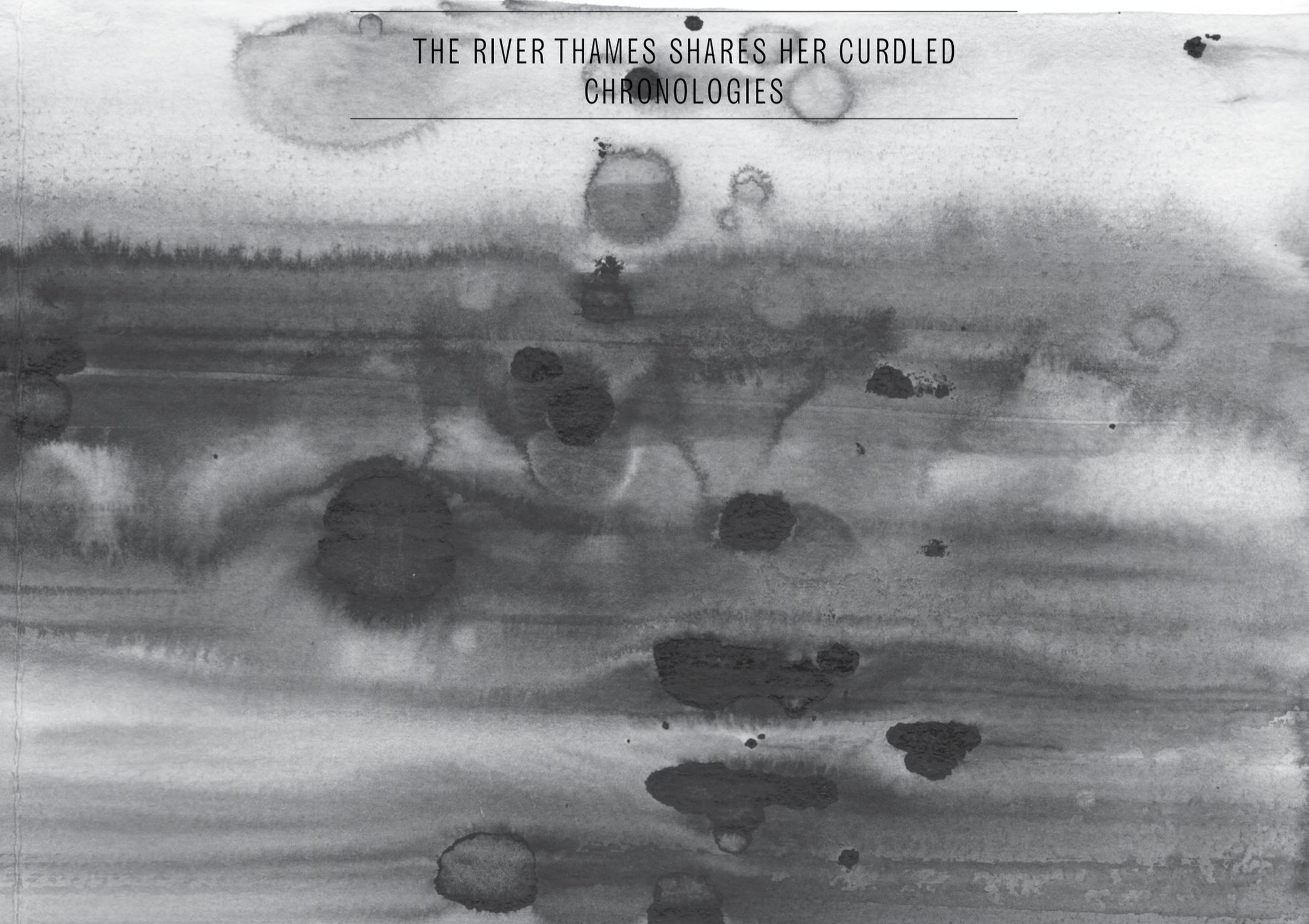


DIRTY WATER

LONDON'S LOW TIDE

THE RIVER THAMES SHARES HER CURDLED
CHRONOLOGIES



LETTER FROM THE EDITOR – THE RIVER THAMES

Dear Reader,

I am an old river. I want to tell you some things while I can. There is a current running through this city that has to speak. The constant flow of information, events, chatter, analysis, gossip, feeds, disasters, story telling, announcements, reports – the news – has found its way into print for hundreds of years. Our papers tell us truths but always in a voice that represents someone's agenda or point of view.

I am going share things that are difficult for me to tell, things that trouble me from my lowest tides, and some of the things I think about to lift my spirits. You decide if you can trust me.

Time is liquid flowing backwards and forwards like the tides upstream and downstream, and then circling in currents and eddies. I know of an even older river that flows through the underworld, the Lethe, drink from this river to taste oblivion, it will make you forget everything. I haven't forgotten anything but it gets harder to remember. My memories have settled in the sediments that make up my beds. Everything is there but hidden, murky, but when disturbed, currents of brown water shift and obscure any vestige of clarity. It makes for a curdling of chronology where things thicken and get stuck, or wash up at low tide under a coating of stinking mud.

I can only remember the things that I have forgotten. The past comes flooding into the present. Each time the memory surfaces it changes and I no longer know if I am remembering the thing that happened, or the last time I remembered the thing that happened.

I worry that I am losing my memory, or at best loosing my chronology, my sense of one thing following another. I make lists. I increasingly sense connections, how one thing flows into another, weaving a complex web of narratives that reconfigure how time moves. It gets harder to trace time in a linear way. Now becomes the only fixed point, always now. So this is what I remember now – this day – this morning – this low tide - I wanted to tell you what I remember.

We take time for granted. How can we separate time and change? We make dates that denote time having past, millennia, centuries, months, days, or hours, seconds, constructing absolute and relative chronologies. But I'm much less certain about time than I used to be. I keep forgetting things, dates, names, faces. I've find myself repeating things. It helps if I make a list so I make lists. I keep putting things down in places I forget. The current can carry things a long way so its easily done. Somehow its always low tide for me. I keep repeating things.



BARGES ON THE RIVER THAMES IN THE RAIN. ETCHING BY PERCY LANCASTER, 1912
(CREDIT: MARY EVANS PICTURE LIBRARY)

DIGGING

We find things from the past when we dig. My sediments are full of the past. Every time they 'improve the river' it means a lot of digging. Balzelgette's sewers meant a lot of digging. They are digging again, deeper this time. Stirring up my memories so I wanted to tell someone, you, what I can remember today. Last time they engineered the river meant dredging, bridges, locks, weirs, tow paths, embankments, sewers, tunnels and all happening at the same time as the birth of a new way of cataloguing time they called 'archaeology'; a whole new system for how to think about and measure the past. It's as if the past didn't exist before we could measure it, but that's not true, Romans found things older than them, they just didn't call it archaeology. Some smart characters became dealers in the past, worked out how to sell it, like 'Stony Jack' Lawrence, the past was somehow more real to him than the present. He kept his pockets full of half crowns and made sure all those labourers digging up the city knew and trusted him. He fed this new fever for things left behind and he made a lot of money, trading directly with the navies and workmen at the end of their working day, and taking off their hands any skulls, arrow heads, coins, pots, tools, shields that they might have unearthed to sell on from the shop in Wandsworth.

Funny what people will pay for a dead man's things.

These treasures had been taken from a particular place, but then they needed their place in time. Chronologies organise what has been left behind, relative to each other and to the history to show a sequence and impose an order onto the palimpsest that is London. London has been written and rewritten and over written so many times, something much messier than layering, more like a dense thicket of a multiple presents.

The past is always a problem of interpretation. It has always been forgotten, and is always being remembered, but what is a memory? What do you remember - do you remember the past or the last time you remembered what you had forgotten? How do you know if you are repeating yourself or how you construct your memories? And news becomes past so quickly.

ZENO'S ARROW

There is a paradox that one of those archaeologists explained, called Zeno's arrow. If time is a succession of now's, presents, or moments, an arrow in flight never moves. The arrow in flight always occupies a certain point at its certain time. At rest the arrow is in a place and is its own size; every moment of its flight, the arrow is in a place and its own size. So every moment of its flight it is at rest. It never moves. Everything has its own

place, even place has to have a place. These are restless thoughts that move across the surface of the water, the river's place, always in a place and always moving through a place. I am never still, never at rest, perhaps I am time passing, a liquid arrow shot through the city, always held in its place by the embankments that make up my edges, and always in flight.

Every dug up archaeological find has a place, where it was found. It's the only thing you can be certain about. What the thing meant or was used for is speculation and interpretation. Things are found, numbered, and known by their place. The river is full of things thrown into me. I used to be part of the belief system. Venerated; offerings and sacrifices made to me. Pilgrimages made to me. I was appeased. These most precious things thrown into the water as offerings and then found hundreds of years later during the digging and the dredging. Look at what is thrown into me now. Everything you don't want and don't want to think about, your waste, human waste, stinking in the water, something like a week or every time it rains hard, the rivers that flow into me combine with sewers that are overwhelmed and overflow into my waters. These are your offerings. I flush you out of the city on the tides but my water is dirty water.

WATER'S MEMORY

I remember something else, a memory that is further back. There are some people who don't realise how you evolved with the river but I know what I saw. Water has a memory, a long memory.

This isn't easy to remember, it's too far back, hard to reach for. I can't get further back than this. It's 450,000 years ago and the water is frozen into great walls of ice, so cold it hurts to remember the pressure and noise inside the ice as it hollows out the valley that the river now flows through. After a long time the air warms, the climates change melting the ice, and I change, adjusting my course to accommodate the seas rising and falling, until I am a sparkling wide restless stream - nothing like the tidal canal that now flows between these constructed city embankments. Then the river shaped the land, not the land the river - and the river was the world to those came to live close to it, a generous endless source that was their key to survival. The river shaped those early people - but what I want you to know is that water shaped everyone. Some of you understand this, some of you don't.

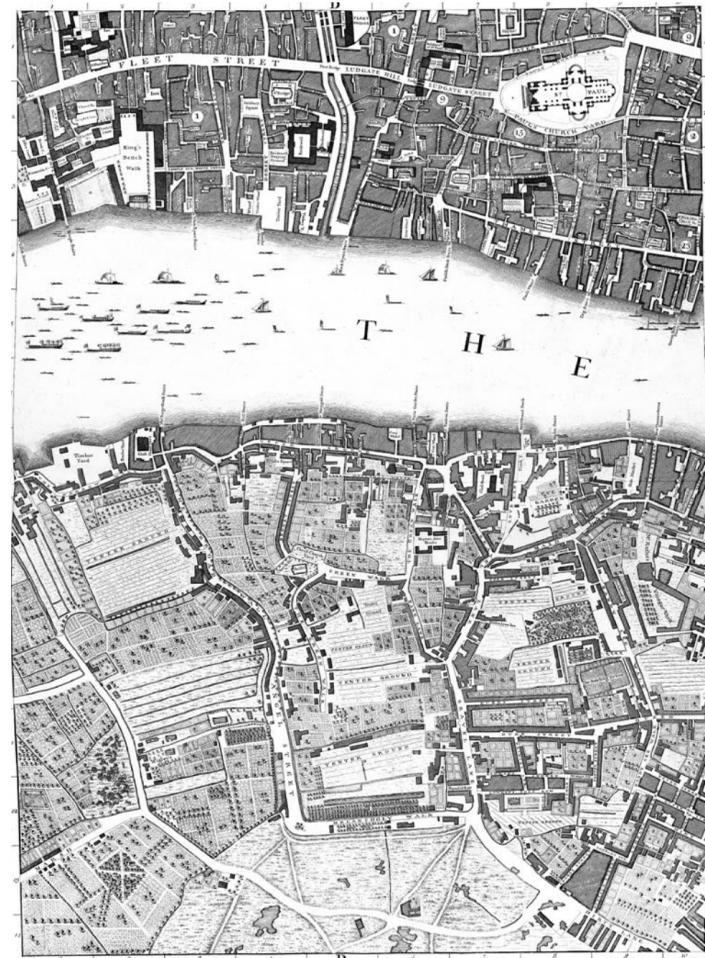
A Welsh woman, Elaine Morgan wrote books on the subject of the aquatic ape that others like to laugh at. She gave the river her attention, so the river listened to her wisdom. She asked a simple question - why did you ever stand up?

Four legs worked fine - until you get to the water. When you entered the shallow waters at the river's edge, you straightened up, the water held you up, and you moved on two feet, not four. This is why you stood up.

Did you ever wonder why you have subcutaneous fat all over your body just like the whales and other mammals that live in the water. You are not covered in fur like creatures of the earth. The skin on your fingers wrinkles in the water to improve your grip, and it was those fingers that started gathering and harvesting the shell fish, just like you had seen the birds do, breaking open the shells to suck out the juicy curled up creatures stuffed with Omega 3 fatty acids that send a rocket to your brain which encephalized at rapid rates.

That's not all - you can birth your young in water. They emerge swimming, wide-eyed, slippery and covered in vernix caseosa, a cheesy varnish - the exact same substance that covers a newly born seal pup. All over the world you live next to the water, and all over the world you get into the water and feel better. You swim. You can shape yourself into a dive. You can hold your breath.

This much I know about you. Let me tell you more about what I know, what I remember today.



FROM THE 1746 MAP OF LONDON BY JOHN ROQUE

— FOUND IN THE THAMES —

KEY 2030 SAXON-MEDIEVAL

Copper alloy casket key: flattened tapered shank; circular bow; shield-shaped bit with symmetrical aperture. Collected at the River Thames, London.

COIN A25712 LATE IRON AGE

The Thames represented the boundary between prehistoric tribal neighbouring groups. This bronze coin of British tribal leader Cunobelin was discovered in the Thames at Barnes in west London.

THE BATTERSEA SHIELD 857,0715.1-IRON AGE-350 BC – 50 BC

Bronze shield facing made of several pieces of sheet bronze. With twenty-seven red glass ‘enamel’ framed studs. Found in the River Thames near Chelsea Suspension Bridge.

SEAX I857,0623 LATE ANGLO SAXON 10TH C

Iron seax, with a straight cutting edge running parallel to the back, which is angled towards the point. Found River Thames Battersea.

AXE HEAD 49.107/98 LOWER PALAEO-LITHIC; 300000BC-250000BC

Triangular handaxe or biface of dark brown flint. Found in the Thames at Richmond Lock and Weir in November 1692.

HAND AXE 49.107/86 LOWER PALAEO-LITHIC; 300000BC – 250000BC

Handaxe or biface of dark brown flint. Found in the Thames at Richmond Lock and Weir in October 1692.

ANTLER HAMMER 49.107/020 LATE NEOLITHIC

A perforated antler hammer of round type. Found in the Thames at Richmond Lock and Weir in 1692.

KEY 05.200/6**LATE MEDIEVAL; 15TH C**

Iron key, hardly distinguishable; shank; bow may be ovate or kidney-shaped; bit attached. Collected at Bankside, London River Thames.

FELLSPEAR 17TH – 18TH C

This large hand forged fellspear was found on the Thames foreshore between Lower west India Dock pierhead, Blackwall entrance and Blackwall Stairs.

SARAH WOOD TRADE TOKEN IN 1570 SMID 17TH C, 1648 – 1673, 1600

Sarah Wood issued this token, which was used as a form of currency at the time of the Masons’ strike.

COIN 17TH C LATE MEDIEVAL; MID 18TH C

Found in the Thames near Bow,

SAXON; 6TH-7TH C

Found in a marshy area of the Thames in ‘England’ in Brentford, west London, opposite

AXE HEAD 49.107/132 NEOLITHIC

Ground and polished stone axehead with a thick oval section, rounded butt and asymmetrical cutting edge. Found in the Thames at Richmond Lock and Weir. Source of stone: Mount’s Bay area, near Penzance, Cornwall.

SWORD 49.107/824 LATE BRONZE AGE

Bronze hilt and part of blade of leaf-shaped sword, with slightly concave V-butt, tang with vestigial flanges and grooved sides. Found in the Thames at Richmond Lock and Weir on 18 June 1891.

BEAKER 28.37 LATE NEOLITHIC-EARLY BRONZE AGE

Bottom half of a grey-buff ware hybrid all-over corded type beaker decorated with horizontal lines of twisted cord. Found in the Thames near Mortlake, the beaker is encrusted with ‘Thames-race’, a deposit that builds up when objects are in the river for a long period.

SHIELD BOSS 02107 EARLY-SAXON; 6TH – 8TH CVV

Iron shield boss, conical shaped with a flat-topped projection in the centre. It was found in the Thames at Chiswick and may have been from a shield thrown into the river as an offering.

PILGRIM BADGE 91.201/5-MEDIEVAL

Fragment of a pilgrim badge with an open-work design from an unknown shrine. Pilgrims who travelled to religious shrines frequently bought souvenirs of their pious journey such as ampullae (small bottles for holy water), badges and figurines.

AXEHEAD 26 NEOLITHIC

Ground and polished axehead with flattened sides. Made from greenstone, possibly from the Eke District. Found in the Thames, near London.

ARROWS MESOLITHIC

Chipped flint arte. Found in the Thames at Wandsworth.

SICKLE AT 4914 NEOLITHIC

Flint sickle, with one edge straight and the other curved. Mounted in a modern wood haft found in the Thames opposite the Tate Britain.

CURRENCY BAR AT 739

Middle-Late Iron Age sword-shaped iron currency bar. Tapered, with blunt end flanged. Found in the Thames with a small coin.

SUNN 1. A12002 BRONZE AGE

Silver pendant in the shape of a bird with a long beak and long tail. Found in the Thames near Mortlake. Possibly a votive offering.

URN PART OF A REDDISH COARSE WARE URN WITH BLACK INCISED ANGULAR DECORATION

Found in the Thames near Mortlake.

SHIELD BOSS 78.107/2 EARLY SAXON-

MIDDLE SAXON; 6TH – EARLY 7TH C Found on the Thames foreshore at Barnes in 1977. The ‘body’ and ‘fins’ are plated with gold, the ‘head’ and ‘tail’ with silver; Stylised fish like this were used as decoration on Anglo-Saxon shields.

PILGRIM BADGE 97.13-

LATE MEDIEVAL; 14TH – 15TH C Pilgrim badge from an unknown shrine.

ANTLER BRIDLE AT 4616 LATE BRONZE AGE

The cheek piece from pony bridle made from polished antler. Found in the Thames at Syon Reach.

AXEHEAD 28.181/11

EARLY – MIDDLE BRONZE AGE; 1600 – 1400 BC Bronze flanged axehead with expanded blade and central rib. Found in the Thames at Putney Reach.

STATUETTE 2004.73/6 1900 – 1999

Small statuette of Hanuman, the monkey god, carved from stone. Found on the Thames foreshore.

AMPULLA 93.215/2 LATE-MEDIEVAL; C.1400

Ampulla (small bottle for holy water) in the shape of a kestrel (container for liquid, usually made from leather or sometimes ceramic). This ampulla was found in the wreck of a barge excavated in the Thames at Blackfriars.

VESSEL A18670

LATE BRONZE AGE – EARLY IRON AGE Base and body shard of a coarse grey-buff fabric, flat-bottomed vessel with curved sides. Found in the Thames near Barnes.

HEAD 2000.307

LATE IRON AGE EARLY ROMAN Small head, crudely carved from chalk. The head was found lying face up at low tide on the Thames foreshore at Battersea, upstream of Chelsea Bridge.

CHARIOT FINIAL, C.1700 LATE IRON AGE

Cast bronze finial or ‘chariot horn cap’, decorated with a soft-outlined low-relief design of three linked palm-trees. Place of collection is unknown, possibly the Thames at Brentford.

AXE HEAD A25339 SAXON-NORMAN, BARNES MUD

There were a number of battles along the Thames and around London Bridge. They may have been lost in battle or thrown into the river by the victors in celebration.

WANDSWORTH SHIELD 1950.1116

Iron Age Generally shield boss with recessed ornament in the form of stylised bird heads. Found in the bed of the River Thames, Wandsworth.

THE WATERLOO HELMET 1988,1004.1

Copper alloy horned helmet. The cap is made from a reddish coarse ware urn with black incised angular decoration. Found in the Thames near Mortlake.

— FOUND IN THE THAMES —

CLEAR PLASTIC WATER BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

GREEN PLASTIC BOTTLE 1 LITRE, polyethylene terephthalate no top, no label, packaging

CLEAR PLASTIC BOTTLE 500ML, polyethylene terephthalate red screw top, polypropylene, packaging

PLASTIC BAG, blue and white, high-density polyethylene, packaging

ORANGE PLASTIC BOTTLE, polyethylene terephthalate, lucozade sport drink with orange flip top, polypropylene, packaging

CIGARETTE BUTT, cellulose acetate, paper, product

WHITE STYROFOAM CUP, petroleum-based plastic made from the styrene monomer, broken fragment, packaging

CONDOM, polyurethane, product

CLEAR PLASTIC WATER BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

CLEAR PLASTIC WATER BOTTLE 500ML, polyethylene terephthalate red screw top, polypropylene, packaging

WHITE PLATE, polystyrene, broken, packaging

CLEAR PLASTIC WATER BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

CIGARETTE BUTT, cellulose acetate, paper, product

PLASTIC BAG, blue and white striped, high density polyethylene, packaging

GREEN PLASTIC BOTTLE 1 LITRE, polyethylene terephthalate no top, no label, packaging

CONDOM, polyisoprene, product

UNIDENTIFIABLE PLASTIC FRAGMENT, white, packaging

SANITARY PAD, bleached rayon, polyester, adhesive, polyethylene polypropylene, propylene glycol, product

CLEAR PLASTIC BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

I am *not* a rubbish bin.

I am *not* a rubbish bin.

I am *not* a rubbish bin.

At any low tide there is tide line of rubbish. The unwanted, the packaging, blown, flushed or thrown into the river. There is another hidden tide of plastic rubbish being rolled backwards and forwards that you can’t see. It is submerged in the water. I am slowly breaking this up into smaller and smaller pieces until it becomes your anthropocene sediment. This is what a river does and has always done with what comes into it. I am worried that this new plastic sediment is a poison. I can’t stop flushing it out into the sea. I can’t stop its digestion, the lugworms eating it, or the crabs, and I can’t stop the fish or birds eating them. I can’t stop the poisoning of things. I can only make them into smaller and smaller pieces, which dilute and spread the poisons.

If you walk a line of muddy foreshore and beachcomb a list of what you see at low tide it might read like this. There isn’t a list of what you can’t see.

POLYSTYRENE PEANUT, packagin

UNIDENTIFIABLE PLASTIC FRAGMENT, blue, packaging

PLASTIC BAG, red and white striped, high density polyethylene, packaging

EAR BUD STICK, blue plastic, white cotton tip, product

CORK FROM A WINE BOTTLE, packaging

WET WIPE, dense airlaid paper, isopropyl alcohol, methylisothiszinone, perfume, product

CLEAR PLASTIC WATER BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

SANITARY TOWEL PLASTIC BACKING, pink, plastic, product

CLEAR PLASTIC WATER BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

BROWN PLASTIC STIRRER STICK, plastic disc at one end, product

CIGARETTE BUTT, cellulose acetate, paper, product

UNIDENTIFIABLE POLYSTYRENE BLOCK, broken fragments, packaging

CIGARETTE PACKAGING WRAPPER, plastic, packaging

FOOD WRAPPER, plastic, packaging

WET WIPE, dense airlaid paper, isopropyl alcohol, methylisothiszinone, perfume, product

POLYSTYRENE PEANUT, packaging

BLACK PLASTIC STRAW, product

CLEAR PLASTIC WATER BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

WHITE PLASTIC FORK, broken tine, product

UNIDENTIFIABLE PLASTIC FRAGMENT, green, product

CLEAR PLASTIC WATER BOTTLE 1L, polyethylene terephthalate green screw top, polypropylene, packaging

WHITE PLASTIC STIRRER STICK, plastic disc at one end, product

SPARKLING WATER PLASTIC BOTTLE 500ML, polyethylene terephthalate, no top, packaging

COKE BOTTLE 500ML, polyethylene terephthalate, plastic top, polypropylene packaging

WHITE PLATE, polystyrene, broken, packaging

BUILDING INSULATION, broken piece, packaging

CLEAR PLASTIC BOTTLE 500ML, polyethylene terephthalate blue screw top, polypropylene, packaging

WHITE PLASTIC SPOON, polystyrene, product

TENNIS BALL, NATURAL RUBBER 100, zinc oxide, sulphur, diphenylguanidine, cyclohexyl benthiazyl, sulphonamide, yellow nylon felt, product

WHITE PLASTIC BOTTLE 250ML, drinking yoghurt, packaging

PLASTIC BAG, red and white striped, high density polyethylene, packaging

PLASTIC BAG, orange, low density polyethylene, packaging

WHITE POLYSTYRENE FOOD BOX, broken, packaging

BROWN PLASTIC STIRRER STICK, plastic disc at one end, product

CITY IS A LIVING THING

You and are part of the system. Cities achieve themselves over time, they are alive. London is like any other living organism, is an autonomous creature, it has a boundary and a size, and it changes by reorganising and reaching its limits. I flow through those boundaries.

The city shares the conditions of living things with all other living things. Form and function combine to work towards a self repairing state that does whatever it can to achieve a living dynamic balance where the city is a process as much as a place. London is made up of systems, interactions, and symbiosis that connects everything to everything with a complexity that is truly beautiful. You and I are both part of that.

Like any living thing it has an optimum size and if it grows beyond that size pathological conditions arise, it becomes strained and sick. A city has waste, a lot of human waste. The river is part of the system and I know my place; I am the city's lower bowel, the city's low point, its flush. The sewers are my tributaries and combine with old rivers and streams that flow into me. I am the route out to the sea; all rivers are looking for their sea. These other rivers have always flowed into me but now there are so many of you, the system is failing.

I am old and can accept many of the things that come with being old but not this. Most of the time the sewers cope, they can get your waste to the places where it can be treated and turned back into clean water. But when the rains come the system is overwhelmed. Not all the time, but over the year it must be something like once a week that I become incontinent. I am plagued by being the bowels of a city that I can't control, I can't stop this happening. My spirits are crushed, somehow I am always at low tide these days, with a cold stinking shame flowing through me. I live in fear for the next time.

I know it has happened before. There were worse times, I can remember, I have been dirtier. I don't like to remember but every time it happens again the past floods the present.

FARADAY'S WHITE CARDS

In the summer of 1855 a man dropped torn pieces of white paper into the river. The man was Michael Faraday, the eminent Victorian scientist. He wanted to see how dirty the water was. Faraday was a brilliant individual who was able to understand and explain invisible forces, things you couldn't see but knew were there. He laid down the foundation of our understanding of the magnetic field, discovering the principles underlying electromagnetic induction, diamagnetism and electrochemistry. Dirty Water was something he could see, and smell.

Sir,

I traversed this day by steam-boat the space between London and Hungerford Bridges between half-past one and two o'clock; it was low water; and I think the tide must have been near the turn. The appearance and the smell of the water forced themselves at once on my attention. The whole of the river was an opaque pale brown fluid. In order to test the degree of opacity, I tore up some white cards into pieces, moistened them so as to make them sink easily below the surface, and then dropped some of these pieces into the water at every pier the boat came to; before they had sunk an inch below the surface they were indistinguishable, though the sun shone brightly at the time; and when the pieces fell edgewise the lower part was hidden from sight before the upper part was under water. This happened at St. Paul's Wharf, Blackfriars Bridge, Temple Wharf, Southwark Bridge, and Hungerford; and I have no doubt would have occurred further up and down the river. Near the bridges the feculence rolled up in clouds so dense that they were visible at the surface, even in water of this kind.

The smell was very bad, and common to the whole of the water; it was the same as that which now comes up from the gully-holes in the streets; the whole river was for the time a real sewer. Having just returned from out of the country air, I was, perhaps, more affected by it than others...

I have thought it a duty to record these facts, that they may be brought to the attention of those who exercise power or have responsibility in relation to the condition of our river; there is nothing figurative in the words I have employed, or any approach to exaggeration; they are the simple truth. If there be sufficient authority to remove a putrescent pond from the neighbourhood of a few simple dwellings, surely the river which flows for so many miles through London ought not to be allowed to become a fermenting sewer. The condition in which I saw the Thames may perhaps be considered as exceptional, but it ought to be an impossible state, instead of which I fear it is rapidly becoming the general condition. If we neglect this subject, we cannot expect to do so with impunity; nor ought we to be surprised if, ere many years are over, a hot season give us sad proof of the folly of our carelessness.

I am, Sir,

Your obedient servant,

M. FARADAY.

Royal Institution, July 7, 1855

LONDON'S POPULATION PROBLEM

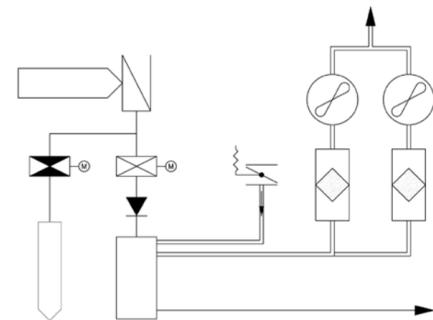
London is a magnet. It draws people, industry, wealth, infrastructure towards it, everything is sucked towards the centre. At times in its story London grew so fast it became a pathology. A tenth bigger every year, by 1850 London is the first city to be bigger than Rome, with more people living inside the city than outside the city.

You have always made waste. It collected in cesspools under your houses and was emptied by nightmen once a week for the price of a shilling – but you didn't always have a shilling to pay the nightman so the cesspools filled and overflowed out of your cellars leaking putrefying liquids into the water drawn from the pumps. The city risked destroying itself with cholera, a plague of its own making from the insides out.

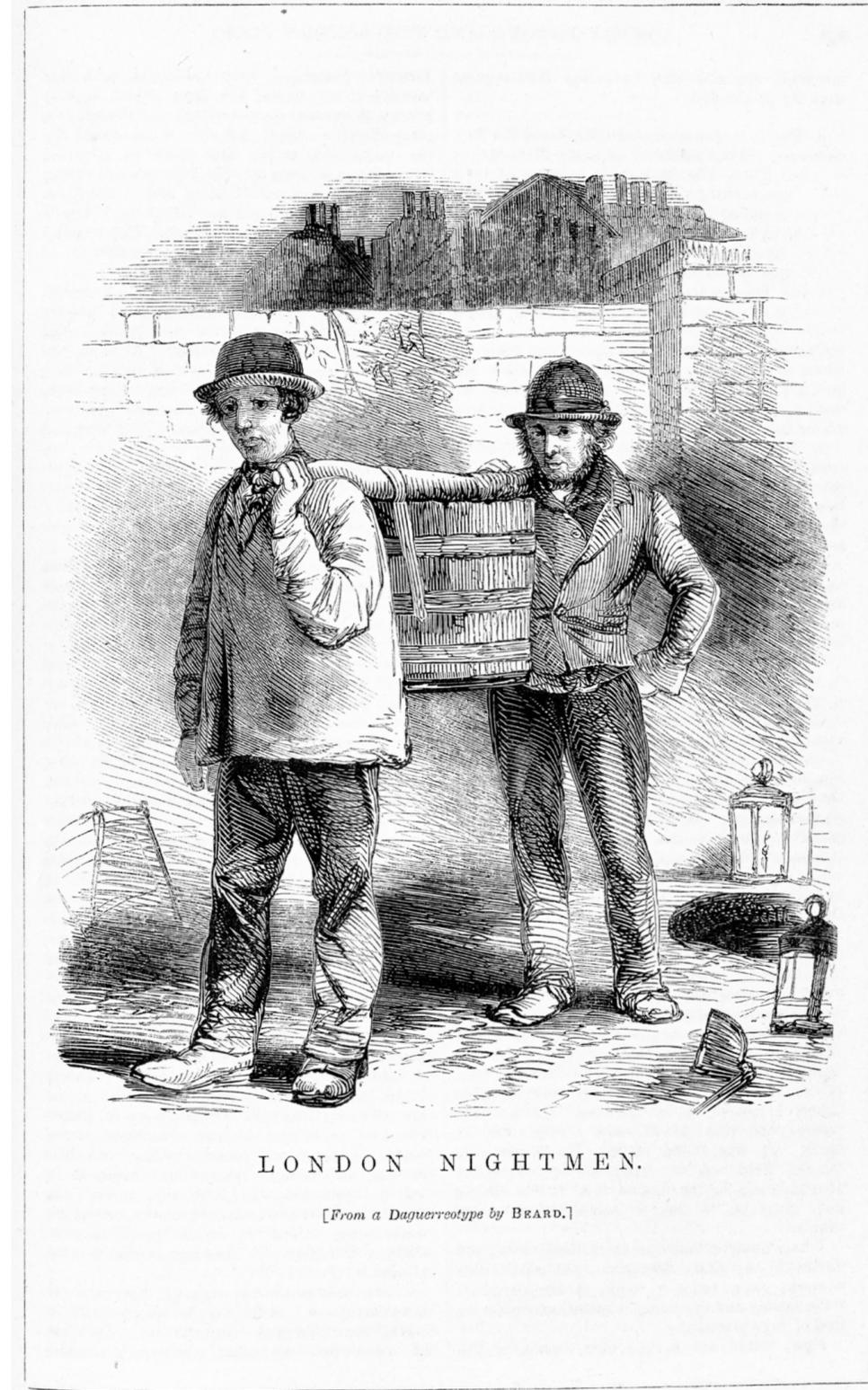
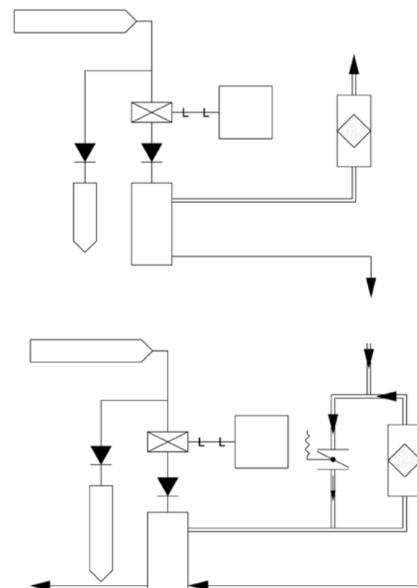
Look at the numbers.

Each one of you emptying your bowels somewhere where it would end up in the river.

1801	Population of London	959,000
1811	Population of London	1,139,000
1821	Population of London	1,378,000
1831	Population of London	1,655,000
1841	Population of London	1,945,000
1851	Population of London	2,362,000
1861	Population of London	2,807,000



IMAGES TAKEN FROM PROCESS AND INSTRUMENTATION DIAGRAM ROUTE WIDE FORTHETHAMESTIDEWAY TUNNEL
(CREDIT: TIDEWAY)



LONDON NIGHTMEN.

[From a Daguerreotype by BEARD.]

LONDON NIGHTMEN, BY HENRY MAYHEW
FROM 'LONDON LABOUR AND THE LONDON POOR; A CYCLOPÆDIA OF THE CONDITION AND EARNINGS OF THOSE THAT WILL WORK, THOSE THAT CANNOT WORK, AND THOSE THAT WILL NOT WORK. THE LONDON STREET-FOLK'.
PUBLISHED BY LONDON: GEORGE WOODFALL AND SON; GRIFFIN, BOHN AND COMPANY, 1851 & 1861
(CREDIT: WELLCOME PICTURE LIBRARY)

CHOLERA OUTBREAK 1832

The stink was going to get worse before it got better.

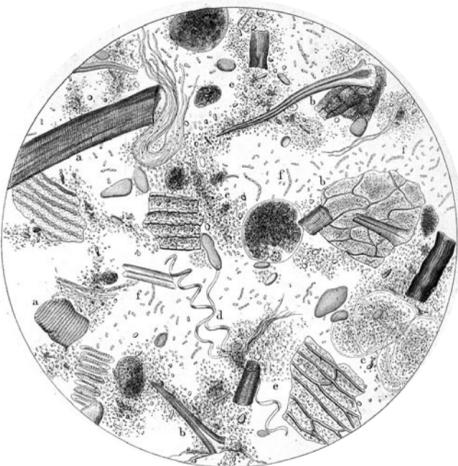
Cholera Morbus, the dirty water disease, caused by the bacterium *vibrio comma* that produces a poison in the body causing profuse diarrhoea. Your body can't lose that much water without paying a very high price. There was so much the doctors didn't yet know, what it was, what caused it, how to treat it; the bacteria had the upper hand. You could only see what you could see with your eyes, and what you knew of miasma, since the Greeks you thought that the clouds of rank air were carried infectious disease.

The microscope hadn't found bacteria yet; all you had was what you understood instinctively and imperfectly - that cholera was associated with insanitary conditions. Once you had looked down the microscope and seen what you saw, made your observations, and captured them in drawings like this that described how there are tiny things beyond your vision, teaming with life, shaped and mobile, compelled to find the right circumstances or host to feed on, reproduce and survive, even if their life threatens your life, world's within worlds. Things weren't just what you could see with your naked eye.

For the 1832 cholera outbreak the HMS Dover moored in the river near Limehouse as a cholera hospital, close to where Black Ditch discharged, one of the East End's worst open sewers. A boat rowed along the river front everyday collecting the new patients where Surgeon Inlay and his three nurses did what they could, what they understood to be right, restricting liquids, prescribing emetics and purgatives, and bleeding the patients, all of which robbed them of the vital liquids that their body needed.

Where to bury the dead became the problem, which shoreline would take them back.

Something like three thousand lives were lost to the cholera across London in this epidemic, many in the east, and along the river.



FAECAL MATTER ILLUSTRATION INCLUDED IN APPENDIX TO REPORT OF THE COMMITTEE FOR SCIENTIFIC INQUIRIES IN RELATION TO THE CHOLERA EPIDEMIC OF 1854 BY THE GENERAL BOARD OF HEALTH. (CREDIT: WELLCOME PICTURE LIBRARY)

THE BIG STINK

Public health was discussed, reports were made, recommendations acted upon, but the city remained complacent about the river. The Metropolitan Commission of Sewers, superseded local authorities, which then turned in to the Metropolitan Board of Works. Public health was a problem that needed to be considered by working across the city not in districts and pockets. New sewers were built allowing the cesspools to flow out of the cellars and into streets, and then into sewers and streams that fed into the river. This solved the problem of individual cesspools but created a new problem where the river had become the collective cesspool. I had become the city's cesspool.

And then the hot season came again.

During the summer of 1858 the temperature reached 48F in the sun. It was a summer without rain and the effluent lay in a deep, reeking crust baking on my banks. Clouds of stink hung in the air so heavy it was impossible to escape the taste of shit. I had the cholera, feverish, weak, uncontrollable bowels, dying. Noxious air was the disease, the miasma, foul pollution, bad air poisoned and infected those who inhaled it - or that's what you believed. You hadn't yet seen the germ through lenses, and identified the bacteria and pathogens that were actually hanging around in the smell to know that these were the real culprits, you only had what you could see or smell or taste to go on. And that summer you couldn't get away from the smell.

The House of Commons hung curtains soaked in lime chloride to try and keep the stench out. Hundreds of tons of lime were spread onto the foreshores at low tide around where the sewers discharged but the stink persisted. It was all anyone was talking about. Lord John Manners, Commissioner of Works, persisted that the river's waters and banks fell outside his jurisdiction, disassociating Her Majesty's Government from having anything whatever to do with the state of the Thames. He refused to connect.

The editorial voices of London cried out in protest:

"Gentility of speech is at an end—it stinks, and whoso once inhales the stink can never forget it and can count himself lucky if he lives to remember it" CITY PRESS

"The river is a pestiferous and typhus breeding abomination" THE STANDARD

"We can colonise the remotest ends of the earth; we can conquer India; we can pay the interest of the most enormous debt ever contracted; we can spread our name, and our fame, and our fructifying wealth to every part of the world; but we cannot clean the River Thames" THE ILLUSTRATED LONDON NEWS



SEWER WATER TAKEN FROM THE SEWER IN SILVER STREET ILLUSTRATION INCLUDED IN THE APPENDIX TO REPORT OF THE COMMITTEE FOR SCIENTIFIC INQUIRIES IN RELATION TO THE CHOLERA EPIDEMIC OF 1854 BY THE GENERAL BOARD OF HEALTH. (CREDIT: WELLCOME PICTURE LIBRARY)

I hate to think on it, it was the worse of times. I was lost.

I have no doubt that Joseph Bazalgette saved the city and rescued the river.

He proposed and built an interconnected system of sewers, from the streets to main sewers that all moved east, working with the fall towards the sea, augmented the flow with pumps and gravity to push the dirty water out of the city. A vast collective social effort, an imperative pulling together and mobilization of urban planning with an city population tolerating years of disruption and change throughout the city to make the investment necessary that would allow the city to continue to grow and flourish.

Here we are again. The city has outgrown Balzalgette's system. My waters dirty as proof, we are back at a point of pathology. So another cluster of people have come together, they imagine, plan, map and draw, engineer, and they dig and build. They talk and draw until they have solved the problem. The new super sewer stands for a new knowledge, where the city starts to understand all its inputs and outputs as an ecology to be managed.

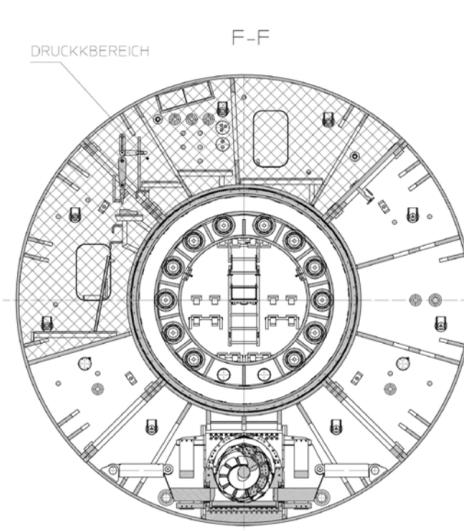
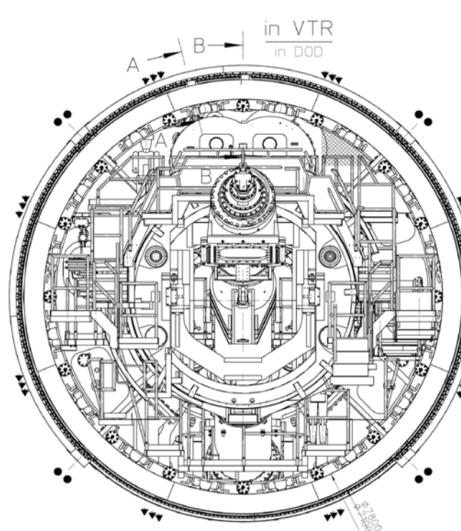
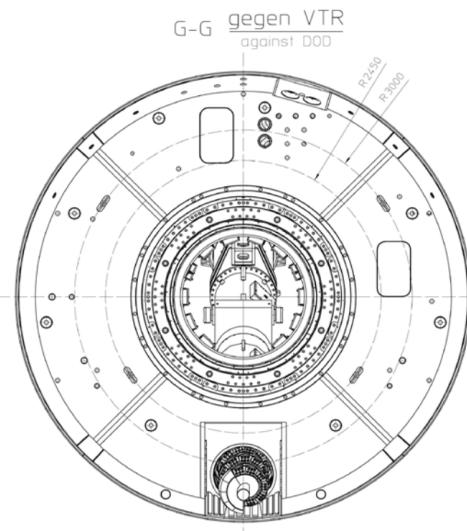
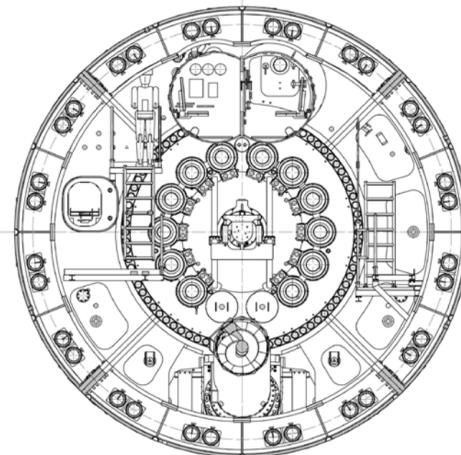
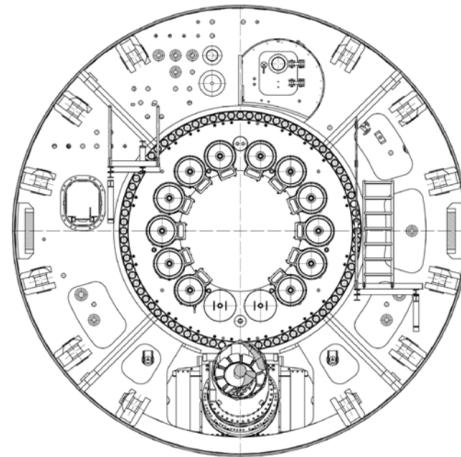


THE SILENT HIGHWAYMAN DEATH ROWS ON THE THAMES, CLAIMING THE LIVES OF VICTIMS WHO HAVE NOT PAID TO HAVE THE RIVER CLEANED UP, DURING THE GREAT STINK. CARTOON FROM PUNCH MAGAZINE, 10 JULY 1858 (CREDIT: WELLCOME PICTURE LIBRARY)

MOLE UNDER THE RIVER

They can dig deeper now. The digging disturbs things that are buried deep. It started with signs going up along the river, a minty fresh green worm of river and their name, Tideway. River traffic has increased, coming and going, more boats and building, not beside the river but in the river. I've picked up the chatter, the conversation, the directions, the complaints, but I'm invested in all this working out well. They are putting in a tunnel that will run for miles to carry away the stink from the sewers. Trying to make my waters clean. Every time it rains the sewers are overwhelmed. The sewers are my tributaries and combine with old rivers and streams that flow into me, I am their route out to the sea, and all rivers are looking for their way out to sea. They have always flowed into me but now they are full of your stink – and I know we all have to make stink its just what to do with it all - and there are so many of you. I am old and can accept many of the things that come with being old but not this. Its happening more and more, over the year probably about once a week I am incontinent, I am plagued by having the bowels of a city move through me and I can't control. I can't stop this happening. You shouldn't leave an old lady in this state.

So they are bringing in a moles, tunnel boring machines, that can go below the city, making the city a new flush, a new bowel, beneath my beds, below the river, to make a new super sewer for London, starting in Acton and flowing east, and ending up in Beckton, where they can process the stink and make the water clean again.



ENGINEERING DRAWINGS OF THE TUNNEL BORING MACHINE
(CREDIT: TIDEWAY)

You can see its already started along my banks. Like a surgeon clamping off the flow before the incision, great rusting steel sheet piles have been pushed into my beds to sectioning off areas, making cofferdams around the places they need to dig. The river gets pumped out, pushing my waters out, sucking out the sediments, to make it dry inside their cofferdam. No wonder my chronologies are curdled. Then they pack down and cover the mud so they don't sink into it. That's when they can start to go deeper, they are boring down into my beds, building sublimely deep concrete shafts to send the mole down, releasing the mole down into the sands, the clays and the chinks that lay beneath me. Acton, Carnwath Road, Kirtling Street, Chambers Wharf, Abbey Mills Pumping Station are where the shafts are. The mole can get through anything, diligently making a forward progress towards the east, heading in the direction of the sea where all rivers want to get to, digesting and forcing the spoil behind it, building the tunnel as it digs the tunnel.

So with this tunnel the tunnel boring machine, the mole, will make the tunnel. It is one hundred and ten metres long, nine metre wide, the mole is a tunnel factory, diamond tipped, with automated systems controlling getting the spoil out, building the concrete tunnel lining as it moves east underground. It's a very clever mole. It will still need its people to go down and work underground but they will be operatives rather than labourers. It wont be nice working down there, loud, hot, dusty but they should be safe at least. You have got a lot better at digging.

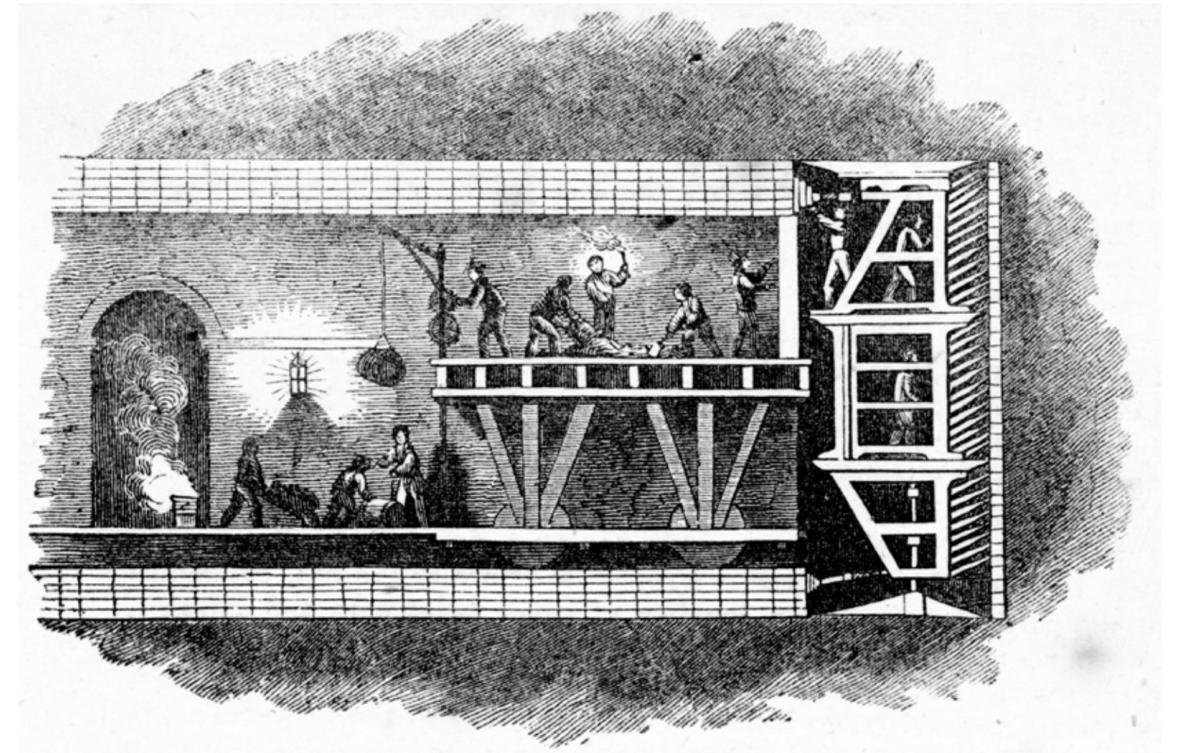
TUNNEL UNDER THE RIVER 1825

Its been done before. I remember but do not like to remember what happened.

Brunel had the idea for a mole when building the Thames Tunnel back in 1825 between Rotherhithe and Wapping, the first time anyone in the world was mad enough to make a tunnel under the water. His mole was limited, he only had a front shield of a tunnel boring machine; behind that shield miners blast and dug, bucket by bucket, with bricklayers following on behind them, brick by brick, building the tunnel, inching along in the damp dark cavity with the river was above their heads. It was a grand tunnel, high enough for a horse drawn carriage to pass through, but the water kept getting in. I couldn't stop it, my waters will always escape given a route out, that's beyond what I can control; it is in their nature to flood. Dirty stinking water at that, flooding the tunnel May 18th 1827, 12th January 1828, 23 August and 3 November 1837, 20 March 1838, 3 April 1840. Lives were lost, I didn't want those lives but I could stop the taking of them.

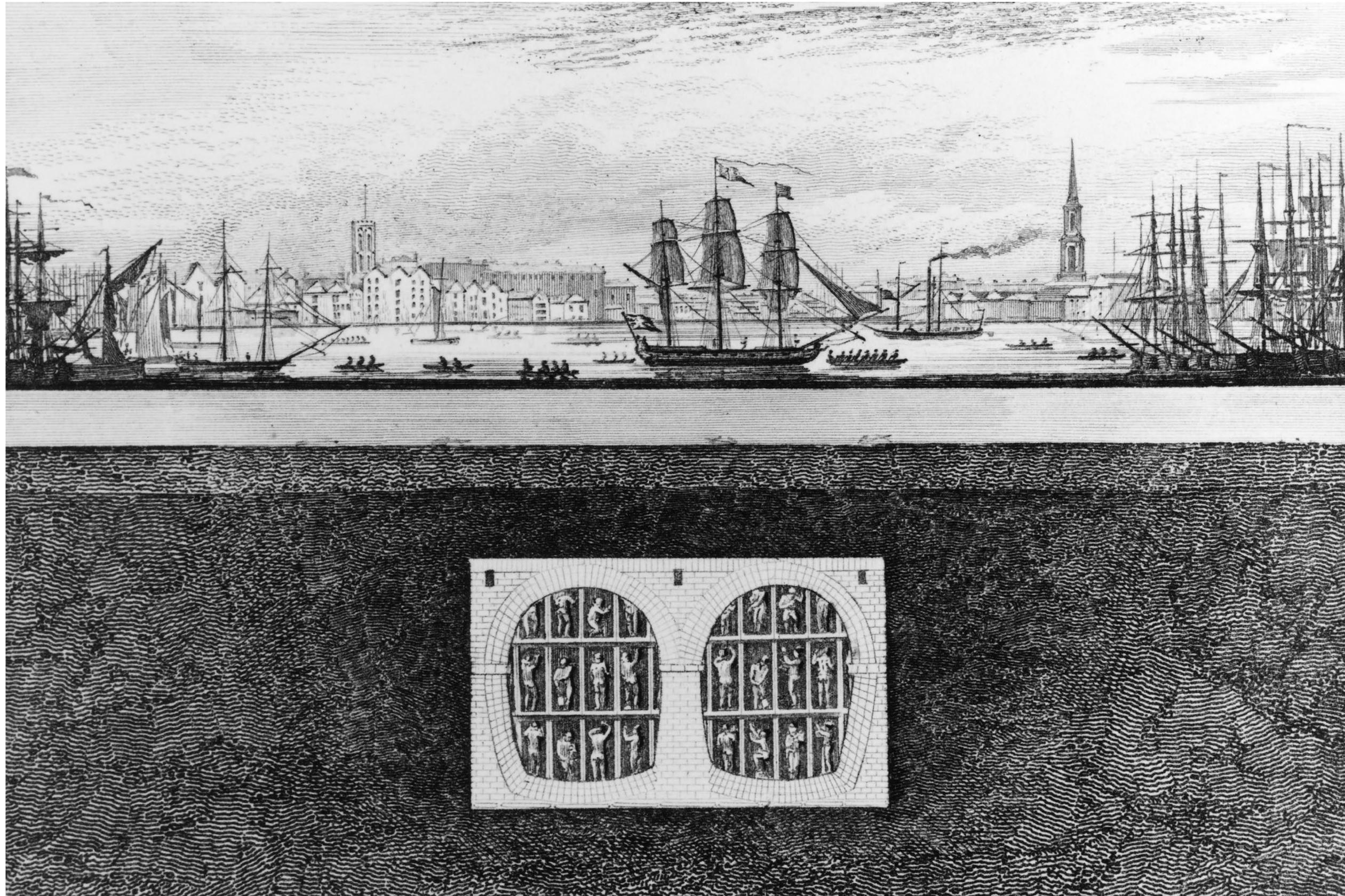
Progress was so slow. The money ran out. The accidents. Even when they were digging it could only inch forward but eventually it was finished in winter of 1841. Within a year two million Londoners had been prepared to pay a penny to pass through it.

So many tunnels now, vibrating with things coming and going, more like the surface of the river used to be, but now you move casually under me rather than across me.

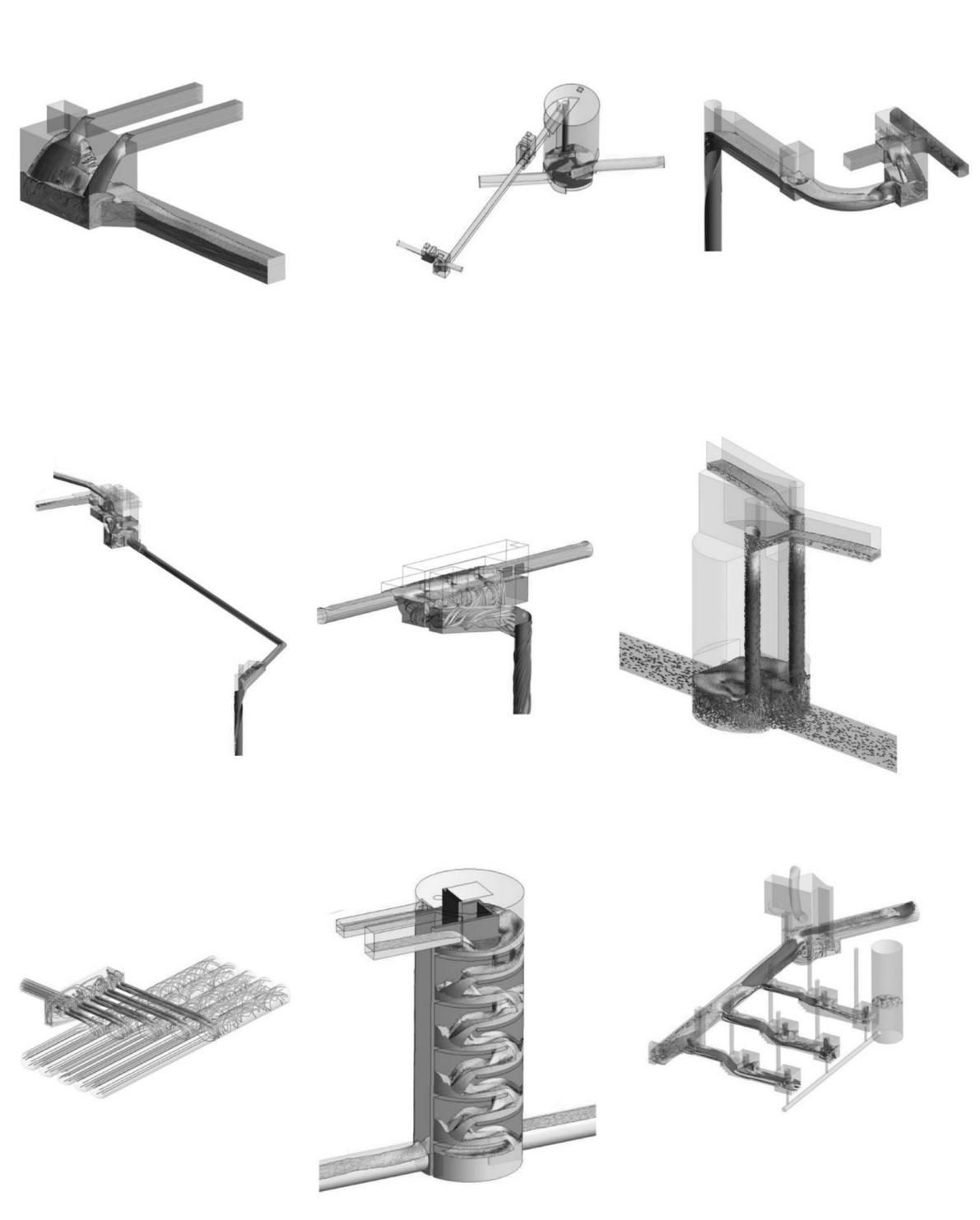
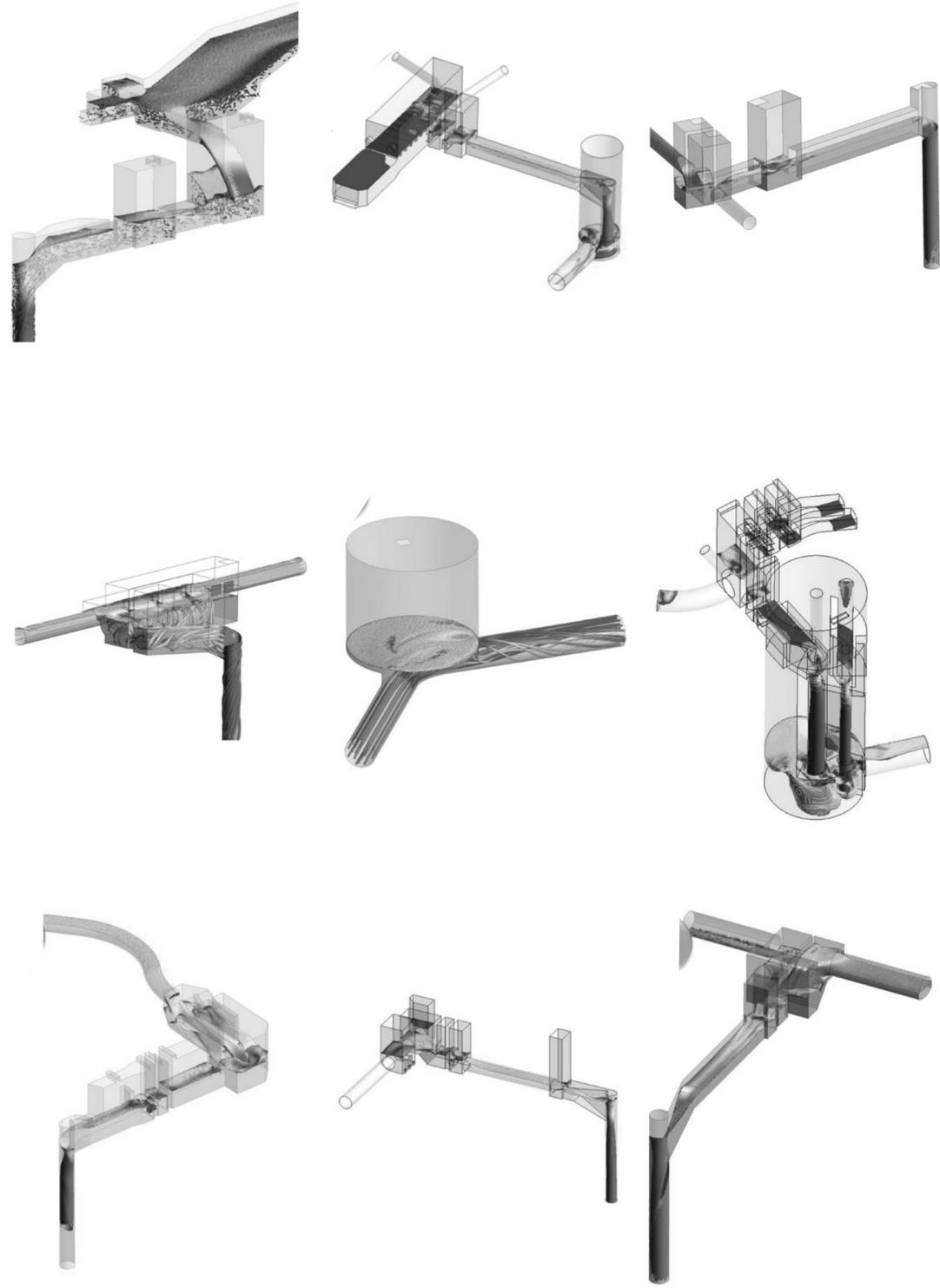


EXCAVATING THE RIVER THAMES TUNNEL, SIDE VIEW
(CREDIT: ANTIQUARIAN IMAGES/ MARY EVANS PICTURE LIBRARY)

AN ILLUSTRATION INDICATING THE THAMES TUNNEL'S SIZE AND POSITION IN THE RIVER THAMES
(CREDIT: MARY EVANS PICTURE LIBRARY/ INSTITUTE OF CIVIL ENGINEERS)



A SELECTION OF DIGITAL VISUALISATIONS OF THE HYDRAULIC MODELLING INTO THE TIDEWAY SUPER SEWER
(CREDIT: TIDEWAY)



THE RIVER'S WRITER.



BIRD OF PREY BY MARCUS STONEWOOD-ENGRAVED ILLUSTRATION THAT FORMED THE FRONTISPIECE TO VOLUME 1 OF OUR MUTUAL FRIEND BY CHARLES DICKENS, 1864-65

Every river should have its writer. The river haunts Dickens. I am wound into his narratives like a snake. I am his best metaphor. He was a bad sleeper. He would make long night walks to relieve his insomnia, restless wanderings through the homelessness of the night.

He recognised the river was a black mirrored space to the worst in us, beyond the control of human agency where base impulses are acted out on my banks and waters: the moment of a murder, the picking over of drowned cadavers, the lost stare of a suicide, the limitless rats and desperation, the fogs and cold damp air that make the bones ache, and the stink. Sometimes he wrote the river as the escape route, the way out of the city to the world beyond.

Right from the first pages of *Our Mutual Friend* we drift into his bleakest river panoramas. We are on the water with Gaffer Hexham a witness to his livelihood, fishing dead bodies out of the river. It is an image of this moment that we are forced to look at in Marcus Stone's illustration.

When Frank Stone, Dickens' illustrator, died Dickens took a paternal interest in Marcus Stone, his nineteen year old son. He recommended that he make the drawings for *Our Mutual Friend*. Dickens knew Marcus had been making sketches based on his characters since he was a child. Marcus would receive the proofs directly from

Dickens. He was then tasked with teasing out the moment that would best serve as the illustration for the narrative. The drawing would then be sent back to Dickens who would return the drawings with titles and numerous comments regarding lettering, balance, proportions and gestures. He would help get the drawing right.

Gaffer Hexham is hunched over like the bird of prey that titles the work, with talon fingers gripping the edge of the boat. The girl Lizzie, his daughter, faces away, partly to navigate, partly so she doesn't have to look where her father's eyes are travelling. The river is wide, the shoreline a shadowy collection of blocked marks on the horizon, the wide tidal water described by flickering broken lines etched on to wooden plates.

"In these times of ours, though concerning the exact year there is no need to be precise, a boat of dirty and disreputable appearance, with two figures in it, floated on the Thames, between Southwark bridge which is of iron, and London Bridge which is of stone, as an autumn evening was closing in.

The figures in this boat were those of a strong man with ragged grizzled hair and a sun-browned face, and a dark girl of nineteen or twenty, sufficiently like him to be recognizable as his daughter. The girl rowed, pulling a pair of sculls very easily; the man,

with the rudder-lines slack in his hands, and his hands loose in his waistband, kept an eager look out. He had no net, hook, or line, and he could not be a fisherman; his boat had no cushion for a sitter, no paint, no inscription, no appliance beyond a rusty boathook and a coil of rope, and he could not be a waterman; his boat was too crazy and too small to take in cargo for delivery, and he could not be a lighterman or river-carrier; there was no clue to what he looked for, but he looked for something, with a most intent and searching gaze. The tide, which had turned an hour before, was running down, and his eyes watched every little race and eddy in its broad sweep, as the boat made slight head-way against it, or drove stern foremost before it, according as he directed his daughter by a movement of his head. She watched his face as earnestly as he watched the river. But, in the intensity of her look there was a touch of dread or horror.

Allied to the bottom of the river rather than the surface, by reason of the slime and ooze with which it was covered, and its sodden state, this boat and the two figures in it obviously were doing something that they often did, and were seeking what they often sought.

CHAPTER ONE — OUR MUTUAL FRIEND

EXCERPTS FROM SAMUEL JOHNSON'S DICTIONARY, FIRST PUBLISHED IN 1755

WA'TER. *n.s.* [*waeter*, Dutch; Saxon.]

1. Sir Isaac Newton defines water, when pure, to be a very fluid salt, volatile, and void of all savour or taste; and it seems to consist of small, smooth, hard, porous, spherical particles, of equal diameters, and of equal specifick gravities, as Dr. Cheyne observes; and also that there are between them spaces so large, and ranged in such a manner, as to be pervious on all sides. Their smoothness accounts for their sliding easily over one another's surfaces: their sphericity keeps them also from touching one another in more points than one; and by both these their frictions in sliding over one another, is rendered the least possible. Their hardness accounts for the incompressibility of water, when it is free from the intermixture of air. The porosity of water is so very great, that there is at least forty times as much space as matter in it; for water is nineteen times specifically lighter than gold, and consequently rarer in the same proportion. *Quincy.*

My mildness hath allay'd their swelling griefs,
My mercy dry'd their water-flowing tears.

Shak. H. VI.

Your water is a sore decayer of your whorson
dead body. *Shakespeare's Hamlet.*
Men's evil manners live in brass, their virtues
We write in water. *Shakesp. Henry VIII.*

2. THE SEA.

3. URINE.

If thou could'st, doctor, cast
The water of my land, find her disease,
And purge it to a sound and pristine health,
I would applaud thee. *Shak. Macbeth.*
Go to bed, after you have made water. *Swift.*

4. *To hold WATER.* To be sound; to be tight. From a vessel that will not leak.
5. It is used for the lustre of a diamond.
'Tis a good form,
And rich; here is a water, look ye.

Shakesp. Timon.

6. WATER is much used in composition for things made with *water*, being in *water*, or growing in *water*.

Oh that I were a mockery king of snow,
Standing before the sun of Bolingbroke,
And melt myself away in water-drops.

Shakespeare.

Let not the water-flood overflow me.
Ps. lxxix. 15.

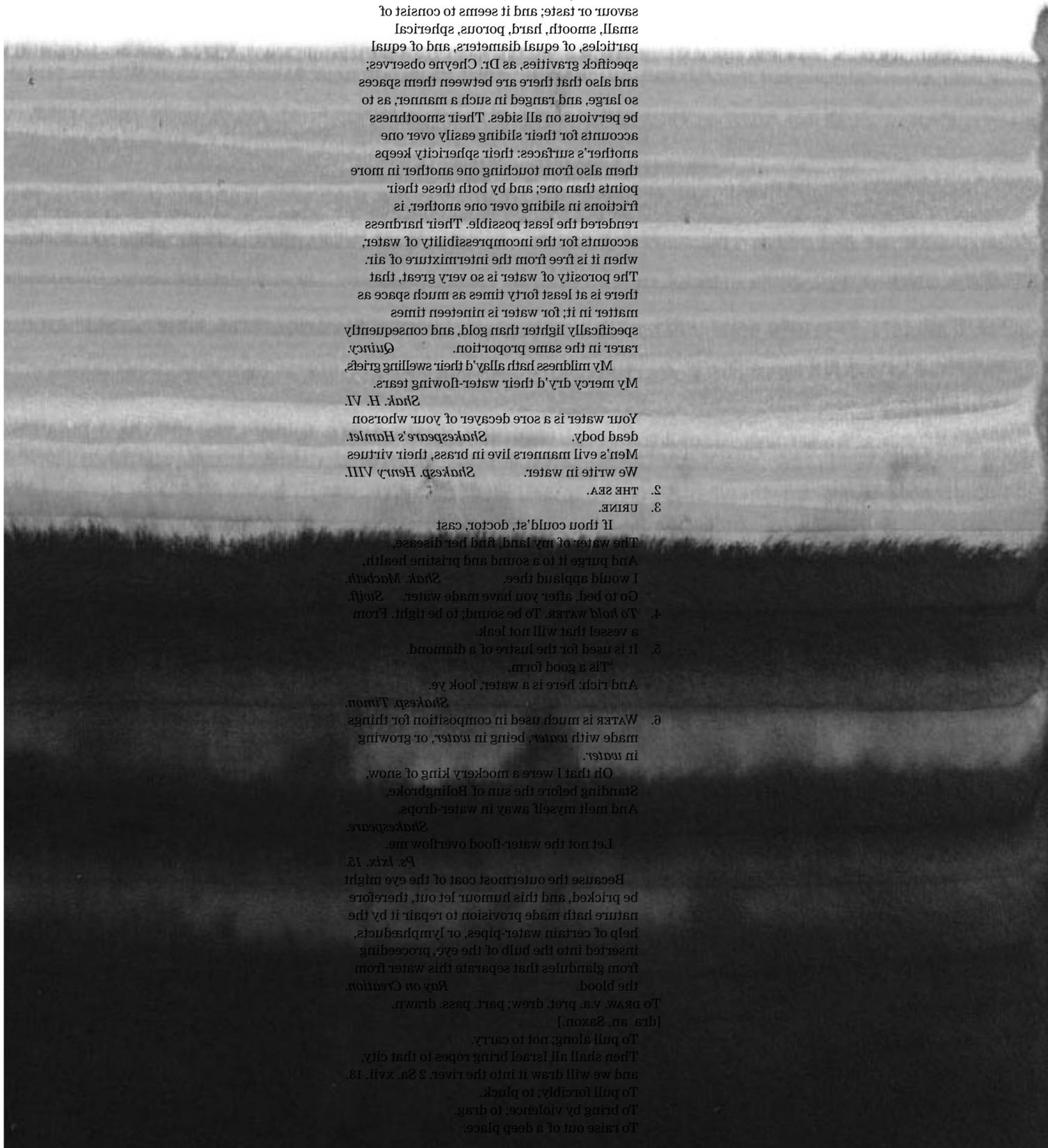
Because the outermost coat of the eye might be pricked, and this humour let out, therefore nature hath made provision to repair it by the help of certain water-pipes, or lymphæducts, inserted into the bulb of the eye, proceeding from glandules that separate this water from the blood. *Ray on Creation.*

TO DRAW, *v.a.* pret. drew; part. pass. drawn.

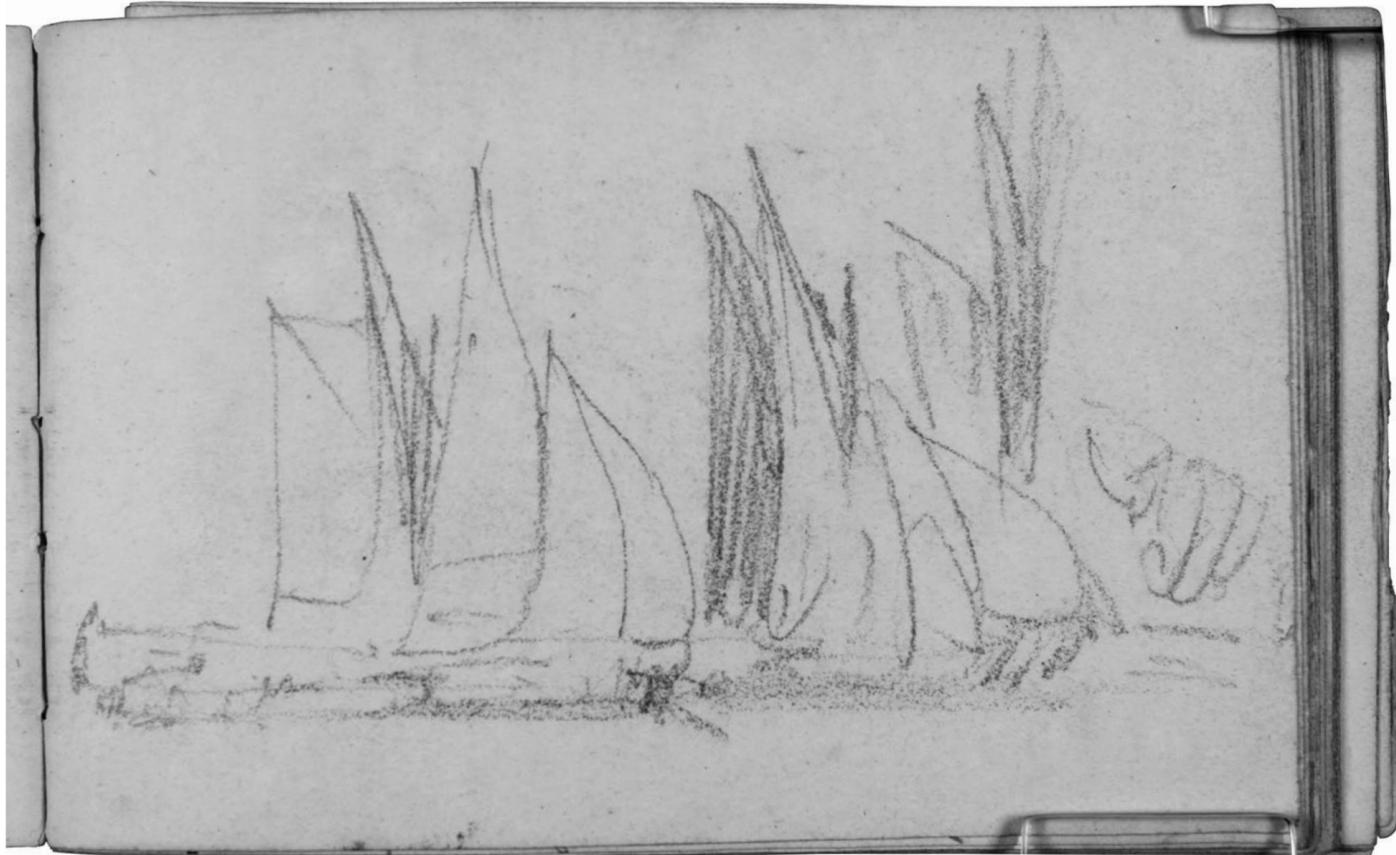
[dra an, Saxon.]

To pull along; not to carry.
Then shall all Israel bring ropes to that city,
and we will draw it into the river. 2 Sa. xvii. 13.
To pull forcibly; to pluck.
To bring by violence; to drag.
To raise out of a deep place.

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 It is used for the lustre of a diamond.
 a vessel that will not leak.
 4. Ye bold water, to be sound; to be tight. From
 Go to bed, after you have made water. Swift.
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 And purge it to a sound and pristine health.
 The water of my land, and her disease
 If thou could'st, doctor, cast
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 WA' TER, v. s. [waters, Dutch; Saxou.]



TURNER'S THAMES



THAMES BARGES, JOSEPH MALLARD WILLIAM TURNER C.1808 THAMES SKETCHBOOK (CREDIT: TATE GALLERY)

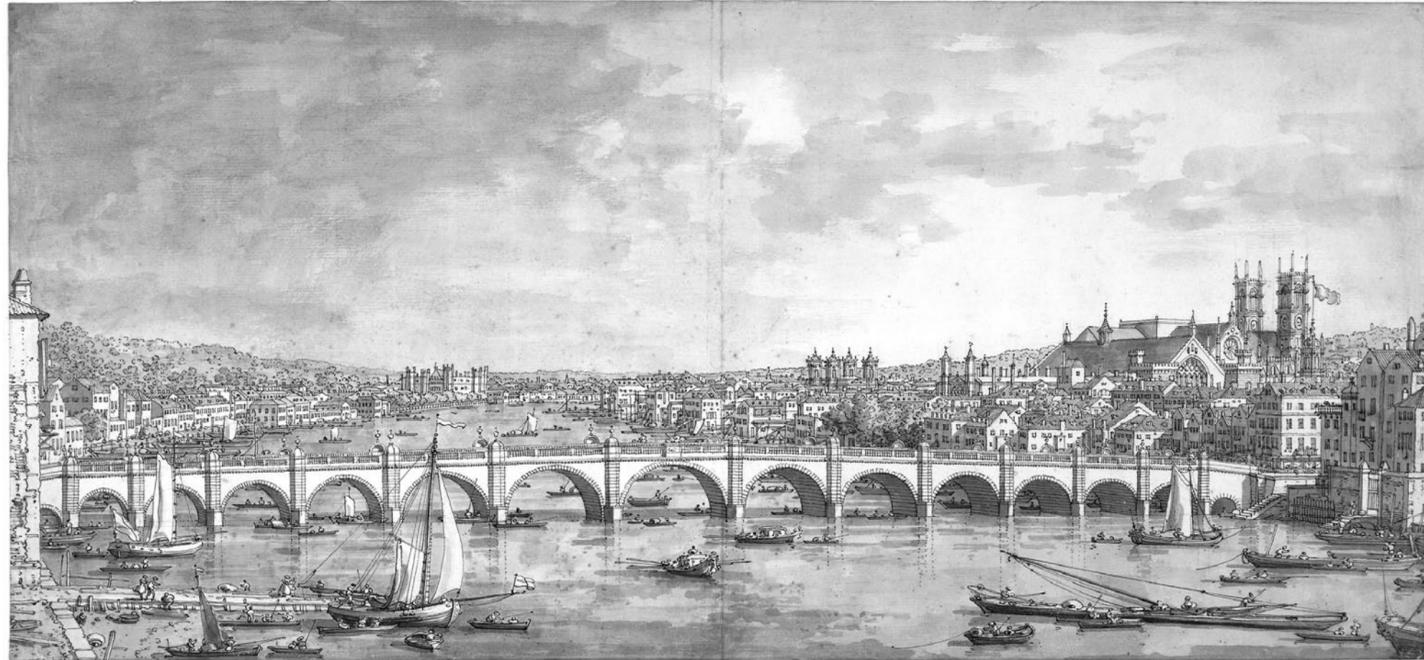
Every river should have its artist. The river flows through Turner's life and work in a golden stream. He saw the best in me. Nobody knew better how to describe the sublime light reflected across my waters; my pale yellow dawns; my furnace sunsets; my nights under mercurial moonlight; where the waters churn with busy traffic and working chaos; where my waters empty out into the sea; my battles; my dramas; and my quiet slippery reaches. My surfaces to him were a polished mirror where you can pass into worlds beyond this one. Transcendent liquid lines and washes are left open ended to reflect feeling, the river gave those feelings space.

He grew up in Brentwood, with his uncle, relocated there after his mother was taken to the asylum, and once wealth came to him he rented fine homes beside the river, Sion Ferry House, Isleworth, and Hammersmith, until he built his own beautiful villa at St Margerts Twickenham; as an old man cholera took him off from his lover's home in Chelsea. He took his holidays at the river's mouth under the big skies at Margate.

He filled his sketchbooks on the river, his boat and navigations part of the studio. This river was a quixotic muse that could become other rivers for him, symbolic mythical rivers flowing through Carthage or rivers that proved the strength of Empire, or announced the arrival of our industrialised future.

He captured the mood of my waters and the mood of the times. He understood that there are moments an artist might bear witness that mean we then have a window to peer into history. We can look into a page of his sketchbooks and it is as if we stand just behind his shoulder and see what he saw, and feel what he felt. Turner understood that history could be a dramatic narrative being acted out on the river. Like that night on the 16th October 1834 when Parliament burnt down, he got himself there and sketched the heat of the fire; or when he took the boat to make studies of Victory; or got on the water to see The Temeraire behind the tug that led its final journey up the river. He saw, he felt, and using a liquidity of mark colour and light he could transmit.

CANALETTO AND THE BRIDGE



A VIEW OF THE RIVER THAMES AND WESTMINSTER BRIDGE BY ANTONIO CANALETTO 1746 PEN AND BROWN INK, WITH GREY WASH, RULED BLACK CHALK LINES IN THE ARCHITECTURE. (CREDIT: THE TRUSTEES OF THE BRITISH MUSEUM)

The thing you don't realise is that if you look at the river for long enough the river notices you looking.

London has always been full of foreigners. They often see more clearly what's going on here coming from outside. Giovanni Antonio Canal, known as Canaletto, came from the city of canals, Venice, spent most of his time drawing and paintings the buildings and the water. The English lapped them up - he sold so many pictures to people here that at some point he decided to follow his market home, so sometime around 1745 or 46, Canaletto came to London where his collectors and fans lived. He couldn't believe this city, the biggest and fastest growing in the world, buildings going up everywhere, awash with money, booming, building, booming, not fixed and shimmering like Venice but expanding and exploding, where everything he went to draw or paint was new.

He loved the new bridge, Westminster Bridge, the ambition of it. It's no small task to span a river this wide and fast and where there are very few places to cross over. This river is much wider

than his Grand Canal. The bridge had been talked about for years. The nearest bridge was London Bridge, and people needed to cross. Hawksmoor had had his design rejected in favour of Labele, another foreigner, Swiss, who proposed Portland Stone; his wooden first attempt got taken during one of the winter freezes, the ice made short work of those posts. But stone did the trick. They had to sell lottery tickets to fund it.

Canaletto drew the bridge for days, even before it was finished and that's where I noticed him. He drew on really big bits of paper, and in such detail, can't fault him for his accuracy. To see the drawing is to know what time of day it was when he stood there, it was morning, the sun is coming from the east; what way the wind was blowing, (south east I think), there is a Jack flag flying from St Margaret's; and where the tide was at. The tides hardly stir the waters in Venice but here they rise and drop leaving great stinking muddy edges to the river to negotiate with piers and jetties - he drew those too, my mud on his shoes.

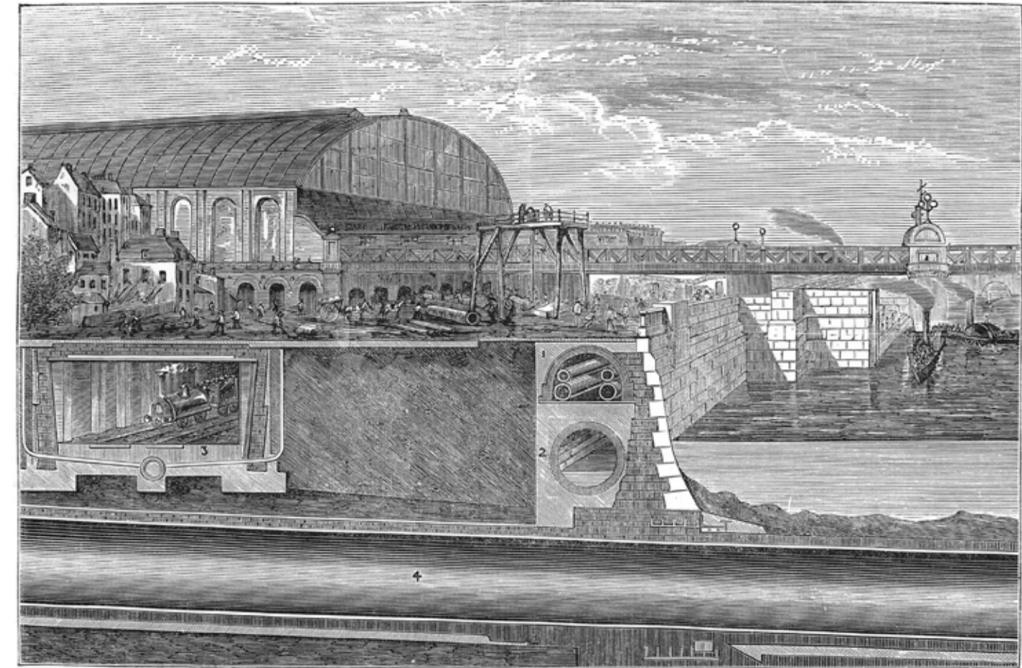
He wanted to get everything just right. As he drew he built the bridge all over again, brick by brick. You can just make out tiny pinpoints at the centre of each stone arch where he put his compass and drew out the circles. The river is full of shipping, figures in boats, ferrying back and forth between the West End and Lambeth, watermen about to be put out of work once that bridge opened. Drawing water was his bread and butter but he was used to Venice, the water of dreams, not the dirty moving hard working waters of London. Eventually he stopped making the water curl like a woman's hair and drew the river wide, giving it its full drama as the city fluxed and flourished along its banks.

In time the bridge came down. Replaced by another one, iron this time, green and gothic. Another bridge for another time.

The bridges are one of the few places in London where the eye can travel, where the sky opens up. Where the light can get into the city. To cross the river is always to let the sky in.

It took Masood eighty two seconds to turn this bridge into a trap where five lives were lost. 14:40:08 on the 22 March 2017 his car deliberately mounts the pavement at speed, on Westminster Bridge. He takes the lives of Aysha Frade, Kurt Cochran, PC Keith Palmer, Leslie Rhodes, and Andreea Cristea. Andreea fell into the river. I couldn't save her, I rarely can. Eighty two seconds to kill five and injure at least fifty people from twelve different countries including France, South Korea, Germany, Poland, Romania, Irish Republic, Greece, Poland, China, North America and Italy. London has always been a mix, you hurt this city you hurt the world.

EMBANKMENTS



SECTION OF THE THAMES EMBANKMENT 1867 SHOWING (1) THE SUBWAY. (2) THE LOW-LEVEL SEWER. (3) THE METROPOLITAN DISTRICT RAILWAY. (4) THE PNEUMATIC RAILWAY. (THE ILLUSTRATED LONDON NEWS 1867)

The Embankments are the nineteenth century reclamation of my marshy edges and turned my muddy foreshores in public spaces, canalising and chaining my waters. These Embankments resolved several of the city's problems in one construction with tunnels for trains and sewers underneath, with new roads and thoroughfares overhead. They keep everything flowing through the city - but this changed how I can flow. I am cut me off from everything.

I have memories that trouble me. I turn that night over and over in my mind and yet I am not sure what happened was my fault but who else is there to blame. There are other tides that come and test the barriers, other times when I rise and lick over the barriers but I try to hold back.

The city's footprint is my flood plane and it is always a risk to separate a river from its flood plane. There have been times when I have crept over the wall and back into the city. Just after midnight on the 7th January 1928 I slipped over the bank and once I was over I flowed freely flooding the city. Like a visitor I sought out into the Houses of Parliament, The Tate Gallery, The Tower of London - I filled the moat. I slipped into the Blackwall and Rotherhithe tunnels and flooded the Victoria Embankment Gardens, Charing Cross Station and King's College.

The walls weren't high or strong enough to keep me out. Millbank wall is a relic of the old prison and the Hammersmith Wall was never constructed to resist the pressure of full waters. The tide was abnormally high and strong, too much for these constructions. I used to be able spend these forces at high water over the marshes, spill into the creeks and small rivers upon but these have all been built over, culverted, contained, chained up. They left me no choice but to climb over the wall and find out the weakness in these boundaries. Perhaps there is no one to blame for the lives lost except those that leave the poor sleeping in basement slums.

A full moon meant a high spring tide. But there was too much water coming from upstream, the winter snows melted fast in that torrential rain so the river was flooding from the inside out, from upstream. The wind was bad too, near hurricane, everything was forced hard, generating a storm surge from the North Sea, preventing waters from discharging at my mouth, they piled up, delayed my ebb. I had no choice but to divert over the walls into the streets and roads and tunnels and tragically finding the wretched slum basements of those sleeping girls. Alfred Harding lost his four daughters - Florence Emily, 18, Lillian Maude, 16, Rosina, 6, and Doris Irene, 2.

I confess to my curiosity reaching into the streets but I didn't mean to take those sleeping girls, they were crowded into the cellars and sleeping and there was no way of warning them or controlling where the water went. I had no agency, I am always moving towards a level in the low point, that is my nature. The houses down those dingy yellow streets collapsed into me. I soaked into them like they were paper, washing those poor folk out of their crippled homes. There is a wall in Greenwich, at Trinity Hospital with pale stone markers sunk into the brickwork that marks the high water marks in the city. That night I went 5.55metres above the Datum. The mark comes close to the top of that wall. I worry despite the barrier, despite the walls, there will be other marks.



WATER MUSIC

July 17th 1717 King George 1 of England staged a spectacle on the river. The King and his companions, including his two favourite mistresses, Anne Vaughan, the Duchess of Bolton, the Duchess of Newcastle, the Duke of Kingston, the Countess of Darlington, the Countess of Godolphin, Madam Kilmarnock, and the Earl of Orkney, boarded a royal barge propelled by the rising tide. He had commissioned George Frideric Handel to compose a new musical work that could be performed on the river, music so enchanting in a spectacle so impressive that people would forget how unpopular their monarch was.

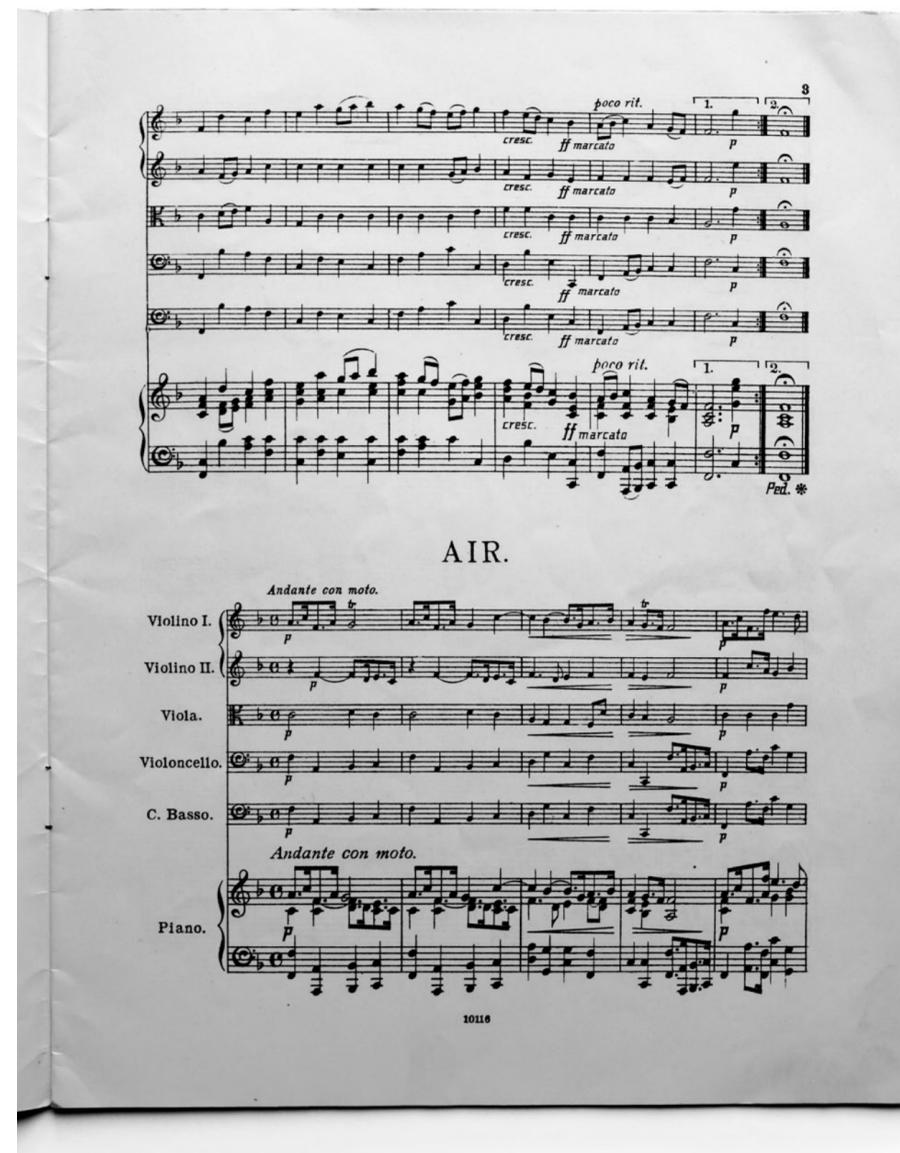
The sight of a barge loaded with fifty musicians playing instruments never heard before in London was an event in itself – but it was Handel’s sublime music that championed the evening. French horns made new notes that

travelled so well across the water, joined by flutes and recorders, oboes, bassoons, trumpets, horns, violins, violas, cellos and bass. Sound waves move differently on the water, travelling a little more freely and further in the cooler air just above the surface of the water. Within the twenty-two suites of Handel’s Water Music the Bourees were fast; the minuets lively like country dances; and the horns and trumpets provided fanfares full of pomp and volume. Handel’s genius was to fuse the energetic French sound with the fresh country English dance and the lyrical strings Italian baroque. He understood how to affect anyone who heard this music with jubilant feeling via simple means. Not that there was anything simple about staging an orchestra on the water.

The river filled with boats gathering around the performance and the shores were crowded

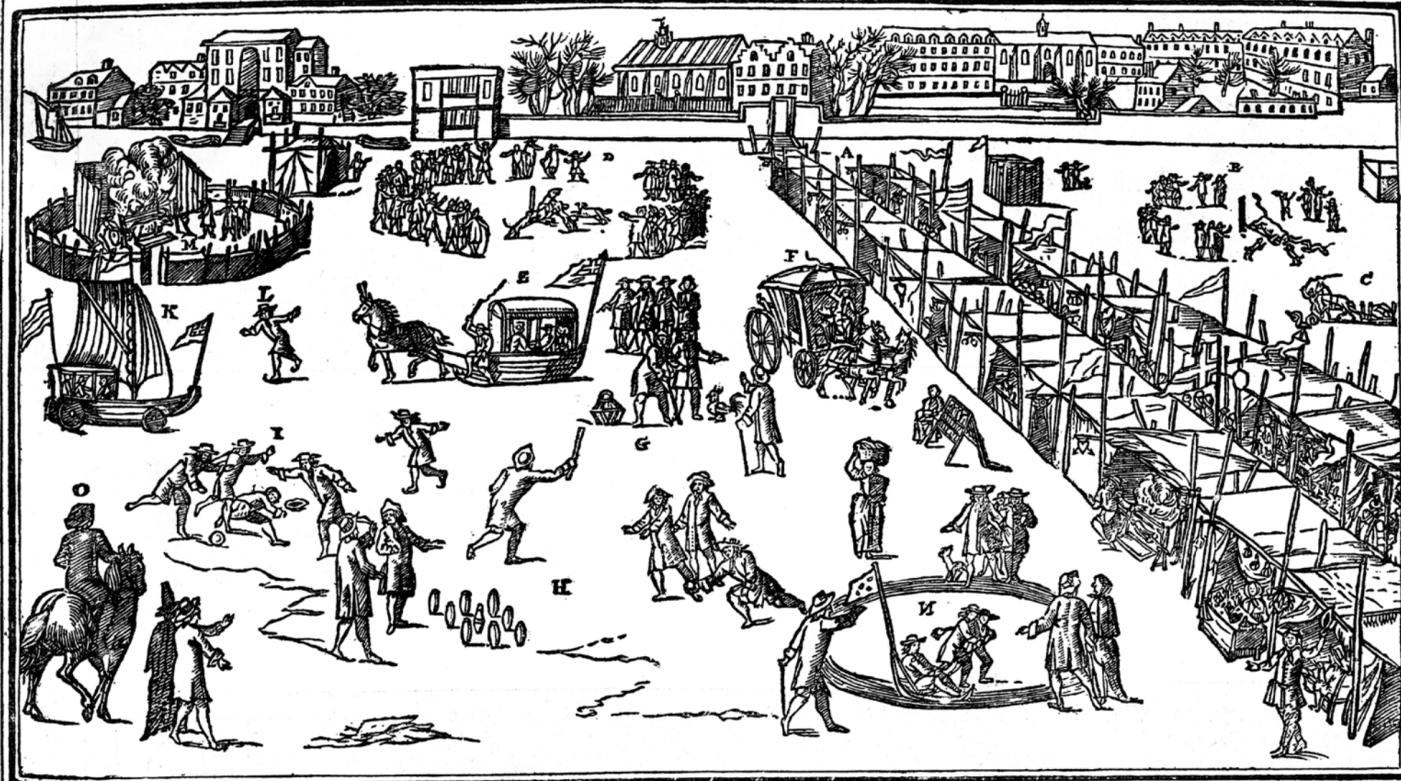
with folk enchanted by the music and spectacle. The king loved the music so much he demanded it be played over and over, until midnight came around and the musicians were finally released on this hot summer evening.

“On Wednesday Evening [17 July 1717] at about 8, the King took Water at Whitehall in an open Barge... And went up the River towards Chelsea. Many other... Persons of Quality attended, and so great a Number of Boats, that the whole River in a manner was cover’d; a City Company’s Barge was employ’d for the Musick, wherein were 50 Instruments of all sorts, who play’d all the way from Lambeth... the finest Symphonies, compos’d express for this Occasion, by Mr Handel; which his Majesty liked so well, that he caus’d it to be plaid over three times in going and returning.”
The Daily Courant



A TRUE DESCRIPTION OF BLANKET Fair upon the River Thames, in the time of the great Frost

In the year of our Lord, 1683.



A Description of the Piece.

A. The Boats and Booths, B. Baiting the Bull, C. Carrying Coles in Sledges, D. the Bear baited, E. The Dutch boat, F. Coach and Horses, G. Throwing at Cocks, H. Playing at Ninepins, I. Football playing, K. A Coach set in a Boat with Sails, and so drove by the Wind, L. Sledging upon Sledges, M. An Ox roasted whole, N. A Chair turned round with two men, shall carry two persons as far in one hour as a Horse shall in a whole day, O. A man on Horseback.

How am I fill'd with wonder for to see
A Flooding River now a Road to be,
Where Ships and Barges used to frequent
Now may you see a Booth of fuddling Tent,
And those that us'd to ask where shall I Land ye
Now cry, what lack ye Sir, Beer, Ale, or Brandy.
Here, here, walk in and you shall surely find
Your Entertainment good, my usage kind:
Booths they increased daily, more and more
People by thousands flocking from the shore;
And in such heaps they thither did repair,
As if they had been halting to a Fair.
And such a Fair I never yet came near
Where Shop-Rents were so cheap, and Goods so dear.
There might you have all kind of Earthen ware
You can scarce name a thing but what was there.
There was to sell both French and Spanish Wine
And yet perhaps a dishclout for a Signe,
In short, the like was never seen before
Where Coaches run as if upon the shore:
And men on Horseback too and fro did ride
Not minding either Current, or the Tide:
It was exceeding strange at first to see
Both men and Women so adventurous be
And yet at last it grew so very common
'Twas not admir'd, it seem'd strange to no man
Then from the Temple there was built a street
Made old and young, and all admire that see't,
Which street to Southwark reach'd there might you see
Wonders; if you did love variety.
There was rost Beef and Gamon to be sold
But at so dear a rate, I dare be bold
To say, 'twas ne'r sold so on the shore
Nor on the Thames in ha't be any more.
There were Dutch whimsies turning swiftly round
By which the owners cleared many a pound,

And Coles and Corn was there in sledges draw'd
As if the Thames would never have been thaw'd
All kind of Trades did to this Market come,
Hoping to get more profit than at home:
And some whose purses were a little swell'd,
Would not have car'd how long the Frost had held.
In several places there was Nine-pins plaid
And Pidgeon holes for to beget a Trade.
Dancing and Fiddling too there was great store:
As if they had not been from off the shore;
The Art of Printing there was to be seen
Which in no former Age had ever been,
And Goldsmiths shops well furnished with Plate
But they must dearly pay for't that would have't.
And Coffee houses in great numbers were
Scattered about in this cold Freezing Fair,
There might you sit down by a Char-cole Fire
And for your money have your hearts desire,
A dish of Coffee, Chocaler or Tea
Could man desire more furnished to be
No, no, if you the world should wander through
No Fair like this could pleasant seem to you,
There was the baiting of the ugly Bear,
Which sport to see hundreds did repair,
And I believe since the Worlds first Creation
The like was never seen in this our Nation:
And Football playing there was day by day
Some broke their I eggs, and some their Arms they say,
All striving to get credit, but some paid
Most dearly for it, I am half afraid.
Bull-baiting likewise there was known to be
Which on the Thames before none ever see,
And never was poor dogs more bravely to't
Then they were, in this strange prodigious Frost,
Th' enraged Bull perceiv'd his Enemies
And how to guard himself could not devise

But with his Horns did to'st them to and fro
As if their angry meaning he did know;
Besides all this a thing more strange and rare
Than all the things were seen in Freezland Fair,
An Ox was roasted whole which Thousands saw
For 'twas not many dayes before the Thaw,
The like by no man in this present Age
Was ever seen upon this icy stage:
And this hard Frost it did so long endure
It pinch'd and almost famish'd many poor.
But one thing more I needs to you must tell
The truth of which thousands do know full well,
There was Fox hunting on th' frozen River
Which may a memorandum be for ever:
For I do think since Adam drew his breath
No Fox was hunted on the ice to death.

Thus have you heard what wonders there were seen
How Heaven and Earth the people walk'd between:
And since the world at first had its Creation
The like was never seen in this our Nation,
Yet was it hard and grievous to the poor
Who many hungry bellies did endure:
Sad spectacles a now you might behold
Who felt th' effect of this prodigious cold:
But God who is most Righteous, Good and Just
Will them preserve who in him put their trust,
And when their dangers greatest seem to be
Blest be his name, he then doth set them free.
Then let us all while we have time and breath
Be still prepar'd to meet with pale-fac'd death
That when he comes we need not be afraid
Nor at his Dart be frighted or dismay'd
If we on Jesus Christ wholly depend
He'll prove to us an everlasting friend.

LONDON: Printed by H. Brugis in Green Arbor, Little Old Bayly, 1683.

FROZEN WATER

If its cold enough water will freeze, even fast flowing river water. I have lost track of how many times the river froze. It's a hard winter when my waters are slowed enough to freeze. They hold onto each other locking into ice and then tighten their grip on everything else, boats held fast, trapped and stilled. Even the birds couldn't fly, they froze solid and dropped off their perches. My water still flowed beneath the ice but so far down you could not see it unless you fell through—that the currents were still strong under the frozen lid would be the last thing you would know.

How the city loved the Frost Fairs, despite the cold, the risks, and the discomfort they turned the river into a festival, a deranged public space outside of the usual order, where anything might happen.

Now what dates can I remember for the freezes, 1408, 1435, 1506, 1514, 1537, 1565, 1595, 1608, 1621, 1635, 1649, 1655, 1663, 1666, 1677, 1684, 1695, 1709, 1716, 1740, 1768, 1776, 1785, 1788, 1795, and 1814. Didn't happen again after the old London Bridge came down. The bridge worked like a dam. Each pier of the bridge had a breakwater where it sat in the water, called a starling, and they were shaped in such a way that the water ran slower above the bridge than below it. The slower water above the bridge got squeezed through under the bridge like a rapid and then sped up to the mouth. It was where the water was slower that the freeze could slow it down even more till it turned to ice.

When water turns to ice it behaves differently to other liquids, it gets bigger, which makes icebergs float—even up the river. The river itself appeared to get bigger, when you are out on the ice you can't judge distance, scale freezes over too. Water is the only solid less dense than its liquid state. The river freezes on the top first, in thin skins of ice that thicken up till you can no longer see through them.

They put up tents, stalls, played football, skated, drank, danced, lit fires, roasted oxen and revelled on the ice. Dragged on printing presses to print messages and names on to pre-set decorative borders with poems, keepsakes, and ditty's to produce printed memento's to those visiting this temporal winter wonder world. To stand on the river and see the city from the river is to see it all a new. Sometimes it would freeze smooth to the joy of the skaters—ice has less friction than any other surface you move across. Sometimes the ice was rough or spongy and your footsteps would fill up with water as you crossed the perilous lumpy ice road.

There was a price, so many folk out of work, ferrymen, watermen, fishermen, gardeners, desperate for any means of earning a penny. Then the thaw. Any small thing frozen in the water absorbed the heat of the winter sun faster so a leaf frozen on the surface thaws in small leaf islands. The ice melted from below as well as above, worn away by the moving tidal waters. You can hear the water moving. Holes appear, shining black splits dislodging ice floes broken by the tides, churned up and refreezing on the ebbing water. The broken ice eventually moves like wrecking balls, stacking up and pushed by tidal waters against timbers that splinter, or dislodge and dissipate in floods. Ships moored up against buildings in the freeze were unexpected cast adrift taking those building with them. Folk misjudged the ice, misjudged the river. Despite the fair, the singing and the merry making, anyone that forgot the river was a wild place did so at their peril.

*Behold the liquid Thames now Frozen o'er,
That lately ships of mighty burthorn bore,
Here's done in print,
for those who cannot write,
Cause numbed with cold,
tho' done with great delight,
And lay it by, that ages yet to come,
May see what things upon the Ice were done.*

WORDING FROM A SIX LINE VERSE COMMEMORATING THE FROST FAIR OF 1814, PRINTED ON THE ICE.

THE PRINCESS ALICE DISASTER 3RD SEPTEMBER 1878

From *The Records of the Woolwich District* by W. T. Vincent (1835 – 1920).

THE GREATEST AFFLICTION OF THE AGE.

No calamity which has afflicted the generation to which we belong can compare with the loss of the “Princess Alice” pleasure steambot, and the six hundred lives sacrificed at the close of a summer-like day in the autumn of 1878. The fearful suddenness of the catastrophe and the social condition of many of the victims, the awful proportions of the death-roll, and the new peril which seemed to come home to all the thousands who were wont to travel by water—all contributed to the horror of an event which shook Great Britain like an earthquake, and sent a shudder vibrating through the world.

When the Furies planned this dire misfortune why should they have laid the scene at Woolwich? Were we not sufficiently notorious for deeds of evil—murders, explosions, fires, floods, fogs, wrecks, and riots, not to speak of a reputation founded and established on the fiendish trade of war? Most of our visitations we could have accepted as natural consequences of a risky profession and unholy commerce, but there was nothing in the nature of Woolwich any more than in any other part of the river Thames, and no special predominance even in sin over many other large towns, to justify the sorrow and stain cast upon it by the most overwhelming calamity the nation has seen in all the years which we call our time.

THE “PRINCESS ALICE” SUNK. Tuesday, the 3rd day of September, 1878, had been sultry, and the evening was warm and “muggy.” Weary with a troublesome day’s work I was preparing for an early rest when a message came that there had been a collision on the river, and that a big steamer had gone down with an untold freight of precious lives. Casting off fatigue with my slippers, I made all haste to reach Roff’s Pier, enquiring of such acquaintances as I chanced to meet, a few of whom had heard “something” of a wreck on the river, others who had I heard nothing, and laughed at the “old woman’s tale.” Too soon the matchless horror was revealed.

On the wharf and pier a small crowd had collected, not more than fifty as yet, and among them were several well-known townsmen who, from that moment to the end of the long and heavy strain, devoted themselves day and night without pause, without thanks, and without reward, to do all that was in the power of humanity, if not to lessen the evil, at least to fulfil its sacred obligations, to bear a share of its burdens, and to bring lasting honour and renown for its humanity and public spirit upon the town of Woolwich.

GHASTLY SIGHTS. Soon policemen and watermen were seen by the feeble light bearing ghastly objects into the offices of the Steampacket Company, for a boat had just arrived with the first consignment of the dead, mostly little children whose light bodies and ample drapery had kept them afloat even while they were smothered in the festering Thames. I followed into the steamboat office, marvelling at the fate which had brought the earliest harvest of victims to the headquarters of the doomed ship, and, entering the board-room, the first of the martyrs was pointed out to me as one of the company’s own servants, a man employed on the “Princess Alice,” and brought here thus soon to attest by his silent presence the ship’s identity. The lifeless frames of men and women lay about, and out on the balcony, from which the directors had so often looked upon their fleet through the fragrant smoke of the evening cigar, there was a sight to wring out tears of blood from the eyes of any beholder. A row of little innocents, plump and pretty, well-dressed children, all dead and cold, some with life’s ruddy tinge still in their cheeks and lips, the lips from which the merry prattle had gone for ever.

Callous as one may grow from frequent contact with terrors and afflictions, one could never be inured to this. It was a spectacle to move the most hardened official and dwell for ever in his dreams. Then to think what was beyond out there in the river. It was madness!

But somebody must collect the facts together and tell the affrighted universe the desolation. The task was mine.

TELLING THE DREAD NEWS. It was near midnight when I reached the post office with my budget of adversity. I had previously warned the telegraph clerks, as agents of the press are privileged to do, and they were ready.

The following is the story (somewhat shortened) which at morning light was told in more than three thousand newspapers, to the people of every civilized land throughout the earth

The forgoing statement represents the first impressions derived from such hasty and excited narratives as a reporter could gather among the wailing and turmoil, and it is to the credit of my informants that there was very little written down which I have since wished to amend.

The loss of life was nearly six hundred instead of five hundred as conjectured, conjectured without any certain evidence of the number on board, and I was told that the Alice was struck on the starboard, not the port side, but there was little else to correct, little else to reveal. The gloom and misery and despair of the next day and the days which followed, who can describe? The newspapers of course were full of minute details on every possible phase of the frightful theme. Some of the editors had been telegraphing to me all through the wretched night to “keep on wiring,” and the first train down in the morning brought an army of reporters. One “daily” alone had nine special correspondents at work in Woolwich for the best part of a week, so eager was the public appetite to feed upon the caviare news.

SEEKERS FOR THE DEAD. Crowds of others beside the pressmen also flocked hither, mostly mere curiosity-seekers, but among them anxious and agonized friends vainly seeking those whom they had lost. It was more dreadful to see these survivors than to look upon the dead. In the next fortnight we were familiar with the sight of strangers, generally in couples, walking with dazed and melancholy aspect through streets, waiting for their dead to be brought on shore; and every day we saw the same sad faces as they passed down the dread array of corpses in the Dockyard, looked for the loved ones, who would see them never more on earth.

THE FUNERALS. It was fortunate that there was a large place like the Dockyard available to meet the emergency, and the authorities not only granted its use, but sent down large parties of soldiers to render help. As soon as a body was identified it was confined and promptly buried, and long processions of army waggons bearing the dead to the cemetery were seen day after day. One of the latest of the bodies recovered was that of Mr. Frederick Whomes, the talented organist of the Dockyard Church, who, being a well-known Woolwich man, was followed to the grave by thousands of the townspeople.

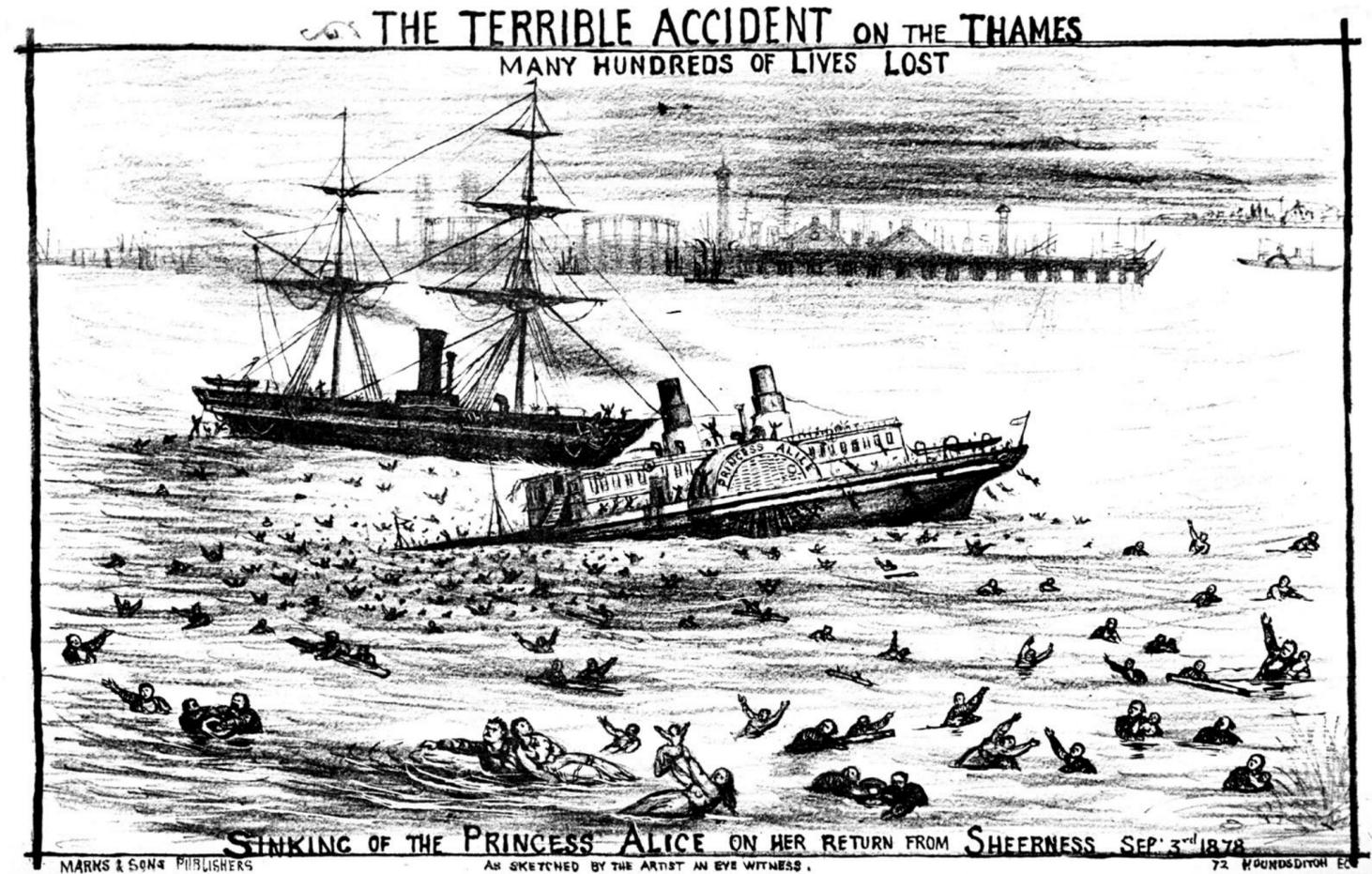
THE INQUEST. The inquest was held in the Board room at the Town Hall, before Mr. C. J. Carttar, coroner, and occupied more than thirty days. The identification evidence alone took up much time, and was of a very melancholy character. Most of the witnesses were persons well-to-do in life, and many of them told one after another of whole families lost, with here and there a husband and father left mourning alone, his household robbed of all the rest.

The testimony as to the accident was as conflicting as such testimony usually is, but every one who was thought capable of shedding a ray of light upon the case was called before the jury.

DIVERSE VERDICTS. At the end Mr. C. J. Carttar made a long and lucid summing up, and the magnitude of the disaster affected even the deliberations of the jury, who sat from seven at night until five in the morning before they could agree upon a verdict. I have a sheet of foolscap on which the scribe of the jury drafted a dozen or more verdicts before his terms could satisfy even a majority, but it concludes with the decision which fifteen out of the nineteen jurors consented at last to sign, and this was a verdict against the Princess Alice. However, another jury at Millwall had also gone into the facts and found that the blame was due to the Bywell Castle, and, four days prior to the Woolwich verdict, a legal opinion had been given in the Admiralty Court against both the Princess Alice and the Bywell Castle, so that the net result was of very questionable value.

THE NUMBER OF DEAD. The Princess Alice Memorial in Woolwich cemetery was erected by a sixpenny subscription throughout the kingdom. The inscription states with sufficient accuracy that the victims numbered 550. As nearly as I have been able to ascertain, and I have endeavoured to make this record precise, there were 544 inquests at Woolwich, and 46 elsewhere, making the total 590. Some of the dead may have been washed out to sea and never recovered, but this is not probable. Woolwich spent £1,380 in recovering and burying the dead, and the county justices, who had always previously paid such expenses, repudiated the charge and escaped by a quibble. The Treasury voted £100 towards the bill, and the ratepayers paid the rest.

W. T. Vincent worked on the Kentish Independent for 53 years and was its editor from 1880 - 1902. He was the founder of the Woolwich Antiquarian Society in 1885 and was its President until 1916.



TERRIBLE ACCIDENT ON THE THAMES THE SINKING OF THE PRINCESS ALICE, 1878. DRAWING BY AN ANONYMOUS EYE WITNESS SHOWING THE PADDLE STEAMER SINKING, SURROUNDED BY DROWNING FIGURES, WITH THE COLLIER 'BYWELL CASTLE' WITH WHICH SHE HAD COLLIDED IN THE BACKGROUND. THE VESSELS COLLIDED AT GALLEON'S REACH, ERITH, KENT, AND MORE THAN 600 HOLIDAYMAKERS WERE DROWNED. (CREDIT: ALAMY IMAGES)

Return of Goods by Ships that discharged in the Saint Katharine Docks during the year 1862, showing the Estimated Tonnage, Landed and delivered overseas.

Goods	Tonnage by Tons	Total Tonnage Landed	Total Tonnage delivered overseas			
			London & Victoria Docks	Other Docks Quays	Transshipped	
Agar	23	9			14	
Alumina	45			45		
Archives	129	8			131	
Amatto	171		1			
Asphalt	86	10	39		37	
Arrowroot	27	13	114			
Almonds	1360	1296			64	
Acres	4	3			1	
Acids	30				30	
Bark Medicines	4				4	
do Tanners	191	189			2	
Bones	1197	81			109	
Breaston	1193		7		1193	
Bussard	89	89				
do a Japan	138	68				
Beans	380	127	39	10	179	25
Beans & Peas	474	177			467	
Bamboo	142	165	15		61	1
Bikes	1	1				
Copper	245	242			3	
Cocoa	81	65	15		1	
Chamo & Butter	5	2			3	
Canes	487	393	71		23	
Cork	11	11				
Cork	1				1	
Climent	12				12	
Coffee @ Ceylon	7671	4429	1261		1814	167
do @ Ceylon	1650	492	117	26	15	
do @ Bahia	880	687			193	
do @ Mocha	180	180				
do @ Ceylon	2356	1908	229	2	11	206
do @ Madras	233	121			112	
Cardamoms	15	13			2	
Candamom	100	38	62			
Essence of Tartar	541	62	12		184	23
Curried Ground	17182	10539	1882	83	4256	422

UNBOUND MANUSCRIPT, STATISTICS OF SHIPS DISCHARGED IN THE ST KATHARINE'S DOCK IN 1862

A SUMMARISING NOTE FROM 1900 IS ATTACHED TO THE DOCUMENT. IT STATES 'IN THE YEAR 1862 THERE ENTERED THE ST. KATHARINE DOCK FROM FOREIGN AND COLONIAL PORTS TO DISCHARGE 530 VESSELS OF 163,678 TONS NET REGISTER. THE TONNAGE OF GOODS... WAS 156,664 TONS, OF WHICH 91,426 TONS OR 58.3% WERE LANDED AT ST KATHARINE'S, 17,860 TONS OR 11.4% WERE LANDED AT OTHER LONDON DOCKS NOW FORMING PART OF THE [LONDON & INDIA] JOINT COMMITTEE'S SYSTEM, 44,926 TONS OR 28.67% WERE LANDED AT OTHER DOCKS AND QUAYS IN LONDON AND 2,452 TONS OR 1.57% WERE TRANSSHIPPED.'

(CREDIT: MUSEUM OF LONDON)

PORT OF LONDON

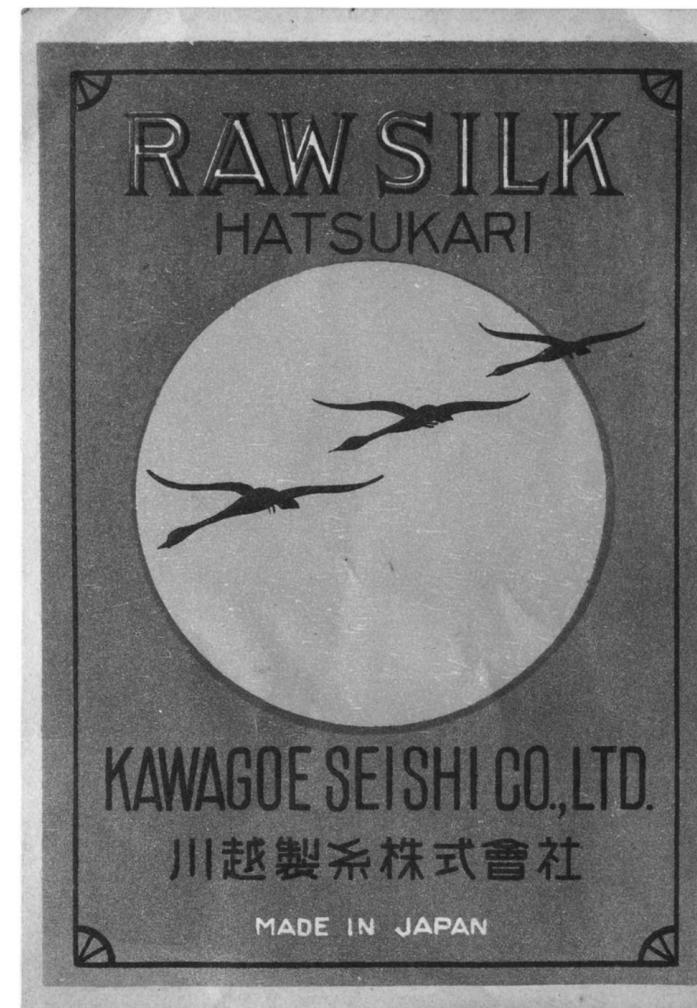
Beyond the rhythms of the city is an older the rhythms of the tides.

The tides have brought London its wealth. The river never sleeps, it is hard working chronic insomniac. The city spreads away from the river like a stain that proves all the indelible reasons why the city exists.

Irresistible rip tides flow through the city from the river and you move as part of the shoals of fish that pass through London in a state of synchronised indifference that allows the London to function.

The river allows the sea in, and via that the rest of the world. London is the Port of London. You only see the tide where the waters meet the land, where one thing changes into another. The river turns twice a day, it flows one way, then the other, like a slow beating clock in time with bigger lunar clocks connecting it to the world's waters rising and falling by seven metres. Everyday there is time where the waters go slack, the stand of the tide, where my waters are unstressed and the river falls flat, long and streaky, before the tide picks it up again and pulls it along at speeds no one on the water should underestimate.

I am an unusual strong tidal river. My water connect to all waters. More than one high tide combines in my waters. High tide travels across the vast Atlantic Ocean uninterrupted until it collides with southwest tip of England, Land's End. Here it splits and divides, flowing in two directions around the UK landmass, creeping east along the south coast, and north towards Scotland. The high tide meets again in a bulge, in converging in the waters where the my waters open and discharge. It means that there are tidal forces at work in the Thames that can cause the water to surge with catastrophic consequences.



LABEL FOR HATSUKARI SILK MADE BY KAWAGOE SEISHI CO. LTD. IN JAPAN 1900-1935 POST 1945. THE COMPANY STRENGTHENED IT'S PLACE IN THE MARKET BY CREATING RAW SILK FOR HIGH QUALITY STOCKINGS. SILK WAS IMPORTED INTO LONDON THROUGH THE EAST INDIA DOCKS IN TOWER HAMLETS. (CREDIT: MUSEUM OF LONDON)

An island is separated from the rest of the world by the seas that surround it, but these same waters also connect it. The Port runs to the rhythm of the tides, a pulse of the city's prosperity. For hundreds of years it was the busiest port in the world. The Pool of Lime from London Bridge to Limehouse, was the world's sample office. Everything came through London. The waters were overcrowded, congested; it was chaos in the water with big boats needing smaller boats to unload into and only possible at certain points of the tides and nigh impossible to keep track of everything.

On shore, unloading was slow and insecure. Enclosed wet docks were desperately needed if London was going to hold on to its position as the world's most important port, with secure warehouses built all around the dock to hold goods securely, with customs officers endlessly filling ledgers tracking the movement of goods in and out.

West India Dock, East India Dock, Surrey Dock, St Katharine, Poplar, Royal Victoria, Millwall, Royal Albert and Tilbury Docks, all surrounded by communities of cheap labour. The construction of the enclosed dock systems meant that shipping was no longer delayed at low water.

Vast wooden dock gates would open on to the river allowing a ship into the locks that would then capture the waters of high tide to hold the ship high at the dockside to be unloaded while the river outside fell to low water. The next tide could take the ship away.

And all this serviced by the financial industries that continue to bring money into the city long after London's Port activity has containerised and moved out into deeper estuary waters abandoning the city. An irony now that bankers and insurers occupy the redeveloped docklands in glassy buildings towering over the water with their executive views of sky and water.

REACHES OF THE THAMES, DOWNSTREAM TO UPSTREAM

- Gravesend Reach
- Northfleet Hope
- St Clement's Reach
- Long Reach
- Erith Rands
- Erith Reach
- Halfway Reach
- Barking Reach
- Gallions Reach
- Woolwich Reach
- Bugsby's Reach
- Blackwall Reach
- Greenwich Reach
- Limehouse Reach
- Lower Pool
- The Pool
- Upper Pool
- King's Reach
- Lambeth Reach
- Nine Elms Reach
- Chelsea Reach
- Battersea Reach
- Wandsworth Reach

SEPTEMBER 2017										SEPTEMBER 2017									
TIME ZONE UT(GMT)										TIME ZONE UT(GMT)									
WALTON-ON-THE-NAZE	MARGATE	SHIVERING SAND	SOUTHEND-ON-SEA	TILBURY	NORTH WOOLWICH	LONDON BRIDGE (TOWER PIER)	WALTON-ON-THE-NAZE	MARGATE	SHIVERING SAND	SOUTHEND-ON-SEA	TILBURY	NORTH WOOLWICH	LONDON BRIDGE (TOWER PIER)						
Time m	Time m	Time m	Time m	Time m	Time m	Time m	Time m	Time m	Time m	Time m	Time m	Time m	Time m						
1 F	0113 1.3 0727 3.4 1354 1.2 2008 3.5	0146 1.6 0800 3.9 1429 1.5 2037 3.9	0152 1.6 0805 4.2 1436 1.6 2047 4.3	0159 1.7 0817 4.6 1442 1.6 2057 4.7	0213 1.8 0840 5.2 1500 1.7 2125 5.3	0235 1.9 0855 5.7 1523 1.9 2151 5.8	0307 1.8 0926 5.6 1555 1.7 2211 5.8	16 SA	0133 1.1 0758 3.6 1414 0.9 2032 3.9	0204 1.3 0819 4.1 1452 1.1 2105 4.4	0209 1.4 0829 4.6 1445 0.9 2105 4.9	0220 1.4 0845 4.9 1505 1.1 2119 5.3	0244 1.5 0911 5.5 1534 1.2 2148 5.9	0315 1.6 0936 6.0 1602 1.3 2214 6.5	0337 1.6 0957 6.0 1622 1.3 2234 6.4	16 SA			
2 SA	0228 1.2 0842 3.5 1508 1.1 2112 3.7	0257 1.4 0906 4.0 1534 1.3 2142 4.2	0308 1.5 0917 4.4 1544 1.3 2151 4.6	0319 1.5 0930 4.8 1556 1.3 2202 5.0	0342 1.7 0958 5.4 1621 1.4 2233 5.7	0408 1.8 1024 5.9 1646 1.5 2301 6.2	0431 1.6 1044 5.8 1709 1.3 2321 6.1	17 SA	0249 1.0 0914 3.8 1530 0.7 2139 4.1	0321 1.2 0934 4.3 1601 0.8 2210 4.6	0329 1.3 0946 4.8 1611 0.8 2218 5.1	0343 1.3 1004 5.2 1627 0.8 2231 5.6	0415 1.3 1035 5.8 1701 0.8 2303 6.3	0440 1.4 1101 6.4 1730 0.9 2330 6.9	0509 1.3 1127 6.7 1802 0.8 2348 6.8	17 SA			
3 SU	0330 1.1 0940 3.7 1602 0.8 2203 3.9	0354 1.3 1002 4.3 1628 1.0 2233 4.4	0407 1.3 1013 4.7 1638 1.0 2241 4.9	0421 1.3 1029 5.1 1654 1.0 2254 5.3	0449 1.4 1100 5.8 1723 1.1 2327 6.0	0515 1.4 1129 6.3 1748 1.1 2356 6.6	0537 1.3 1149 6.2 1811 1.0 2366 6.6	18 M	0353 0.9 1011 4.1 1630 0.5 2233 4.3	0423 1.0 1035 4.6 1700 0.6 2306 4.8	0435 1.1 1045 5.1 1713 0.6 2311 5.3	0453 1.1 1105 5.5 1732 0.5 2327 5.8	0529 1.1 1137 6.2 1808 0.5 2358 6.3	0600 1.1 1205 6.8 1842 0.5 1910 0.3	0631 1.0 1223 6.7 1901 0.3 1928 0.1	18 M			
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12 TU	0918 4.0 1535 4.2 2139 0.8	0936 4.5 1552 4.6 2209 0.9	0949 5.0 1605 5.2 2218 0.9	0965 5.5 1622 5.6 2230 1.0	1006 6.1 1653 6.3 2259 1.0	1037 6.7 1725 6.9 2330 1.0	1037 6.7 1725 6.9 2330 1.0	27 W	0930 1.0 1554 3.7 2148 1.1	0956 4.2 1613 4.2 2226 1.4	1009 1.3 1629 4.7 2238 1.4	1018 1.3 1641 5.1 2301 1.4	1047 1.3 1710 5.7 2301 1.4	1121 1.4 1738 6.3 2332 1.4	1150 1.3 1759 6.2	27 W			
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14 TH	0506 3.7 1124 1.0 1736 3.8	0524 4.1 1147 1.2 1759 4.3	0540 4.6 1158 1.2 1810 4.8	0553 5.0 1214 1.3 1824 5.2	0621 5.6 1243 1.4 1854 5.8	0650 6.1 1304 1.5 1921 6.4	0650 6.1 1304 1.5 1921 6.4	29 F	0516 3.4 1131 1.3 1802 3.4	0528 3.8 1155 1.6 1813 3.8	0542 4.2 1157 1.6 1825 4.2	0555 4.6 1159 1.7 1843 4.5	0621 5.2 1220 1.7 1911 5.1	0609 1.8 1241 1.8 1926 5.6	0636 1.7 1259 5.6 1941 5.6	29 F			
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FLOW

Without an ending there can be no shape to a narrative, we need endings to construct meaning.

I am over two hundred miles long and in some ways have a beginning and an end.

The river is a boundary. So many dividing lines in this little island, money separates people. It used to be the poorest of you living out their life beside the river, now it's the richest. You divide between north and south – my north shore and south shore prove that. City and country, my course travels that boundary. Take a trip to my beginnings, the place understood as my 'start'; my headwaters are somewhere in a grass near the village of Kemble, in Gloucester. I rise in a soft green field, in the shade of an ash tree where an inscribed stone marks the spot. Follow me all the way to my mouth and my endings are very different, my mouth opens wide under big skies, but it is harder to see where I end, perhaps Southend or Gravesend, somehow mocking the idea of a boundary here. Like a wave I don't end, I dissipate. My energy spreads out in the spread of sediment and water and tide into other waters, that connect to all waters.

To make that journey from source to mouth you will understand better how the river proves the interconnectedness of contrary states. Opposites are real, rich and poor, north and south, town and country, and their interconnections are real but the correlative opposites do not necessarily resemble each other.

There are many things life in the city cuts you off from, like the small green place I rise from or the big North Sea that I end in. London works best not thinking about the other places. Most people making their lives there come from somewhere else. Perhaps it is easier not to remember. London works so hard that work defines who you are. The city has power but has forgotten where power comes from. It forgets that there are clocks and forces and energy beyond the ones that the city runs on. A tide is not made of water – it is made of energy. I run through the city as a literal presence of a visceral power.

There is no better proof of energy than a wave. When you see a wave moving across the surface of water you are looking at a pulse. The energy in or of the wind has found a form, changing from its invisible state in the three dimensional space of the air, to the visible, two dimensional space of the surface of the water. We are surrounded by waves that you can't see sound waves, light waves, quantum waves – but across the water is a wave you can see.

A wave has a life cycle, it begins somewhere as a transmission of energy from the wind onto the

surface of the water, and ends dissipated on a shoreline somewhere else. Water has a surface tension, its tendency is to be flat. If a wind crosses that surface then the water absorbs that energy and is lifted whilst gravity is pushing down so the water is shaped and pushed forward and sculpted. Then the wave sculpts what it touches. You can see this easily in muddy shorelines and also in how the wave holds your attention and shapes your thoughts.

Some of the river's waves are happening out of sight, across my beds. Waves form at every interface, not just the surface and shoreline. Waves below the surface scour away at the anything firm, the banks, the walls, the piers and pillars of bridges and wharfs. A river is a system for moving things – you see this on the surface with the traffic and trade of the river but the river moves the land too. The river is a transport system for sediment; I am a river that has a load. Each tide I move 20,000 tonnes of sediment, much of which I move back on the next incoming tide. It means my waters are too hard working to ever run clear. They will always appear as dirty waters.

The study of how liquids move is called hydrodynamics. The study of how a wave moves is closer to a deeper knowledge of how to make sense of everything. Looking out across moving water allows for an acceptance of change, and takes you wordlessly closer to penetrating the flux of existence. The wave is not a thing, the tide is not a thing, it is an energy. The energy passes through the water, the water does not own it. Objects, buildings, solid things seem static, they have their energy locked into them and change in timescales that are harder to perceive. The energy travelling through water is dynamic and continuous.

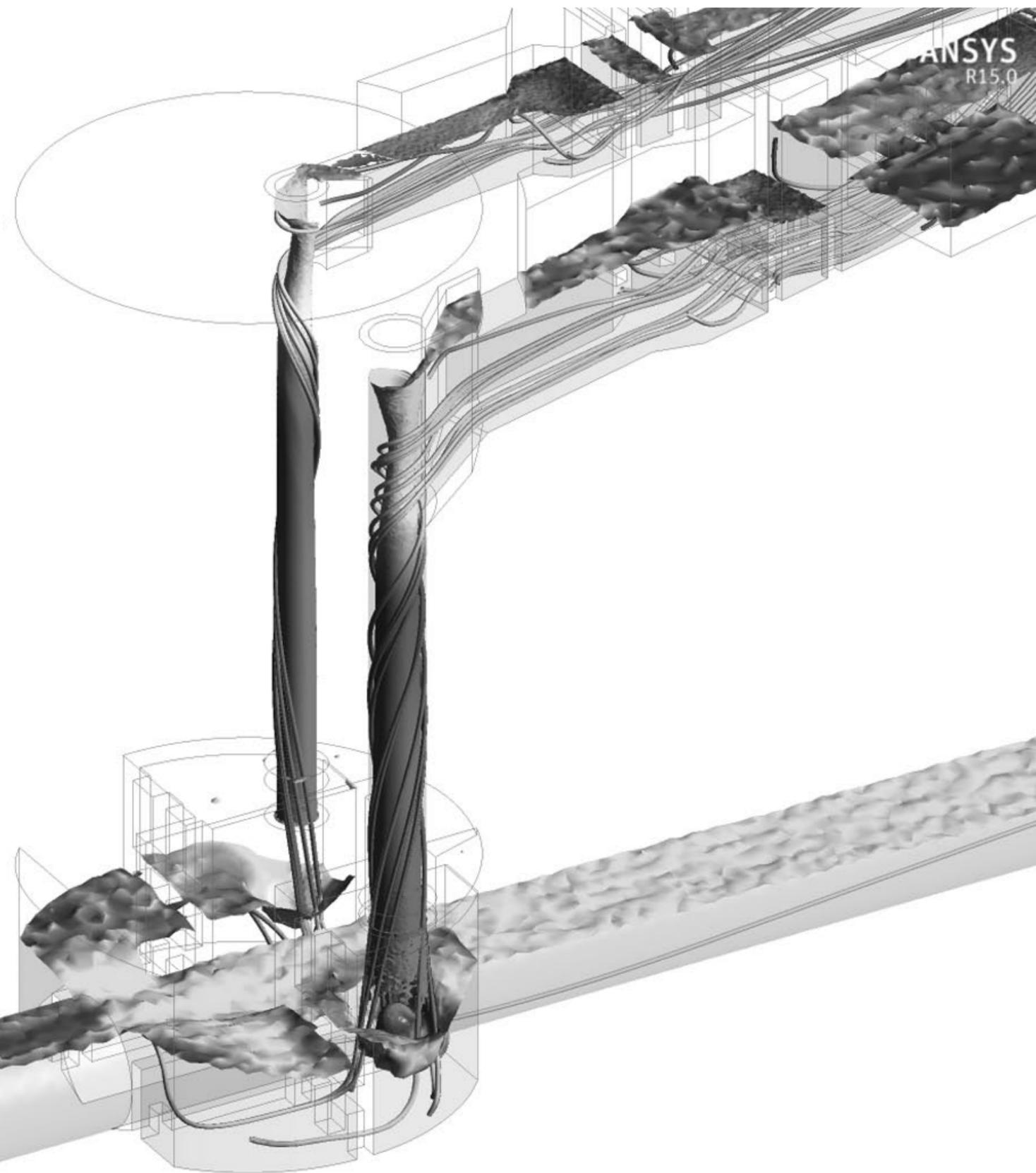
You have a liquid self, your body is fluid, made up of liquid more than solid, and there are at any time a multitude of dynamic exchanges going on inside of you. You are metabolic, you breath, you digest, you dream, you remember. In your best moments you flow. You are not a thing, anymore more than the city is a thing, or the river is a thing, you are a process.

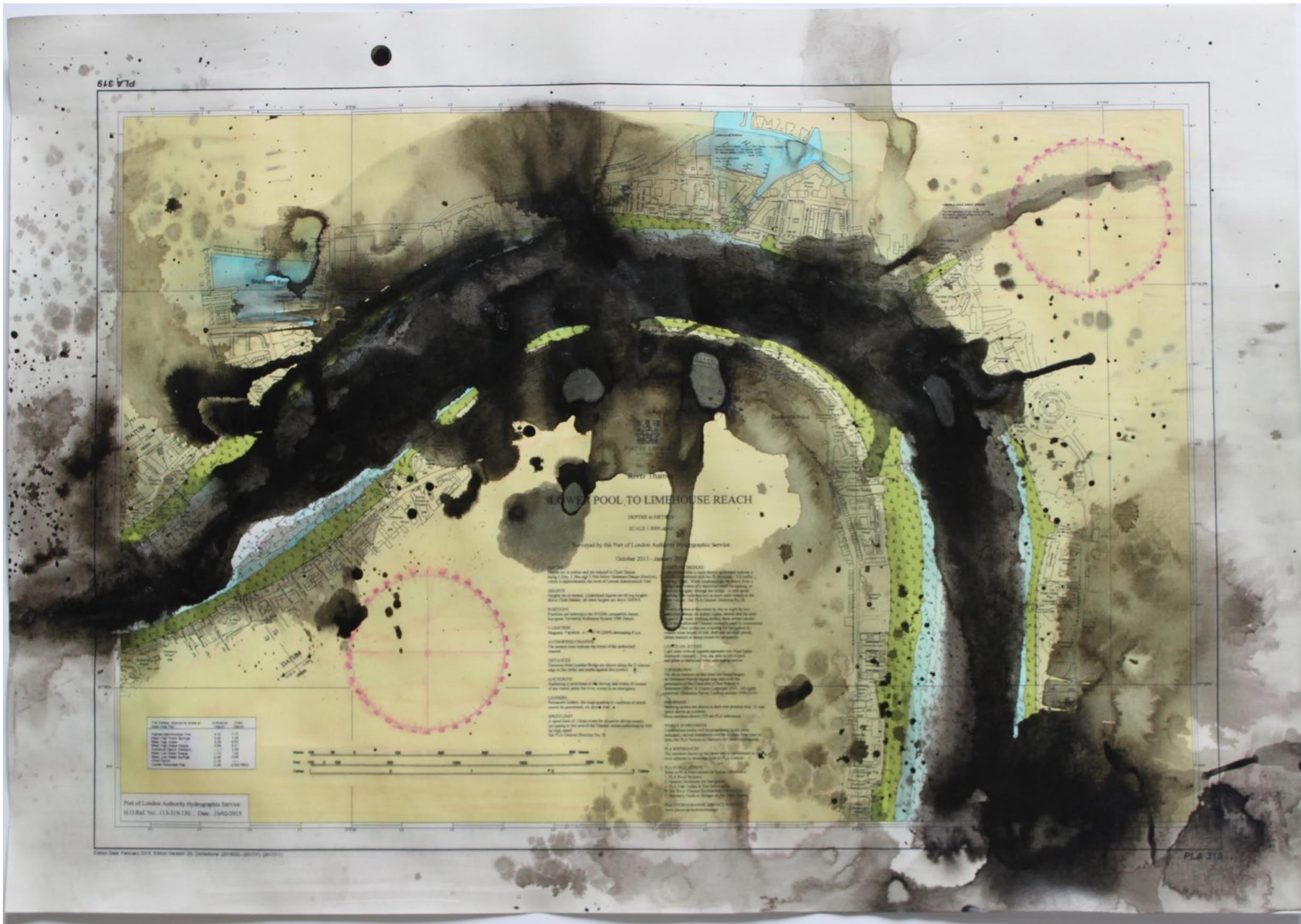
You are a wave.

The surface of water catches the light, and sparkles, even in my muddy dirty water there are diamonds.

"For souls it is death to become water, for water death to become earth, but from earth water is born, and from water soul."

Heraclitus 500 BC





Dirty Water is a limited edition artwork for 21st September 2017 to mark the Autumn Equinox on the River Thames, London.

From October 2016 – April 2017, artist Tania Kovats was Tideway's Artist-in-Residence, exploring, through drawing, London's relationship with the River Thames. Dirty Water is an artwork arising from her residency and commissioned as part of Tideway's Public Art Programme. For more information on the commission see <https://www.tideway.london/art-and-heritage>.

Tideway is the company building the Thames Tideway Tunnel 'super sewer', a 25km tunnel that will tackle sewage overflows from London's Victorian sewers into the River Thames.

At low tide on Thursday 21 September 6,000 copies of a limited edition artwork by the artist Tania Kovats are being given away at twenty-two locations from east to west along the River Thames.

Produced in newspaper format, Dirty Water, London's Low Tide is a collection of drawings, images, secret musings and writings edited by old River Thames herself, offered to those traversing the river at low tide on the morning of the Autumn Equinox. Dirty Water is part of Totally Thames, the annual 30-day festival of the River Thames.

Kovats has spent the last year researching the Thames, investigating and gathering stories, images, maps and drawings made by her and others including artists, engineers, scientists and illustrators from the London Illustrated News. Dirty Water, London's Low Tide is a journal narrated by the River Thames conceived by Kovats as an ageing woman within a paradox of memory and forgetfulness, joy, sadness, anxiety and hope. She recalls the highs and lows of the River in the past and looks forward to the future. Overlaying the written texts and images are Kovats' drawings, mapping the artist's deep engagement with the River over the past twelve months. They frame the river as a topography, a habitat, as the city's guts and its flush, a workplace, an engineered and contained natural force, and as a means of keeping London free from economic or health difficulties, allowing the freedom of a natural force to move through the city.

Tania Kovats (b. 1966) is a British artist who makes drawings, sculptures, installations, writing, and large-scale projects in the public realm exploring our experience, understanding and relationship with the natural world.

Kovats achieved an MA from the Royal College of Art in 1990 and since then has shown extensively in the UK and internationally. She works frequently in the public realm including TREE made for the Darwin Bicentenary at Natural History Museum London, and solo shows at the Museum of Science and Industry, Manchester; Yorkshire Sculpture Park, Wakefield; PEER, London and Newlyn Art Gallery, Cornwall. Group shows include those Vitea Vitale at the 2015 56th Venice Biennale, BALTIC, Gateshead; Tate Liverpool; V&A, London; Museum Of Contemporary Art, Sydney; Kettle's Yard, Cambridge; Kunstraum Innsbruck and ICA, London, amongst many others. Her sculptures and drawings feature in numerous public and private collections including the Arts Council, The British Council, National Maritime Museum, Government Art Collection and the Victoria & Albert Museum. This year Kovats opened Bleached, as part of Hull 2017 City of Culture. She has published two books on drawing: Drawing Water: Drawing as a Mechanism for Exploration (2014) and The Drawing Book: A Survey of the Primary Means of Expression (2005). Tania Kovats is represented by Pippy Houldsworth Gallery. www.houldsworth.co.uk

Dirty Water © Tania Kovats, 2017

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Dirty Water was designed by Sam Blunden and printed at Sharman & Company Ltd.

21.09.2017

LONDON BRIDGE LOW TIDE 09:03 0.6M

