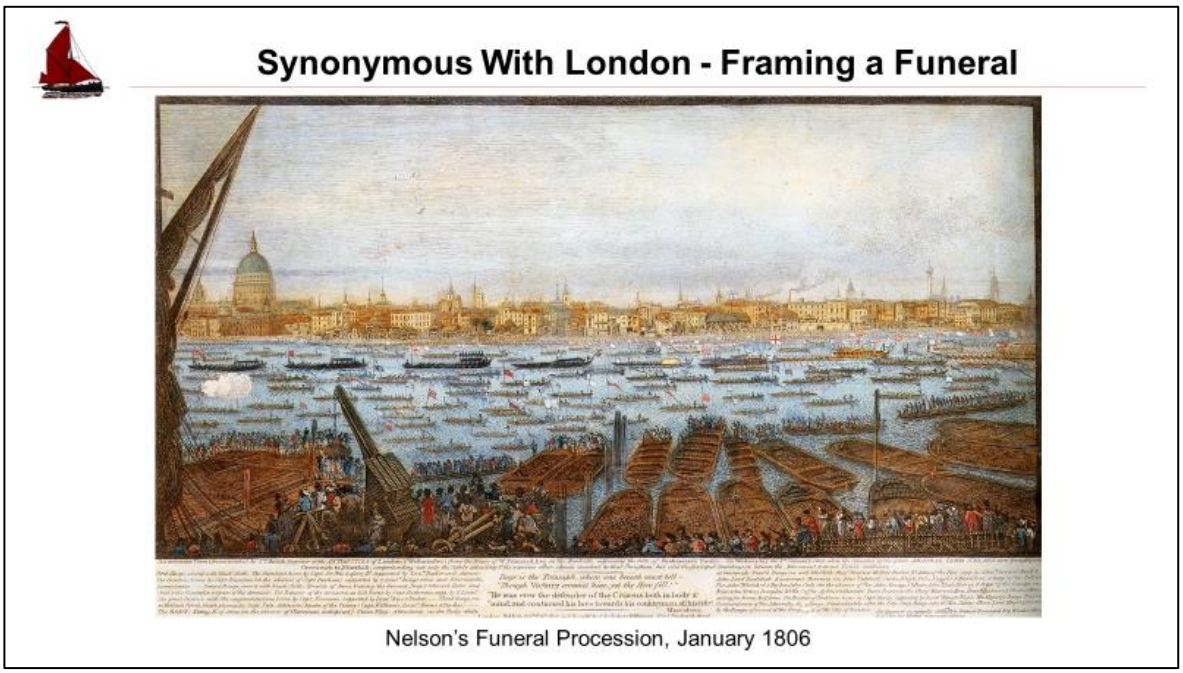



The Thames Sailing Barge economic characteristics are:

- Flat bottomed with a small draught typically less than four feet, so able to work in shallow water, safe on mud and 'blocks', but in consequence needing leeboards to sail.
- Spritsail rig, allowing the main and mizzen masts to be dropped, thus able to 'shoot' under bridges; sail handling safer and easier with loose-footed sail without a boom; more manoeuvrable with a mizzen & rudder connection.
- Winches, improving the economics enormously; one person can brail the sails and wind up the leeboard;
- 'Horses', long beams to which the clews of the mainsail and foresail are sheeted, mean the sails are self-tacking, so two people can crew a large boat that would take six to eight on a similar-sized gaff rig.


Today, there are about 45 remaining hulls but only about 20 Thames sailing barges are in race-able condition around the UK. With a few charming exceptions such as the tiny barge Cygnet, Thames barges range from 50 to 100 registered tonnes, i.e. volume, and up to 250 deadweight tonnes, i.e. weight carried. They range from 80 to 95 feet long and are about 21 feet wide.

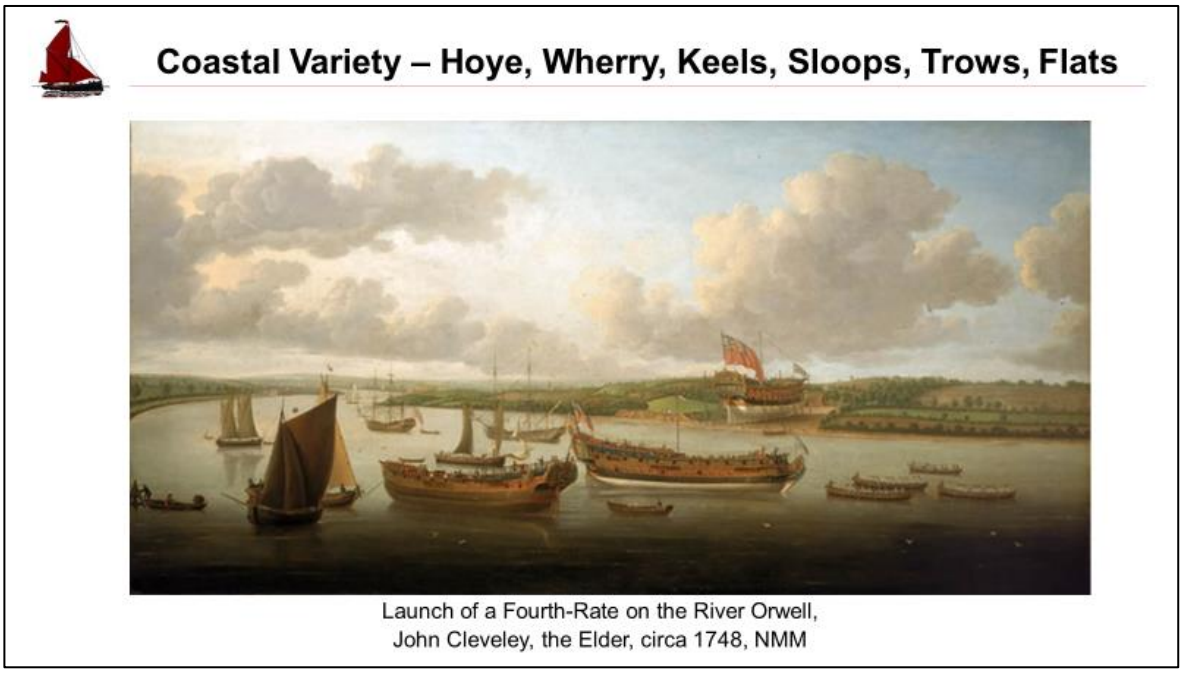
**Hayday (sic)**



Nelson's Funeral Procession, January 1806

Their 3,500 square foot ochre sailplan was highly distinctive, as recorded in numerous London paintings and early photographs, universities, bus

companies, windvanes. For the illiterate, paintings of Nelson's 1806 funeral procession have a spritsail rig in the corner to let them know it's London.

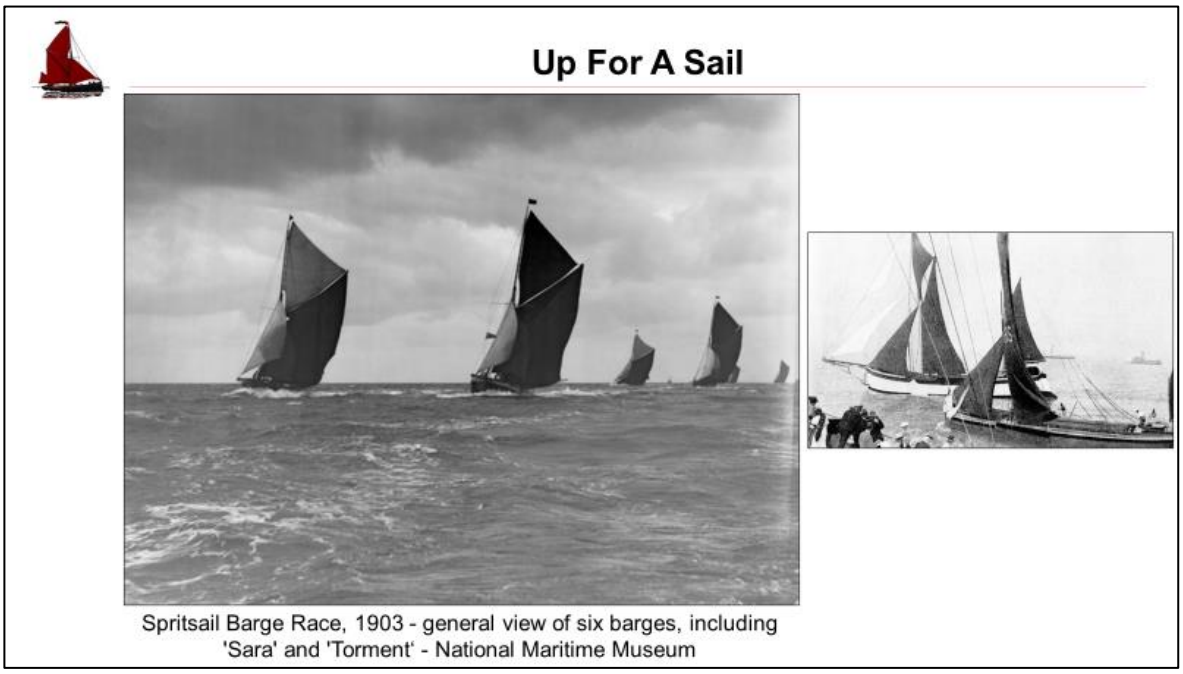



Launch of a Fourth-Rate on the River Orwell,
John Cleveley, the Elder, circa 1748, NMM

The heyday of sailing barges was the eighteenth and nineteenth century. The rig design was so stable that bargemen could board a new vessel in the middle of the night and find everything in the same place. Thames barges sailed throughout the south and east coast, from the Scillies to Newcastle, as well as conducting a thriving trade with the Continent. We took SB Lady Daphne to Brest successfully, over a 500 mile sail.


The Thames at Shillingford, John Thomas Serres, 1823, NMM

Their principal cargoes were grain, hay, or other bulk foodstuffs, bricks, cement, or other building materials, china clay, basically anything that needed to move between east coast farms and the metropolis.




Spritsail Barge Race, 1903 - general view of six barges, including 'Sara' and 'Torment' - National Maritime Museum

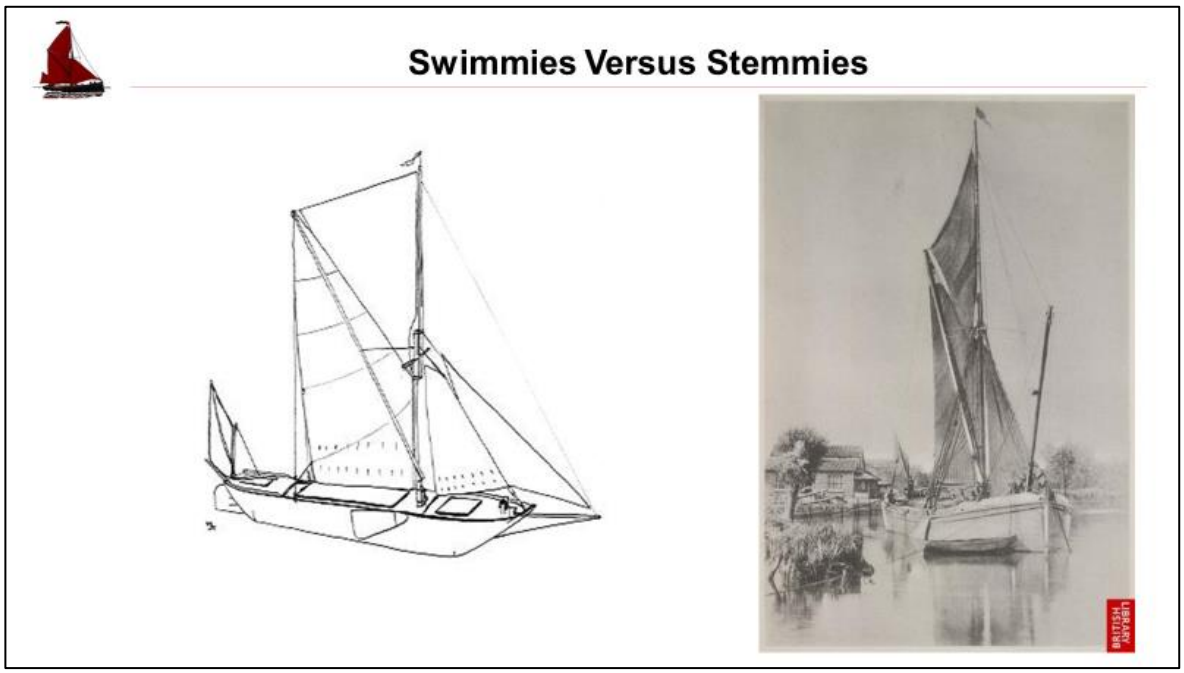
As almost the world's first 'one design boats', barges were raced extensively, often 'matches' between two boats. Records of barge racing start in Harwich in 1844. Henry Dodd was the inspiration for the "Golden Dustman" in "Our Mutual Friend", a contractor of City Wharf, New North Road, Hoxton, and good acquaintance of Dickens. Born in 1801, he started his working life as a ploughboy in the fields within sight of St Paul's. By 1836 he had become a very successful 'scavenger', a refuse collector. Dodd seized this rubbish business opportunity by purchasing a fleet of sailing barges. The rubbish also fired brickworks he owned. He became very wealthy, the Eddie Stobart of 19th century barges. A true "riches from rags" story.

## Golden Dustman – Note 1929 Crowds Watching



He also became a member of the Metropolitan Board of Works and was a Freeman of the Butchers' Company. In 1863, with the support of the Prince of Wales Yacht Club, Henry Dodd proposed the Thames Match, a 48 mile course from Erith to the Nore, today Gravesend to beyond Southend, and back. Dodd wished to show, in his own words, "the value of the races, not only as sporting events, but as a means of advertising their usefulness as a means of transport and bringing to the public eye a better picture of what a sailing barge can do in the way of speed". Think lorries at Silverstone. Many in society assumed that the event had Royal patronage, something Dodd did little to discourage, but in fact the yacht club was named after an Erith pub, the "Prince of Wales". If alive today, Dodd would probably have a ferry contract with Chris Grayling. The Thames Match remains the oldest continuous sailing race in the world. The America's Cup began in 1851, but then took a nineteen year holiday till its second match, with constant revisions since to the boats and the rules.

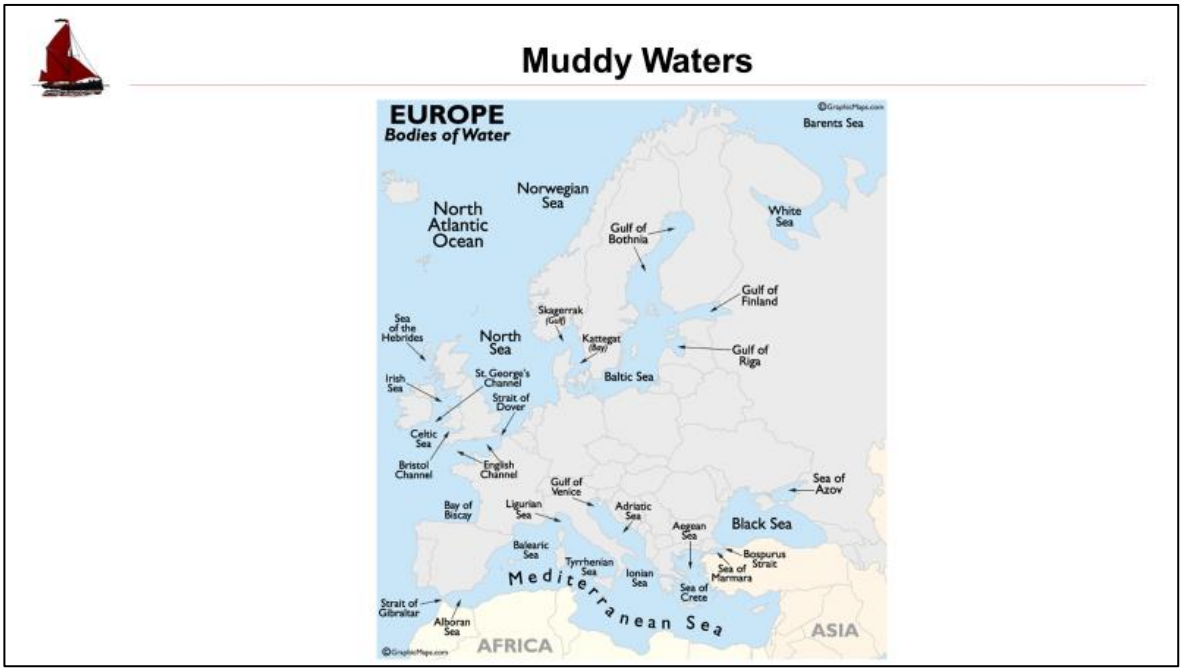

Racing led to the last sailing barge development in the 1880's, "racing" leeboards, hydrodynamically-shaped boards that push the boat upwind, akin to a rear wing on a Formula 1 car. "Free the wang (sic)", "keep the horse clear (ditto)", "babies below (what?)" and "shall I serve lunch before the next tack (yes!)" are not the sort of phrases one expects to hear during a yacht race. However, this is fairly common racing patter in the midst of a barge match.



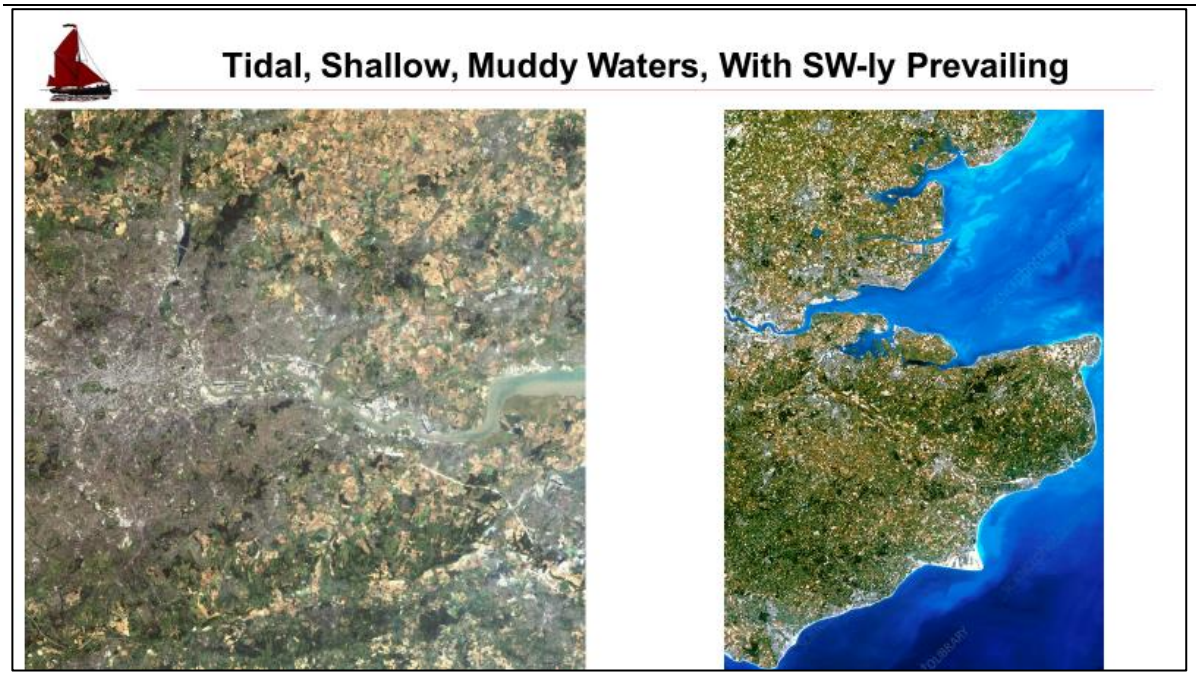

These economics filtered down to skippers and crew. Barge skippers were respected community members. They had solid income, practised an intellectual trade, and had many opportunities to assist people on the side.

Their wives frequently crewed with them, or shipped along for company. Crew members were well-paid with solid employment prospects and career progression by the standards of the time. An entry-level boy was paid only slightly less than an entry-level bank clerk in the City, but had room and board besides.

## Tidal Talk



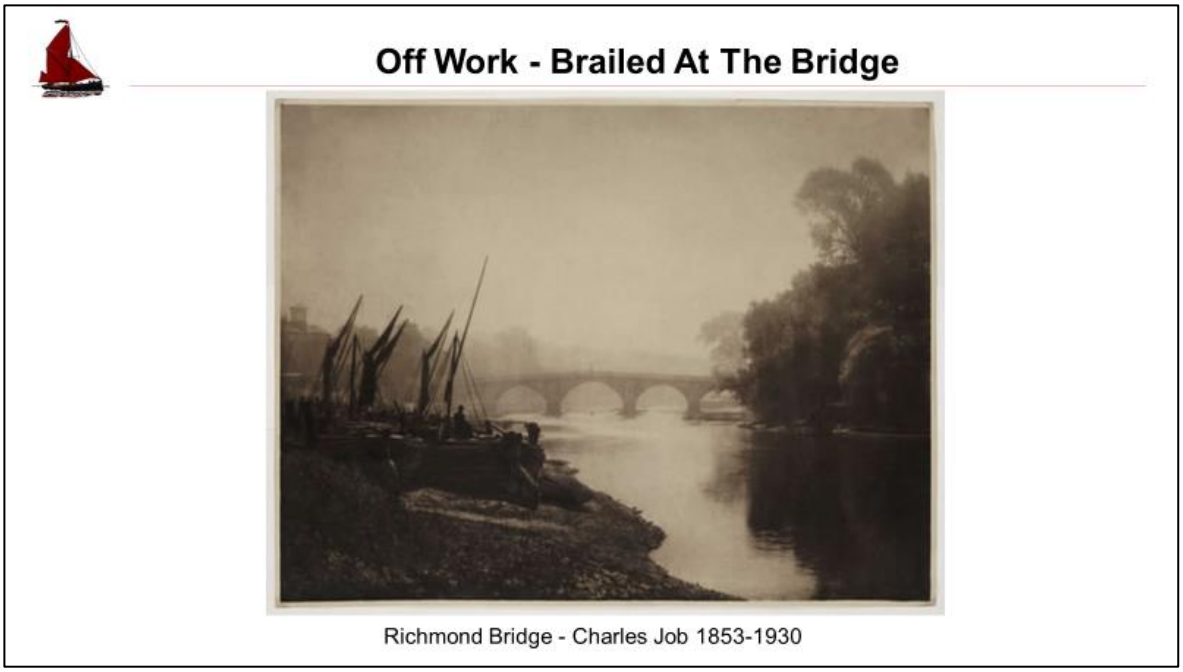

For this talk though, it's the tides that matter. The Mediterranean is a salt lake with no tide to speak of. Most Western European rivers' tidal sections are short. If you concede that the Bristol Channel points the wrong way, London is the only major European city other than Hamburg on an extensive tidal river. But Hamburg didn't control the Dutch or Danish surrounds while London controlled Suffolk, Essex, and Kent.



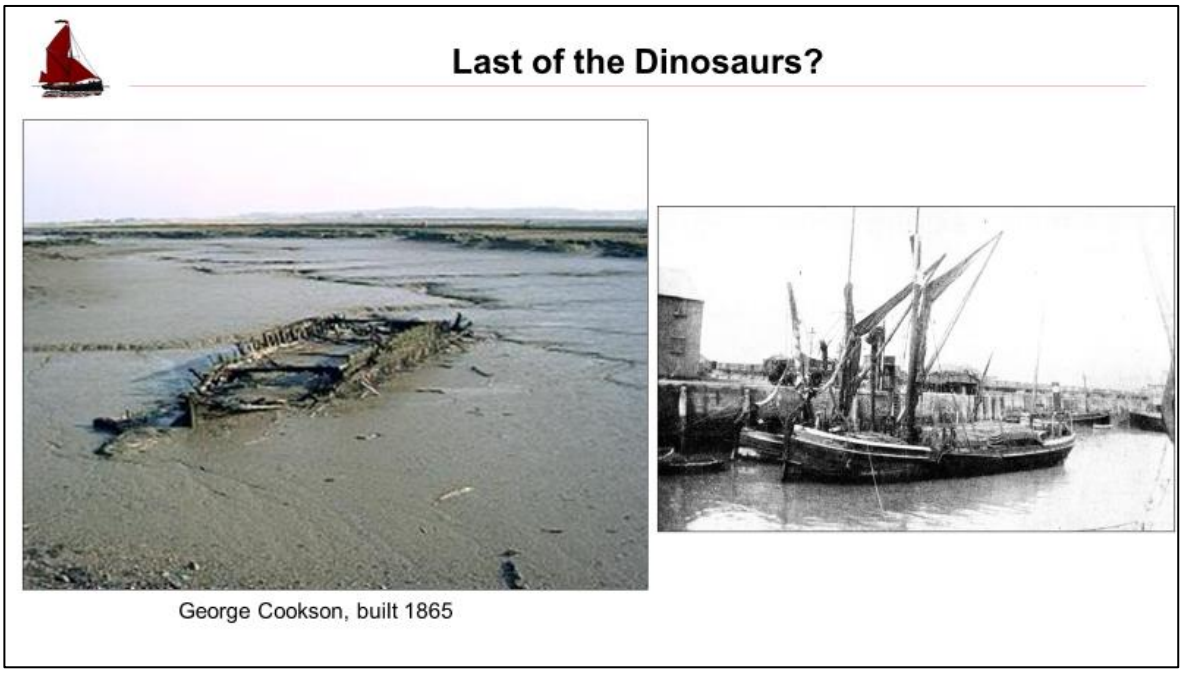

The Thames estuary experiences mostly southwesterly winds. This means sailing out of London is easy, as it is easy to navigate north to Essex and Suffolk, or south to Kent. Yet, everything floating upriver winds up in the Pool of London. On a tidal river this gives the ability to work against the prevailing winds. It means that loads from the rich farmlands of Kent, Essex, and Suffolk can be in the capital within two working days. Thames sailing barges were the only technology of the time capable of feeding a metropolis before the advent of the railways. As late as 1903 a Joint Select Committee of the Lords and Commons estimated that 75% to 80% of the whole traffic of London was carried by barges.[3] I do wonder if they may have been mixing up barges and lighters a bit, but even so you can see that for centuries London had a tidal transport system before switching to lorries.

[3] "from the speech of the late Mr Erskine Pollock, K C, to the Joint Select Committee of Lords and Commons on the Port of London Bill of 1903. Having referred to the fact that from 75 to 80 per cent of the whole traffic of London was carried by barges…" Frank G G Carr, Sailing Barges, Third Edition (1989), page 34.

## A Shipping Forecast




In 1910 there were 31 boat and barge builders listed just in London, and 113 lighterage concerns.[4] Estimates of the number of barges built over the centuries range up past 25,000. At any one time it is possible that 10,000 were trading. In 1854 the Merchant Shipping Act introduced official numbers for newly-registered ships, but barges fell in a grey area, especially those involved in upriver trade. In 1910, there were 2,100 on the Merchant Navy Register, but many were deliberately kept off the Register.



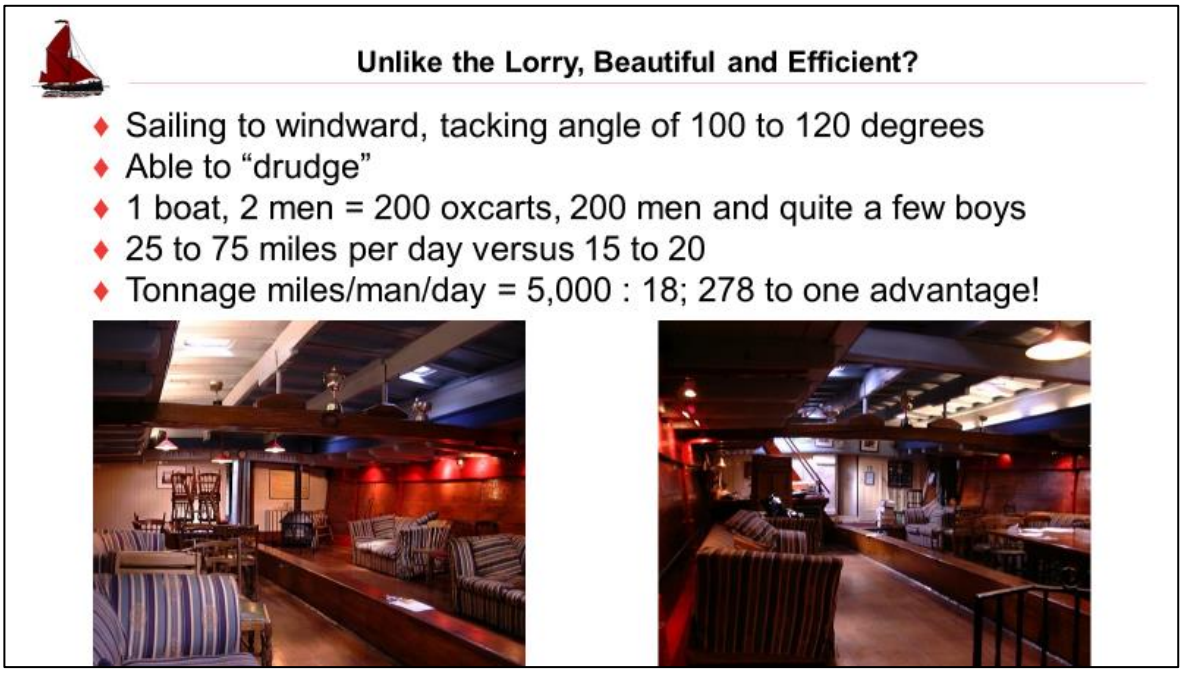

[4] Post Office London Directory, 1910. [Vol. II. Part 1: Trades & Professional Directory, page 360] Historical Directories of England & Wales - Special Collections

From the turn of the 20th century, the lorry was intense competition. Numbers of barges began declining such that at the end of World War I there were about 1,650 barges registered in trade and by the beginning of World War II probably only 600 remained. Again, registered numbers and actual numbers appear to differ widely. Photographic evidence from the Pool of London appears to indicate significant numbers of commercial vessels outside the Merchant Navy Register. The last wooden barges were built in the 1920's, the last steel barges in the 1930's. The barges themselves contributed to this steep decline, having "dug their own graves" by carrying the materials which built the roads for the lorries which replaced them. Even so Bill Fraser points out that his father worked for a lighterage company, the Transport Development Group run by Philip Henman, that floated on the London Stock Exchange in 1950 with 167 barges listed amongst its assets.

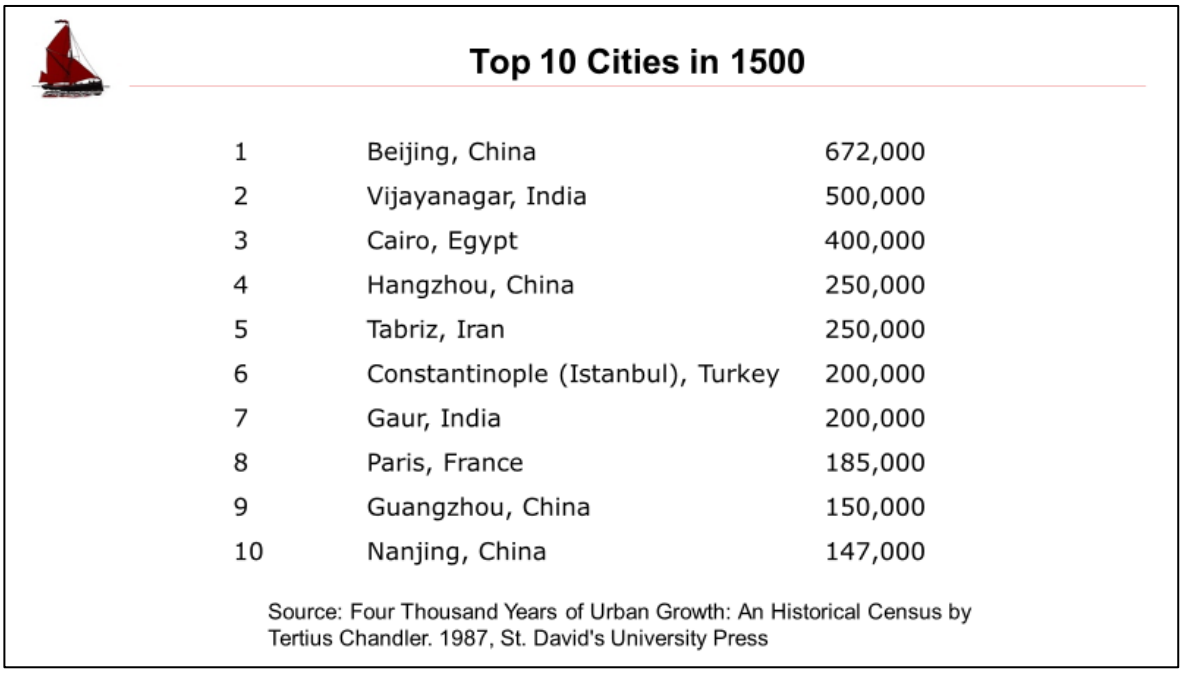
**To The Chase**


'Cut to the chase' is a sailing term from the tea trade. Merchant vessels would give chase to leave port early and arrive first by setting up the anchor line and rigging so that by cutting those, the vessel could depart immediately. We could talk about characters in the trade, the merchant owners, the industrial safety issues, the role of women, the per vessel economics, sailing terms, or even the links with the economics of the canals, but we have little time.

So cutting to the chase, London is for three centuries the only major city using barges for the bulk of its transport. It's really the first sustainable transport city in the world. By using barges London had developed a way to outgrow the limitations of oxcarts.




The permanent sprit, combined with early, but efficient, winches gave the sailing barges their distinct advantage, an ability to carry around 200 tonnes of cargo with two crew ("a man, a boy and a dog"). When this cargo capacity and speed are contrasted with, say, 200 ox carts and drivers, the advantages are clear. By my calculations, 1 boat and 2 men = 200 oxcarts and 200 men, and quite a few boys. At 25 to 75 miles per boat day versus 15 to 20 per ox day, the tonnage mile/man per day ratio is 5,000 to 18, or more simply, a 278 to one advantage in favour of barges.



Using early spatial computer models, in the late 1970s, I contributed to a UN project trying to estimate how African cities based around the oxcart could feed themselves. Such projects are rife with assumptions, but our basic conclusion was in line with medieval experience, perhaps 250,000 to 750,000 people, say 500,000 mid-point, before you couldn't get enough material in to feed the oxen inside the city and remove their waste. At a stretch, Rome in its heyday had just under 1,000,000, but rather widespread including Ostia.

**Top 10 Cities in 1800**

| | | |
|---|---|---|
| 1 | Beijing, China | 1,100,000 |
| 2 | London, United Kingdom | 1,100,000 |
| 3 | Guangzhou, China | 800,000 |
| 4 | Edo (Tokyo), Japan | 685,000 |
| 5 | Constantinople (Istanbul), Turkey | 570,000 |
| 6 | Paris, France | 550,000 |
| 7 | Naples, Italy | 430,000 |
| 8 | Hangzhou, China | 390,000 |
| 9 | Osaka, Japan | 380,000 |
| 10 | Kyoto, Japan | 375,000 |

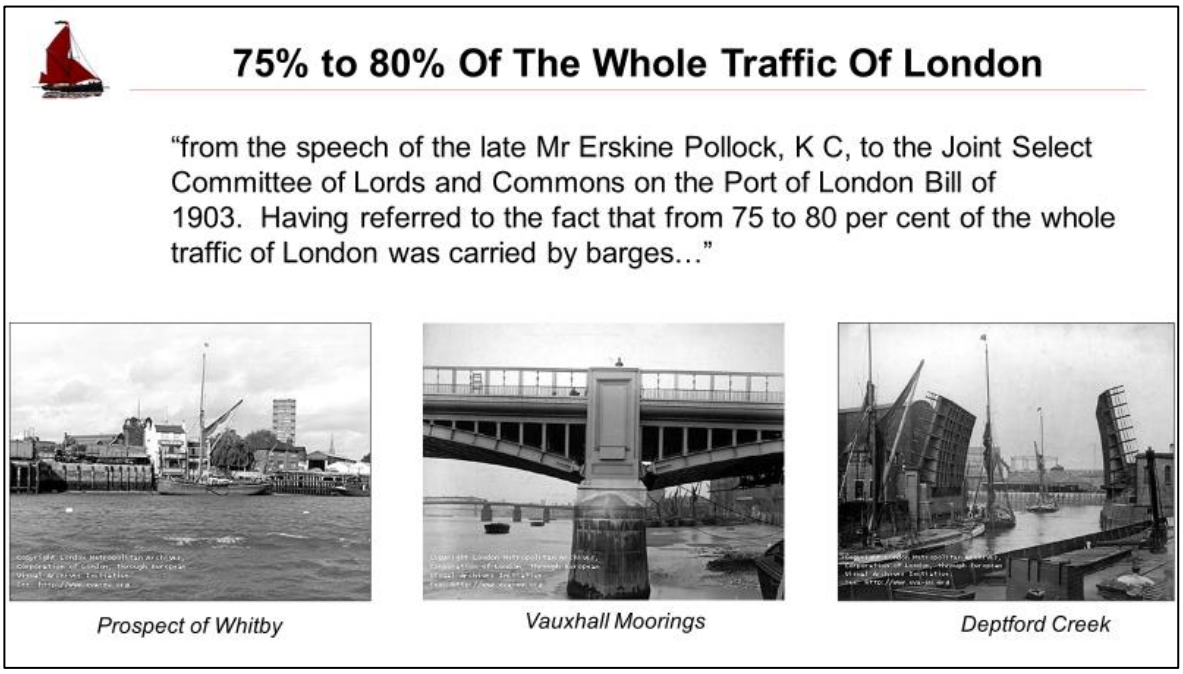
In 1500, Beijing, the world's largest city, has 670,000, London under 50,000. Then 200,000 in 1600, 600,000 in 1700, 1,000,000 in 1800.

**Top 10 Cities in 1900**

| | | |
|---|---|---|
| 1 | London, United Kingdom | 6,480,000 |
| 2 | New York, United States | 4,242,000 |
| 3 | Paris, France | 3,330,000 |
| 4 | Berlin, Germany | 2,707,000 |
| 5 | Chicago, United States | 1,717,000 |
| 6 | Vienna, Austria | 1,698,000 |
| 7 | Tokyo, Japan | 1,497,000 |
| 8 | St. Petersburg, Russia | 1,439,000 |
| 9 | Manchester, United Kingdom | 1,435,000 |
| 10 | Philadelphia, United States | 1,418,000 |

http://geography.about.com/library/weekly/aa011201d.htm

London enters the 19th century as the largest city in Europe, overtakes Beijing within two decades, exceeds two million in 1850, and ends the century with 6.5 million people, without question the largest city in the world –




and as the Select Committee reports, over 75% of the traffic is largely propelled by the tide.[5]

**Not So Fast…**

But surely, London's size is due to the Empire? Revisionists have opened our eyes to the importance of trade amongst the Empire's countries, but we're talking here about the unique ability to feed and water the world's largest concentration of people for over a century.

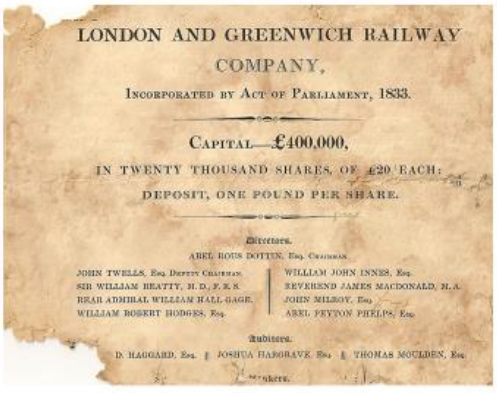
[5] http://www.demographia.com/dm-lon31.htm

## Canalisation?

S B Henry, 1955, Royal Albert Dock (AA001244)


But surely, the canals? Canals had a low penetration in London and minimal economic impact. But surely, the railways that stormed over the canals? The London and Greenwich Railway (L&GR) opened in London between 1836 and 1838. At this point London is now over 2 million people. Railways helped population growth and the development of the suburbs, but it was the barges that made breaking the population records possible.

## Railways, Iron Boats Instead Of Iron Horses?



LONDON AND GREENWICH RAILWAY
COMPANY,
INCORPORATED BY ACT OF PARLIAMENT, 1833.

CAPITAL—£400,000,
IN TWENTY THOUSAND SHARES, OF £20 EACH:
DEPOSIT, ONE POUND PER SHARE.

Directors.

ABEL ROUS DOTTIN, Esq. CHAIRMAN.

JOHN TWELLS, Esq. DEPUTY CHAIRMAN.
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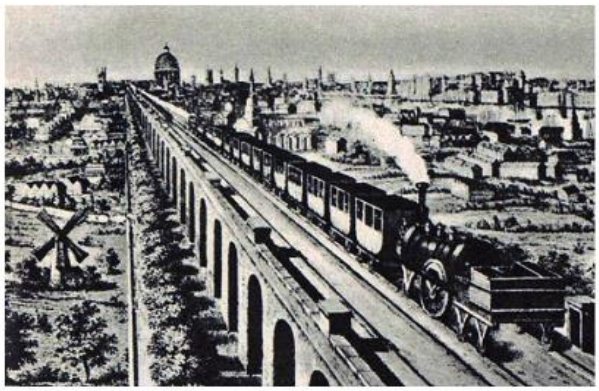
ABEL PEYTON PHELPS, Esq.

Auditors.

D. HAGGARD, Esq. | JOSHUA HARGRAVE, Esq. | THOMAS MOULDEN, Esq.

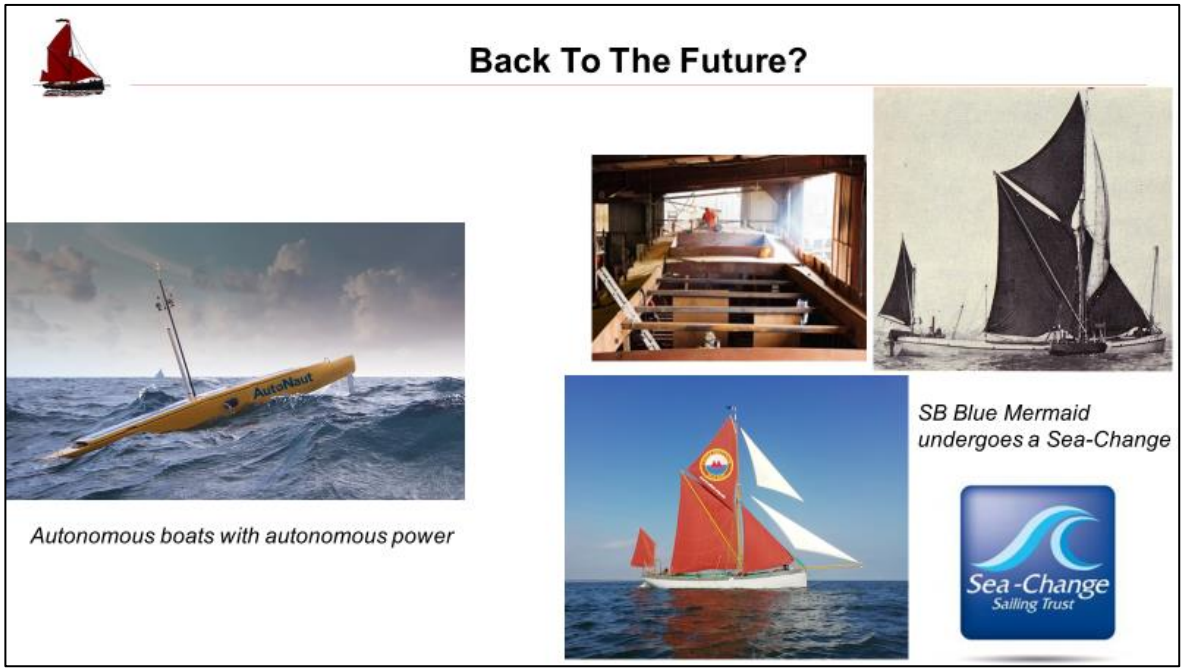
Bankers.



In some respects, barges are responsible for the parlous state of British railways. As evidenced in railway prospectuses of the 1840s and 1850s, anticipated revenues came from passengers and post, not so much freight. Most railways were built accordingly, for speed, without freight top of the

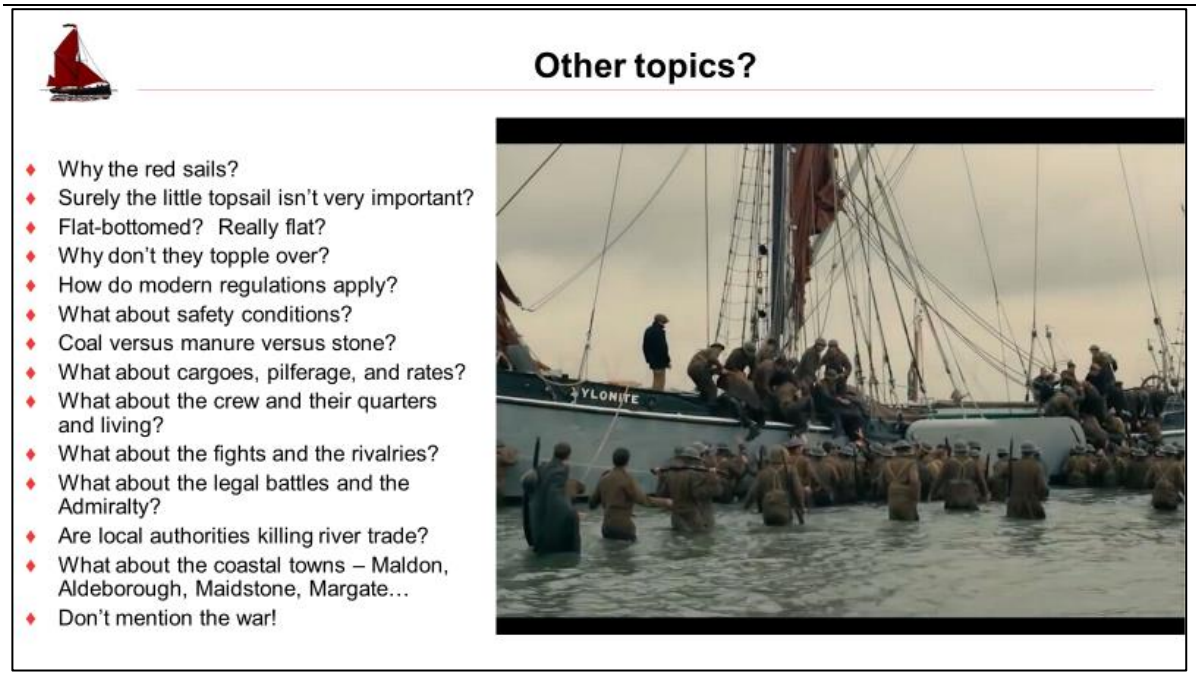
mind, perhaps with the notable exception of Brunel. Meanwhile, on the Continent, which had no two-way barge traffic, railways were built much heavier to handle freight. New York, a riverine port with tide, but not the estuarial geometry to take advantage of it, doesn't really take off until the railways assist.

**Back To The Future?**

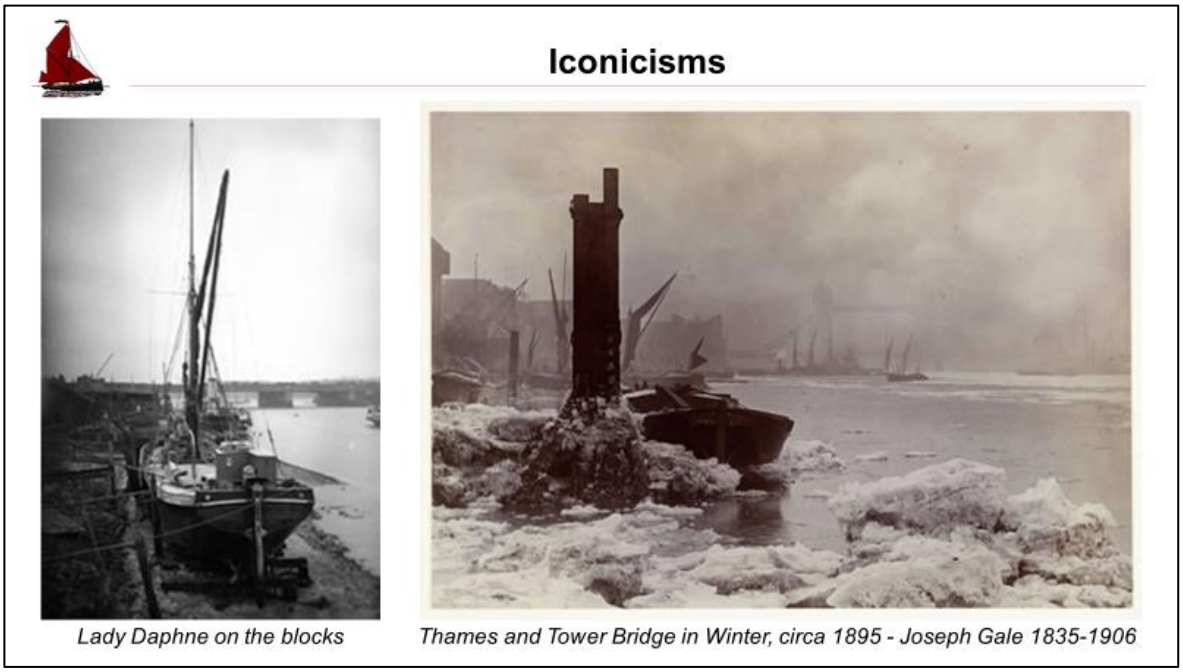



Looking to the future, I'd like to make two points before closing. The first is that this story might, just might, not be over. A few new barges have been built, two without engines, the wooden Cambria and the steel Blue Mermaid. Blue Mermaid is owned by Sea Change Sailing Trust to help build self-reliance and teamwork among disadvantaged youths by having them spend a week delivering real cargo. Elisabeth and I support it as patrons.

The City of London has a consultation underway on "Flooding & The Thames Barrier", looking at our sea defences and the need for reconstruction. The City could make Sugar Quay available again for sailing vessels, perhaps support a passion of mine – a fleet of wakeless 12 passenger 'black cab' boats - but equally might find that autonomous vessels are a possibility. Imagine an autonomous fleet, perhaps directionally propelled by storing wave power, perhaps with some sailing capacity, moving goods from our new combined markets in Dagenham up the river and delivering as far east as Teddington. A pipe dream perhaps, but the raw power of the Thames lies there unused.




The second point is that the field of economic historical research is still relatively young. Much more research is needed into just this view of the economics of London than I have had available time. I thank the Guildhall Historical Association for allowing me to share these thoughts with you in the hope that talks such as this might inspire others to question and probe.




## Thanks

My sincere thanks go to James Birch, Michael Everard CBE, William Fraser OBE, James Kent, Adrian Mulville, Richard Titchener, and Mike Wignall who all, knowingly or not, helped inspire portions of this talk.

The Economics Of Thames Sailing Barges
An Unwonted View Of The City Of London's Commercial Prosperity

## Thank you!