

Building the Millwall Docks

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The Millwall Docks are at the heart of the Isle of Dogs, the peninsula formed by the great east London oxbow in the Thames (Fig. 1). They are now within the London Docklands Development Corporation's Enterprise Zone and, over the past few years, have been the scene of frantic building activity. There is scarcely a single structure of pre-Thatcherian vintage on the quays of the Millwall Docks, but the docks themselves, a reversed-L on plan, survive largely as built. The story of the construction of these docks lies very much in the fearful gap between a developer's vision and its successful realisation. Conceived in the early 1860s, a time of great economic confidence, the Millwall Docks were completed in 1868 following a hard fought battle through an unpromising flotation and the disastrous Crash of 1866 [1].

First Plans

In the first decade of the nineteenth century the West India Docks, the London Docks and the East India Docks were London's first generation of enclosed wet docks for trade. Somewhat later came the Surrey Docks and the St Katharine Docks. Then, in the 1850s, the Victoria Dock was built with rail access. These docks were privately administered by separate companies between which there was intense competition for trade. After the Victoria Dock opened in 1855 there was an overcapacity of dock accommodation in the Port. By the early 1860s competition was threatening to become ruinous. Further docks were not needed [2].

At the same time the Isle of Dogs was an obvious target for port-related development. Through the first half of the nineteenth century it remained an inhospitable marshy area encircled by raised embankments; that to the west had been topped by a number of windmills through the seventeenth and eighteenth centuries giving the area its name, Millwall. Gradually through the early nineteenth century, with more intensity after 1840, the riverside was developed for industrial purposes until it could be said that "The Isle of Dogs, the dreariest and most marshy of all the islands of the Thames, has within the last few years sprung into a seat of industry, and become the focus of the ship-building trade" [3]. By 1860 the periphery of the Isle of Dogs was a more-or-less unbroken necklace of manufacturing, but the hinterland remained undeveloped pasture, unpopular for housing because of its low-lying marshy character. John Scott-Russell, builder of the *Great Eastern* at Millwall, described the scene: "... beautiful cattle feeding on long, fine grass, almost surrounded by manufactories on all sides" [4]. The area's natural suitability for wet docks had been recognised at earlier periods of growth in the Port. Some of the many schemes put forward in the 1790s

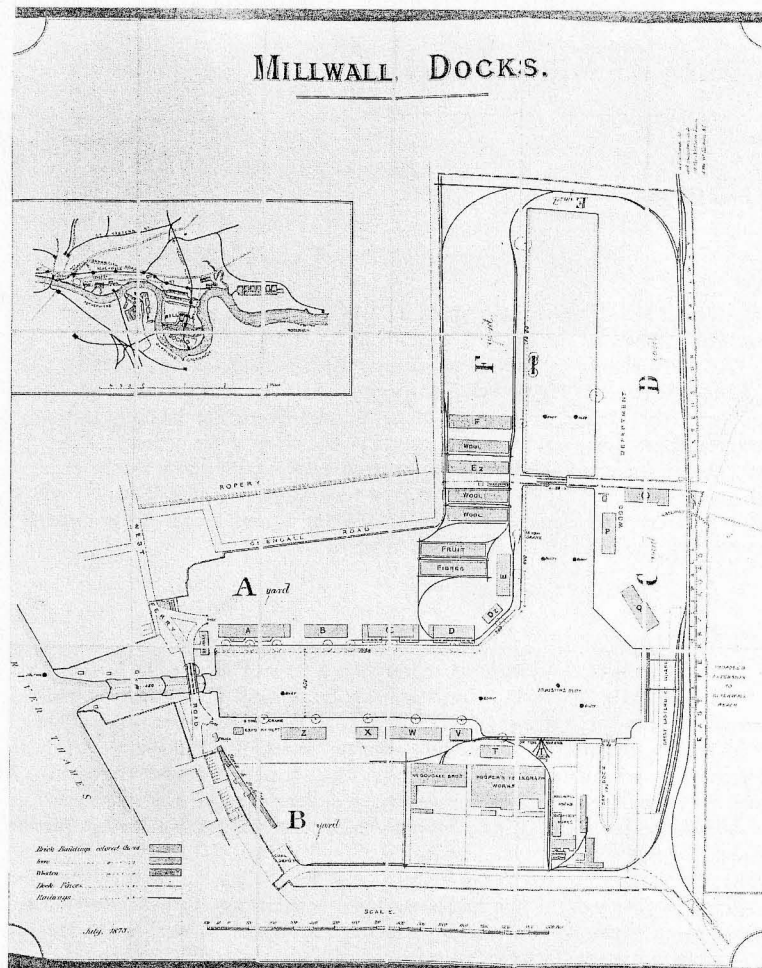


FIG. 1. Millwall Docks, 1873 (Museum in Docklands archive).

proposed docks at the centre of the Isle of Dogs, and similarly positioned collier docks were planned in the 1820s, all with the double access to the river that the site allowed.

Above Blackwall and Greenwich there was very little room for the expansion of riverside manufacturing in the early 1860s. Demand for water frontage was exacerbated by plans for the Thames Embankment which would displace existing wharfs. In a climate of supreme confidence in large speculations, when “it seemed necessary only to suggest a project in order to find the money requisite for carrying it out” [5], it was not long before the idea of developing the Isle of Dogs hinterland to meet this demand

came to the fore. The Millwall Docks were conceived not as docks for trade but as an extension of water frontage to provide wharfs for manufacturing, especially ship-building and ship-repair. For this the Victoria Dock Company had set a precedent by successfully attracting manufacturers and ship-repairers to its quays.

The plans that led to the Millwall Docks were first devised by Nathaniel John Fenner and Robert Fairlie. Fenner was an oil merchant and wharfinger based at Millwall from about 1851 [6]. Fairlie was a civil engineer, known as the designer of the double-bogie railway engine, but with no experience of dock building [7]. Fenner recognised the potential of the empty land behind his wharf and, in 1859, asked Fairlie to draw up plans for its development. Fairlie’s plans apparently differed little from those submitted to Parliament in 1863 (Fig. 2) [8]. The scheme was conceived as a ‘canal’ across the Isle of Dogs with entrance basins at each end and a central arm extending north to approach the East and West India Dock Company’s Timber Pond, with a view to the possibility of a linking cut. Fenner later explained that the advantages of enclosed non-tidal docks for wharfingers had been brought home to him through the difficulty he experienced landing goods at his riverside wharf at low water [9].

For a time Fenner and Fairlie seem to have made no progress with their plans. In March 1863 they took them to William Wilson, a well-connected railway engineer, who agreed to act as engineer and agent for the canal scheme for one third of the “promotion money” [10]. The Limited Liability Act of 1862 had made the promotion of new companies easy and lucrative. Wilson (1822–1898) had built his reputation through association with (Sir) John Fowler, principally in the construction of Victoria Station and the Pimlico Railway in 1859–60 [11]. Wilson made some revisions to Fairlie’s plan and the scheme was brought to Parliament in November 1863 as the Millwall Canal, Wharfs and Graving Docks Bill. There was no intention to build on the wharfs, but simply to let plots on building leases. Up to six graving, or repairing, dry docks were to be built off the canal, as and when demand dictated [12].

At this point the story is rendered murky by shadowy dealings. The records are full, but they may contain disinformation [13]. In December 1863, following the deposit of the plans, Wilson took the scheme to the prominent public works contractors, John Aird & Son, who evidently thought it a worthwhile project and agreed to back it by paying the parliamentary expenses. Soon after the Airds became involved the scheme was shown to John Kelk, another leading contractor. He also liked it and offered to partner Aird & Son in the promotion. Kelk and Aird did not wish to be seen publicly as promoters so declined to sign the petition for the Bill. It was signed by William Lee, MP, a cement and lime merchant with links to both Wilson and Kelk [14]. Wilson evidently informed Fenner on 22 December 1863 that “all other resources having failed I have been compelled at the last moment to make arrangements for this deposit from a Contractor”. However, in evidence to a House of Commons Committee in July 1864 Fenner’s solicitor claimed that his client had been ready to put up his share of the deposit, but that Wilson neither asked him for the money nor consulted him about the approach to Aird. Wilson testified that he understood his agreement with Fenner of 13 April 1863 to extend only for 3 to 4 months he, therefore felt no obligation to work with him thereafter [15]. Whatever in fact lay behind these claims it does seem clear that the extent and implications of Wilson’s arrangements with the contractors were not communicated to or appreciated by Fenner. If Wilson’s plans were indeed closely based on Fairlie’s the allegedly surreptitious approach to Aird was at best inconsiderate. It is difficult not to conclude that Wilson simply saw a brighter

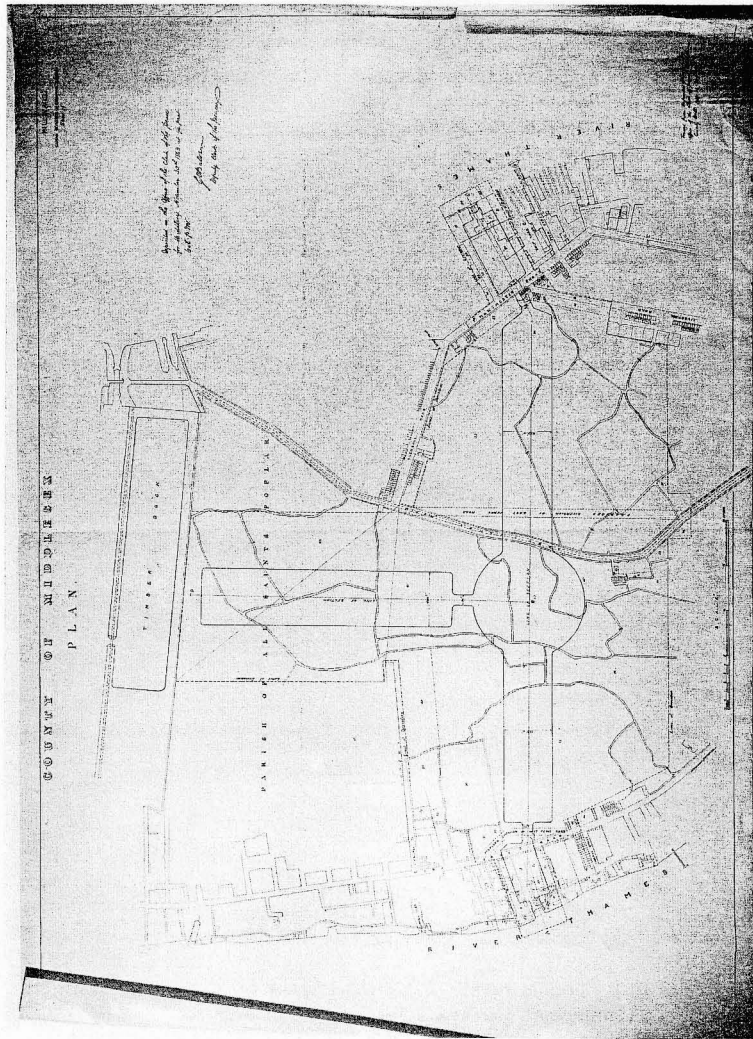


FIG. 2. Millwall Canal, Wharfs and Graving Docks: plan by William Wilson deposited in Parliament, November 1863 (Museum in Docklands Archive).

future with big fish like Kelk and Aird than with amateurs like Fenner and Fairlie. The latter may never have had any real intention of carrying the scheme through, perhaps hoping simply to be able to sell their interest in it once it had gained Parliamentary approval.

Obtaining the Act

From that point on the Millwall Docks were a contractor's speculation. Kelk and Aird had obviously sensed an opportunity to make money. The Victoria Dock would have been at the front of their minds. A decade earlier George Parker Bidder had joined Peto, Brassey and Betts to promote, design and build the Victoria Dock. They had always intended to sell on, and eventually succeeded in doing so to the soon-to-be amalgamated London and St Katharine dock companies in November 1863, just a month before Kelk and Aird became interested in the Millwall scheme [16]. Kelk and Aird might have anticipated the pressure the Victoria/London/St Katharine amalgamation would put on the rival East and West India Dock Company, which, at this time, was slackly managed with out-of-date facilities. Their intention may have been to build in order to sell to the East and West India Dock Company. They were careful to ensure that the Act for the Millwall Docks permitted conventional dock business and a connecting link.

Neither Wilson nor the Airds had any significant experience of dock building. For the younger (Sir) John Aird (1833–1911) the Millwall Docks were the first of a long succession of important contracts in the Port of London that included the Royal Albert Dock and Tilbury Docks. Aird did not take full control of his father's firm until 1870 and it is difficult to disentangle his involvement in the Millwall scheme from that of the elder John Aird (1800–76). However, the younger and reputedly shrewder Aird attended to Millwall Dock affairs more regularly, so much of the responsibility is probably his [17]. Aird & Son were very large operators in 1863, but they may have lacked the finance to take on the risk of something as large as the Millwall scheme alone, and may thus have welcomed Kelk's partnership, though there seems to have been no other instance when these particular contractors worked together. (Sir) John Kelk (1816–86) had built the Commercial Dock Company's South Dock in the early 1850s, but he was better known for his work with Lucas Brothers for the 1862 Exhibition and for building the Albert Memorial [18]. It is not clear why Wilson went first to Aird as he had stronger connections with Kelk, an extremely wealthy man at this date. Wilson and Kelk's association went back to Victoria Station, and they were working together on the Metropolitan and Metropolitan District Railways in late 1863 [19]. In these railway works Wilson was very much an intermediary between the contractors and the engineer, (Sir) John Fowler. Inevitably perhaps, given Wilson's and Kelk's involvement, John Fowler was drawn into the Millwall project. By mid 1864 he had become consulting engineer for the scheme. Fowler too was inexperienced in dock work, but his reputation as a railway engineer was unsurpassed at this date. In terms of financial acumen and practical ability this was a formidable team; men at the heights of their professions involved in some of the most ambitious construction projects of the day.

Kelk and Aird remained behind the scenes promoters. They saw to it that a private agreement was signed by themselves, Wilson and their solicitors, to confirm that they were the promoters of the Millwall Bill and that, on passage of the Act, Wilson would become engineer and Kelk and Aird would have the contract for the works at a schedule of prices already settled, apparently at inflated rates. Four provisional directors of the as yet unborn company, all "the friends and mere nominees" of Kelk and Aird, signed this agreement [20]. Fenner and Fairlie were kept in the dark. When it came time to give evidence on the Bill to a House of Lords Committee in April 1864, Fenner was brought forward as the promoter and Wilson as the engineer.

The names Kelk and Aird were not once mentioned [21]. Fenner and Fairlie were understandably upset when they learned what had been going on behind their backs. Determined not to surrender their scheme without adequate compensation they petitioned against the Bill before it reached the Commons. Their opposition brought some fierce cross-examination of Fowler and Wilson at the Commons Committee. Asked "Is this not a little private speculation of Mr. Aird's?", Fowler insisted "No, certainly not" [22]. Fenner and Fairlie were bought off with compensation of £5000 and a seat for Fenner on the board of the company [23].

The viability of the Millwall scheme was taken almost as read in Parliament: its general principles were scarcely examined. This was perhaps typical of a period when many privately backed public works of doubtful necessity were allowed to go ahead very lightly. It was accepted without argument that the docks would not compete with existing dock companies, and that there was a genuine need for additional waterside premises for manufacturers. The East and West India Dock Company did not oppose the Bill, blithely unconcerned at the possible arrival of a new competitor on its southern flank. There was some debate on the question of the need for additional graving docks on the Thames. The negative testimony of leading ship-repairers was countered by offering to make the new graving docks "public", that is lettable for short terms to ship-owners who would provide their own labour.

It was vital to the scheme that the purchase of 203 acres of land was secured as quickly as possible. Before passage of the Act agreements had been signed with all but one of four estates affected. A clause was conceded allowing a road to be built across the northern arm of the docks. Fowler testified that £510,000 was enough to buy the land and build the docks, and that if the company had borrowing power of £170,000 beyond this, graving docks could be added as needed. He was evasive when asked for a proper estimate saying, "it is a speculation, it is impossible for anybody to tell what may be required there" [24]. This will have suited Kelk and Aird, who, as both speculators and contractors, would have wanted to retain flexibility over the contract price.

The Act for the incorporation of the Millwall Canal, Wharfs and Graving Docks Company received the Royal Assent on 25 July 1864 [25]. Later in the year Fowler and Wilson amended the plans slightly. The overall depth of water was fixed at 26 ft and entrance locks 80 ft wide were introduced, with a gated basin retained on the west side [26]. The new plan included the London and Blackwall Railway Company's proposed Millwall Extension Railway, which did not get an Act until June 1865 [27] and which, to the great irritation of the Millwall Dock Company, was not open to traffic until December 1871, in large part because of obstructiveness on the part of the East and West India Dock Company. This was the only rail link to the docks; until 1880 it was hindered by the insistence of the East and West India Dock Company and its insurers that locomotives, regarded as a fire risk, be banned from crossing their premises. So at first all trains had to be horse-drawn through the docks [28].

Financing and Starting the Works

From the outset Kelk and Aird manipulated the affairs of the Millwall Canal, Wharfs and Graving Docks Company; only Fenner amongst the Directors was not one of their men [29]. Through late 1864 and early 1865 they were negotiating the financing of the docks. The contractors were committed to a successful flotation, not only for the money they stood to make through the contract, but also because, if the project

aborted, they would make a considerable loss through the completed agreements for the purchase of land [30]. By January 1865 it had become clear that the shares would not be subscribed on the open market. After negotiations with the International Finance Company collapsed in mid March Kelk contacted Albert Grant [31]. Grant (1830–99), born Gottheimer and later known as Baron Grant from a title acquired in Italy, was an extraordinarily voracious financier. He set up the Credit Foncier and Mobilier of England Limited in 1863 and proceeded to use it to finance a range of companies round the world, sustaining many public works of dubious worth [32]. Grant was very good at underwriting, finding money to get companies off the ground and taking a healthy percentage for himself. In the early 1860s company promotion was a virtually foolproof way to make easy money. Flimsy schemes could be made to seem plausible and funds milked from credulous investors. Credit houses like Credit Foncier were not reflecting prosperity but simply encouraging foolish investment. They were not only creating the conditions for ambitious works, but also sowing the seeds for the financial crash that would undermine many of those works [33].

Kelk arranged the launch of the Millwall Canal, Wharfs and Graving Docks Company through Credit Foncier. Grant guaranteed subscription of all the company's capital for the vast fee of £100,000. A further concession Kelk had to make to ensure successful flotation was an undertaking to pay interest to the shareholders for two years during construction. Grant would agree to make these arrangements only with Kelk and Aird, not with the company directly. Had the size of the fee been made public, investment might well have been discouraged. The contractors undertook to pay the fee and the interest themselves, intending to recoup the money from the company [34]. On acceptance of the arrangement with Credit Foncier the company's board was reconstituted, the credit house installing four of its own men to ensure control. The new board, now meeting at Credit Foncier's offices, changed the company's name to the Millwall Freehold Land and Docks Company, seemingly betraying opportunistically non-specific intentions with respect to the ultimate use of the property [35].

On the same day that the financial arrangements were concluded, 27 March 1865, Kelk and Aird's contract was settled. The contract sum of £594,000 covered interest payments to the shareholders for two years, "the expense of placing the capital" (that is the £100,000) and £12,500 other expenses [36]. Only £420,000 was for works, and this covered only the first two-thirds of the approved scheme. The total sum of the first contract and the cost of the 200 plus acres of land was already well in excess of £700,000, beyond the company's approved borrowing power.

Wilson's plan for "Contract 1" (Fig. 3) excluded the east arm. There were difficulties completing the purchase of a wharf on the site of the east entrance. At the west entrance the basin had been abandoned in favour of a large double lock. Two locks of unequal length allow the economical locking of vessels of varying sizes. The priority given to the up-river entrance would have suited the wharfingers for whom the docks were intended. It became an inconvenience for the ship-owners who eventually came to use them. Just one graving dock was to be built off a reduced central basin, sited to the west of the fragmentary remains of the medieval chapel of St Mary [37]. But these were not spared, as by the end of 1865 the plans had been changed again to move the graving dock onto the chapel site.

Grant's prospectus for the Millwall Docks held that "so sound a scheme and one which so specially addresses itself to the investor is seldom brought before the public", and hinted at ten per cent dividends [38]. It did not mention the £100,000 to be paid

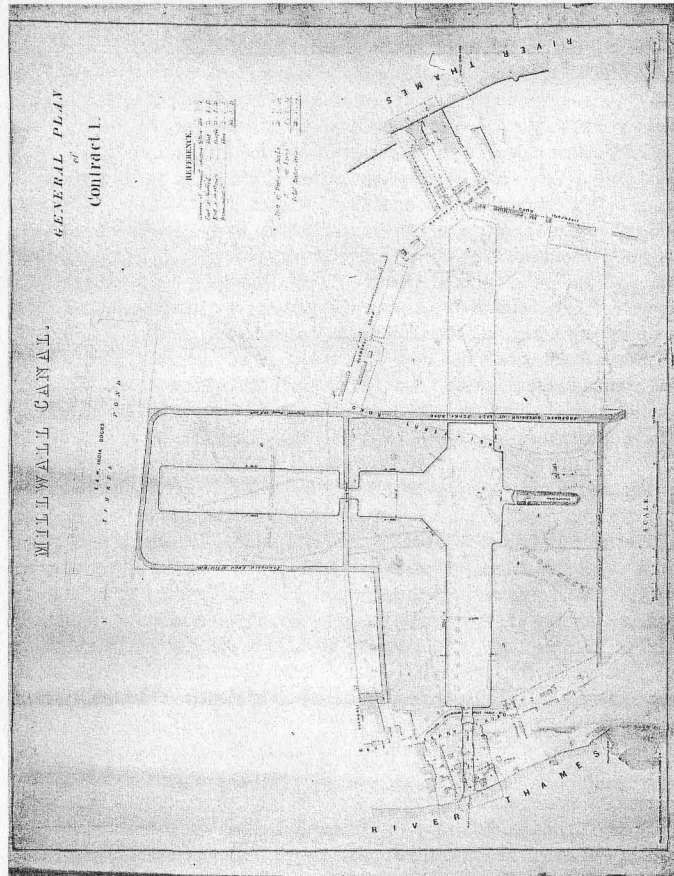


FIG. 3. Millwall Canal: general plan of 'Contract 1' by William Wilson, June 1865 (Museum in Docklands Archive).

to Credit Foncier, nor that the interest payments were limited to 2 years, nor was there any indication that the company's capital and borrowing powers were already demonstrably inadequate, "a most mischievous and improvident arrangement for the shareholders" [39]. The shares were duly subscribed, but the ceremonial "turning of the first sod" had to be postponed when Kelk objected to Fowler's draft specification. The company could not get Kelk to negotiate this and work started in July 1865 without any formally agreed specification [40]. Once again Kelk, who in the same month was elected an MP, was keeping his options open. It was later charged, not unreasonably, that, "in founding and starting the Company on a basis so inadequate and so

improvident (Kelk & Aird) consulted only their own individual gains and interests" [41].

Controversy and Crash

At their first general meeting in August 1865 a number of Millwall Freehold Land and Docks Company shareholders asked about the arrangement with Credit Foncier. William Lee, in the chair, refused to answer their questions [42]. Two shareholders, Francis Somerville Head and David Burton, decided to make further enquiries. They probably went straight to Nathaniel Fenner. Fenner had adopted guerrilla tactics to revenge his ill treatment by Wilson. Having failed to win an extravagant claim for his interest in land he took the company to law on a technicality. The Board was obliged to form a "Law Committee" to exclude Fenner from matters in which he was at odds with the other directors. He was censured for betraying the confidentiality of meetings [43]. Whether it was through Fenner or not, Head and Burton soon discovered the truth about the flotation and filed a suit against the company and Credit Foncier, alleging that suppression of the financial arrangements amounted to fraud [44]. Fenner lost his suit but did his best to publicise that of Head and Burton [45].

The company began to fray at the edges. Many shareholders failed to pay the second call and money had to be raised by bank loans and debentures in late 1865, after interest rates had shot up from three to seven per cent in the space of three months [46]. By early 1866 the struggle had become such that it was reported that, "so much has been said in abuse of the company that the public have begun to think that the docks are a myth or a mere paper property" [47]. Head and Burton's suit was withdrawn in March, probably as a *quid pro quo* for the election to the Board of Acton Smee Ayrton, MP, who became the champion of the swindled shareholders and Chairman of the company from August 1866 [48]. Ayrton (1816–86) was a "radical" Liberal and MP for Tower Hamlets from 1857 to 1874 [49]. As First Commissioner of Works from 1869 to 1873 he acquired a reputation as a ruthless cost-cutter; he has recently been described as "a brutal and arrogant philistine" [50]. In Government he seems to have been something of a Norman Tebbit figure, combative and iconoclastic, but utterly committed to what he saw as the public interest. As the local MP with a reputation for pursuing economic rectitude Ayrton would have been welcomed by the Millwall shareholders as a man capable of dealing with their problems. In the context of the Millwall Docks, Ayrton acted with probity. He was determined that the docks should be completed as an absolute priority. Many shareholders wanted to abandon the works, but he insisted that this would only be a colossal waste of money. It is probably to Ayrton's firmness, more than to any other single factor, that the company owed its survival through the even more difficult times that were to come [51].

An item on the agenda for the company's Board meeting of 11 May 1866 reads "to consider the expediency of applying to Parliament for additional capital" [52]. The meeting did not take place, perhaps because 11 May was the day the bottom fell out of London's financial markets with the failure of Overend, Gurney and Company, an event in part related to Grant's activities at Credit Foncier [53]. The Crash forced Grant to retreat to Italy. Unlike many other credit houses Credit Foncier did not fold, but it was wholly reconstructed. The run on the banks and a further rise in interest rates made this an extremely difficult time to be seeking the money that the Millwall Company so desperately needed. A new Act of Parliament permitted the raising of £490,000 more capital [54], but this was fairly meaningless at a time when the

company was compelled to postpone a call on the original capital, and when shareholders were clamouring for repayment of money already paid out [55].

The scheme for the Millwall Docks had been devised on the premise that manufacturing in London, and ship-building in particular, would continue to expand. The Crash of 1866 swept this assumption aside. Ship-building on the Isle of Dogs was particularly hard-hit and never recovered [56]. It was several years before there was any willingness to invest in manufacturing in the area. Even before the Crash the Millwall Company had begun to consider openly the possibility of applying its premises to warehousing for the rapidly increasing trade of the Port [57]. After the Crash the options narrowed dramatically. Kelk and Fowler made an approach to the East and West India Dock Company, which had recently decided to redevelop the South West India Dock. They were no doubt hoping to escape their predicament by selling up, but they were summarily rebuffed [58]. The Millwall Freehold Land and Docks Company was forced to accept that it would have to compete for dock and warehousing business.

For large contracting firms 1866 was a time of reckoning. It was later said that "Sir Morton Peto, Betts & Co. who had then perhaps the largest contracts of any firm in the world, succumbed under the monetary pressure of that time, and Messrs. John Aird & Sons, in the great majority of cases, took up their contracts and finished them" [59]. For several months Kelk and Aird were forced to sustain the Millwall works on their own, work continuing through the summer without payment from the company. They could not go on underwriting the works indefinitely and, as the date for a payment of interest to the shareholders approached, they threatened: "The time has arrived at which, however unwillingly, we must in justice to ourselves bring matters between your Company and ourselves to a point. We have found all the money required to carry out the Works during the late panic without receiving a shilling". Work would be suspended unless they were paid. Kelk and Aird were in a position to dictate terms. They squashed a proposal that would have bestowed further benefit on Credit Foncier and gave the company two weeks to accept an arrangement that provided for most of the money owed them to be paid in newly created preference shares, with a condition that no calls were to be made for 2 years unless a five per cent dividend could be guaranteed. The contractors already held a large amount of ordinary stock and were doubtless loath to invest more in the company, but it must have seemed the only way of avoiding heavy loss [60]. An "Agreement for facilitating the carrying out the Undertaking of the Company" was signed on 9 October 1866. A group of shareholders, led by Fenner, took exception to this and brought a Bill to Chancery urging the appointment of a Receiver [61].

Completing the Docks

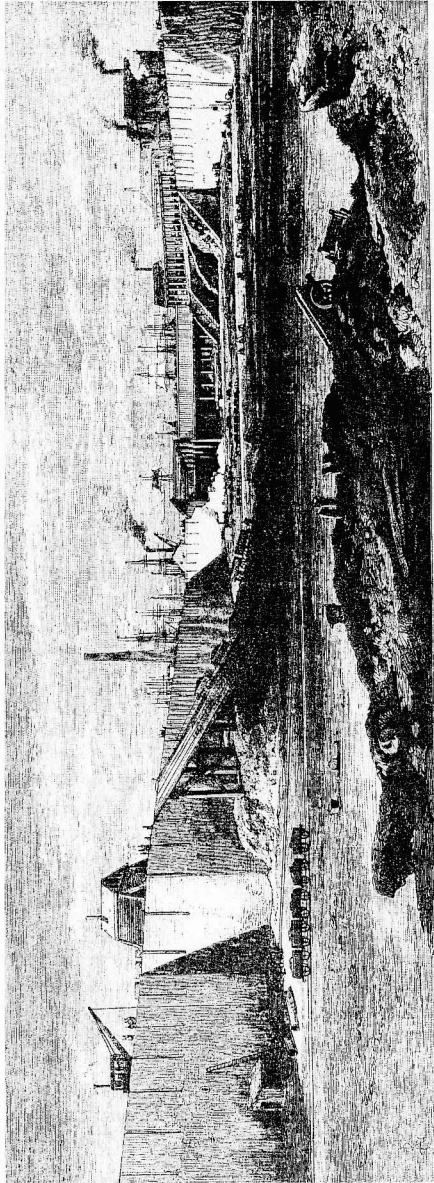
By the beginning of 1867 work was again progressing satisfactorily (Fig. 4). However, it was clear that completion of the original scheme with an eastern arm and entrance was out of the question for the foreseeable future. The company could only wait forlornly for the day when "the spirit of enterprise in some degree revives" [62]. Reluctantly it was accepted that warehouses and cranes would have to be provided if the new docks were to attract trade. The money for these works could only be found by issuing more of the unfancied shares [63]. In July 1867 Fowler and Wilson were still confident that the docks would open on schedule at the end of August. George Raymond Birt, Superintendent at the Victoria Dock for the past ten years, was

appointed General Manager. He immediately set about trying to attract imports and exports; one of his first acts was to contact the Peruvian Government with a view to securing guano trade [64]. Birt brought with him from the Victoria Dock Frederic Eliot Duckham, who was appointed Clerk of Works and soon became the company's engineer. Duckham was responsible for a number of inventions of great ingenuity [65].

Water was let into the docks on schedule on 29 August 1867, but their opening for business proved elusive [66]. Vessels could not be admitted until the cofferdam was fully removed and work on the road bridge over the entrance lock complete. As the works had now gone on for more than 2 years Kelk and Aird reminded the Board that they were no longer obliged to pay interest to the shareholders. The contractors attributed the over-run to the hiatus in mid 1866. Less convincingly the company blamed the contractors for a lack of diligence. The question was referred to arbitration and Kelk and Aird pointed out that no formal specification had ever been agreed, undermining any claim that the work had been improperly executed [67]. Relations between the company and the contractors deteriorated and work was suspended. At the end of 1867 the docks were still not open. Birt, Fowler and Wilson took possession of the site for the company and completed the work through direct labour [68].

The Millwall Docks finally opened for business on 14 March 1868 with the entrance of the "*Arapiles*", a Spanish ironclad, which passed into the graving dock [69]. It was a very makeshift establishment as only absolutely essential work had been completed (Fig. 5). There were just a few single-storey shed-warehouses on the quays, large parts of which remained unlevelled. Much the greatest part of the estate was undeveloped. The first few months of business were not auspicious. Little trade came to the docks and labourers' wages had to be paid out of the pockets of the directors. There were no subscribers to a new issue of capital and creditors were filing lawsuits for payment of debts. The dispute with Kelk and Aird was unresolved and shareholders' suits against both the company and the contractors were accumulating. As pressure for its winding up increased the company, through a specially formed committee of shareholders, filed its own suit against Kelk and Aird on the grounds that the 1865 arrangements for paying Credit Foncier and shareholders' interest through the contractors were illegal, and that the contractors had deliberately avoided signing a specification [70].

Chancery would take time to resolve these suits, in which neither the company nor Kelk and Aird seem to have been confident of success. As the last hopes of a rescue from the East and West India Dock Company foundered towards the end of 1868 it was accepted by both company and contractors that the only alternative to liquidation was a compromise settlement [71]. Fowler was sent to talk to the contractors who had so much tied up in the company that it was very much in their interest to puff it up once again. Long and laborious negotiation led to an agreement in December 1868 [72]. The company would settle the contract as if duly completed, payment to be in more shares. The contractors would pay more interest to the shareholders and underwrite a further share issue to allow the company to meet other debts. This was all made conditional on the dropping of all lawsuits. Many shareholders bore deep bitterness to Kelk and Aird and regarded this settlement as surrender. They gained some satisfaction in removing the last of the Credit Foncier men from the Board [73]. Less than a fortnight after steering the compromise through Ayrton resigned from the Board, having taken Government office. Charles Henry Parkes (1816-95) was made Chairman and remained such until 1893. Parkes primed the company's still parlous finances with loans of large amounts of his own money. He oversaw the gradual



PROGRESS OF THE WORKS FOR THIS NEW DOCKS AT MILLWALL.

FIG. 4. Building the Millwall Docks (from the *Illustrated London News*, 9 March 1867).

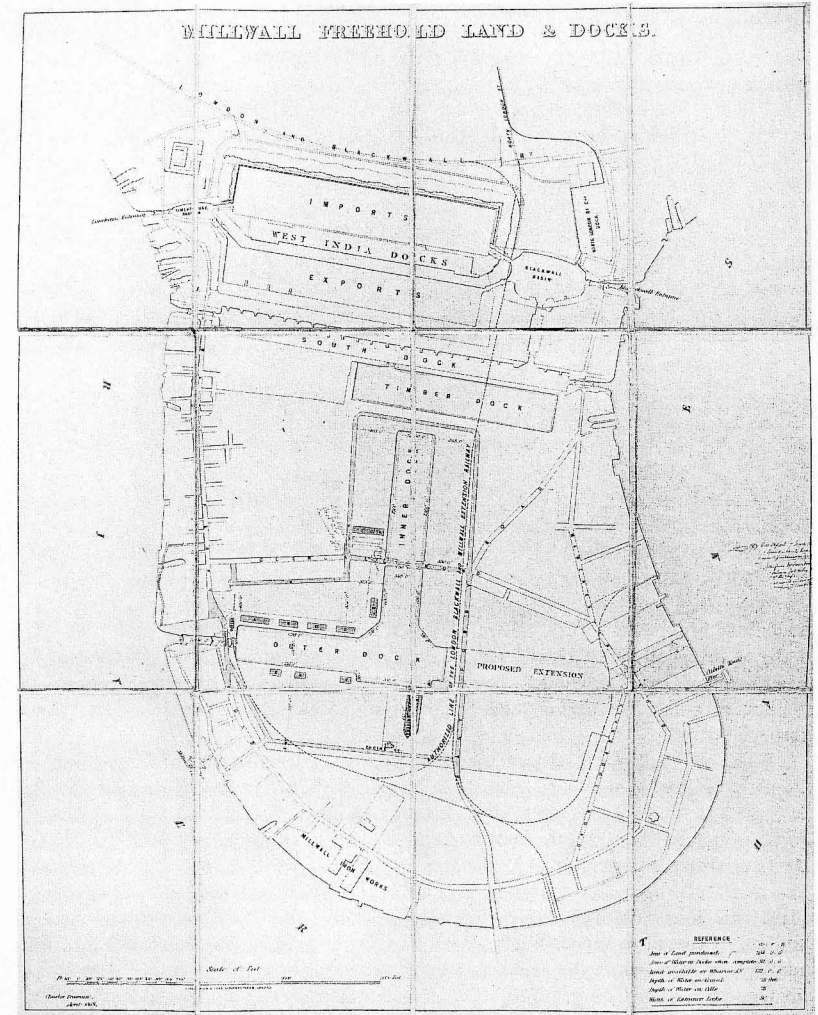


FIG. 5. Millwall Freehold Land and Docks: map by Charles Freeman for the Wharf and Warehouse Committee of the London Fire Offices, 1868 (Museum in Docklands Archive).

improvement of trade into the docks and stabilisation of the company's finances. Parkes, together with Birt and Duckham, pulled the Millwall Docks through the latter part of the nineteenth century [74].

Description of the Docks

Excavation of the Millwall Docks was relatively easy because the land lay very low, generally about 10 ft below high water, and the spoil could be used on site to raise the level of the quays. Progress was rapid and the works were apparently very well organised. It was reported in early 1866 that there were on the site, “2000 men and boys, and 300 horses, aided by every feasible mechanical appliance, steam engines, cranes, lifts, waggons, and tramways . . . The whole ground is in a manner ribbed with tramways—a huge gridiron”. Outside the gates there was “a regular market, in which the navy may purchase his high-lows, his furry cap, his velveteen vest, and every other article of his wardrobe, his teakettle, his gridiron, and his milk-can” [75].

Within 6 months of the July 1865 start the concrete and brick dock walls were building [76]. In somewhat less than 2 years more than 8000 ft of 28 to 30 ft high dock wall was completed. This walling, which survives hidden behind later quays, has straight sides with a slight batter. The brick skin, about 2 ft thick, is backed by mass concrete up to 11 ft 6 in. thick. Horizontal bands or courses of brickwork tie the brick facing to the concrete backing [77]. Mid-nineteenth century engineers used several methods to combine brick and concrete in dock walling. The transition from solid brick to solid concrete dock walls is well represented in London. James Meadows Rendel designed solid brick walls on mass concrete foundations with ragstone facing for the West India Junction Dock in 1850–53. A generation later, in 1876–80, his son, Alexander Meadows Rendel, designed solid mass concrete walls for the Royal Albert Dock. Between the two ends of the typology the walls of the Commercial Docks South Dock, designed by Walker, Burges and Cooper and built by Kelk in 1851–55, provide something of a model for the ‘horizontal layer’ walling of the Millwall Docks [78]. The walls of the South West India Dock, built 1867–70, are quite different to those of its nearly contemporary neighbour. There (Sir) John Hawkshaw designed ‘vertical pocket’ walling in which the Commercial Docks South Dock system was in effect turned through 90° [79].

When the Millwall Dock entrance lock opened in 1868 it was the largest lock in London, 80 ft wide and 28 ft deep at high water, with twin locks, 250 and 200 ft long, on 3 ft 9 in. thick brick inverts over a bed of concrete. Sluices and culverts allowed water to move either from the lock to the dock or the river or directly from the dock to the river with a discharge to scour the gate platforms. There were six massive wrought-iron gate leaves. Each was 42 ft 3 in. wide by 34 ft high and weighed about 60 tons. The gates were innovative in being perforated on the river side to allow water to flow in and out of compartments or boxes, thereby reducing the effect of impact damage. The gate rollers were removable and separate hydraulic engines worked each of the chains opening or closing each gate [80]. These gates, together with all the related hydraulic machinery, capstans and other hydraulic fittings at the docks, were supplied and fitted by W. G. Armstrong and Company, who took only four months to carry out the contract [81]. A marvelous series of photographs records the erection of the lock gates in the summer of 1867 (Fig. 6). (The top-hatted figure may be James Hendry who supervised Armstrong and Company’s work at the Millwall Docks.) These give an excellent impression of the scale of the gates and dock walls. The gates have gone but the lock survives, though mutilated. Last used in 1939 it was dammed at its inner end in 1956 and largely filled by the LDDC in 1988 [82].

The graving dock is another of the few original features of the Millwall Docks to survive. It is now used as a marina for a housing estate known as Clipper Quay. When

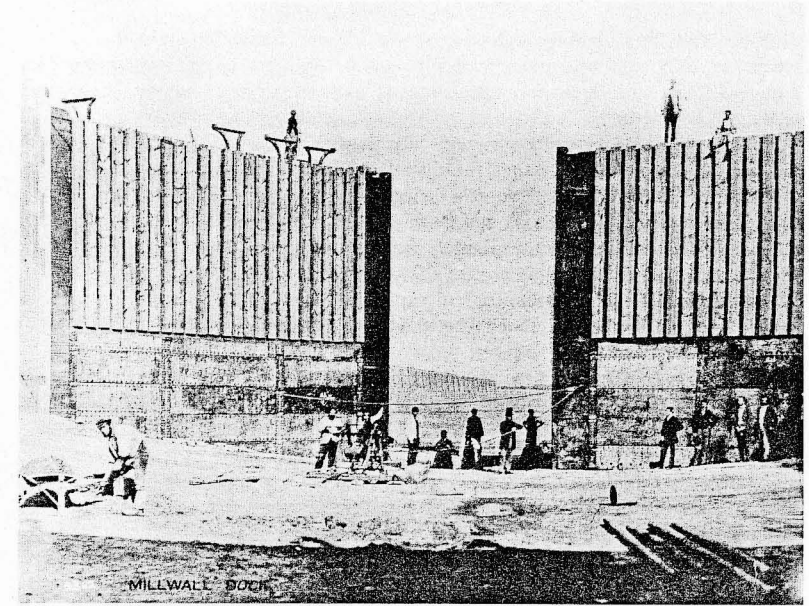


FIG. 6. Inner gates to the Millwall Docks Entrance Lock looking into the Inner Dock, 1867 (Museum in Docklands Archive).

it opened this graving dock was acclaimed as the best on the Thames. It was originally 413 ft long (lengthened to 550 ft in 1912), 25 ft deep and 65 ft wide at its entrance, which had a W. G. Armstrong and Company caisson. The graving dock was founded on a series of inverted brick arches. Underneath the altars or steps there were recesses for movable ‘bilge-block carriages’ to assist in propping up the ships. It was emptied by means of two culverts at its head. At low tide much of the water was discharged through the upper culvert which ran straight to the river outside the entrance lock. The residual water was pumped out through the lower culvert [83]. Despite the promise made to Parliament the graving dock was never ‘public’. From the onset it was let to ship-repairers, not to ship-owners [84].

The warehouses at the Millwall Docks were an afterthought, built reluctantly and cheaply when the use of the premises for warehousing became unavoidable after the 1866 Crash. The first nine single-storey stock-brick shed-warehouses were built by Kelk and Aird in two months in late 1867 to plans apparently prepared by Duckham [85]. They varied in length from 100 ft to 300 ft, but were all 60 ft wide with 15 ft clearances to the tie beams. The roofs had timber trusses with wrought-iron king- and queen-bolts. The dock company was in no state to pay for other than utterly utilitarian and conventional buildings, undivided and suitable for the storage of all variety of bulk goods. They were full by 1869, but Birt tried to fend off further spending on warehousing. Pressure for more buildings grew and the insurers, through the Wharf

and Warehouse Committee of the London Fire Offices, which acted very like a modern planning authority, may have been stipulating the segregation of goods. Parkes asked Kelk to build some more warehouses, but Kelk was disengaged from the Millwall Docks in 1869 and was perhaps disinclined to return. Another contractor, John Langham Reed, built three more warehouses on a lease-back arrangement. The number of warehouses at the Millwall Docks gradually increased in the following years [86].

The Millwall Docks estate was more fully developed by 1873 (Fig. 1). The railway had arrived and interest in sites for manufacturing had begun to revive. The first manufacturing tenants were Hooper's Telegraph Works and McDougall Brothers, the flour refiners. Steadily through the latter part of the nineteenth century the dock company developed its premises, largely for grain imports, but with an opportunistic eye to other uses. By 1909, the date of the takeover of the Millwall Docks by the Port of London Authority, the premises had expanded to the north-west; the extension to the east was still notionally, though not seriously, projected, and the docks had steady if not lucrative business.

There is a sad postscript to the story of the building of the Millwall Docks. In 1899, after 32 years managing the docks, George Raymond Birt was convicted of false accounting [87]. For more than 20 years he had been falsifying the amounts owed to the dock company in rents and rates. This fraud had accumulated until it stood at more than £200,000. The company had been paying out dividends on non-existent earnings, and had thus been frittering away its capital. Birt's motives were not primarily personal gain, though he did earn a commission on the company's profits. He had fought very hard in the late 1860s and early 1870s to establish a niche in the Port for the Millwall Dock Company. Against the odds this dock that was not meant to be a dock succeeded in cornering a significant portion of London's grain trade, in large part through Birt's efforts. The company was always vulnerable to competition and Birt had resorted to fraud to make the dock's business appear larger than it was, to protect the company's position and his own self-esteem. He was perhaps the last victim of the fraudulent circumstances of the company's launch.

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