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# TWO PLANS

OF THE

# LONDON-DOCK;

WITH SOME

## OBSERVATIONS

RESPECTING

## THE RIVER,

IMMEDIATELY

CONNECTED WITH DOCKS IN GENERAL,

AND OF

THE IMPROVEMENT OF NAVIGATION.

By W. J.

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# CONTENTS.

Page

Plan of the River and Dock.

1 Defcription of Ground.

1 London-Docks.

3 The River.

6 Landing of Cargoes, Payment of Duties, &c.

7 The Expence, Funds, and Revenues of Docks.

8 Regulations, and Objections anfwered.

10 Advantages.

11 Queftions.

13 Remarks.

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# PLAN, &c.

THE following Hints, &c. are ſubmitted to the conſideration of the Committee appointed to enquire into the ſtate of the legal quays, &c. agreeable to their reſolutions of the 19th of Auguſt laſt, requeſting,

> " That the Gentlemen, who had laid before them their " ſentiments on the expediency of different plans " for the ſituation of a Wet Dock, be deſired to " give the whole of the Plans they have had in " contemplation, the manner of diſcharging the " Cargoes when landed, the Time when, and the " Place where, the Duties ſhould be payable, with " every other circumſtance of, or connected with, " their Plan."

## DESCRIPTION.

The Survey that Mr. Powſey has made of Wapping has been executed with ſo much accuracy and judgment, that theſe hints are intended to apply in general to the great outlines of the ground marked out in that ſurvey. Vide Plan A. B. C.

The *natural advantages* of capability have encreaſed with the enquiries made; and no difficulties ariſe beyond thoſe natural to other plans, viz. Expence, Private Intereſts, and Competitions.

The *Ground* is ſituated between Nightingale-lane and Old Gravel-lane, and contains about 34 acres. It lies low and marſhy, and was formerly ſubject to the inundations of the Thames, until the embankment of Wapping was made. In general, it may be ſubdivided into waſtes, paſtures, gardens, gardeners grounds, rope-walks, &c. The ranges of houſes on it are, with a few exceptions, comparatively ſpeaking, few, old, in bad repair, and of little value; and, in general, to the Weſt, the ſeat of poverty and diſtreſs. The great line of interſection is Virginia-ſtreet, which contains about 70 houſes; and they are alſo old, and of little value, out of repair, and with leaſes falling in. The Embankment

is itſelf at times overflowed by the tides, and the gardens, &c. are about *eight feet* below that embankment.*

The Whole are of no great value, and might be purchaſed under Commiſſioners. The owners are few, and moſtly conſenting.

## LONDON-DOCKS.

There is *Room for two Docks*, quays, and warehouſes, with a Baſon for the reception of 10 or 15 ſhips every tide, previous to their entrance into the dock itſelf. One would contain 210 ſhips of 400 tons each, with room for lighters along-ſide, and alſo to ſhift the ſhips: the other to hold 20 ſhips, and intended as a back-water to cleanſe the docks. The depth of water for the docks and the outlets ſhould be about 18 or 20 feet. In general, the number of ſhipping would be greatly *under* that tonnage, and thereby admit a greater number of veſſels.

The *Entrances* ſhould be by two dock-gates into the River; one at Milk-alley for loaded ſhips, where there is the greateſt depth of water, and but few houſes to pull down; the other for light ſhips, through Gun-dock and Pear-Tree-alley, whoſe houſes are ſmall, and of little value. There ſhould be alſo a Cut into the Hermitage-dock for lighters and ſmall craft, &c. only, to communicate with the River. †

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* The ſite of St. John, Wapping, and parts adjacent, were anciently within the influx of the River, and was ſuppoſed to have been firſt embanked in 1544.—"By frequent inundations of the River Thames, its bank in theſe parts became "great ſufferers; for, about the year 1565, divers breaches were made therein, "which were no ſooner repaired, than another happened in 1571, which the "Commiſſioners of Sewers, after viewing the ſame, were of opinion, that the "moſt effectual way to ſecure the bank of the River in theſe parts, would be "to erect houſes thereon; to which end, ground was taken, and the firſt "foundation of houſes laid, where Wapping at preſent is ſituate."—Maitland's Hiſtory of London, Book viii. page 768.

† The following may be made object for enquiry:

I. Whether a cut from Blackwall, acroſs the Iſle of Dogs, to the dock, for ſhips of 400 tons, ſo as to ſave the navigation of the Thames, and to avoid the Pool, would not be practicable? The diſtance would be from two miles to two miles and a half.

II. Whether it might not be adviſable to purchaſe part of the ground and houſes of Old Gravel-lane, and about eight acres of paſture and garden ground between that and New Gravel-lane, under the idea of the future extenſion of docks?

III. Whether a cut from Coal-Stairs through Lower Shadwell to New Gravel-lane would not be practicable? The diſtance is only about 1600 feet; the land is low, with many vacant ſquares, gardens, &c. perhaps two-thirds of this range of ground is free from houſes, which are in themſelves ſmall, and of no great value. It would avoid the Pool, and the entrance be in deep water.—Vide the dotted lines in the plan. E. F.

The

The *Diſtance* from Nightingale-lane, the head of the propoſed dock, to Tower-hill, would be about 1600 feet, which is little more than from London-bridge to the Tower: the dock from the River, about 200 feet; and its entrance along the River to the Tower, about 2700 feet.

The *Back-water* to cleanſe the dock might be obtained, if requiſite, from the River Lea, and a head of water created by a ſteam-engine. A Junction with the Canals forming towards London might be alſo, hereafter, in contemplation. It would anſwer two purpoſes; one, to connect more cloſely together our foreign and our domeſtic Commerce; the other, as a head-water to ſupply and cleanſe the docks.

Two *Draw-bridges* would be requiſite to each of the entrances for ſhips. As only one bridge would be open at a time during the operation of admitting veſſels into the baſon, or dock; the other would be always at liberty for Carriages and Paſſengers.

## THE RIVER.

*Surveys* have been made of the Tides; the Soundings of the River from the Tower to Blackwall, under the direction of the Trinity-Houſe; and alſo of the regular Mooring-tiers from London-bridge to Lime-houſe, with the number and ſize of veſſels that can prudently moor at each of them at low water. Tables are delivered in.

The *Spring-tides* riſe about 18 to 20 feet. The Neap-tides 12 to 14 feet; but ſubject to fluctuations from the variations of winds, and the effect which the Sea has upon the freſh-water tide of the River. In ſpring-tides, the variations are of no moment, and return every fort-night; and the dead of the neap-tides laſts only five or ſix days. The tide ebbs about ſeven hours, and flows about five hours.

The *Mooring-Chains and Tiers* to Limehouſe take to both ſides of the River, as in the annexed Plate of the River from London-Bridge. All above Iron-gate can only accommodate ſmall veſſels: at Iron-gate there is depth of water for ſhips from 200 to 300 tons, at low water; and, from Union-ſtairs to Limehouſe, for ſhips of 300 and 400 tons, and upwards. The number of veſſels and ſhips that ought to lay afloat at theſe regular moorings, at low water, are about eight hundred ſail, great and ſmall. No eſtimate is made of coaſters and

veſſels that lay at their own anchors, or moor on-ſhore, and that ground every tide.*

The *Moorings at Blackwall* are for Eaſt-Indiamen; and at Deptford, for King's ſhips, and for large merchantmen that cannot come up on account of their ſize, or that decline it for want of room in the River. The number of Merchantmen that lay at Deptford are very limited.

There is *Depth of water* for ſhips of 400 tons and upwards at Wapping, at the entrance of the propoſed docks, or for all veſſels that paſs Deptford, and which form the greateſt part of the ſhipping that arrive in the port of London. Ships of that and greater tonnage conſtantly come up and moor in the pool, or higher up, in Wapping. Taking that Tonnage, however, as the largeſt that could be accommodated in the River or the Dock, few ſhips would be *excluded* beyond Eaſt-Indiamen: but the greateſt part of ſhipping of any ſize are in number from 200 to 300 or 350 Tons;† and if relief could not be given to the largeſt ſhips, it would be given to the greateſt number.

It is of moment to remark, that, on the London or North ſide of the River, is the *deepeſt water*; that the bank about Wapping is a gravel; and from the bend of the River, the tide,

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* The number of Veſſels that arrived in the port of London for

| | 1728 | 1792 | |
|---|---|---|---|
| | | | Tons. |
| From Foreign parts, Britiſh and Foreign . . . | 2052 | 3670 | 600,000 |
| Coaſters . . . . . | 6837 | 9600 | 900,000 |
| | 8889 | 13270 | 1,500,000 |

† Out of 1860 Veſſels, belonging to the port of London, making 374,000 Tons, including Eaſt-Indiamen,

| | | | | |
|---|---|---|---|---|
| 1109 | were under | | 200 tons. | Making 1663 Veſſels *under* 350 tons. |
| 368 | from 200 | to | 300 | |
| 186 | 300 | | 350 | |
| 50 | 350 | | 400 | |
| 1713 | | | | |
| 17 | from 400 | | 450 | |
| 13 | 450 | | 500 | |
| 13 | 500 | | 550 | |
| 11 | 600 | | 735 | |
| 1767 | | | | |

Out of 344 Weſt-Indiamen that arrived in London, from March 25, 1793, to March 25, 1794, making 93,027 Tons.

tide, both ebbing and flowing, leaves it greatly out of the current of the tides, and ſhips would dock at full tide.

A *greater number* of ſhips lay at their anchors, and at the mooring-chains, than is prudent or ſafe, or more than ſhould ever be permitted for the freedom of navigation. The great machine of Commerce is now become ſo unwieldy, and the accommodations ſo ſlender, that neceſſity calls for the removal of 200 to 300 ſail out of the River, with their attendant lighters and craft, which take up double room to unload them. No remedy would be ſo effectual in giving ſafety to Shipping, accommodation to Commerce, and ſecurity to Revenue, as a dock in Wapping, without deranging Commerce in its habits, locality, and convenience.

## LANDING *of* CARGOES, PAYMENT *of* DUTIES, &c.

The two laſt heads were confined to docks as applicable to ſhipping, and to the navigation of the River; the following reſpects the landing of cargoes and payment of duties, and may be either connected with the dock-ſyſtem, &c. or be independent of it.

Ships, under the regulations of Harbour-maſters, to be ſtationed, as much as can be, according to their reſpective branches of commerce.

*Cargoes* to be delivered on the quays from the ſhips without the aid of lighters; and merchandizes, when weighed, gauged, &c. and the duties aſcertained, paid, or ſecured, to be immediately houſed in the Dock-warehouſes, or carted away, at the pleaſure of the Importers.

Such Goods as are *bonded* to be put either into the Dock-Warehouſes, Eaſt-India Warehouſes, or Private Vaults, &c. under the King's Lock, and under the ſame ſecurities and regulations as in the preſent ſyſtem of bonding.

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| | | | | |
|---|---|---|---|---|
| 74 | were under | | 200 tons. | Making 275 Veſſels under 350 tons. |
| 114 | | from 200 to | 300 | |
| 87 | | 300 | 350 | |
| 25 | | 350 | 370 | |
| 13 | | 370 | 400 | |
| 313 | | | | |
| 19 | | from 400 | 425 | |
| 6 | | 440 | 475 | |
| 6 | | 500 | 573 | |
| 344 | | | | |

Goods might alſo be conveyed in lighters, from the ſhips in dock, to the preſent legal quays, at diſcretion, through the propoſed cut [D.] and Hermitage-dock, into the River, and under the ſame regulations as lighters coming from ſhips at moorings in the River; but with greater diſpatch and fewer riſks.

*Legal Quays* may be ſanctioned according to wants, and with powers of future extention.

*Subordinate Cuſtom-houſes* and regulations might be made, under the ſanction of Government, for the convenience of Commerce, and ſecurity of Revenue, adequate to the common purpoſes of both, at the docks. At Hull, Government contributed liberally in money and in lands for the eſtabliſhment of legal quays at thoſe docks.

*Duties and Drawbacks* may be paid, regulated or checqued at the Docks, under certain regulations, or at the Cuſtom-houſe, according to the preſent ſyſtem. Commerce and Revenue are now become ſo cloſely united together, that no accommodation for the convenience and ſecurity of the one, but what will add to the encreaſe and ſecurity of the other. Regulations will ſuggeſt themſelves whether the docks and quays are put on the ſame footing as the legal quays, or ſufferance-wharfs. The ſame regulations that apply to them, may be extended and improved towards the dock-quays reſpecting convenience and accommodation to officers; the manner of landing, houſing and bonding of Goods, and the time and mode of payment of duties.

Perhaps, if the *Syſtem of Bonding* Goods and Cargoes, under the King's Lock, until taken out for home conſumption or for exportation, was extended more generally, ſo as to make London and Great Britain the grand Depôt of Merchandize, it would tend to the convenience and encreaſe of Commerce, and ultimately to the benefit of Revenue.—Docks would greatly favour the ſyſtem.

The frequent loſſes of ſhips, from fire and accidents, in the River, ſo detrimental to private property and to revenue, ſtrongly preſs the neceſſity of this Plan, and of bonding of Rums immediately on arrival, as in the out-ports.*

*Warehouſes*

* As Rums are permitted to remain thirty days on-board of ſhips, it would be an accommodation for them to be landed, bonded, and delivered to the purchaſer at the ſhip's or importer's expence. The bond given them to be transferred or exchanged for the buyer's bond, and the Rums removable into the buyer's bonded ſtock, if required, under the ſame regulations and reſtrictions as at preſent.

Three

*Warehouſes* might be built under certain plans and regulations, either as a part of the dock-ſyſtem, or at private expence, and to be increaſed only according to wants. The cellars to be one-third above-ground for light, air, and convenience. The ground-floor to be nearly level with the height of a cart, ſo as to load and unload without crane-work. The warehouſes not to be above three ſtories high, and to load or houſe at both ſides. The Cranes to be ſo placed, that the ſtory of each ſtack to work at the ſame time, and not to be over gateways. The ſtacks of buildings to be ſub-divided, and with party-walls through the roof, and the ſtacks of buildings to have no other communication with each other but by iron foot-paths, for paſſengers, on the outſide, from the door of one ſtack to the door of the adjoining ſtack.

As Wines, Rum, and Brandies, are generally bonded or carted home to private vaults, ſo great a range and depth of vaults will not be wanted; and, in the erection of buidings, reſpect ſhould be paid to peace as well as war; to the legal quays; and to let wants *precede* ſupplies.

The legal quays to be 100 feet broad at leaſt; and the warehouſes 80 feet deep.

Docks and warehouſes to be inſulated with walls and cart-ways for ſecurity, convenience, and diſpatch; and no lights to be permitted in them.

From the vicinity and compactneſs of docks, they will not only be under more controul than the preſent extended line of ſufferance-wharfs, but prove a great accommodation to the preſent legal quays, by the facility and diſpatch with which they will be enabled to conduct their buſineſs, with fewer riſks, charges, and delays to themſelves, and alſo with benefit to the revenue, and to merchants.

Docks would create many improvements in the vicinity of them, on private property, at private expence.

## *The* EXPENCE, FUNDS *and* REVENUES *of* DOCKS.

The *Expence* of the Docks and Wharfs muſt depend on the dimenſions and incumbrances, and whether the materials are of ſtone, brick, or timber: the firſt is moſt ſubſtantial,

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Three ſhips have been loſt in the laſt fleet, and two of them by fire, occaſioned by *Rum*: their value is not, including cargoes, freight, ſhip, and duties, much ſhort of £. 90,000, a ſum that would have gone ſome way to have defrayed the coſt of docks.

and lasting. The earth that is dug away will go to the raising of embankments, and to the making of bricks. The object would answer the expence; and the amount perhaps would be less than what would be sunk in the foundations of some plans that have been proposed.

*Subscriptions* to be in shares of £.100 each, and transferable. *The Management* to be vested in Trustees. The City and other Public bodies should be encouraged to patronize the undertaking. The jurisdiction of the City might be extended to the dock-district; and, from its vicinity, it might be called the LONDON-DOCK.

*Dock-Revenues* to arise from a rate on tonnage, or from weekly rents. As an income, they would be productive to the proprietors. At Liverpool and Hull they have amply repaid themselves. At the former, £.205,717 have been received for dock-rents from their commencement in 1752 to 1793; and their debt, then only amounted to £.84,795. In 1792, they accommodated 4483 vessels, and produced a Revenue of £.13,243. The docks are five in number, and can accommodate about 400 to 500 sail. Farther improvements have been since projected.

## REGULATIONS, *and* OBJECTIONS ANSWERED.

Professional men, the best informed about the River, from experience and occupations, are of opinion, that the dangers and difficulties of navigation do not proceed from nature, or want of water, but from the crowd of shipping that are always pressing into or above the Pool for accommodation.

To *Remedy this Evil*, a dock is proposed for the reception of 200 to 250 sail. It would grant relief, dispatch, and accommodation. It would be farther obviated by the Cut from Blackwall or Coal-Stairs, if made.

*No Objections* are so strong to the Dock proposed as the great evils at present laboured under. London enjoys three-fifths of the import and export trade of all England, and has, in proportion to its Commerce and Shipping, the worst accommodations of any trading port, and the heaviest attendant—expence, risque, and plunderage.

The Regular Mooring-tiers which line both shores, as per annexed plan [+++], are, from the nature of the River, discontinued on the North side of it at Wapping New-Stairs; and re-commence again, below the entrance of the docks,

docks, at King Edward's Stairs; the mooring-tiers in this part, then taking only to the ſouthern ſhore, and thereby leaving the entrances and navigation to the docks freer of interruptions.

One of the Mooring-tiers near the Dock-gates might be appropriated for the mooring-veſſels that are waiting for a tide to go into the dock.

The only great impediment ſhips have to encounter on coming into the River, or to the Dock, is the NAVIGATION THROUGH THE POOL. It is the narroweſt part of the River, and with the deepeſt water. The crowd of ſhips conſtantly lying there, not only interrupt free navigation, but occaſion frequent loſſes, from the narrowneſs of the paſſage left for ſhips going up and down. The colliers conſtantly lay here in fleets; and, from their numbers and attendant lighters, frequently, at low water, form almoſt a bridge acroſs the River, ſo as to prevent the paſſage for boats and craft. The Trinity-Houſe have endeavoured to obviate this evil by taking away part of the bank at Pitchers's Point, to widen the channel; but, from the want of harbour-maſters to regulate the number of ſhips that ſhould lay in the Pool, the tiers have encreaſed in numbers as the channel has been widened. The number of regular mooring-tiers are about 10 or 12, and of ſhips frequently laying at each of them, 24 to 32 and upwards. Never more than 14 to 16 ſhould be ever permitted on any account to anchor there.

A *better Regulation* of the River by efficient harbour-maſters is much wanted. The powers of controul or puniſhment are weak and defective, and even thoſe are not followed up. *Under any ſcale of improvement or regulation*, neceſſity ſtrongly calls for *making the Pool at all times free for navigation up or down*, and rigidly limiting the number of ſhips that ſhould at any time moor there. Until this great evil is removed, no improvement in the River, or Docks in Wapping, or the Iſle of Dogs, can be effectual, and the commerce of the River will always have to encounter thoſe delays, riſque, and loſſes, that are ſo detrimental to private property, and injurious to the Revenue.

Ships that crowd up the River in hope of room, might, from ſituation, when in or above the Pool, go with great facility into the London-Dock. Every removal in the upper part of a crowded river would leave navigation freer for commerce ſituated lower down.

The

The London-Dock would alſo avoid the River Navigation for lighters, and the land-carriage that would be attached to more diſtant ſituations. Navigation is not only much impeded by fleets of lighters, craft, &c. that daily float up and down every tide; but the loſs and plunderage by them are evils of the firſt magnitude. The diſtance and expence of land-carriage would be alſo too great to any who did not poſſeſs local advantages. The rate of cartage, from the propoſed dock, would ſcarcely, on an average, exceed the preſent rate from the legal quays.

Encouragements and attentions ſhould be farther extended to the removal of ſhoals and embankments in the River.

The Trinity-Houſe are ſo ſenſible of the practicability and utility of the London-Dock, that they are well-diſpoſed to favour any entrances into it by deepening the water wherever requiſite.

*Foundations and Soil.*—London ſtands on an eminence, and at the head of navigation for ſhipping. The banks of the River on both ſides, for many miles eaſtward and weſtward, including the Iſle of Dogs, are low, and naturally marſhy and ſwampy; but draining, embankments, and buildings, wherever they have been applied, have overcome *natural impediments*. It cannot be more ſtrongly ſhewn than in the whole tract of low ground from the Tower to Bell-Wharf, within the bend of the River, and Radcliffe-Highway and Upper Shadwell, including the whole of Wapping and Lower Shadwell; here and every other part of the River where embankments have been created, are covered with buildings of the moſt ſolid conſtructions. The marſh of Wapping is now become inſulated by embankments, and only ſubjected to rains and natural ſprings. The excavation for the dock would operate as a drain to the ground adjoining, and tend to give a firmneſs and ſolidity to the ſoil, in time, equal to other ſpots. The ſoil taken out of the locks, and not otherwiſe wanted, might go to the elevation of banks. Thoſe converſant in canals, and cutting through ſwamps and wet ſoils, have frequently experienced this fact; and that water once drained off from the ſoil does not again return to it. There are ſingular inſtances of it in the Glouceſter canal.

Drains and ſewers ſhould be perfectly ſecured, and channels diverted. The expence cannot be great, and not of ſuch importance as to prevent the execution of greater objects.

ADVANTAGES.

## ADVANTAGES.

The London-Dock, from its locality, would be central to the City, to the Cuſtom and Exciſe officers, and to merchants, both for convenience, inſpection, and controul. It would be near to markets of ſale, delivery, and conſumption; and would not diſturb the preſent ſeat of commerce as to reſidences and employments dependent on ſhipping or eſtabliſhed manufactures.

It would increaſe the means of accommodation for preſent wants, and provide for an extenſion of commerce in the Eaſt or the Weſt Indies, either by acquiſition or encreaſed cultivation. The river would be alſo freer for navigation, and all the inconveniences dependant on tides would be prevented.

It would connect and collect Commerce more within itſelf, and correct not only the evils at the legal quays and ſufferance-wharfs; but the ſtill greater and encreaſing abuſes in the River TO SHIPPING AND TO MERCHANDIZE. It would give diſpatch, leſſen charges, riſk, ſmuggling, and plunderage; and add ſafety to property, ſecurity to revenue, and protection to ſhipping and mercantile property in times of froſt.

## THE QUESTION.

The Queſtions are now reduced to two points:

I. Whether the London-Dock, in the preſent ſtate of things, cannot be of extenſive uſefulneſs to Weſt Indiamen, and other valuable cargoes, in the unloading them with convenience and diſpatch? and whether the advantages of it will not be much encreaſed by every improvement and regulation neceſſary for the better accommodation to ſhipping and to navigation in the River and the Pool?

II. Whether it is better to bring ſhips with their cargoes into the London-Dock, even if all inconveniences cannot be removed, and then for POSTERITY to poſſeſs *every after convenience and accommodation* within the vicinity of the ſeat of Commerce; or for ſhipping, in the firſt inſtance, to ſeek more *diſtant ſituations* that have many natural advantages for ſhipping, but, with reſpect to Merchandize, will for ever after (independent of removing trades and profeſſions to new ſeats of ſhipping) be ſubject to difficulties on account of diſtance, riſk, expences, and delays of river-navigation and more diſtant cartage; excluſive of all the

impediments natural to the prefent legal quays from their limited powers of accommodation?

The above remarks have been confined, as much as poffible, to the Great Outlines of the various objects which the Committee, by their refolutions of the 19th of Auguft, feem to have had in view, and are fubmitted to their confideration with lefs diffidence than they would otherwife have been done, had they not met with the approbation and affiftance of fome characters, whofe merits and public profeffional fituations have fully qualified them to decide on the utility and practicability of Wet Docks in Wapping. The fpot is left, however, to the decifion of the Committee, from the perfuafion that their choice will embrace that plan which will combine the greateft advantages with the feweft inconveniences, and that whatever tends to the accommodation of commerce will add to the wealth and profperity of London, and to the country at large.

*London, Aug.* 24, 1794.

REMARKS,

# REMARKS.

## On Page 1.

As the property will encreaſe in conſequence of the Docks, the more ground that is bought up the better.

## On Page 2.

The Dock or Docks ſhould be thirty feet deep at low water, to contain ſhips of any burden; the entrances wide, and no flood-gates. The mud, when accumulated, ſhould be raiſed for the farmers, not ſcoured into the Thames, which is too choaked up already.

In the year 1571, the land to Radcliff-Highway ſhould have formed a Baſon, from Smithfield Weſt, to Shadwell Eaſt.

The Canal from Blackwall to Limehouſe ſhould be as wide as the Thames, and thirty feet deep at low water.

The Harbours from Shadwell to St. Catharine's ſhould be continued as wide as the Thames, with Quays and Warehouſes, North, Weſt, and South.

## On Page 3.

There can be no objection to the admiſſion of other waters joining the Harbour; but ſluice-work muſt be avoided as injurious to the Thames.

No draw-bridges are neceſſary. There requires no entrance at Wapping: that at Shadwell, as wide as the Thames, is ſufficient for the entrance and exit of ſhipping.

The River, between Graveſend and London-Bridge, ſhould be widened and deepened upon a regular ſyſtem of not leſs than thirty feet at low water. This can be eaſily gained by

by ſteam-engines, as a chaldron of refuſe coals, value 20 ſhillings, can raiſe 1000 tons in ſix hours, and eighteen hours to land them.

Thus an Eaſt-Indiaman may navigate to the Tower, with all her ſtores, at low water.

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## On Page 4.

When the Thames is properly conducted, ſhips of every dimenſion, from all parts of the world, may navigate at all times of the tide. Upon this principle, London may become the grand depôt of the commerce of the world; but not ſo, if the River and Harbours are upon a mean, ſhallow plan, to admit of trifling ſhips of 300 or 400 tons only.

Many parts of the River, as at, and from Pitchers's Point, to Greenland Dock, and oppoſite Greenwich Hoſpital, are ſo ſhallow, that ſhips cannot anchor at low water—What a ſhame!

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If, in improving the Thames Navigation, the Trinity-Houſe ſuffer through pilotage, the Act of Parliament may give them indemnity on ſhipping.

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## On Page 5.

Why need the deepeſt water be on the London or North ſhore? They ſhould be kept equally deep.

If the Bank about Wapping is gravel, why is it not landed for the roads?

The way to get room for ſhipping, is to round off corners, to widen and ſink the ſhores, and to gain ſide-harbours, with depth at low water.

Harbour-Maſters of *real knowledge* are certainly much wanted to regulate the diſpoſition of ſhipping, and will be ſo when the Thames is rendered quite complete.

Demurrage ſhould be avoided in every inſtance; and conſequently London-Bridge ſhould be rebuilt, as, at preſent, that nuiſance ſtops the tide one hour every flood.

On

## On Page 6.

The prefent nominal legal Quays are a nuifance. Every inch of the land has been an encroachment on the natural and neceffary water-way.—Tower-wharf the fame.—The more they are extended, as likewife fubordinate warehoufes, the better.

The bonding of Goods without the immediate payment of duties, will infallibly anfwer the encreafe of commerce.

Too many fhips are burnt and wrecked in the River already.—What will be the confequence, if *locked up* in a bafon, upon a dangerous *tide-harbour* principle?

## Queries refpecting London-Bridge.

What expence has attended the alterations and annual repairs for a century paft? What the lofs to fhipping in the demurrage of one hour every tide for the century paft?—What the value of lives, goods, barges and boats?

How many hundred thoufand pounds does this amount to?

The firft object fhould be to rebuild this Bridge.

## On Page 7.

The whole of this defign has great merit, except that the merchants ought to employ no carts: they are heavy and cruel to horfes. Long and fhort waggons carry more, with greater fafety; as in carts, the fhaft horfe is frequently fufpended in the air; or, when he falls, the load is often loft, and the horfe ruined.

The three fhips of £.90,000 value, would have raifed ninety millions of tons of foil from the bed and fhores of the River.

The beft material will be Aberdeen granite, as practifed at the copper-warehoufes near Paul's Wharf.

On

## On Page 8.

The debt incurred might be perpetual, or difcharged by fhipping in the manner of Blackfriars-Bridge.

Profeffional men muft know that the dangers and difficulties arife from the River being deficient in width and depth.

The Cut fhould be the width of the River.

The Dock and Thames fhould be both deep and perfect; that is, 30 feet at low water.

*The Nature of the River.*—That is, it wants widening and deepening,

At Greenwich, there are but 12 feet of water; in many parts higher up, lefs.—A greater depth is generally found in the pleafure-grounds of the nobility and gentry;—and yet the Thames is called a fine River.

## On Page 9.

*Waiting for a Tide.—Civil* Engineers are always devoted to the Tide.—The Navigation fhould be complete without it.

Ships intended for the New Harbour have nothing to do with the Pool: their entrance fhould be at Lower Shadwell.—If the *Pool* is too narrow, why is it not widened?—*Part* of Pitchers's Point is taken away—Why not the *whole* of it.

It was natural for the Tiers to encreafe in number as the Thames became widened, or what the ufe of widening?

That Harbour-Mafters are wanted, has been already admitted.

If the entrance at Lower Shadwell is properly conducted, no entrance at Limehoufe is neceffary.

## On Page 10.

The more the Thames is improved, the fewer Lighters will be in ufe.—Only thofe wanted above Bridge will be neceffary.

The Trinity-Houfe and Corporation of London fhould be *well-difpofed* to widen, deepen and cleanfe away all the fhoals in the River, gaining a fection of 30 feet at low water.

Thefe

Theſe obſervations are very much to the purpoſe.

Purchaſe all the land and houſes you convenienly can

Gain a depth of 30 feet, as before recommended; appropriate the gravel for the roads, and the clay for bricks.—The ſurplus materials may ſerve to convex the Iſle of Dogs, whoſe circuit ſhould be appropriated to ſhip-building.

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## On Page 11.

Theſe ADVANTAGES are very obvious, provided the Thames and the Harbour are conducted upon the principles recommended: otherwiſe, like Ramſgate Harbour, the money will be all thrown away.

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## Queſtion I.

The London-Dock will be certainly advantageous in all theſe particulars, *if not a Tide-Harbour*, and the Thames improved, not elſe.

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## Queſtion II.

There are no inconveniences which cannot be removed.—Purchaſe the land and houſes as cheap as poſſible.—Deepen the Harbour upon the ſame principle; and let the Thames be widened and deepened upon the beſt principles of ſteam-engine ballaſt-work.

FINIS.