

# The Odessa Street scotch derrick crane

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## Introduction

In April 2017 Museum of London Archaeology (MOLA) undertook a survey of a scotch derrick crane on the Odessa Wharf riverside at 1–3 Odessa Street, Rotherhithe SE16 7LU in order to satisfy a condition on planning consent for its demolition.<sup>1</sup> The survey was commissioned by Hollybrook Homes and conformed to Historic England Level 4 building record. The site was bounded by the Thames foreshore to the east, Commercial Pier Wharf to the north, Odessa Street to the west and Custom House Reach to the south. It fell within the historic parish of Rotherhithe and lay within the County of Surrey prior to being absorbed into the administration of the Greater London Borough of Southwark. The location of the crane was not within any conservation or archaeological priority areas, nor was the crane listed. It was protected by a ‘protective covenant’ within the Greater London Authority by the London Docklands Development Corporation 1998. The crane lost this safeguard in January 2014 under the direction of Boris Johnson, the former Mayor of London.

A building assessment was undertaken by Montague Evans<sup>2</sup> in 2016 on behalf of Hollybrook Homes in regards to its pending application to Historic England to assess whether the crane should be listed; this consideration was rejected by Historic England and consent was given for its demolition.

The 5 tonne electric scotch derrick (also known as a stiff-leg derrick), comprised stiff legs, a boom, mast and sills with a steel framed and plywood operator’s cab. The derrick was used to lift heavy timber loads along the Commercial Docks Wharf, and replaced an earlier derrick which dated to 1946. It was retired during the 1980s and, as the last surviving crane in the area, was preserved as a static feature of historic interest on the Rotherhithe embankment. As the operator’s cab had fallen into a dilapidated state, the planning application for its demolition was granted by Southwark Council in 2017 as part of the area’s residential regeneration plans. This was contested by 100 members of the community through the public consultation period (with only 1 in favour), and a further petition raised 360 signatories fighting to prevent demolition of the last surviving crane of its type on the London riverside.<sup>3</sup> The crane was considered to be an important monument to both London’s industrial past and a relic of the dockland industry. The crane has since been demolished and the site is currently under development as landscaped riverside with residential buildings.

## A general history of the area

There is no archaeological evidence dating back to the Prehistoric period from the crane site, as the area was low lying on the Thames floodplain and subject to either regular inundation or permanent submersion. This would have made the area unsuitable for human habitation and any remains would be buried deep beneath the alluvium.<sup>4</sup>

Very little evidence for any Early Medieval occupation has been found in the area and the origins of the broader settlement of Rotherhithe are also a little uncertain. It has been suggested that the name is derived from the Anglo-Saxon *Rederheia*, meaning a ‘place where cattle are landed’<sup>5</sup> and further references can be found in an Anglo Saxon charter of AD 898 as *Aethereds hyth*, meaning ‘mariner’s haven’. However this latter form of the name has been contested by scholars who assert that this refers to Queenhithe in the City of London.<sup>6</sup> Much of the area was probably marshland pasture, although later documentary sources suggest that the riverfront would have attracted activity such as fishing, and as a landing-place for boats.

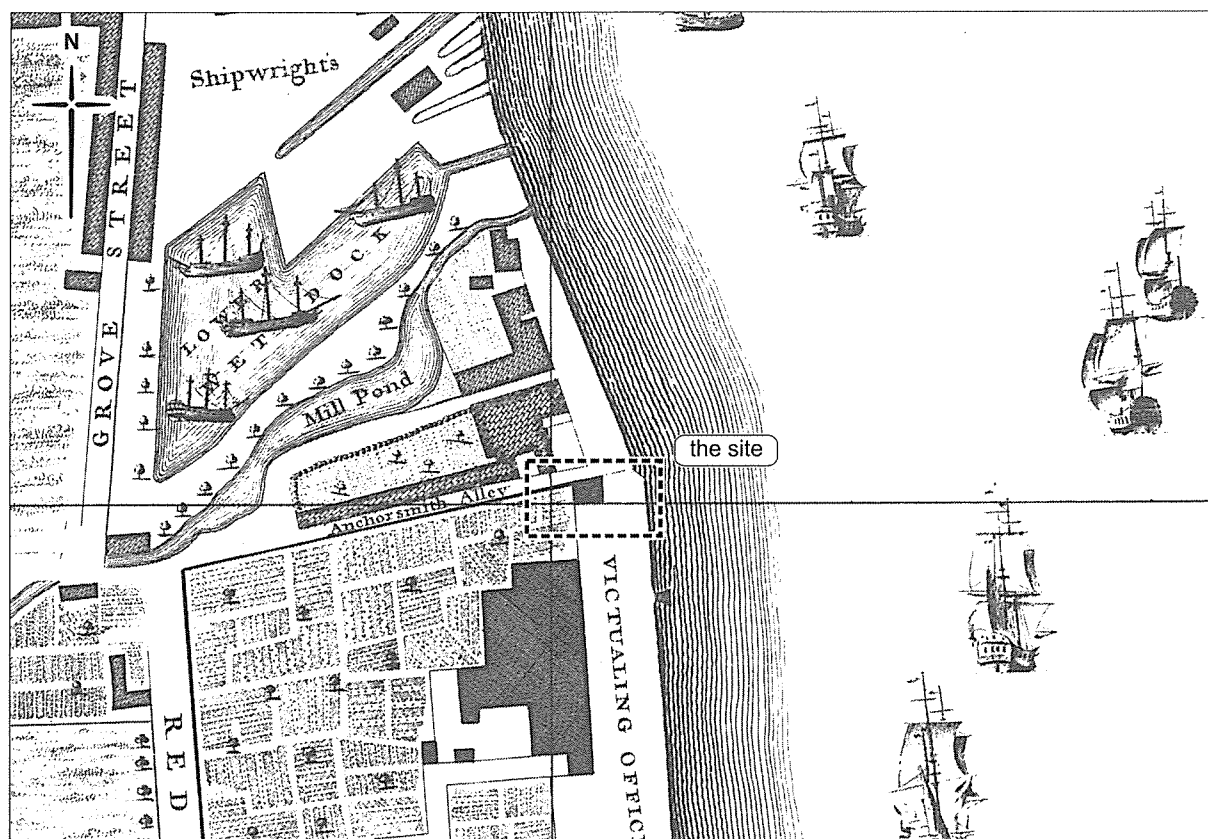


Figure 1. Rocque's map of 1746. Copyright British Library

The site would have lain within the extensive manor of Bermondsey (*Bermundseye*), which was held by Earl Harold, who later became King Harold. The derivation of the name probably comes from 'Beronmund's Island'<sup>7</sup> i.e. Bermondsey eyot, 2km to the west of the site, and it was assessed at the time of King Edward (The Confessor) at 13 hides of land; a hide being an administrative unit denoting the amount of land needed to support a household.<sup>8</sup>

A settlement would have been established around the 12th century church of St Mary's in Rotherhithe, which is located c 1.5km to the west of the site. The first reliable reference to Rotherhithe (*Retherhith*) dates to 1127, when King Henry I granted about half of the manor to Bermondsey Abbey. It remained in the possession of the Abbey until the Dissolution of the Monasteries in the mid-16th century. During this period the riverside of Rotherhithe became an important centre for ship building and its trades, and was later often known as *Redriff* ('cattle haven'), however the parish remained rural. By the 17th century Rotherhithe had become the main hub of London's shipbuilding and maritime trade, and activities included the construction of warships for the English navy. In 1620, the Mayflower set sail for America from Rotherhithe docks.

The earliest available map showing any significant detail of the site is Rocque's map of 1746 (Figure 1). This shows the site lay by the riverfront in an area known as Condemn'd Hole. Before this, the site was known as the Burning Ground, as it was a place where contraband such as tobacco, food, books and clothing were collected from smuggling activity along the Thames and destroyed in an incinerator, which consisted of a furnace and a tall chimney.<sup>9</sup> As smuggled tobacco was frequently condemned to burn here, the chimney earned the nickname 'The King's Pipe'. Several other such chimneys existed along the Thames and were collectively known as 'The Queen's Pipes'. The nickname Condemn'd Hole was based on the H.M Customs and Excise Office which was based on the site, between where the scotch derrick once stood and Odessa Wharf.<sup>10</sup> It is interesting that the name itself has other earlier connotations to the criminal justice system. In an account of Oate's Plot, the fictitious anti-Catholic conspiracy concocted by Titus Oates between 1678 and 1681, a Hackney coachman named Richardson was accused of being hired by papists and punished for not confessing.<sup>11</sup> His punishment was to lay in the 'Condemn'd hole'

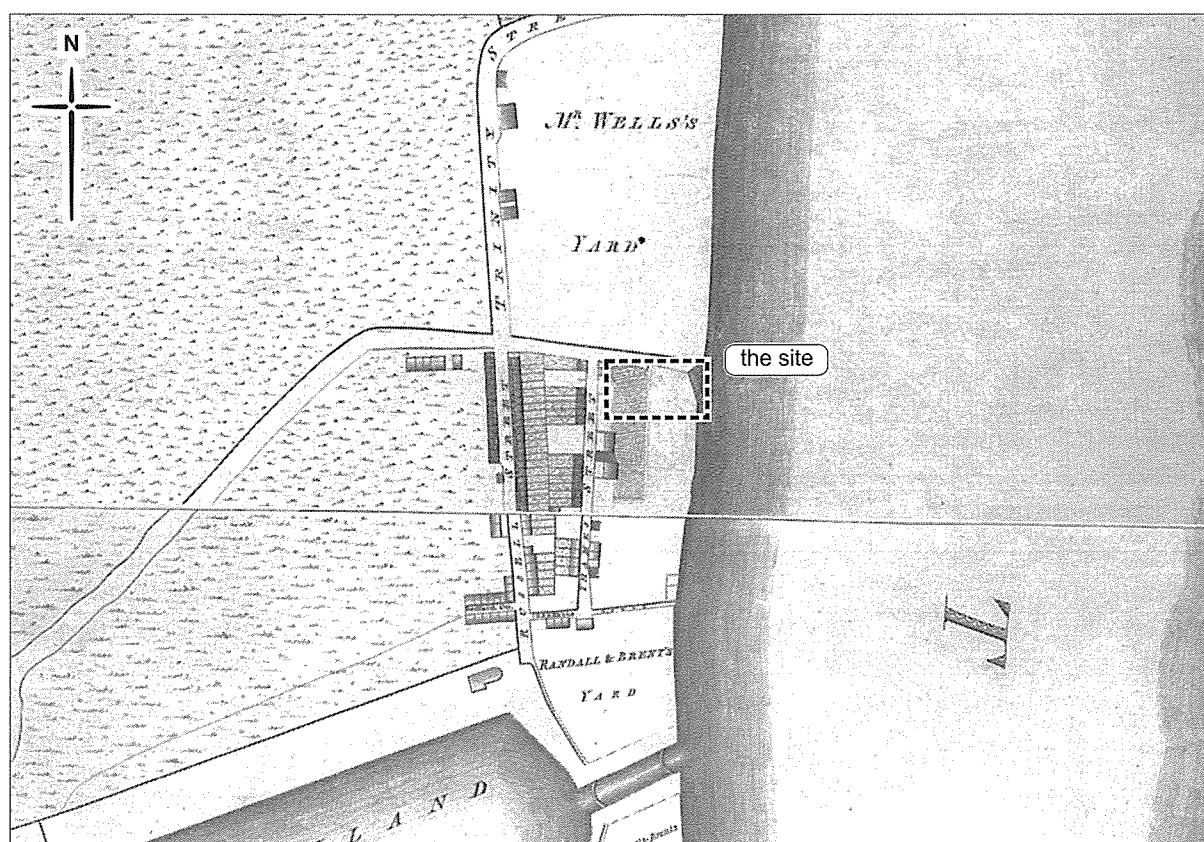


Figure 2. Horwood's map of 1799. Copyright The British Library

to starve, with heavy irons, and other references to the Condemn'd Hole concern Newgate prison, again with irons.<sup>12</sup> To the north of the Condemn'd Hole and separated by access to Greenland Steps is a large area dedicated to shipwrights. This is the earliest map reference to ship building and repair in the area of the site, and which would become its main industry later.

The site lay to the south of 'Rogue's Lane' which probably ran along the line of a flood defence embankment across the reclaimed marshland, and terminated at the Thames at Greenland Steps. A row of buildings, probably a terrace of worker's cottages, extended into the northern part of the site and approximately 350m to the south lay the 'Upper Wet Dock'. This was the Howland Great Wet Dock, which was constructed in 1696–1700 on the site of the former Howland manorial estate, and was the first wet dock on the south side of the Thames.<sup>13</sup> In 1695 Elizabeth Howland leased the dock to eminent shipwrights John and Richard Wells for 56 ½ years, and advanced them money to build a dry dock and shipyard. Two years later John Wells took a further lease for 55 years to build a wet dock, as authorised by an Act of Parliament,<sup>14</sup> and he subsequently sublet portions to various people. The Wells brothers were considered eminent shipwrights in their own right and built ships for the East India Company as well as the navy.<sup>15</sup> Mathew Baker's *Fragments of Ancient English Shipwrighty* was co-authored by the Deptford shipwright John Wells, who assisted in preparing the manuscript by providing sections which ranged from dialling and mathematical instruments to shipbuilding and magnetism.<sup>16</sup> At first this dock was dedicated to timber, but in 1725, it was leased by the South Sea Company and Greenland whalers used the dock and substantial blubber boiling houses were built to produce oil on the south side, leading to it being re-named Greenland Dock.

By 1799 Thames Street (later Odessa Street) had been constructed, as was seen in Horwood's map of 1799 (Figure 2). The buildings on the northern edge of the site boundary had been demolished and only one small building on the north-western corner of the site remained. The map showed the northward expansion of the now infilled Commercial Docks c.250m to the west of the site. To the north was a large shipwright's yard labelled as belonging to the Wells brothers. This was purchased, along with the Great Wet Dock, which had fallen into a dilapidated state, from the Duke of Bedford in 1763 for £18,000 by

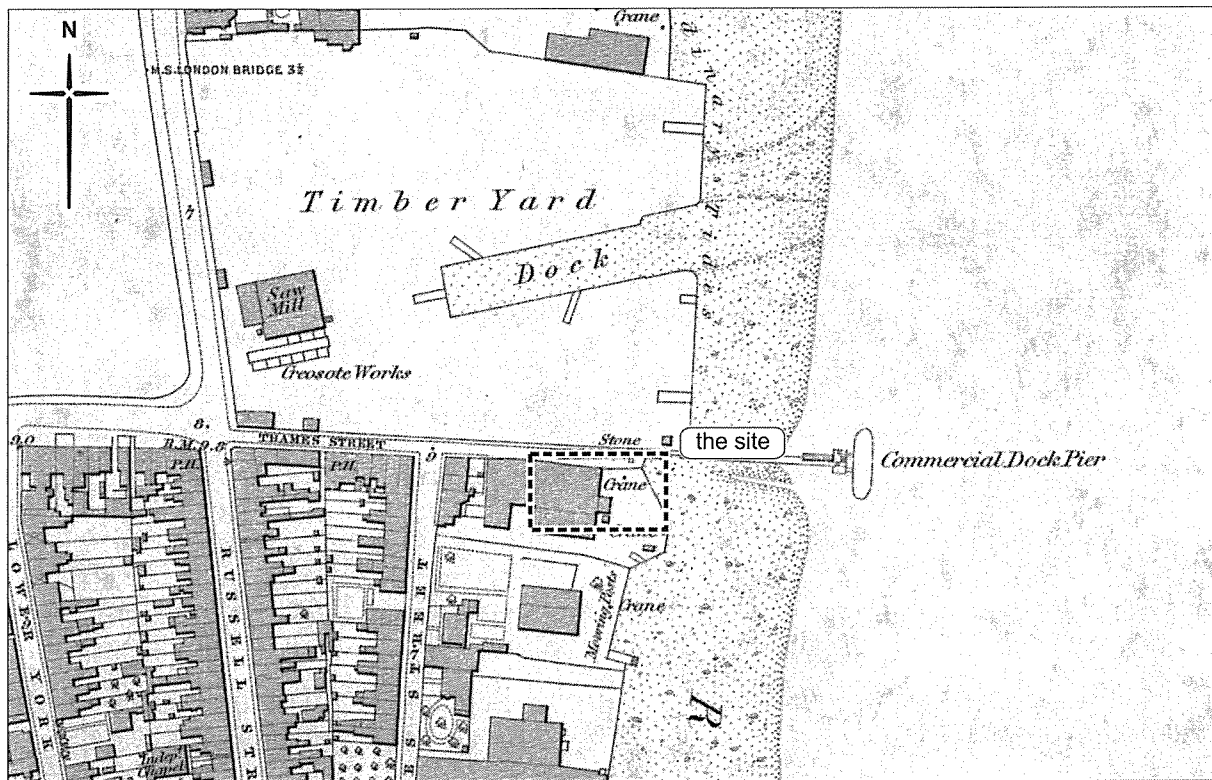


Figure 3. Ordnance Survey map of 1875. Copyright National Library of Scotland (NLS)

John and William Wells, descendants of the previous lessees. The expansion of their yards eventually forced Queen Street (later Upper Trinity Street) further inwards.<sup>17</sup> The Howland Great Dock had by this date been renamed the Greenland Dock, to reflect the whaling industry processing plants.

The Ordnance Survey map of 1875 (Figure 3) shows the Commercial Dock-Pier stretching out into the River Thames. It also shows that the riverfront had been reconfigured slightly, and three wharf cranes were depicted on the eastern side by the river along with 'Mooring Posts', though these are no longer present. A Stanford map of 1862 (not reproduced) showed that the site originally had a cobbled surface or was paved with setts, which would have eased the movement of heavy goods.

The centre of the site was occupied by a large warehouse building and a much larger granary warehouse was located to the south by Norway Dock. Documentary sources tell us that the warehouses around the Commercial Dock were appropriated to corn,<sup>18</sup> but more importantly, also to the European timber trade, although timber was also procured from elsewhere such as Canada.<sup>19</sup>

Some development had taken place to the west of the site and small terraced housing fronted on to Thames Street. To the north-west was a large timber yard with a saw mill unit and a creosote works. The creosote (a timber preservative) might have been used to treat unloaded timber before storage and delivery, and/or for treating ships in the ship repair yard.

The Goad Fire Insurance map of 1887 (Figure 4) gives a detailed picture of the types of building and their usage in the area during the late 19th century. Many buildings were associated with the shipping trade, such as brick built offices and an anchor smith on the northern half of the site. The wooden quay to the east had a quantity of iron scattered about, and the yard was separated to the north and south by brick walls with wooden gates. The wooden construction adjoining to the east is marked as an unused warehouse. It was possible to see that the three dwellings to the west of the site on the corner of Thames Street were wooden constructions. These were likely houses of the local workforce, the larger southernmost building possibly originally two separate dwellings which were later made into one. To the south of the site is an area marked as a H.M.C yard, with a salvage shed which undertook ship repairs; this was separated from the anchor smith to the north by a brick wall and wooden fence. A larger building

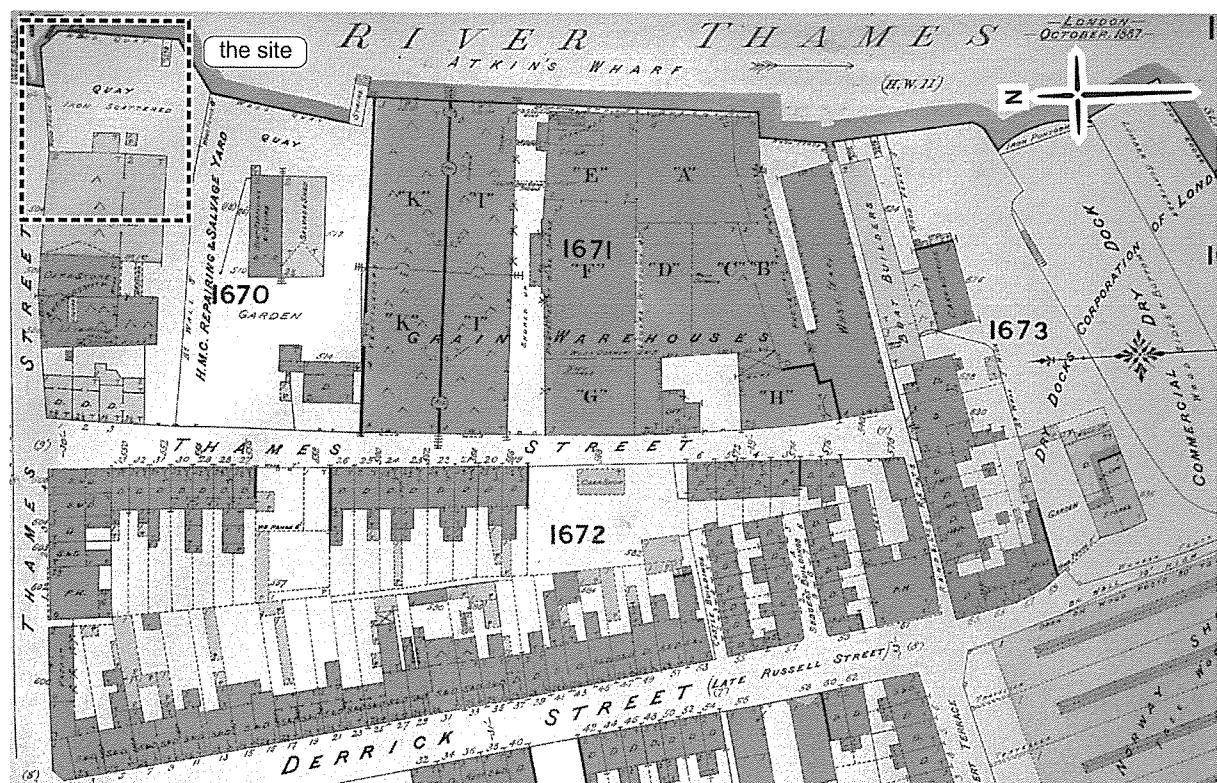


Figure 4. Goad fire insurance plan of 1887. Copyright British Library

marked as a dwelling stands on the west of this, with a garden to the east. Presumably this was for a higher class of inhabitant as it stands alone and is constructed of brick instead of wood; it is marked on later maps as 'Customs House'.

At some point in the following ten years Thames Street was renamed Odessa Street. In the same period whilst conducting research for Charles Booth's poverty map,<sup>20</sup> George H. Duckworth recorded at the turn of the 20th century that Odessa Street in the 'Danish Quarter' was poor at the southwest end, but the foreman's house on the east side of the street was fairly comfortable. The street as a whole was regarded as a mix of poor and comfortable, and the 'ship captain's or boat builder's house' at the extreme south end 'probably had servants', and was regarded as a fairly comfortable to middle class dwelling. We can get a good idea of the Danish influence in the area through Duckworth's notes which describe the shops around Derrick Street, formerly Russell Street, a nod to the original derrick cranes. Here we find a description of old fashioned, clean, red tiled shops with Danish names, as well as a decent Danish restaurant on the west side which catered for the sailors and officers of the timber ships. The *Kelly's Post Office Directory* of 1890-99<sup>21</sup> furnishes us with a little more information concerning the immigrants who were working in the locality, including Gottfried Gau, the Ship Chandler; Christian Hansen, the tool dealer; Hermann Carlson and Christian Fredriksen, both tobacconists; William Jürgensen with his refreshment rooms (perhaps the decent restaurant); Søren Holst, the butcher; and Frank Enticknap, the hairdresser, to name just a few. Many of these Scandinavian immigrants lived alongside Londoners such as Henry Peters, the shoemaker, and Archibald Brown, the butcher.

By the first quarter of the 20th century the large warehouse and some of the dwellings had been demolished. Just below the site of the crane was Custom House, which can be seen in a photograph of the riverside taken by the PLA as part of their 1937 survey (Figure 5). The earlier derrick cranes and mooring posts are annotated, with traversing cranes and their trackways shown to the north. In the 1930s the dwellings and shops on the west side of Odessa Street and the whole layout of Derrick Street had been replaced with the Redriff Estate.

Rotherhithe was heavily bombed during the Second World War and the London County Council bomb damage map (not provided) shows that the warehouse buildings, the wooden dwellings, and Commercial



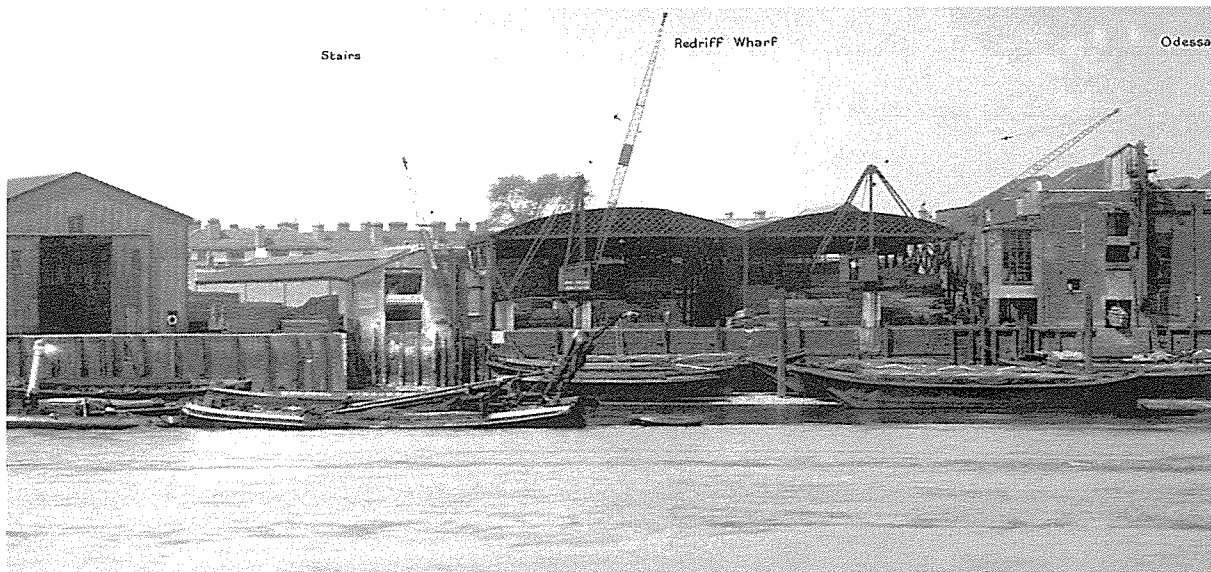


Figure 5 PLA 1937 Photographic Riverscape. Copyright Museum of London

Dock Pier had been totally destroyed by several high explosive bombs close to the riverfront between October 1940 and June 1941, and an incendiary bomb on 7 September 1940. Custom House and the Redriff Estate suffered serious blast damage, with 126 flats being affected, some suffering only minor non-structural damage caused by the incendiary bomb. The bomb hit the timber stores along the dock, causing an uncontrollable fire which spread to the estate and had to be left to burn itself out.<sup>22</sup>

The OS map of 1950 (Figure 6) shows the site marked as a timber yard with a single L-shaped building constructed to the west, with mooring posts and cranes marked out. These cranes would have included the earlier scotch derricks built by the Butters Brothers (see below) used to move timber around the wharf, before they were replaced by the single red scotch derrick in 1969. The original cranes can be seen in photographs taken by the PLA Riverscape photographic survey during 1937 (Figure 5) and were also of the same stiff-leg derrick type.

The documents currently held by Southwark Archives confirm that an earlier derrick crane was on site and in roughly the same position during the 1940s as the later red scotch derrick. A planning application was made by Butters Brothers on behalf of their client, Kemp Collins & Co. for the erection of concrete piers to carry a 5 tonne electric crane in 1945-6. This was given consent under an amendment of the London Buildings Acts, 1930 to 1939, Special Temporary Buildings and Structures, (Section 30 and 144 of the London Buildings Acts (amendment) Act, 1939). The application was granted on the condition that the structure was allowed to stay for a maximum period of five years, unless the application was otherwise renewed. In 1966 further documents show that Kemp Collins & Co. had renewed their permissions again, but a year later they had for some reason made the decision to replace the earlier crane and concrete piers. In 1967 an application was made by the builder Tilbury (Tate) Ltd for the construction of three reinforced concrete piers to carry the proposed derrick at a cost of £3,300. These were constructed using four precast cylindrical segments stacked and reinforced with steel wire, with 9m bored foundations. No further information about the history of Tilbury (Tate) Ltd could be found, other than they were based on Crabtree Manor Way in Erith during the 1960s. A document sent by the GLC dated 4 February 1969 shows that the application for the structure was not to be renewed at that date, as the crane was no longer present, although the three concrete piers were still there which suggests that the most recent Odessa Street scotch derrick crane was not in place until at least that year.

Although the Butters Brothers were responsible for the original cranes on site, there is no evidence they were also responsible for the new stiff-leg derrick, which was similar in style, but larger and with a longer jib. We can say that it is unlikely that Tilbury (Tate) Ltd built the crane, but more likely that the Butters Brothers had (although this cannot be confirmed). There is no evidence to prove that the Butters Brothers

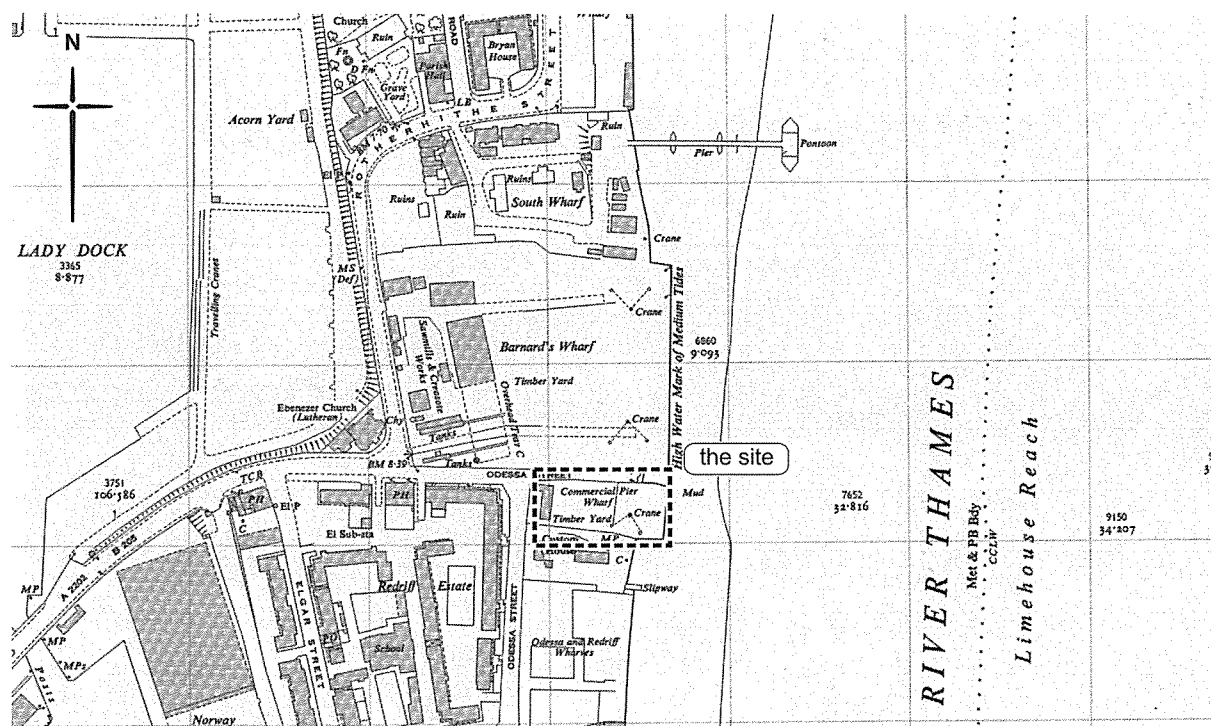


Figure 6. Ordnance Survey maps of 1950. Copyright NLS

were contracted again, as there are no relevant documents in the Southwark archive. Confirmation may be found in the University of Glasgow Archive<sup>23</sup> where their production records are held, although the author had no opportunity to investigate these. It is entirely plausible that Butters Brothers were responsible for the 1969 crane as they were then at the height of their success within the crane industry, and had already established a previous contract with Kemp, Collins & Co Ltd in 1945.

The timber merchants Kemp Collins & Co Ltd operated at the site of the Odessa Street wharf during the 20th century and were the owners of the 1945 and 1969 crane. Very little information about the company exists; however, research undertaken by Andie Byrne<sup>24</sup> ascertained that they were set up as a limited company in 1899. During the late 19th and early 20th centuries, the timber trade in Rotherhithe was an established success. Kemp, Collins & Co Ltd was re-registered on 9 March 1926 (company number 00212271) with a head office registered in Sussex. The information lists the company as dissolved, though no date for this closure could be found.

An OS map of 1966 (not reproduced) showed that the L-plan building had been demolished and replaced by a slightly larger rectangular building. By 1987–9 this building is labelled on the OS maps as the Sea Cadet unit, and then finally a crèche. Late 20th century mapping (not reproduced) shows the former night club building in the south of the site, the rest of which has remained unchanged apart from the construction of a basketball court in the open area to the east of where the crane once stood. The building in the west of the site was used by the Odessa Street Youth Club at the time the site visit was made.

### Description of the scotch derrick

Investigation of the scotch derrick was undertaken initially through a visual inspection at ground level, and followed by a more thorough inspection using an Osmo DGI camera mounted on a 9m pole which allowed for intrusion within and beneath the operator cab, as well as allowing recording of a visual inspection of the stays, stiff legs and the boom in order to investigate potential maker's marks.

The Odessa Street crane was a 5 tonne electrically powered stiff leg derrick or 'scotch' derrick crane of a tripod frame type. It was constructed of high strength and heat treated steel and consisted of a mast with



Figure 7. The scotch derrick, looking west. Copyright MOLA

Figure 8. View of the heel and boom, looking north. Copyright MOLA





Figure 9. The operator's cab, looking west. Copyright MOLA

a control cab, a boom, and two stiff legs which were connected to the mast via two sills (Figure 7). The stiff legs and mast were elevated from the ground by reinforced concrete piers.

The stiff legs and boom were constructed using four equal angle steel edges with a lattice work design. They were narrower at the heel and mast end, with flat steel plates providing strength at the mid-section and ends. The two vertical sills that connected the lower end of the stiff legs to the mast were not of lattice design, but constructed of a lower channel beam connected to an upper channel beam, which inclined to a rise in the mid-section and was strengthened using flat rectangular steel plates, held together with round headed rivets. The end of the sills extended out at the heel beyond the connection of the stiff legs (Figure 8). The boom narrowed at the tip and the mast end, with steel flat plates at the mast end and a further two spaced throughout the mid-section of the boom, to account for the lengthier member.

The mast was also constructed of two channel beams facing outwards and a central lattice steel work fixed to the beams with round headed rivets. A vertical steel staircase was bolted externally to the left beam of the mast above the operator's cab, with a circular strap frame providing a basic safety measure. The derrick had a topping lift in connection to the mast and the upper end of the boom, which allowed it to handle heavy loads from a fixed position (Figure 8). The lines on the derrick were connected from the mast to the highest point of the boom's vertical reach. This allowed the topping lift (the cables from the top of the mast to the end of the boom) to create a much larger angle with the boom axis than would be offered by a mobile crane, and allowed the derrick to carry a much heavier load and without requiring many parts to the topping lift support lines. In a derrick without too many parts of the support and topping lift lines to move, such as the Odessa Street crane, the angle of the boom could be changed more rapidly. Generally derricks are custom made for a specific job, and we know from the documentary sources that the Odessa Street derrick was used to move timber.

Unlike other crane types, the stiff-leg derrick did not rely on guy wires to secure the top of the mast, but used the two stiff legs which were capable of resisting tensile or compressive forces. It was equipped with a vertical mast which was shorter than the boom, and was connected to the framework of the crane to the stiff legs and the sills. The angling stiff legs extended from the peak of the mast towards the boom to form a triangle. In some stiff-leg derrick cranes a counter weight, or ballast, was generally required

to avoid a negative reaction under the mast that would indicate the derrick was about to tip over in the direction of the boom. However the Odessa derrick was supported by the reinforced bored concrete piles which elevated the crane as well as rendering the stiff legs immovable.

### **The operator's cab**

The cab was constructed with a simple steel beam for a platform and with steel sheets boxing in the mechanism above the main cab and boom rotation wheel. The manufacturer's rolling mark was noted on the underside of the steel platform and read 'Lancashire Steel MFC. Co. Ltd'. The north side of the cab jutted out with a simple steel frame with clear plasticised windows. These were arranged in eight panes (two over two in four sections) giving the operator a wide field of vision. The front six lights protruded forward of the main cab and were angled in such a way as the lower three were inclining towards the mast, giving the operator a good view of what was occurring directly below. To the north of the windows was a plywood face with an arc of plywood covering a mechanism part.

The main body of the rear of the cab was constructed of a wooden frame with plywood sides. The north face had a small wood-framed window, with the remnants of a decomposing floral net curtain. Another opening was cut through the plywood towards the base and helped keep the motor from overheating. Entry into the cab was through a wood framed door on the south face and was most likely through a wooden structure which abutted close up beneath the sills. This structure may have been as simple as a timber pile, or may have been a small wooden hut with office space within. Without any further evidence of the appearance of the structure, we can only speculate on its design, however this was evidenced by slat scars seen on the underside of the sills towards the mast. The misalignments of some of the scars suggest these were of wood, as they were not evenly spaced or angled. This access may have led the operator to the base of the boom where the cab could then be accessed by climbing the vertical steel staircase to the gantry with a steel pipe balustrade. The vertical staircase extended a little lower than the base of the cab, and was riveted to the underside of the platform, as well as above the roof to allow access to the mast and its vertical staircase for maintenance purposes. The east face of the cab was of plywood with a window opening which provided light to the operator.

A motor located inside the cab powered the lifting and lowering of the boom by the operator using a manual lever which controlled the winch (Figure 9). The boom itself did not rotate, but was secured to the operator's cab which rotated by means of a small cog, which turned to move a large cog at the base of the cab. The motor for this rotation was located on the lower east face of the cab.

At the time of commissioning the report, the client asked whether we would be able to identify a manufacturer of the crane, as they were only able to identify the name Cargo Fleet on the structure. However, we could not find any evidence relating to the maker Cargo Fleet Steel on any of the derrick members. We did find a rolled steel mark belonging to the Lancashire Steel Manufacturing Company Ltd on a steel beam beneath the operators cab. These rolled steel marks are not necessarily indicative of who built the derrick, but would have been purchased from either one or number of different competing steel manufacturers based on a best available price.<sup>25</sup>

### **Conclusion**

The position of the stiff-leg derrick tells us that the crane was used to lift heavy loads from ships and barges, necessitating a static crane as opposed to a mobile crane. It is a relic of the timber import trade which existed between the 19th and 20th centuries, though map and documentary evidence shows that the site was used as a ship yard from at least the 17th century.

The maps illustrate the original pastoral use of the area with grazing and fishing along the riverside, with a slow nudging towards ship repair and building activities, still maintaining a fairly rural environment to the west. The area became urbanised, with domestic buildings to the west and burgeoning ship repair

and building activities to the riverside, eventually with larger workshops and warehouses. The domestic housing was eventually reduced and the commercial pier dock became an active timber yard with anchor smiths, carpenters and a creosote works which would allow for the tarring of ships on the site.

The presence of cranes on the site was established in the late 19th century and can be seen to have been active until the third quarter of the 20th century, at least up until the 1980s. The timber company Kemp, Collins & Co maintained a presence from the late 19th century up until the mid-to-late 20th century, upgrading the derrick during this period. The site remained in use as a timber yard up until the late 20th century, when the wharf was closed and the area became residential. Although the derrick is not the original mid-20th century structure, it is indicative of a continuous timber trade which existed as far back as the 17th century and as a structural public art, reminded Londoners of its rich naval and commercial history relating to the docklands.

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