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The World's Columbian Water Commerce Congress
CHICAGO, 1893

THE MANCHESTER SHIP CANAL

BY

ELIJAH HELM

Secretary of the Manchester Chamber of Commerce

F. No. 19844



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MANCHESTER, 15th July, 1893.

WILLIAM WATSON, ESQ.,

*General Secretary The World's Columbian
Water Commerce Congress:*

Dear Sir,—I am sorry I have not been able to carry out your request that I should contribute a paper on the Manchester Ship Canal to your Congress. I have, however, persuaded my friend, Mr. Elijah Helm, Secretary of the Manchester Chamber of Commerce, to write the paper which follows, and which it perhaps will be useful for me to preface with some statistics of the undertaking.

The Manchester Ship Canal will be open for traffic throughout its entire length within six months from date.

It will provide the nearest ocean steamer port for a population of more than 8,000,000, largely depending upon imports for raw materials and food supply.

Upwards of 2,500,000 of this population are within carting distance of the Manchester docks.

This carting zone has within its area the cotton mills, which consume three fourths of the entire raw cotton imports.

The minimum width of the Ship Canal at the bottom is 120 feet, as compared with 72 feet in the Suez Canal. The width at the water level varies according to the nature of the material through which it is cut, the narrowest width being 130 feet where the sides are of rock, even faced.

The depth of water is 26 feet.

The canal is practically one continuous dock, 35 miles in length, divided into 5 ponds by that number of sets of locks.

Each of 4 sets of locks comprises one lock 600 feet by 65 feet, and another alongside 350 feet by 45 feet.

The set of locks at the entrance at Eastham comprises three locks, the largest 600 feet by 80 feet, the intermediate 350 feet by 50 feet, and the smallest lock 150 feet by 30 feet.

The sills of the Eastham locks are 11 feet lower than the deepest sills of the Liverpool docks, so that vessels may lock into the canal immediately on their arrival from sea, instead of having to wait for high tide to dock, as at other docks in the Mersey.

Six subsidiary locks have been constructed at various points alongside the Ship Canal, to provide connections with navigations communicating.

Nearly every town in the large manufacturing district which the Ship Canal will serve, is situated upon a canal which is in communication with the Ship Canal.

The Ship Canal is also in direct communication with the whole railway system of the country.

The five railways which crossed the line of the Ship Canal at comparatively low levels, have been raised at a cost of more than \$10,000,000 to a sufficient height (75 feet from the water level) to enable vessels to pass under them.

The gradients of these new railway deviations are not greater than 1 in 135, the old lines forming a means of communication between the railways and the Ship Canal bank.

Six roads cross the Canal by steel swing bridges worked by hydraulic power.

A steel swing aqueduct carries the Bridgewater Canal across the Ship Canal at Barton, the aqueduct swinging full of water, to allow ships to pass.

The docks at the Manchester terminus of the Canal have a water area exceeding 100 acres, and quay area exceeding 150 acres, with 5 miles of quay fitted up for hydraulic power.

There are various *entrepôts* for dealing with traffic along the canal: at Partington, hydraulic coal tips of the newest

design have been erected; at Warrington the sea-borne business of that large town will be conducted; at Runcorn a large shipping trade already exists; and Saltport is a new place, where 100,000 tons of traffic were dealt with during the first six months of its existence.

Ten miles of the canal are opened between Eastham and Saltport, and large vessels, drawing more than 22 feet of water, are now discharging upon that section.

Yours faithfully,

MARSHALL STEVENS,

Manager.

THE MANCHESTER SHIP CANAL.

Before the end of the month of January, 1894, ocean steamers will be moored alongside the quays of the new port of Manchester, 40 miles from the seaboard. In order to realize the full significance of this fact, and of all that it implies, nothing less than a strong effort of the imagination, and the possession of certain statistical knowledge, is sufficient. Probably, indeed, there are very few men who have yet formed anything like an adequate conception of the remarkable commercial and industrial developments which, after the lapse of a comparatively short period, will follow the opening of the Manchester Ship Canal. These changes are so vast, so varied, and so interdependent, that they can be realized even in outline, only by steady thought. They involve a transformation unlike anything which mankind has ever seen. The rapid growth of the Western American cities is wonderful in its way; but here we have to contemplate the sudden creation of a great port in direct communication with all parts of the world, close to, and partly within, the confines of an immense commercial city, and surrounded by an industrial population, within a 20-mile radius of 3,250,000. But the area which the ship canal will serve is much wider, and we must double this number of people, at least, in order to form an approximately adequate idea of the range of its utility.

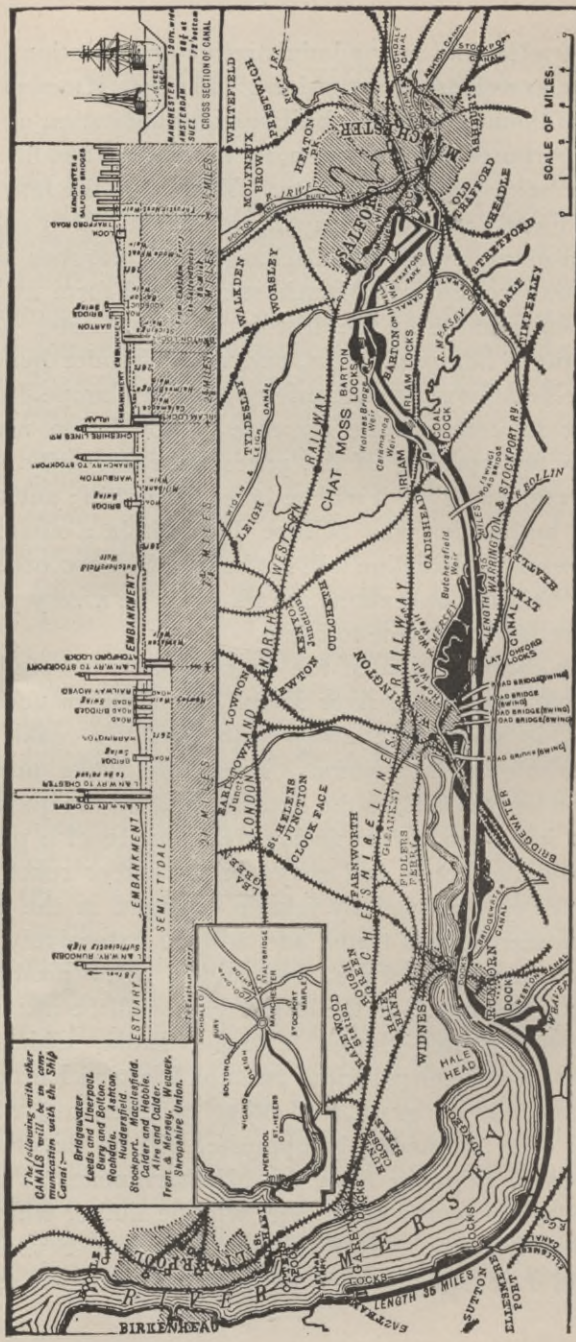
Even then the limit will not be reached. This population, too, in a degree not approached by any community of equal size, exchanges the products of its industry with those of lands beyond the sea, to and from which access can be most easily obtained through the canal. A direct water route to the ocean for the largest merchant steamers is therefore an acquisition of the highest importance.

But the establishment of a new port, of the magnitude thus indicated, means the establishment of new industries,

new trades, and new administrative organizations of many kinds, as well as the extension of old ones. It means the erection of thousands of new buildings for habitation or for business purposes, for education, for recreation, and for all kinds of services, public or private. Years ago the late Sir William Fairbairn said, "Any improvement which will enable ocean-going vessels to discharge their cargoes in a commodious wet dock in Manchester, would form an epoch of such magnitude in the history of Manchester as would quadruple her population, and would render her the first, as well as the most enterprising, city in Europe." Any attempt to estimate the increase of population which will follow the opening of the port must necessarily be highly conjectural. That it will be large, is certain; and there are good authorities who believe that, within a comparatively few years, the addition will not be less than 200,000. In any case, building operations are likely to be a very prominent feature for some time to come.

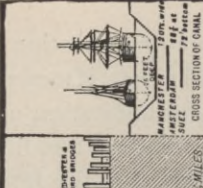
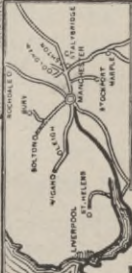
The configuration of the docks must be carefully noted. The old bed of the river Irwell, formerly tortuous at this point, is now done away with, and the canal receives the whole of its waters. From the locks near Mode Wheel on the left, to the extreme end of the quays on the right, and even higher up the river, one level is preserved. The smaller docks and quays in the upper reach will be principally occupied by vessels engaged in the coasting, and nearer foreign trade, and will be extensively used for the discharge of fruits, vegetables, dairy products, and other provisions. In the larger docks will be moored ships from the United States, Canada, India, China, South America, and the principal ports of Western Europe, landing raw cotton, grain, and other productions; whilst the south quay, immediately opposite, will be devoted to the service of shipping from the Mediterranean. Further to the left, and on the same side, will be timber wharves and a graving dock. Still farther, and just beyond Mode Wheel Locks, cattle will be received, as well as on the

THE MANCHESTER SHIP CANAL.



The following with other CANALS will be in communication with the Ship Canal:

- Bridgewater
- Leds and Liverpool
- Bury and Bolton
- Rochdale
- Nuddersfield
- Stooper, Macclesfield
- Calder and Hebble
- Trent & Mersey
- Waber
- Sheepshole Union



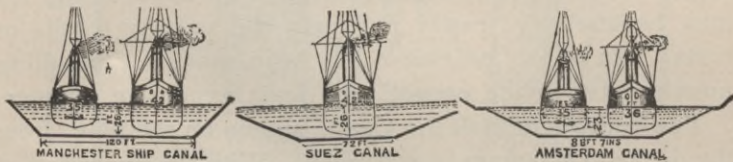
SCALE OF MILES.

opposite bank. Here, also, will be built grain elevators, and warehouses for the cold storage of meat. This is a rough sketch of the allocation of traffic so far made; and it may be remarked, in passing, that already arrangements have been entered into for the importation of food products, which, when carried out, will at once place Manchester among the largest ports in the kingdom for this class of merchandise.

The surface of the water space in these docks is $104\frac{1}{2}$ acres; the area of the quays 172 acres, and their length $5\frac{1}{8}$ miles. The construction of the dock sheds is going on, and one is completed. The floor of each shed is 4 feet above the level of the quay, and triple lines of rails run alongside. Mains are laid down beneath the quays for the supply of water to hydraulic cranes, which will convey cargo between the hold of the vessel and carts, or railway trucks, to the sheds. Inward cargo, once deposited on the higher level of these, will not need to be lifted again, but may be afterward easily put upon the railway trucks or carts. In short, provision has been made for handling merchandise in the easiest and least expensive manner.

The entire length of the Canal, shown on the plan, from the docks to Eastham is $35\frac{1}{2}$ miles. With the exception of trifling portions, purposely occupied by dams, or where railways have hitherto crossed the ground, the whole of the canal is cut. The railway trains now pass over the deviation lines and bridges made for them by the Canal Company, and the water way is being made through the land formerly used by them, except the portion now occupied by the line from Warrington to Chester, which it is expected will be given up to the Canal Company in the course of a few days. The construction of the sea wall at Runcorn on the estuary side of the Canal, an exceedingly substantial piece of work, is all but complete. The old aqueduct at Barton, the masterpiece of Brindley, is in the course of demolition, and the Bridgewater Canal will pass over the Ship Canal by a new movable bridge, worked by hydraulic

power. From the Weaver basin, near Runcorn, to the outlet at Eastham, a distance of $9\frac{1}{2}$ miles, the Canal has already been open for more than a year; and upon this fine piece of water way, of which two illustrations are presented, a considerable amount of traffic, including that of the Weaver navigation and the Shropshire canals, is daily carried on, independently of the tides. Twice a week steamers convey merchandise between London and Manchester, the distance between Saltport, near the Weaver basin, and Manchester being temporarily covered by the Bridgewater Canal,—a branch of the Ship Canal owned by the Ship Canal Company, or by railway. Vessels arrive and depart daily, also, from and to Glasgow and numerous British ports, and once a month a steamer sails from Saltport, conveying goods from Manchester to all parts of the Mediterranean. There is also, over this portion of the Canal, a regular service between Manchester and Treport for Paris.



Some notion of the capacity of the Canal may be drawn from the three cross sections herewith presented. They show respectively the depths of the Suez, the Amsterdam, and the Manchester Ship Canals.

The minimum width at the bottom of the first of these is 72 feet, and of the second 88 feet 7 inches, whilst that of the Manchester Canal is 120 feet. The minimum depth of this and of the Suez Canal alike is 26 feet, and that of the Amsterdam Canal 23 feet. On the Manchester water way there are five sets of locks: at Eastham (where the canal joins the estuary of the Mersey), Latchford, Irlam, Barton, and Mode Wheel. At Eastham there are parallel locks, the largest of which measures 600 feet by 80 feet; the intermediate, 350 feet by 50 feet; and the smallest, 150 feet

by 30 feet. At each of the other points there are two, the dimensions of which are 600 feet by 65 feet, and 350 feet by 30 feet. The time occupied in passing through each lock is from 5 to 7 minutes. Altogether, therefore, the delay occasioned by this operation in proceeding from sea level to the dock at Manchester, is only from 25 to 35 minutes. There is tide water all the way from Eastham to Latchford, within 16 miles of Manchester, this upper portion of the canal being supplied by water from the Irwell, the Mersey, and minor streams.

In attempting to form an idea of the prospects of the Manchester Ship Canal, the first question which arises is, What is the attitude toward it of shipowners? This is answered by a statement signed by 182 steamship owners, possessing more than 1,000 steamers, of an aggregate net tonnage of about 1,000,000 tons,—more than 25 per cent of the entire steamship tonnage of the United Kingdom. No Liverpool firm was invited to give its name to this document; but it is well known that several of the leading houses there have practically signified their acceptance of it, and have, in fact, engaged berths for their steamers at the docks. The statement declares (1) that the Canal will be navigable, without difficulty, by merchant steamers of the largest class; (2) that if the charges on the Ship Canal are not higher than those at the other ports (and they are actually less than at most), shipowners will at once make use of the water way as soon as it is open for traffic; and (3) that the additional 35½ miles to Manchester will not increase the rate of freight charged to Liverpool by a merchant steamer for a long voyage.

A remarkable fact, greatly to the advantage of the Ship Canal, should here be noted. The level of the dock sills at Liverpool is so high that vessels of large draught can enter the docks only upon a full tide. It consequently happens that the channel opposite Liverpool is almost constantly occupied with ships waiting for sufficient depth of water to dock. No such delay will be necessary in the

case of vessels of the largest size bound for Manchester. The course, after the bar at the mouth of the Mersey is passed, is at all times clear, through deep water, to the entrance lock at Eastham. Thence to the dock at Manchester there is a straight road, with a constant minimum depth of 26 feet, which may be covered within 6 or 7 hours. It will, therefore, frequently happen that of two steamers crossing the bar at the same time, one bound for Liverpool and the other for Manchester, the latter will be discharging her cargo before the former is laid alongside the quay. But to return. The 182 steamship owners who have signed the declaration already referred to are resident in Glasgow, Leith, Newcastle-on-Tyne, North Shields, Sunderland, West Hartlepool, Aberdeen, Dundee, Middlesborough, Stockton, Cardiff, Newport, London, Bristol, Plymouth, and Penzance.

We have next to inquire how the importers and exporters of merchandise regard the prospective opening of the Ship Canal. In the grain trade, 35 firms in Manchester, Sheffield, Wakefield, Stockport, Huddersfield, Rochdale, Lincoln, and Warrington have declared that the consumption of cereals is greater in the district of which Manchester is the center than in any other part of the United Kingdom; and that the quantity of grain carried over the Ship Canal will, as soon as it is completed, be at least one half of that now landed at Liverpool. Of fruit and vegetables, the consumption in the Manchester district is enormous, and 47 importers of these, in that district, have certified that the Canal will afford facilities not now possible, for rapid and cheap conveyance of their products; and that the imports by this route will at once reach at least 105,000 tons per annum. Ten large sugar merchants have stated that Manchester, already a great distributing center for the products in which they deal, will in this respect become much more important, and that not less than 100,000 tons per annum will pass through the Canal. Of dairy products, the consumption in the Manchester dis-

trict is enormous. Of foreign, Colonial, and Irish butter alone, the quantity disposed of annually in the Manchester market is 750,000 cwt.,—valued at £4,000,000,—and most of this will in future almost certainly be brought by the Canal.

But of much greater moment is the trade in raw cotton. What say the consumers of this product? Not fewer than 342 of them in Manchester, Oldham, Ashton-under-Lyne, Stalybridge, Mossley, Hyde, Glossop, Hollinwood, Shaw, Lees, Stockport, Bolton, Rochdale, Heywood, Bury, Bacup, Littleborough, and other towns, have declared that in their opinion nearly all the cotton which they use will be brought by the Ship Canal. These firms own 18,000,000 spindles, —more than one third of all those in the United Kingdom, —and they dispose of more than 320,000 tons of cotton per annum. Similar statements have been made by timber merchants, cattle importers, and others receiving produce or raw materials in large quantities in Lancashire, Yorkshire, and Cheshire.

Of outward cargo, consisting of cotton, woolen, and other textiles, as well as of machinery and numerous heavy materials, including coal, there will be no lack. Of textile manufactures alone at least 1,000,000 tons per annum pass through Manchester, and nearly 50 leading merchants have testified their belief that about one half of this quantity will at once be dispatched through the Ship Canal.

These statements afford only hints or outlines of the traffic which is awaiting the approaching opening of the new water way, and they embrace only a portion of the foreign and coastwise business which will be done through its instrumentality.

Excellent provision is made at Partington, a little westward of the Irlam locks, for the shipment in a capacious basin of cargo and bunker coal. This will be brought by railways already converging on the Canal at this point. On the north side the coal will be brought from the neighboring collieries in the Wigan district, and on the south

from South Yorkshire and Derbyshire. Already machinery is in position at the Partington basin capable of loading, with the utmost rapidity, four steamers simultaneously.

But it is time now to consider how far the anticipated traffic of the Canal will be original, and how far it will be merely diverted from old routes. There are no means of answering, with anything like definiteness, questions of this kind. The Canal will certainly be the future route of a considerable amount of traffic now passing through Liverpool. A mere glance at the map is sufficient to indicate, also, that over it will be conveyed merchandise at present reaching, or passing from, the densely populated counties of Lancashire, Yorkshire, Cheshire, and Derbyshire, not to speak of the Midlands, through the east coast ports, or through London, or over the railways to or from inland towns. But the canal will itself develop new traffic, for it will bring new industries and an increased population into the districts which it will serve. The whole length of the water way is practically a great dock, and along its course seats of industry and trade will spring up. Fresh industrial and mercantile enterprises are already being projected, and it is at present impossible to foresee any limit to them. While, therefore, a considerable proportion of the traffic which will pass through the canal must necessarily lessen, to a certain extent, that of Liverpool and of other ports, even on the east coast, and of the railways apart from those lying between Liverpool and Manchester, some of it will be new, and will owe its existence to the economy in the cost of carriage offered by the Canal.

Here the question arises, What is the amount of the economy thus promised? The only answer which can be given in definite figures, is that afforded by a comparison of the present cost of conveying merchandise between the hold of the ship at Liverpool, and the railway station or the barge canal wharf at Manchester, with that of landing it directly from the ship at the docks of the new port. Such

a comparison, in respect of thirteen leading articles of import, is afforded in the following tables:—

IN PARLIAMENT—SESSIONS 1883, 1884, AND 1885.

[Corrected to date.]

Table A—Referred to in the evidence of Mr. Marshall Stevens, showing:—

- (1) The present cost of bringing various articles from Liverpool to Manchester by Railway or Canal;
- (2) The cost of bringing same articles to Manchester by Ship Canal, including the payment of the *maximum* charges in the Bill; and
- (3) The comparison of the total charges in each case, showing the saving that will be effected by the Ship Canal.

Note.—The Charges payable by the Ship are not included, and are taken as equal at both destinations.

(1)—Present cost of Transit of various Articles from ex-Ship, Liverpool, to Railway Station or Canal Wharf, Manchester.

ARTICLE. PER 20 CWT.	Dock and Town Dues	Master Portage	Quay attendance	Carting to Rail or Barge	Railway or Canal Carriage	Total Per Ton
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cotton	3 0	1 3	1 0	1 3	7 2	13 8
Wool	3 6	1 6	1 0	1 3	9 2	16 5
Sugar (loaves)	3 0	1 10	1 0	1 3	10 10	17 11
Sugar (unrefined)	2 1	1 2	1 0	1 3	6 8	12 2
Bacon and Hams	2 2	1 5	1 0	1 3	9 2	15 0
Tinned Meats... ..	4 0	2 0	1 0	1 3	9 2	17 5
Tea	2 6	2 7	1 0	1 3	10 10	18 2
Grain (Wheat in Sacks)	1 4	0 8	0 3	1 0	6 8	9 11
Fruit (Oranges)	1 3	1 7	1 0	2 0	9 2	15 0
Petroleum	1 8	1 4	1 0	1 3	9 2	14 5
Tallow	2 3	1 1	1 0	1 3	7 11	13 6
Iron Ore... ..	0 3	1 2	0 1	1 3	4 2	6 11
Timber	1 0		1 9		6 8	9 5

(2)—The Cost of bringing the same Articles to Manchester by the Ship Canal, including the Maximum Charges in the Bill.

ARTICLE. PER 20 CWT.	Canal Toll	Landing Charges	Wharfage	Total Per Ton
	s. d.	s. d.	s. d.	s. d.
Cotton	4 3	1 0	1 9	7 0
Wool	5 0	1 0	1 9	7 9
Sugar (loaves)	4 2	1 0	1 6	6 8
Sugar (unrefined)	3 4	0 6	1 1	4 11
Bacon and Hams	5 0	0 6	1 1	6 7
Tinned Meats	5 0	1 0	2 0	8 0
Tea	5 10	1 6	1 3	8 7
Grain (Wheat in Sacks)	3 8	0 6	0 8	4 10
Fruit (Oranges)	5 0	0 6	0 8	6 2
Petroleum	4 7	0 6	0 10	5 11
Tallow	4 12	0 6	1 2	5 10
Iron Ore	12 1	0 6	0 3	2 10
Timber	3 9	0 6	0 6	4 9

(3)—Comparison of the Total Charges in No. 1 and No. 2, showing Total Saving by Canal.

	Cotton	Wool	Sugar (Lvs.)	Sugar (Raw)	Bacon	Tinned Meats	Tea	Wheat	Orngs.	Petroleum	Tallow	Iron Ore	Timber
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Present Cost	13 8	16 5	17 11	12 2	15 0	17 5	18 2	9 11	15 0	14 5	13 6	6 11	9 5
Cost by Ship Canal } SAVING per Ton ... }	7 0	7 9	6 8	4 11	6 7	8 0	8 7	4 10	6 2	5 11	5 10	2 10	4 9
	6 8	8 8	11 3	7 3	8 5	9 5	9 7	5 1	8 10	8 6	7 8	4 1	4 8

These charges are calculated upon the basis of the ton weight of 20 cwt., and the Canal tolls are reckoned at the maximum rates allowed under the Act of Parliament. It will be seen that the cost of laying down cotton, for example, at Manchester, by the Ship Canal, is 6*s.* 8*d.* per ton less than that now incurred in bringing it by rail or by Bridgewater Canal barge. It is said that as soon as the Ship Canal is opened the railway companies will reduce their rates, in order to compete effectually with the new route. It is well known, however, that the only portion of the item of 13*s.* 8*d.* per ton, representing the present cost, which is susceptible of appreciable reduction, is that of 7*s.* 2*d.* per ton for actual carriage over the lines. If from this amount the difference shown in Table 3 of 6*s.* 8*d.* per ton be deducted, it will appear that the charge for railway carriage from Liverpool to Manchester must be reduced to less than 6*d.* per ton before the advantage offered by the Canal, even when its highest rates are reckoned, can be overcome. Similar comparisons of other items in the list of commodities are sufficient to indicate the hopelessness of railway competition from Liverpool for the traffic between Manchester and the sea. I do not for a moment pretend that the great saving here shown will lead to the abandonment of Liverpool as the port of disembarkation of all, or anything like all, the traffic now passing due west and due east from or to Liverpool. There are many reasons why the great port on the Mersey will be able to keep a large proportion of its present transit trade, even with districts soon to be served directly from Manchester. Liverpool has highly organized systems of great excellence,—such as its cotton, grain, and provision markets,—which will tend to retain there the handling of much inward and outward cargo now passing between the two cities by railway, in spite of the economy of the Canal route. But the great cost of dealing with merchandise at Liverpool, between the ship and the railway or barge (amounting in the case of cotton to 6*s.* 6*d.* per ton) has long been recognized as a seri-

ous disadvantage to the port, and this is not susceptible of material reduction. It is, therefore, reasonable to expect a certain important diversion of traffic from the old to the new port. This may take place, however, without any very great lessening of the quantity of cargo now handled on the quays at Liverpool, for until recently this has been long increasing, and was threatening to tax the capacity of the authorities to control it.

An interesting, and for the shareholders of the Canal a highly important, consideration is the revenue which it is likely to yield. The entire cost of the undertaking, when it is completed, including the price paid for the Bridgewater Canal, now the property of the Company, will not be far from £15,000,000. Of this amount, nearly £7,000,000 is borrowed money, upon which there is an annual charge for interest of about £300,000.

An estimate of the probable traffic over the Canal, prepared by the "Consultative Committee," which made an exhaustive inquiry into the prospects of the enterprise before it was begun, put down the quantity of merchandise passing through it during the second year after the opening, at 4,428,532 tons, yielding a gross revenue of £794,173.

From this estimate the Committee, with a cautiousness which, considering that the Canal was then merely a project, all prudent people will approve, deducted 25 per cent. This deduction made, the estimate stood at 3,321,399 tons, with a revenue of £595,630.

Appended to this, however, was the following expression of opinion: "Our estimate of traffic and revenue is much larger, and points to the undertaking becoming increasingly remunerative under capable administration."

Later, expert opinion appears to show that the views of the Committee were well within bounds. Mr. Pollitt, the general manager of the Manchester, Sheffield, and Lincolnshire Railway, when giving evidence in support of the bill for connecting that line with the Ship Canal, stated that his company alone would exchange 3,000,000 tons of traffic per annum with the Canal Company.

The following estimate of the traffic and revenue of the Ship Canal, in the seventh year after its opening, has been made by the manager, Mr. Marshall Stevens, from a detailed examination of the different kinds of traffic which will pass through it.

SUMMARY OF TRAFFIC AND REVENUE, SEVEN YEARS AFTER THE OPENING
OF THE SHIP CANAL TO MANCHESTER.

	Traffic (tons).	Revenue.
Foods Imports (Foreign)	1,337,752	£309,270
General Imports	1,353,964	337,684
Exports	3,357,600	402,828
Coastwise	3,000,000	375,000
Traffic to and from Liverpool	500,000	62,500
Local Traffic for the Canal	100,000	5,000
	<hr/>	<hr/>
	9,649,316	£1,492,282
<i>In Reserve—</i>		
Ship Dues (Foreign) 3,000,000 tons at 1s.	£150,000	
Ship Dues (Coastwise) 1,500,000 tons at 6d.	37,500	
	<hr/>	
	£187,500	
Bridgewater Revenue		65,000
Rent from Land Value, £1,000,000 at 5 per cent		50,000
		<hr/>
		£1,607,282
Deduct Working Expenses (£104,200 estimated)		107,282
		<hr/>
Estimated Net Revenue		£1,500,000

One million five hundred thousand pounds is a sufficient amount to pay five per cent interest upon an expenditure of thirty million.

Confining the view, however, to the results of the second year's working, the estimate of the Consultative Committee may, I think, be accepted without its prudential deduction of 25 per cent; for, in the first place, the Committee said:—

“ Our estimate of traffic and revenue is not based on any of the statements in the prospectus. After investigating those statements very fully, we have arrived at our conclusions on an independent basis. Including local, coastwise, and heavy traffics, some of which will, we believe, be at once obtained, and also including considerable

quantities of traffic which would be new to the district, we are of opinion that during the second year after the Canal and docks are open for traffic, there is a reasonable prospect of securing along the whole length of 35 miles of Canal 4,428,532 tons, yielding a gross income of £794,173."

Secondly, the object now must be, not intentionally to undervalue the quantity of traffic, but to gain as accurate an idea of it as circumstances warrant; and certainly the degree of support and encouragement already awarded to the Canal by the precise statements of those, both ship-owners and merchants, who will use it, forbids any reduction of the estimate of the Committee.

The account then stands as follows for the second year after the Canal is opened:—

Estimated gross revenue from tolls and charges	£794,173
Net revenue from the Bridgewater Canal	60,000
Rent from land	50,000
	<hr/>
Total revenue	£904,173
<i>Deduct—</i>	
Interest on loans	£300,000
Working expenses	104,200
	<hr/>
	404,200
	<hr/>
Total net revenue	£500,973

This amount is sufficient to pay a dividend of 6.26 per cent upon the whole of the £8,000,000 of share capital, of which one half consists of 5 per cent preference, and the rest of ordinary stock. Since, however, the £4,000,000 of preference stock will not be entitled, in any case, to more than 5 per cent, it follows that, on the basis of the foregoing estimate, the net earnings will be enough to afford to the ordinary shareholders a dividend of 7 1-2 per cent. If the deduction of 25 per cent from the gross revenue of £794,173 made by the Committee be insisted upon, the net revenue will then work out to £311,430.

Even this will suffice to pay 5 per cent upon the preference shares, leaving a surplus of 2.78 per cent available for the holders of ordinary shares.

The idea of constructing a water way to Manchester for sea-going ships from the estuaries of the Dee or the Mersey, is by no means new. Nearly seventy years ago, in 1825, application was made to Parliament for powers to cut a canal from the Dee at Parkgate through Frodsham, Lymm, Altrincham and Didsbury. The scheme was, however, so stoutly opposed that the bill was rejected on standing orders. In 1838, Sir John Rennie reported to a committee of Warrington gentlemen upon the relative merits of three or four different proposals, recommending the construction of a ship canal from Liverpool to Warrington, which he stated could be readily extended to Manchester with sixteen feet of water. Again, in 1840, Mr. H. R. Palmer (then Vice President of the Institute of Civil Engineers) prepared a report, at the request of the Mersey and Irwell Company, proposing a canal, with five locks, between Liverpool and Manchester, capable of taking the large vessels of that day—those not exceeding 400 tons. It is perhaps well from the present point of view that none of these schemes were carried out, since the accomplishment of any one of them would probably have prevented the construction of a canal large enough to accommodate the enormous steamers now in use, even for coastwise and the nearer foreign traffic.

This brief account of the great undertaking, which may now be regarded as an accomplished fact, would be seriously imperfect without some reference to its history. Sixteen years ago, in 1877, Mr. Hamilton Fulton, C. E., of London, and Mr. George Hicks, of Manchester, sought the opinion of the Board of Directors of the Manchester Chamber of Commerce upon a proposal to construct a tidal canal to or near the city from the upper estuary of the Mersey. After full consideration of the scheme the Board adopted the following resolution:—

“The Chamber has been interested in the proposition laid before a section of the Board for the establishment of a tidal navigation from or near Runcorn to near Man-

chester. The Directors are unable to give an authoritative opinion upon the special merits of the scheme, but if successfully carried out, it would, there is no doubt, be of the greatest service to the interests and trade of the district."

The proposal excited occasional discussion for five years after the passing of this resolution, but no definite step was adopted until it was taken up by the late Mr. Daniel Adamson, to whose unwavering confidence and unconquerable energy and perseverance the construction of the present Canal is mainly due. In June, 1882, Mr. Adamson secured a meeting at his house of mayors of the more important towns in the manufacturing districts contiguous to Manchester, and of gentlemen representing commercial and industrial interests. A committee was there and then appointed to examine the tidal scheme, and this was ultimately set aside in favor of a project for a canal with locks.

This, with some important alterations, is the one now all but realized. The story of the long and costly struggle to obtain the sanction of Parliament for the undertaking need not now be entered upon, but in this the dogged perseverance and the unbounded faith of Mr. Adamson played a striking part. For a long time he was the inspirer and leader of the enterprise, but at a critical moment in its financial history he wisely stepped aside, leaving the conduct of affairs to the Board of Directors, with Lord Eger-ton, of Tatton, at its head, who was admirably supported by Sir Joseph C. Lee and others. These gentlemen have borne the burden of the enterprise amidst much difficulty and many disappointments, and their labors and anxieties, though recently lightened by the co-operation of representatives of the Manchester City Council, which has afforded financial assistance, will not be forgotten.

Nor must it be overlooked that the Consultative Committee, which sat in 1884, was the means of setting the undertaking on its feet. This voluntary body, selected principally from leading merchants and manufacturers in Lancashire,

undertook to make an independent and thorough examination of the scheme. Some of them, now shareholders and directors of the Company, were at first opposed to the project, amongst them being at least three of the Directors, Lord Egerton, Mr. John K. Bythell, and Mr. C. J. Galloway. So convincing was the evidence put before them, however, that I believe not one of the twenty-three members of the Committee remained, at the end of the inquiry, unconvinced of the practicability and the probable remunerativeness of the scheme. The introductory portion of the Committee's report is well worth repetition, now that the realization of the project is so near. It runs:—

“We have undertaken this inquiry under a strong sense of public duty, and with the sole desire and aim of arriving at a correct judgment upon the merits of a scheme, the failure of which, supposing it to be commercially sound, would manifestly be a public calamity. Our Committee is composed of business men representing various interests, who pretend to no authority beyond such as they may derive from their personal knowledge of the trade and commerce of the district, and who have endeavored honestly and impartially to judge of the practicability and commercial prospects of the scheme. We believe we are correct in stating that not one of the members forming the Committee entered upon the inquiry with his mind made up; and we are sure that many of them did so with opinions adverse, rather than favorable, to the commercial prospects of the scheme. We have examined it with all care, and with the constant endeavor to discover its weak points; and with this object we have made it our business to ascertain and inquire into the objections brought against the scheme. If, in the result, we have been led with unanimity to conclusions far more favorable to the project than we could have anticipated, it is, we believe, only because a similarly exhaustive inquiry would produce the same effect upon the minds of others who might undertake it. In presenting our conclusions, we have, at the same

time, summarized some of the grounds upon which they are based. It is no part of our object to absolve the public, by whose support alone the scheme can be carried out, from the duty of personal investigation. We merely desire to record our own conclusions, after a most careful inquiry extending over about five weeks, and carried on almost from day to day, in sittings usually of many hours."

An important consideration suggested by the approaching opening of the new port is of especial significance for the municipal governments of Manchester and Salford. New and adequate means of access to the docks will have to be provided, and, in various directions, the administrative machinery of the city and borough will need extension. Not only will the population be greatly increased, but it will also assume to some extent an altered character. There are always connected with a great port large numbers of nomadic people, and of people whose occupation is irregular, and whose income is more or less precarious. Beginning with a clean sheet, the two corporations have an opportunity of preventing, or at least of minimizing, the evils which have hitherto seemed inseparable from places where a large amount of shipping and of maritime traffic is concentrated. The corporation of Manchester has from the first been distinguished for the excellent character, the public spirit, and the ability of its most active members. These qualities, it may be hoped, will become still more conspicuous, in view of the larger responsibilities which will soon be, and are, indeed, already beginning to be, put upon the governing bodies of Manchester and Salford. If these are taken up in the right spirit, and at the right time, and are properly discharged, there is the prospect that Manchester may become not only, to quote the prophecy of Sir William Fairbairn, "the first, as well as the most enterprising city in Europe," but also the most orderly and well-governed port, with a population engaged in its service, free from the dark and degrading features which mark the waterside inhabitants of so many of the older centers of shipping.

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