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THOS. E. HARRISON, President,
in the Chair.

No. 1,416.—“The Hull Docks.”¹ By Sir WILLIAM WRIGHT,
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IN the beginning of the reign of Queen Elizabeth an Act of Parliament was passed providing for the establishment of legal quays and wharves in all the ports in this country, Hull only excepted. It is hard to explain why this exception was made, unless there were difficulties in the way of forming a quay at Hull, as would appear to have been the case from the oldest maps to which reference can now be made.

Owing to the situation of the Old Harbour, with the citadel on the east and with houses extending to the very brink of the river on the other side, no room was really left for the construction of a legal quay, or for the thoroughfare in connection with it. However, the result was that the Revenue suffered greatly in consequence of extensive smuggling transactions. It is recorded that, in the year 1746 especially, many illegal practices were discovered; and surveyors and other officers sent down there reported that, in the interests of the public revenue, it was absolutely necessary legal quays should be established. They drew attention to the fact that, there being no public thoroughfare along the side of the harbour, the officers had great difficulty in collecting the customs, and the goods had to be watched both on board ship and also on board the lighters or craft which took them to shore, in case of discharge in the Humber, whilst the position of the houses and other property along the Old Harbour gave peculiar facilities for smuggling. Many deserving officers were found to have been dismissed from the service of the customs because they had been supposed to connive at evasions which the state of the harbour had rendered it impossible for them to

¹ The discussion on this Paper was taken in conjunction with the succeeding one, and occupied portions of two evenings, but an abstract of the whole is given consecutively.

control or prevent. This determined the Government to take direct action with a view to obtain legal quays at Hull as at other ports. But the owners of private property abutting on the Old Harbour at the west side of the river Hull, including the Municipal Corporation of the town, who were interested in that property, were opposed to the scheme, and the movement of the Commissioners of Customs to obtain the establishment of legal quays met with decided and almost general local opposition and resistance. So matters drifted on until about the year 1764, when a specific suggestion was made that legal quays should be formed upon the east side of the harbour, along what was called the "Garrison Ground"; and in the year 1767 the Corporation introduced a bill into Parliament for the construction of a dock on the east side, though still unwilling to promote the formation of a legal quay, and the consequence of this was that the customs authorities resisted the bill, and it failed. It was then suggested that legal quays should be established on the west side of the harbour, but to this the customs authorities objected.

Further reports ended in the Customs Commissioners insisting upon the dock and the legal quay being placed together; and the Corporation, still adhering to the plan of an east dock, but resisting the connexion of the legal quay with it, again attempted to obtain parliamentary sanction to their scheme, and failed. Thereupon, the customs authorities having proposed that they themselves should buy or rent land in Hull for a legal quay and custom-house, the Corporation again began negotiations, and as their local interests were determined that the quay should be in front of the existing property on the Old Harbour, the Customs Commissioners appear to have at last consented to the quay being so established. Whilst, however, these negotiations were going on, some parties who were interested in the port of Gainsborough invited the commissioners to go to Gainsborough and there form a legal quay. This proposal aroused the Hull merchants, and ultimately a suggestion was entertained for making a custom-house and legal quay on the Old Harbour. But this scheme would have necessitated the banking-in of the Old Harbour, which was opposed by land-owners having property higher up the river, and in consequence of the opposition this scheme also failed.

Mr. Grundy was now appointed to consider the matter, and he suggested three modes of proceeding, one of which was the conversion of the old ditches on the west side of the town into docks, a plan which was eventually adopted. Thus the older portion

of the present system of docks was early shadowed forth. This scheme was brought before the Corporation of Hull, they having certain claims on the Old Harbour in the shape of Water Bailiffs' Dues; while another body collected what were called "Primage Dues." The result being of importance to both bodies, a great deal of discussion took place on the subject between the Corporation and the Trinity House. Thus in the Treasury Book of 1773 it is found that, at a meeting at which Lord North and other members were present, Sir William Musgrave said that "the commissioners did not wish to diminish the trade of the town of Hull, but that they had determined that they would be trifled with no longer, and that, although they wished to proceed in the most friendly manner with the town, yet should they find great local unwillingness to co-operate with the Board for the general good, they should then certainly revert to what was before the Lords of the Treasury the previous year, viz., the making of a port at Gainsborough, and do such other things in the neighbourhood of Hull as for the trade of the country it appeared to them they ought to do." In fact, it was now made clear to the Corporation of Hull, and to the representatives of the mercantile interests there, that the system of smuggling must be put an end to, that such steps must be accompanied by the construction of proper dock accommodation and legal quays, and that the utmost that parties could expect was fair compensation for the loss of any exclusive advantages. The result, as appears by a Treasury Minute of the 11th of March, 1773, was a distinct proposition to the Corporation to undertake the formation of a dock, which they, however, declined to make. Overtures were then made that the Trinity House, who had the chief interest because of their revenues from shipping, should do so. However, neither corporation would undertake the new works, but they both became subscribers in the Company which it was now determined to form, and to whom it was left to raise the necessary funds to carry out what was at the time considered a hazardous speculation.

In the year 1774 the first Act was obtained. This, after reciting the Acts of Elizabeth and Charles containing the exemption in favour of Hull before referred to, went on to recite that "after the passing of this Act his Majesty might assign and appoint such open places, quays, or wharves at Hull on the west side of the harbour and on the walls adjoining the town's ditches to be level open places, quays, and wharves," and so on. Here, then, is the first enactment establishing the

principle of there being new docks with legal quays in the position represented formerly by the "town's ditches." And further, that there should be also the power of setting out legal quays upon the west side of the harbour along the frontage of the Old Harbour proprietors.

The Act goes on to recite that it is necessary that a basin or dock with sluices, roads, &c., shall be provided, and it enables the Company to make them. It was also arranged that the Corporation, the Trinity House, and the Charter House of Hull were to be permitted to take shares in the capital of the Company. The Crown granted land, and £15,000 in money, to aid in the construction of the works. Borrowing powers were conferred upon the Company in addition to their share capital, and commissioners were appointed to control the undertaking generally. The Company was incorporated by the style and title of "The Dock Company at Kingston-upon-Hull," which name it has ever since retained. Tonnage and other rates were granted to the Company upon shipping and goods in consideration of their undertaking the work. One of their first acts was to seek an interview with Mr. Berry, the Engineer of the Liverpool Docks, and in the month of August it was decided that his plans for the intended new dock and quay should be carried into execution. The work was prosecuted with vigour, and the dock, now known as the "Queen's" Dock (but first called the "Old" Dock), was completed in 1778. The result of the formation of this dock was the speedy and large increase of the trade of the port, so that the question of further dock accommodation was started before the end of the eighteenth century.

The whole of the land granted by the Crown had not been exhausted in the formation of the "Old" Dock; still it remained for some time a vexed question as to whether the Company should make another dock so early as twenty years after the commencement of the first. Again negotiations took place between the Dock Company, the Municipal Corporation, and the Trinity House. The dues received by these two last-mentioned bodies had largely increased since the opening of the dock. Indeed, in twenty years the dues payable to the Corporation had increased sevenfold, and in the case of the Trinity House rates it is believed that the increase was proportionately large. These bodies, therefore, were now not unwilling to assist in the formation of another dock. The Crown also agreed again to give assistance, and did so by the sale of further land at a low price. In 1802 an Act was obtained under which the "Humber" Dock was made, the second constructed

at Hull, and opened in the year 1809. In 1825 the "Prince's" Dock was made. This was constructed at the sole cost of the Company. The trade of the port now increased immensely. The population of Hull had trebled within a short time; and, accordingly, in the year 1840, the Company went to Parliament with a bill to authorise the formation of another dock east of the Old Harbour. To the west of the Old Harbour the whole of the then town had been inclosed by the three docks already described. It was originally intended to construct this dock (since called the "Victoria" Dock) with an entrance from the Humber only, but it was subsequently determined to add the entrance into the Old Harbour. This bill, on account of local opposition, had to be withdrawn; but in 1844 application was again made to Parliament for power to construct in addition, a basin to the "Victoria" Dock, also the "Railway" Dock, to open out of the Humber Dock, and close to the terminus of the North-Eastern (then the Hull and Selby) railway. The power to make these docks was not obtained without severe struggles with many local bodies and interests, but the Company was successful.

Power was now obtained to lay rails along the quays of the docks for facilitating the conveyance of goods to and from the railway terminus. The Company were also at this time authorised to erect warehouses in the immediate vicinity of the docks. Of these the "Railway" Dock was finished in 1846, and the "Victoria" Dock in 1849; and the trade of the port by this time ranked next to London and Liverpool.

Subsequently the "Victoria" Dock was considerably enlarged; and in 1861 an Act was obtained authorising the Company to construct another dock on the west foreshore of the river Humber. This was finished in 1869, having been extended, in the course of its construction, considerably beyond what was originally contemplated. It was opened by H.R.H. the Prince of Wales on the 29th of July, 1869, when it received its present name, the "Albert" Dock.

THE QUEEN'S DOCK comprises a water area of about 10 acres. Its length is 1,703 feet, and breadth 254 feet. The depth of water on the sill at average spring tides is 20 feet 6 inches. The first stone was laid on the 19th of October, 1775, by Mr. Joseph Outran, then mayor of Hull, one of the commissioners under the first dock Act. The Engineer was Mr. John Grundy, although the first designs were prepared by Mr. Berry, of Liverpool. Mr. Luke Holt was the Resident Engineer. In 1814

the lock and basin of this dock were rebuilt by Mr. Rennie. The first ship entered the dock on the 22nd of September, 1778, and the legal quay was opened for business at Michaelmas 1779. The northern quay is devoted chiefly to the discharge of deals and timber, and almost the whole length of the dock along its north side is flanked by extensive timber-yards, the property of the Company, and occupied by merchants as their tenants. On the south side vessels engaged in various trades are accommodated. The quay is covered to a depth of about 30 feet by sheds almost along its whole length, whilst to the southward of this, on the other side of a wide road for cartage and railway lines, are several of the warehouses of the Company, in which are stored large quantities of goods, including hemp, flax, grain, &c. Here there are extensive cellars for the storage of oil. On the quays of this dock are seven cranes for discharging and loading vessels. At the south-east corner of the dock is the principal yard of the Company, where a great part of the work carried on by the Engineer's staff is performed.

THE HUMBER DOCK contains upwards of 7 acres of water space. The first stone was laid on the 13th of April, 1807, by Mr. Henry Maister, the then Chairman of the Company. Its length is 904 feet, and breadth 342 feet; the width, of the entrance into the Humber is $41\frac{1}{2}$ feet, and into the "Princes" Dock $35\frac{1}{2}$ feet. The depth of water on the sill at neap tides is 21 feet, and at ordinary spring tides $26\frac{1}{2}$ feet. The Engineers were Mr. John Rennie and Mr. William Chapman, and the Resident Engineer was Mr. John Harrop. Sheds are erected on the quays almost entirely round this dock. It is occupied principally by steamers engaged in the Hamburg, Rotterdam, Antwerp, and French trades. The quays are laid with rails, and there are four cranes of large size, besides smaller ones attached to the sheds.

THE PRINCE'S DOCK occupies upwards of 6 acres of water area. The first stone was laid on the 10th of December, 1827, by Mr. J. C. Parker, the Chairman of the Company, and it was finished and opened in 1829. Mr. James Walker, Past-President Inst. C.E., was the Engineer of the works, and Mr. John Timperley the Resident Engineer. Its length is 604 feet, and breadth 407 feet. The entrance lock between it and the Humber Dock is 120 feet long, and 36 feet 6 inches wide. The depth of water at neap tides is 15 feet, and at spring tides 20 feet 6 inches. Sheds extend along the east and west sides, and the greater part of the south side of the dock, and there are five cranes on the quays, besides smaller ones attached to the sheds.

THE RAILWAY DOCK is 2 acres 3 roods 2 poles in extent. Its length is 700 feet, breadth 180 feet; the depth of water on the sill at neap tides is 21 feet, and at spring tides 26 feet 6 inches. The foundation stone was laid by Mr. Huffam, then Secretary of the Company, on the 28th of May, 1845. The late Mr. J. B. Hartley, M. Inst. C.E., was the Engineer, and Mr. Lane the Resident Engineer. The Contractors were Messrs. Bowers and Murray, and the dock was finished and opened in 1846. The north, west, and south quays are covered by sheds, and on the north and south quays there are cranes capable of lifting 20 tons. Along the south side, beyond the sheds, is a block of some of the finest warehouses belonging to the Company. In this dock steamers of the largest class, trading with Russia, Norway, Sweden, &c., discharge and load, and there is probably no dock in the kingdom where the same amount of work is done in an equal space.

THE VICTORIA DOCK covers upwards of 20 acres of water space; there are besides three basins which comprise upwards of 6 acres more. The foundation stone was laid on the 1st of November, 1846, by Mr. Beadle, the Chairman of the Company. The Engineer was the late Mr. J. B. Hartley, and the Resident Engineer Mr. Edward Welsh, M. Inst. C.E. Its length is 2,000 feet, and breadth 378 feet. The depth of water on the sills at neap tides is 22 feet, and at spring tides 27 feet 6 inches. It has two entrances—one into the Humber and one into the Old Harbour. The width of the former is 60 feet, and of the latter 45 feet. The quays of this dock are also provided with lines of railway, behind which are extensive yards, the property of the Company, let to various firms engaged in the timber trade, to which trade this dock is chiefly devoted. At its east end, and also to the south, are two extensive timber-ponds, the former upwards of 11 acres, and the latter 14 acres in extent; both of which are almost always fully occupied. In the immediate vicinity of this dock are two patent slips, the property of the Company, for hauling up and repairing vessels. They are capable of accommodating ships of 2,000 tons burden and upwards. On the quays are several cranes, capable of lifting from 10 tons to 60 tons each.

THE ALBERT DOCK contains upwards of 24 acres of water space. It is 3,400 feet long, with an average width of 300 feet. The depth of water on the sill at neap tides is 23 feet, and at spring tides 28 feet 6 inches. The length of the entrance lock is 300 feet, and its width 80 feet. The first stone was laid by the Author, the Chairman of the Company, on the 21st of May, 1864. It was

opened in July 1869, by H.R.H. the Prince of Wales. Sir John Hawkshaw, Past-President Inst. C.E., was the Engineer, and Mr. J. Clarke Hawkshaw, M.A., M. Inst. C.E., the Resident Engineer. This dock is surrounded by lines of railway, and has warehouses along its northern quay. The ground-floor of the warehouses is left open, with doors that can be closed if required, so that it can be used either for the storage of goods or as sheds. On the north quay there are several ordinary cranes, capable of lifting from 15 tons to 30 tons each, besides hydraulic cranes attached to the warehouses, both in front and behind the buildings. At the east end, on the quays of a creek specially constructed for the purpose, the North-Eastern and the Manchester, Sheffield, and Lincolnshire Railway Companies have shipping places, with cranes and other conveniences. Between this and the Humber Dock is an extensive basin, of nearly 7 acres area, a portion of the centre of which is, however, now being filled in, whereon to erect station accommodation for the Manchester, Sheffield, and Lincolnshire Railway Company. From the depth of water and the width of the entrance, the largest vessels, with the solitary exception of the "Great Eastern," can enter this dock.

Two additional docks are now being made, immediately beyond and to the westward of the Albert Dock, upon foreshore land, the property of the Company, which was purchased from the Crown at the time the Albert Dock was being constructed. The one to the east will be $8\frac{1}{2}$ acres in area, 1,390 feet long and 220 feet wide, with an entrance from the Albert Dock, 50 feet in width. It will be especially adapted for the accommodation of steamers, although available for sailing-vessels. Extensive sheds and powerful cranes will be erected on the quays, and all recent improvements in the way of appliances, &c. The second dock, to the west of this, with an independent entrance from the river Humber, and a lock 250 feet long and 50 feet wide, will be 1,802 feet long, and 250 feet wide, and comprise an area of water of 10 acres. This dock is intended for general trade, and will be furnished with sheds and cranes of the most approved character. The dock is being so constructed as to be capable at any time of large increase, even to as much as 30 acres. These new works are in course of construction from plans by the Engineer of the Company, Mr. R. A. Marillier, M. Inst. C.E., Sir John Hawkshaw being the Consulting Engineer. The whole of the masonry will be executed under the superintendence of the Engineer, by men in the employment of the Company; the only contract, that for the excavations, has been let to Messrs. John Bayliss and Son. When these

additional works are completed, the water area of the docks and basins will amount to about 103 acres, exclusive of the two timber-ponds, which comprise 25 acres.

The warehouses of the Dock Company are twenty-four in number, five being situated on the quays of the Queen's Dock, two to the south of the Prince's Dock, two at the Humber Dock, four at the Railway Dock, three at the Victoria Dock, and eight at the Albert Dock. They are capable of storing about 500,000 quarters of grain and seed, or a proportionate quantity of other articles. The goods in these warehouses consist for the most part of grain, seed, hemp, wool, guano, and oil, with smaller quantities of other articles.

The following table of the tonnage of vessels frequenting the port, and paying dues to the Company, will show the increase since the first dock was constructed:—

In 1775 . . .	109,491 tons.	In 1835 . . .	413,135 tons.
1785 . . .	117,743 "	1845 . . .	710,038 "
1795 . . .	150,536 "	1855 . . .	782,411 "
1805 . . .	174,875 "	1865 . . .	1,262,763 "
1815 . . .	265,232 "	1874 . . .	over 2,000,000 "
1825 . . .	448,911 "		

In the year 1775 the gross receipts of the Company were £4,663; in 1873 they amounted to £176,716; and for 1874 they will be considerably in excess of this sum.

The navigation of the river Humber is easy to vessels of the largest draught. Other railway companies besides the North-Eastern have lately had their attention turned to the increasing trade of the port; and there can be little doubt that if the present enlightened management of the affairs of the Dock Company continues, Hull has before her an increase of trade and prosperity greater even than that which has already taken place.