







[Document H.]

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BY THE HOUSE OF DELEGATES,

January 18, 1845.

Read and ordered to be printed.

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**COMMUNICATION**

FROM THE

PRESIDENT AND DIRECTORS

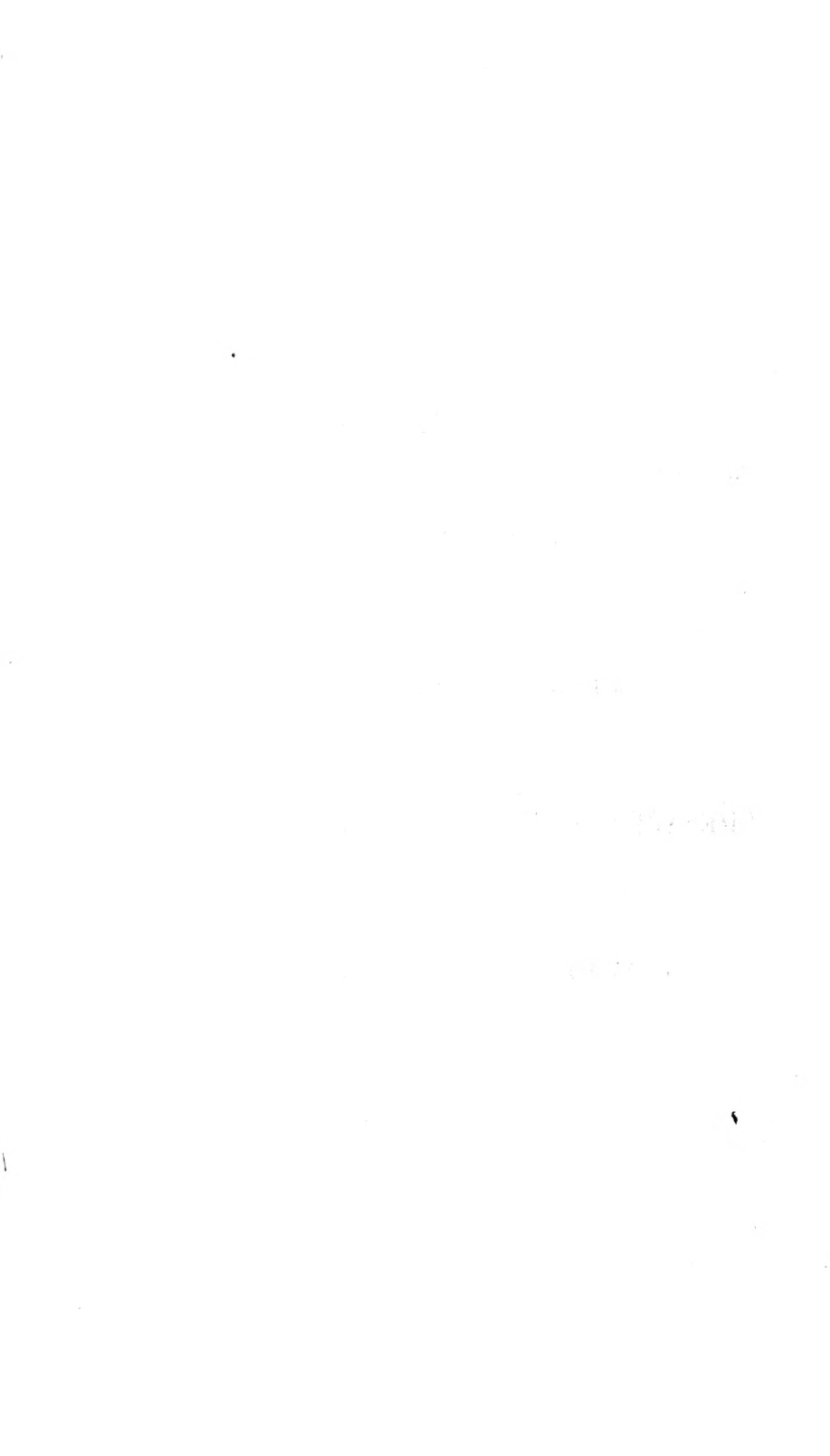
OF THE

CHESAPEAKE AND OHIO CANAL COMPANY,

TO THE

GOVERNOR OF MARYLAND.

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## COMMUNICATION.

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OFFICE OF THE CHESAPEAKE AND OHIO CANAL }  
COMPANY, *Frederick*, January 15th, 1845. }

To His Excellency, THOMAS G. PRATT,

*Governor of Maryland.*

SIR:—In the sixteenth Annual Report of the President and Directors of this company—a copy of which was transmitted to your predecessor in office, and by him was sent to the Legislature in connexion with his annual message, we gave a detailed account of the transactions of the company down to the 31st of May, which was the end of our fiscal year. With a view of presenting to the General Assembly a history of the operations by the company during the entire calendar year of 1844, and of exhibiting the financial condition of the company at the close of the year, we have deemed it expedient to make this additional communication.

In the appendix will be found several tabular statements of the clerk and treasurer, to which we respectfully refer for information in regard to the fiscal affairs of the company on the 31st of December, 1844.

No. 1, is a general statement of the debts and credits of the company.

No. 2, is a particular statement of the debts due to the State of Maryland, including principal, interest, and guarantied dividends.

No. 3, is a particular statement of the debts of the company, other than those due to the State of Maryland, including principal and interest.

The £21,475 sterling coupons cut from bonds or redeemed and paid by this company in part payment of the first half year's interest guarantied on the bonds issued by the State of Maryland in favour of this company, under the acts of December session, 1838, chapters three hundred and eighty-six, and three hundred and ninety-six, of which we have spoken in our last annual report

(pages 18 and 19) are still in the hands of the company, ready to be delivered up to any officer of the State properly authorised to receive them. Pursuant to the purpose announced in the paragraph alluded to, we have since tendered them to the present Treasurer of the State—but like his predecessor in office, he also, declined to receive them, on the alleged ground of a want of authority to do so. We would, therefore, respectfully suggest, that a resolution be passed by the General Assembly, authorising and directing the Treasurer to receive and receipt for the same, in order that they may be cancelled and destroyed at the time, and in such manner as may be provided for the cancellation of the coupons received by the State in payment of its taxes.

During the past year the Canal has been subjected to but few casualties. Only two slight breaches occurred, which interrupted the navigation but a few days, and a suspension of about three weeks, took place during the excessive drought in the month of September, in consequence of the low water in the river, and the defective condition of Dams No. 4 and 5. These Dams were promptly repaired so as to afford a sufficient present supply of water for the navigation; and, with the addition of a few more repairs, and gravelling, which ought to be attended to as soon as the company can command means to accomplish it, a recurrence of a similar state of things would be thoroughly provided against. In the annual report of last June, the Board indicated certain improvements on the Georgetown level, and its appurtenant works, which were called for by a due regard to a judicious economy. Since then, though not to the extent recommended, the Board have caused some improvements to be made on that part of the line, and have contracted for others, which are now in progress, and will be completed during the winter. The improvements finished, are the tightening of the Little Falls feeder, by which that level is supplied with water, and the raising of the guard banks of the canal at such points as are most exposed to the overflow of the river. The improvement in progress is the construction of a tumbling waste, two hundred and fifty feet long in the clear, which it is thought will hereafter furnish a sufficient security against breaches, on that portion of the canal in ordinary freshets. The Board have only been deterred, from making this improvement of the dimensions mentioned in the June report, by the limited extent of their means. In addition to the work above mentioned, the Shenandoah outlet lock, near Harpers-Ferry, has been raised at its river end, and the adjacent canal banks somewhat elevated. This also has been a point, where breaches have been frequent from the overflow of the river, but the improvement alluded to will hereafter form an effectual barrier, and render this part of the line secure. The whole sum expended in the above mentioned improvements to the close of the year, amounts to \$2,981, and the entire cost, when completed will not exceed \$5,500.

The saving from breaches may more than compensate for this outlay in a single year.



The total revenue of the company for the year ending the 31st of December, 1844, amounts to the sum of \$55,894 16

And was received from the following sources, to wit:

Tolls (for the receipts of each month see Appendix, No. 4.)	\$52,657 49
Water Rents,	2,555 00
Mole Rents,	390 00
Rents of Houses,	291 67

And the current expenses of the year ending as aforesaid amounted to the sum of \$47,287 66

As follows to wit:

Improvements, or work chargeable to construction,	\$2,981 00
Repairs ordinary,	18,986 34
Repairs extraordinary being principally unfinished work from the breaches of 1843.	4,385 06
Salary of President,	1,000 00
Pay of Directors,	720 00
Salary of Clerk,	1,500 00
" Treasurer,	1,200 00
" Chief Engineer,	2,000 00
" Three Superintendents,	2,400 00
" Collectors,	1,350 00
" Lock Keepers,	7,963 58
" Office rent, Law, and other expenses,	2,801 68

Leaving a surplus of income over the expenditures in the year 1844, of \$8,606 50

Of this amount there was in the Treasury or in transitu on the 1st of January, inst., the sum of \$4,295 97, which was retained to meet the current expenses, and supply any deficiency that might arise during the winter, when the navigation of the canal will be closed by ice, and the residue, together with the larger portion of the fund appropriated to the purpose, as mentioned in the annual report, have been disbursed in payment of loans negotiated with the Banks, to meet the pressing demands of the company in the year 1843, and of debts due and in arrear for annual expenses. The balance still due and unpaid for repairs and annual expenses from previous years according to the statement of the Treasurer and Accountant is \$50,000.

This being a debt chargeable on the gross revenues, will be paid by the remaining means in possession of the company to the extent thereof, and the residue by instalments, from time to time, as a surplus may be realised over the amount necessary to defray the current expenses, which by a regulation established in April last, are now paid in cash as they accrue. The benefits of this regulation have fully met the expectations expressed by the Board in

their annual report, as is clearly demonstrated by the diminution in the ordinary expenses of the nine months, during which it has been in operation.

The total current expenses of the year 1844, notwithstanding the extra outlay of \$2,981, for *improvements* as we have before mentioned, exhibit a decrease of \$1,562 34 compared with the expenses of 1842, and of \$36,505 14 compared with those of 1843, as will appear from the following summary:

	1842.	1843.	1844.
Costs of repairs ordinary, and extraordinary, including work chargeable to construction.	\$26,750	\$61,957 61	\$26,352 40
Pay of President, Directors, Clerk, Treasurer, Engin'r, Superintend'ts, Collectors, Lock-keepers, office rent and all other charges.	22,100	21,835 19	20,935 26

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\$48,850    \$83,792 80    \$47,287 66

These totals show the entire expenses of the company on the finished portion of the canal to be for the year 1842, \$363 per mile per annum; for 1843, \$623 per mile per annum; and for 1844, \$351.<sup>6</sup>/<sub>10</sub> per mile per annum. The expenses of 1842 have heretofore been regarded as a fair standard of the annual expenses of the company, and the large expenditure of 1843 is attributable to extraordinary causes, which have been fully explained in former communications and reports. We think we are fully warranted in saying, that the expenses incurred during the last year are less than those of any previous year, since the canal has been finished to its present navigable terminus. And, whilst we have the satisfaction to make this statement, we may also add, that the trade on the canal has been greater, and the actual *available* revenues of the company have been larger than was ever before realised in a single year. It is true that according to the published statements of the company the tolls in 1841, appear to have amounted to \$57,012 29, and in 1842 to \$56,005 80, but during those years and for several years previously, they were to a great extent receivable and collected in the depreciated scrip of the company, which diminished the scrip debt, but added little to the available means of the board, and the tariff of tolls on the principal articles transported on the canal was, in the years above *named*, raised to the *highest point* authorised by the charter, so that, as far as practicable, the increased charge might make up for the diminished value of the larger portion of the funds, in which it was paid. In this way the nominal receipts of the year 1841, and 1842 were considerably augmented, but at the same time, as in the two years immediately preceeding, the actual current expenses of the company were in a great measure left unpaid. These unliquidated balances, and, the *deficit* of 1843, form the debt in arrear for repairs and officers salaries, which the Board are now discharging in the manner alluded to.

On the 20th of June, 1843, the tolls on the principal articles of transportation, were restored to their former cash rates, and *current bankable funds* were required in all cases to be paid. During the two preceding years, to wit, from the 1st of May, 1841 to the 20th of June, 1843, the toll on flour, from which by far the largest portion of our revenue is derived, was at the rate of two cents per ton per mile for any distance it might be transported on the Canal. By the regulation of the 20th of June, this toll was established at two cents per ton per mile for the first twenty miles, and one and a half cent per ton per mile for the residue of the distance, and these rates have ever since been uniformly maintained. Although the toll thus charged on flour on the Chesapeake and Ohio Canal is much higher than the toll on the same article on the New York Canals, or for equal distances on the Susquehanna and Tide Water Canals, the cost of transportation on our Canal is less than that upon any other improvement that can come in competition with it for the trade in question, and the fruitless effort made by the Baltimore and Ohio Rail Road company, to withdraw the flour trade from the Canal to their road, by a reduction of their charges on the 10th of October last, has only tended to demonstrate more clearly, the utter inability of that road to compete with the Canal upon *equal terms* in the transportation of heavy freight. Notwithstanding the Rail Road company reduced their charges on flour about one-fourth of their previous rates from points within the range of the Canal, the reduction has in no perceptible degree affected the trade of the Canal. The number of barrels of flour transported on the Chesapeake and Ohio Canal during the last year, compared with the two preceding years, is as follows:

1842.	1843.	1844.
151,966 barrels.	156,242 barrels.	172,796 barrels.

The large increase of the flour trade on the Canal during the past year, as thus exhibited, is principally attributable to the fact, that the farmers and millers of the western counties of Pennsylvania, bordering on this State, have found out that the Chesapeake and Ohio Canal affords them the cheapest and most convenient mode of transportation to market, and they have consequently adopted it as their route. The trade from that quarter is gradually increasing, and we think it will continue to increase as the facilities offered by our Canal become more widely known and appreciated.

The whole amount of coal carried down from Dam No. 6 during the past year was 4,871 tons. This falls short of what was expected at the time the arrangement was made with the Baltimore and Ohio Rail Road company, as mentioned in the special report of the 16th of November, 1843: but the partial failure is susceptible of an easy explanation. Previous to the formation of that arrangement, and down to the period of its consummation, we were informed by the coal-dealers, at whose instance it was proposed, that the Rail Road company had positively declined engaging in the transportation of coal on their road as a regular business, but

merely consented to carry it occasionally, when there was a deficiency of other freight to make out their usual trains. This company, consequently, had good reason to expect that by effecting the arrangement the whole existing coal trade of the Cumberland region would be carried on the Rail Road to Dam No. 6, and be there transferred to the Canal. Very soon, however, after the arrangement in question was entered into, the Rail Road company departed from what was regarded their settled policy, and made a contract with the Maryland and New York coal and iron company, which is, *at present*, by far the most extensive operator in the coal and iron business in Allegany county, by which they secured to themselves exclusively the monopoly of the trade of that company for five years. The contract provides for the transportation of 52,500 tons of coal, iron, &c., on the Rail Road to *Baltimore*, at a charge of only one and one-third cent per ton per mile, whilst from Cumberland to Dam No. 6, the charge is two cents per ton per mile. By this operation much the largest portion of the trade, this company immediately calculated upon in making the arrangement, has been diverted from the Canal to the Rail Road, and the quantity of coal carried down, being mainly the produce of individual operators, has consequently been small.

In view of this plain brief statement, we think the Rail Road company have but little cause for the self-complacency with which they comment upon the failure of the arrangement to realize to the extent expected, the partial and temporary advantages we anticipated from it.

In their last annual report, and on other occasions the Rail Road company have alluded with particular emphasis to the fact, that in proposing the arrangement this company based their estimates of its feasibility upon the charge of two cents per ton per mile, between Cumberland and Dam No. 6, and did not stipulate for a smaller rate. It is true, we did not, and for the plain reason mentioned by the Rail Road company in their last annual report. "That charge had been previously established by them as the *fixed rate* for the transportation of coal on their road, without regard to time, distance or quantity," when they consented to carry it, and it was in this manner that the Canal company desired them to engage in the *regular* transportation of the article to Dam No. 6, until the Canal could be completed to Cumberland, which we then hoped would be accomplished in about two years, we could not with any sort of propriety have solicited them to charge less per ton per mile for that distance, than their "fixed rate" on other parts of their road, or to Baltimore. Another reason, and we give it in all candor, was, because we did not believe that the Rail Road company could afford to carry coal for less than two cents per ton per mile, with any reasonable expectation of profit, and on this point our opinion remains unchanged. Apart from other objections, it appears to us manifest, that a performance such as that which forms the basis of the "revised estimates" of the Rail Road company, would require a harmony and regularity of operations which are never attained in

the concerns of this mundane world, and without which their calculations, however honestly intended, are purely fallacious.

The Baltimore and Ohio Rail Road company, on page 19 of their report, state that "all estimates of the actual cost of transportation upon English Railways of which we have any accurate knowledge in detail, are of *a date so remote* as to embrace only the earlier description of locomotive power, possessing from a third to a fifth of the capacity of that proposed to be employed on their road in the transportation of coal, and contemplate the use of a description of cars weighing one ton and three-tenths, and with a capacity to carry two tons and six-tenths of coal"—that "conforming the actual cost according to the experience of England and the description of machinery there employed to the improved engines and cars to be used by the Rail Road company, it will be found to correspond with their present estimates, and to verify them in every particular."

From the above quotations, it will be seen that the asserted correspondence of the estimates of the Baltimore and Ohio Rail Road company with the experience of England, is merely based upon an arithmetical calculation, in which the cost of transportation on the English Railways with "the earliest description of locomotive power," is first set down, and the calculated saving by the newly applied machinery is subtracted from the amount. In this way the estimates are said to conform to the early experience of Railways in England.

Now we have been so fortunate as to obtain "accurate knowledge in detail," of the actual cost of transportation on the Rail Roads in England, at the *present day*, under all the lights of modern improvement, and with ample and unlimited means to apply them to use.

During the last summer, Charles Ellet, Jr., Esq., of Philadelphia, a civil engineer, who stands in the front rank of his profession in this country, visited England, and the continent, for the express purpose of ascertaining by personal observation and enquiry, the actual cost of transportation as demonstrated by experience, and the relative advantages of Canals and Rail Roads in those countries where the system of modern improvement has been carried to its greatest perfection. On the      of last month, the President of this company, with a view of obtaining authentic information on these subjects, addressed to Mr. Ellet, a brief note of enquiry, in regard to the result of his observations, to which he obligingly replied in the highly interesting communication which will be found in the appendix marked No. 5. Merely premising that Mr. Ellet is the author of the essay, entitled, "a popular exposition of the correctness of the tariffs of toll in use on the public improvements of the United States," and with a complimentary allusion, is cited as *authority* by the President of the Baltimore and Ohio Rail Road company, in Document F.F. of the last session, in regard to "the principles upon which the rates on which the Baltimore and Ohio Rail Road are adjusted," we would respectfully invite especial at-

tion to the facts and views, presented by him, in the communication alluded to.

It will there be seen, that every Canal in England, of any consequence, has a Rail Road running along side of it. That the present actual *minimum cost* of transportation on Rail Roads, is *two cents* per ton per mile.

That a half a cent per ton per mile, though below the average, is not the minimum of the cost of *freight*, on a good Canal with horse power.

That the use of *Steam Tug Boats*, to the transportation of both freight and passengers, on Canals, has been *successfully* introduced in England on Canals, less favorably constructed and located, and of far inferior dimensions, to the Chesapeake and Ohio Canal.

That the application of this new motive power to transportation on Canals has *so greatly reduced the cost* on this kind of improvement, as to set aside all former calculations. (See Mr. Ericsson's letter referred to on pages 26 and 27, of the last annual Report of the President and Directors of the Chesapeake and Ohio Canal Company, in which the cost is set down at one-quarter of a cent per ton per mile.)

That the Rail Roads cannot compete with the Canals, in the transportation of heavy freight, although the former are constructed in the most approved manner, and are perfect in their operating machinery, whilst the Canals in that country, are generally small and of inferior construction.

That in some instances, the Canals have even been successful rivals of Railways in the transportation of passengers.

That, where each improvement is confined to its appropriate sphere of duty, they are "in no sense rivals;" but mutually contribute to augment each others trade and transportation.

That on the Stockton and Darlington Rail Road, which is the most successful work of the kind in England, and is said to be capable of working cheaper than any other in that country, the charge for the transportation of "Seaborne Coals," is  $2\frac{5}{8}$  cents, per ton per mile, and of land "Sales Coals," about  $4\frac{1}{2}$  cents, per ton per mile.

That on the Taff Vale Rail Road, which is the competitor of the Glamorganshire Canal for the coal and iron trade of South Wales, the charges are,

		Iron.	Coal.
For the use of the road.	-	1 d.	$\frac{2}{3}$ d.
Locomotive power.		$\frac{1}{2}$ d.	$\frac{1}{2}$ d.
Cars or Wagons,	-	$\frac{1}{4}$ d.	$\frac{1}{4}$ d.
		<hr/>	<hr/>
		$1\frac{3}{4}$ d.	$1\frac{5}{8}$ d.

Which are equivalent to three and a half cents per ton per mile for iron, and two and five-sixths cents per ton per mile for coal; and yet, with these charges that the Rail Road company last year, yielded no dividend to its Stockholders, whilst the Canal company, its rival and competitor, "has always declared a dividend of *eight*

*per cent.* per annum, to which amount, it is limited by act of Parliament."

That the result of the competition for tonnage between the London and Birmingham Railway, which cost upwards of \$30,000,000, and the Grand Junction Canal, is that the Canal actually carries an annual trade of 1,500,000 tons, whilst the Rail Road only conveys about 150,000 tons; and that the increase of trade on the Canal, which has taken place since the completion of the Railway, is equal to the whole quantity carried by the latter work—that both works are, nevertheless, profitable, the Railway, from its passenger receipts, the Canal, from its profits on tonnage.

That the Birmingham and Liverpool Junction Canal, and the Grand Junction Railway, both of which went into operation about the same time, are competitors with each other, and joint competitors of an earlier improvement—that the Canal now carries nearly 400,000 tons per annum, and the Railway about the fourth part of that quantity.

That the Leeds and Liverpool Canal, which is mainly supported by its coal trade, carried, in 1832, 472,000 tons, and in 1843, 801,000 tons, whilst the Liverpool and Manchester Rail Road, which offers a much shorter route from the Coal field to Liverpool, and which has been in operation since 1832, has, at this time, an annual trade of only 180,000 tons.

We have thus culled from the communication of Mr. Ellet, and epitomised, a few of the most striking facts, developed by his observations. To be fully understood and appreciated, however, the whole communication should be read. It will be sufficient, we think to satisfy the most incredulous, that, when finished to Cumberland, the Chesapeake and Ohio Canal, need entertain no apprehension from the rivalry and competition of the Baltimore and Ohio Rail Road, and that the experience of the Rail Roads in England, which are "incomparably superior to any results which we have obtained, or are likely soon to obtain in this country," is altogether at war with "the revised estimates." It is not our purpose to dwell again upon the manifest and extreme impolicy of stopping the Canal at Dam No. 6, in the vain hope of making or using the Rail Road, to any important extent, as a feeder to its trade at that point. In the special Report of the 16th of November, 1843, and again in the 16th Annual Report, which is now in the hands of the Legislature, we have fully discussed this subject. In the last mentioned Report, we have met the question in the form in which it now presents itself, and we will here merely add, that the recently developed policy of the Rail Road company, and all our subsequent observation and reflections, have only tended to strengthen and confirm the opinions we therein expressed. We believe that the effect of such a measure, would, for the time being, be a virtual surrender of the Canal, to the mercy of a rival corporation, which is even now seeking to deprive it of the slender trade, upon which it depends for its support. We cannot think that the Legislature of Maryland, will consent to a course so suicidal, and

so unjust. Suicidal as regards the great interest which the State has in this work, and unjust, as respects the numerous creditors to whom the company is indebted, for work done in the construction of the Canal, some of whom, with claims on the company to the amount of thousands of dollars, are now in absolute poverty, anxiously looking to the completion of the work as their only hope of relief. It may not be improper, in this connexion to present briefly to the view of the Legislature, the vast difference between the State's interests in the two works.

In the main stem of the Baltimore and Ohio Rail Road company the entire available subscription of the State at this time amounts only to \$500,000.

In the Chesapeake and Ohio Canal company the interest of the State on the 1st January, 1845, is as follows :

Original subscription, as a common stockholder of the company, under the act of 1825, chapter 180, sec. 19,	\$500,000 00
Subscription in stock and debts of the Potomac company, which cost the State,	163,724 44
Subscription under the act of 1833, ch. 239,	125,000 00
Do. (preferred stock) 1835, ch. 395,	3,000,000 00
Do. (preferred stock) 1838, ch. 396,	1,375,000 00
Amount due for <i>interest</i> , &c., on the amount subscribed for the preferred stock, which was guaranteed by mortgage for three years, ending 1st July, 1842,	663,611 94
Guaranteed <i>dividends</i> in arrear to the 1st January, 1845, and payable out of the <i>nett profits</i> of the Canal,	656,250 00
Loan to the Chesapeake and Ohio Canal company under the act of 1834, ch. 241,	2,000,000 00
Interest due and in arrear on said loan to the 1st January, 1845,	655,000 00
Premium charged by the Treasurer of Maryland for converting paper into coin to pay such part of said interest, as has been paid from the Treasury,	9,975 00

Amount of the entire interest of the State of Maryland in the Chesapeake and Ohio Canal company on the 1st January, 1845, \$9,148,561 38

According to the recent report of the Treasurer of the Western Shore of Maryland, the sum of \$7,194,666 67 of the funded debt of the State, to pay the interest on which, the people are now taxed, was contracted on account of the above mentioned investments in this company.

In your inaugural address, you, sir, have well said, that "a sufficient time has transpired to enable us to say, that this investment will, WITHOUT FURTHER LEGISLATION, remain a continued burthen upon the State, until it is paid off by the operation of the sinking fund established by existing laws"—and that "the *true*



*interests of the State require the completion of the Canal to a more western terminus than Dam No. 6."* In the expression of these sentiments, you but gave your official sanction to opinions which we have long entertained, and a conviction of the truth of which, has animated and cheered us on, amidst a host of difficulties, in our repeated and earnest appeals to the General Assembly. We trust that the time has now arrived when prompt and efficient action will be had upon this subject, and that the Legislature will not turn aside their attention to any alternative.

It is true, that assuming their ability to fulfil it, a binding obligation on the Baltimore and Ohio Rail Road company to carry tonnage of every description at the low charge, mentioned by them in their recent publication, to and from Dam No. 6 in connexion with the trade of the Canal, whenever and in such quantities as it might be offered for transportation by any person or persons, and to an extent adequate to the realization of a revenue sufficient to pay the annually accruing claims of the State upon this company, might obviate some of the objections we have heretofore urged in reference to this subject; but such an arrangement is altogether unattainable, and we would have no faith in its endurance if it were entered into. Incorporated companies may sometimes feel themselves justified in agreeing to carry freight at cost, or less than cost, and even make themselves liable to pecuniary penalties for the non-performance of stipulated agreements, in order to accomplish special objects, or obtain other great advantages, but without such inducements they are not likely to bind themselves by obligations, and when they do so, and the objects, and advantages are secured, modes are seldom wanting by which they are enabled to get rid of the onerous undertaking. But the measure which you, sir, have suggested, of obtaining, if practicable, a more enlarged and regular use of the Rail Road to and from Dam No. 6, *until the Canal can be completed*, presents the subject in a different aspect, and the adoption of the same, if it can be effected, should interpose no obstacle to the *immediate* passage of a law for the completion of the work. Even if a law were now passed, waiving the liens of the State, and authorising the company to finish the Canal upon a pledge of its resources, in the most favorable view of the case, nearly two years must elapse before it could be finally accomplished, and in the meantime, every expedient should be resorted to, to augment our revenue, towards which object the one mentioned, if it can be fully secured, might materially contribute. A further procrastination of the law for completion, which must sooner or later be passed, only increases existing evils, whilst the benefits and advantages that would result from a *present* enactment are numerous and manifest. Around the law the Legislature can throw any guards which prudence may dictate, so as not to impair its efficiency. This company only asks to be relieved from the incumbrance which now presses it to the earth and paralyzes all its efforts for recuperation, in order that it may be able to exercise its own energies to recover its position, and in due season afford some relief to the

State. From present indications, the Legislature is determined to pass all laws necessary to reinstate the credit of the State and meet its liabilities, and a law providing for the completion of the Chesapeake and Ohio Canal, would, in our opinion, be an important auxiliary to any system that may be devised in that behalf. The two classes of laws would mutually contribute to the efficiency of each other. As regards the money market, the present appears to be a propitious time, for obtaining the funds to finish the work—capital is abundant, and the tendency of the day is to investments in internal improvements. The Canal sites having long since been occupied, numerous Rail Road companies have recently been incorporated in England. It is stated in the public journals, that within the last twelve months new companies have commenced operations in that country with an aggregate capital exceeding fifty millions of dollars, whilst, as will be seen from Mr. Ellet's communication, the stocks in the old *Canal* companies, still range at from double to nearly ten times their par value. We hope, therefore, that the State of Maryland will allow this company to avail themselves of the present opportunity, that if the Legislature should advise a further arrangement with the Baltimore and Ohio Rail Road company, it will only be one of a subordinate and auxiliary character, and *after an efficient law shall be passed, providing for the completion of the Chesapeake and Ohio Canal, at least to Cumberland, at the earliest practicable period.*

We would also respectfully state that the funding of the existing debts of the company and placing them on an equitable basis is a measure called for by considerations of both justice and expediency, and calculated in its effects to promote the general interests of the company. No system for the re-establishment of the faith and credit of the company can be perfect without a measure of this character, and we therefore, earnestly commend it likewise to the favorable consideration of the General Assembly.

By order of the Board,

JAMES M. COALE, President  
Of the Chesapeake and Ohio Canal Company.

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APPENDIX

TO THE

COMMUNICATION.

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STATEMENT, No. 1.

*Being a General Statement of the Debts of the Chesapeake and Ohio Canal Company to 31st of December, 1844.*

To Promissory Notes of various denominations issued by the Com- pany, - - - - -	\$463,792 75		
On which may be demanded interest, - - - - -	112,438 70		\$576,231 45
Bonds issued in lieu of scrip, - - - - -	9,328 00		
On which has accrued interest, - - - - -	2,290 59		11,618 59
Bonds issued to contractors and other creditors, - - - - -	206,934 66		
Acceptances, - - - - -	143,965 16		350,899 82
On which has accrued interest, - - - - -			70,350 72
Balances due to contractors and others, - - - - -	80,332 94		421,250 54
On which has accrued interest, - - - - -	14,400 00		94,732 94
Balances due to the three superintendencees, engineer, &c., as near as can be ascertained, - - - - -			515,983 48
Balances for lands and damages yet unpaid—estimated, - - - - -			50,000 00
Bonds due to creditors of Potomac Company, - - - - -			30,000 00
			57,548 42
			587,850 04

Annuities thereon in arrear, - - - - -	-	16,086 98	
Unclaimed dividends of Potomac Company, - - - - -	-	216 45	
			<hr/>
State of Maryland Loan of December session, 1834, - - - - -	-	2,000,000 00	
Interest in arrear, - - - - -	-	655,000 00	
Premium on conversion of paper into coin, - - - - -	-	9,975 00	
			<hr/>
Interest, cost of exchange, remittances, commissions, &c., to pay coupons in London for three years,—balance unpaid, - - - - -	-	663,611 94	
			<hr/>
Chesapeake Bank of Baltimore—overdrawn, - - - - -	-	4,113 38	
Interest accrued on this overdraft, say, - - - - -	-	1,007 78	
			<hr/>
			<hr/>
			3,328,586 91
			<hr/>
			5,121 16
			<hr/>
			<u>\$4,591,393 47</u>

STATEMENT No. 1.—Continued.

Being a General Statement of the Credits of the Chesapeake and Ohio Canal Company to 31st of December, 1844.

By Maryland 5 per cent. sterling bonds and coupons, remaining after final settlement of the debt and interest due to Baring, Brothers & Co.,	£19,506 5 0		
Of which have been sold and the proceeds applied to discharging the current expenses, and repairs of the damages of 1843,	14,284 1 9		
Balance at 70 per cent.,	£5,222 3 3	\$16,246 73	
Balance not yet issued to the Company under chap. 396, 1838, Coupons accrued on Do.	475 0 0 130 12 6		
At 70 per cent.,	605 12 6	1,884 17	\$18,130 90
State of Maryland advanced to her Commissioners in 1837, to proceed to Europe to negotiate the eight millions loan,		8,000 00	
Interest on the same, 7½ years,		3,640 00	11,640 00
Subscriptions to the capital stock remaining unpaid,		139,804 16	
Of which may be considered uncollectable,		100,000 00	39,804 16
Swan, Gittings & Gunton, Trustees, withheld by them,		56,192 62	

Interest on the same 3 $\frac{1}{2}$ years, - - - - -	12,081 41	68,274 03
Balance in the hands of superintendents, collectors and treasurer, and rents not collected, though charged to Superintendents,	-	4,295 97
Balance deficient. - - - - -	-	142,145 06
E. E.	-	4,449,248 41
		<u>84,591,393 47</u>

Office Chesapeake and Ohio Canal Company,  
 Frederick, January 14th, 1845.  
 THO. TURNER, Clerk.

## STATEMENT NO. 2.

*Showing the amount and character of the Debts due from the Chesapeake and Ohio Canal Company, to the State of Maryland, 31st December, 1844.*

1st. Loan under Act of December session, 1834, - - - -	\$2,000,000 00	
Interest thereon in arrear to this date,	655,000 00	
Premium charged by the Treasurer W. S. Maryland, for conversion of paper into coin, - - -	9,975 00	2,664,975 00
2nd. Interest--cost of exchange, commissions, &c., on remitting to London, by the Treasurer W. S. to pay coupons under acts of 1838, chapters, 386 and 396, - - -		663,611 94
3rd. Guarantied dividends on the subscription made in virtue of said acts, payable out of the nett profits of the canal, - - - -		656,250 00
		<u>3,984,836 94</u>

E. E.

Office Chesapeake and Ohio Canal Company,  
Frederick City, 14th January, 1845.

ROB. BARNARD,  
Accountant.



## STATEMENT NO. 3.

*Of the Debts of the Chesapeake and Ohio Canal Company, other than those due to the State of Maryland, 31st December, 1844*

These consist of			
1st. Debts due to contractors,	\$72,036 63		
For Cement supplies & old balances unadjusted,	7,296 31		
Unascertained, possibly,	1,000 00		
		\$80,332 94	
Upon which Interest may be demanded,		14,400 00	
2nd. Fiscal Debts, viz:			\$94,732 94
Bonds to Creditors,	206,934 66		
Acceptances,	143,965 16		
		350,899 82	
On which interest has accrued,	70,350 72		
		421,250 54	
Promissory notes, (scrip) issued and outstanding,	463,792 75		
Bonds issued in exchange for scrip,	9,328 00		
		473,120 75	
On which interest may be demanded,	114,729 29		
		587,850 04	
Proposed to { principal debt,	904,353 51		1,009,100 58
be funded } Interest,	199,480 01		
3rd. Bonds issued to creditors of the Potomac company, for claims adjusted under the 12th section of the act of incorporation of the Ches. and Ohio Canal Co., payable at the pleasure of this company in virtue of a resolution of the stockholders, passed 24th March, 1834,	57,548 42		
Annuities (interest on said adjusted claims,) in arrear,	16,086 98		
			{1,103,833 52
Carried Forward,	73,635 40		

Brought Forward, . . . . .	73,635 40	1,103,833 52
Unclaimed dividends of the Potomac company deposited with this com- pany in trust, balance remaining unclaimed, . . . . .	216 45	73,851 85
4th. Debts due and in arrear for cur- rent expenses and repairs, all which are to be paid from the accruing revenues and other means in pos- session of the company, as nearly as can be ascertained, . . . . .		50,000 00
5th. Balances due for lands acquired and for incidental damages, esti- mated at, . . . . .		30,000 00
6th. Overdraft in Chesapeake Bank, Interest thereon say $4\frac{1}{2}$ years, . . . . .	4,113 38 1,007 78	5,121 16
		<u>1,262,806 53</u>

E. E.

Office Chesapeake and Ohio Canal Company,  
Frederick city, 14th January, 1845.

ROB. BARNARD,  
Accountant.

## STATEMENT NO. 4.

*Exhibiting the amount of Tolls acerued upon the Chesapeake and Ohio Canal for each month of the year 1844.*

January,	-	-	-	-	-	-	\$682 02
February,	-	-	-	-	-	-	16 95
March,	-	-	-	-	-	-	6,362 08
April,	-	-	-	-	-	-	5,792 20
May,	-	-	-	-	-	-	6,258 25
June,	-	-	-	-	-	-	5,129 39
July,	-	-	-	-	-	-	2,206 67
August,	-	-	-	-	-	-	6,362 03
September,	-	-	-	-	-	-	2,756 46
October,	-	-	-	-	-	-	6,080 90
November,	-	-	-	-	-	-	6,305 83
December,	-	-	-	-	-	-	4,704 71
							\$52,657 49

Office Chesapeake and Ohio Canal Company,  
 Frederick, January 14, 1845.  
 THO. TURNER, Clerk  
 Ches. & O. C. Co.

*List of the principal articles and quantities transported on the Chesapeake and Ohio Canal, during the year 1844, ending December 31.*

## DESCENDING.

Flour,	-	Barrels,	-	172,796
Whiskey,	-	"	-	4,811
Wheat,	-	Bushels,	-	199,620
Corn,	-	"	-	173,023
Oats,	-	"	-	39,000
Corn Meal,	-	"	-	15,631
Bran and other Mill offall,	-	"	-	76,683
Wood,	-	Cords,	-	6,802
Lime,	-	Tons,	-	1,118
Lime Stone,	-	Perches,	-	6,127
Coal,	-	Tons,	-	4,871
Pig Iron,	-	"	-	443
Lumber,	-	Board measure about	-	1,000,000 Feet

## ASCENDING.

Plaster,	-	Tons,	-	4,838
Salt,	-	"	-	1,295
Fish, salted,	-	Barrels,	-	2,075

In addition to the above enumerated articles there were transported considerable quantities, in the aggregate, of other articles, such as Fruits, Potatoes, Turnips, Hay, Straw, Shingles, Laths, Coopers Stuff, Groceries, &c. both in the Ascending and Descending Trade.

THO. TURNER, Clerk.

APPENDIX, NO. 5.

OFFICE CHES. AND OHIO CANAL CO. }  
Frederick, Dec. 18, 1844. }

TO CHARLES ELLET, ESQ., *Civil Engineer.*

DEAR SIR,—Being informed that you have recently returned from a visit to England, made with a view of examining and ascertaining the extent of trade, and relative advantages of canals and rail roads, in regard to the cost of transportation, I have taken the liberty of addressing you this note, and of asking from you such information in regard to those subjects, as it may be convenient to you to afford.

The public mind in this State is at present much directed to the question of Internal Improvements, in consequence of the efforts that are being made to obtain a law for the completion of the Chesapeake and Ohio Canal to Cumberland, and I think, that much error of opinion prevails here in reference to the subjects alluded to, which the result of your observations in England may probably dispel.

I will, therefore, esteem it a favour, if you would furnish me with the information desired, which with your permission, I purpose laying before our Legislature at its approaching session, now near at hand.

In addition to such other facts as you may see fit to communicate, I particularly desire to learn the result of the present competition between the canals and the railway from Liverpool to Manchester, as also, of that between the Taff Vale railway and Glamorganshire canal, for the coal and iron trade of Wales.

An early answer will greatly oblige,

Your obedient servant,

J. M. COALE,

Pres. Ches. and Ohio Canal Co.

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PHILADELPHIA, Dec. 26th, 1844.

J. M. COALE, ESQ.

*President of the Chesapeake and Ohio Canal Company.*

DEAR SIR:—The subjects on which you have requested information are so comprehensive, and cover a field so wide, that I am unable to do justice to them in a communication of any reasonable

length. I shall, therefore, be compelled to limit my remarks on the several points which you have suggested, to the presentation of the most important facts bearing on the problem, in the form of memoranda, from which you can draw your own conclusions.

The question of the comparative cost of transportation on Canals and Rail Roads, is one on which I have had frequent occasion to express my opinions; but, in the examination which I made this summer of the public improvements in England, I saw nothing to change the opinion which I had previously deduced from the data offered by the works of this country.

That the Railways there have greatly reduced the value of canal property is not to be denied; and if the Rail Roads had been first in the possession of the ground, and in the enjoyment of a monopoly of both the heavy and the light traffic of that populous country, and had been able under that monopoly to fix their own prices, it is equally certain that the construction of canals along side of them would have inflicted serious injury on their proprietors.

The canals of Great Britain, had long been made on almost every line where there was trade to support or water to feed them, and in some places where there was neither of these inducements to authorise their construction.

As a general rule the canals which were most needed were established first, and being eligibly placed they were eminently successful; and notwithstanding the fact that every canal of any consequence in England, now has a Rail Road along side of it, these primitive canals are *still* successful. Those of more modern construction have generally suffered much more in their competition with the Rail Roads.

The cause of this difference is clear. Any canal located through a highly cultivated and densely peopled country, abounding in wealth and manufacturing establishments, and enjoying the exclusive monopoly of its trade, will necessarily, under good management and in ordinary circumstances, prove to be highly productive property. Its trade will usually consist of a great variety of commodities; it will carry coal and ores from the mines to the furnace; pigs from the furnace to the forge, and bars and hardware from the forge to the sea-port. It will carry wool and cotton to the factory, and manufactured goods thence to the market; corn to the mill, and flour to the shipping. Its trade will consist in fact of every commodity consumed or produced in the district through which it passes.

The tolls levied on this tonnage will be low on some articles and high on others—graduated with a view to the greatest profit to the company—but the great bulk of the trade will consist of those commodities which will bear but moderate charges. Still the valuable products of the manufacturing establishments, in consequence of the high charges assessed on them, will generally yield a very important portion of the revenue.

If in this state of things a Rail Road is located through the same region, and between the same extreme points; the lines of the two

works in some places coming in contact or crossing each other, and in other places deviating a few miles, it may do the canal proprietors very serious injury, and that too without materially aiding its own. The actual cost of *freight* by the Rail Roads is perhaps three or four times as high as the actual cost of conveyance on the canal; but yet by carrying goods at cost or but little above cost, it will either strip the canal of those articles from which it previously received the greatest amount of *toll*, or compel the company to reduce their charges materially, in order to retain them. And besides, as the rail road touches some points, or passes through some towns not immediately on the bank of the canal, it will offer peculiar facilities for those places; and though it may charge twice or more than twice as much per mile as the canal transporters charge, it may yet, by relieving the shippers of the cost of transshipment and land carriage on a lateral road, deliver goods at those particular places at a less aggregate cost than they can be delivered there by the canal.

If now the trade of the canal were of a miscellaneous description, and small withal, and the company barely able to meet their expenses and interest, and declare a meagre dividend; and a rival of this sort were suddenly laid along side of it, which at the same time would draw off the most valuable commodities, and reduce the charges on the balance,—the expenses and interest of the company remaining still the same,—it is easy to imagine that there would be but little left for the stockholders' profit, and that the shares would necessarily fall.

But if the canal thus situated had possessed a vast trade, such as is found on some of those of early date in England, it might be able to part with a portion of these high priced commodities, without suffering greater loss than could be compensated for by an improved economy in the administration of the company's affairs, or perhaps by the increase of business in heavy freight, which would be produced by the railway itself, and the competition excited by its presence.

There are numerous examples of both these cases in various parts of England.

On the great line from London to Liverpool, we have first the case of the Grand Junction canal and the London and Birmingham railway.

This rail road was constructed at a cost of more than \$30,000,000, and is the most perfect specimen of a rail road which has yet been produced. The highest grade,—if we overlook a plane at the London terminus which is used only for passengers—is sixteen feet per mile. The rails are of the most substantial description, and weigh about seventy-five pounds per yard, and are intended to reverse when the upper table is worn off. The bridges are of stone, and the superstructure is founded on a bed of gravel ballast two feet in thickness, from one end of the line to the other.

The washing of the slopes is adequately guarded against by a well cultivated sod, and the drainage appears to be perfect. The

canal is old, and in every respect inferior to the best canals of this country.

In the construction of the rail road there could be but one object in encountering the vast outlay that was necessary to bring these grades down to sixteen feet per mile—viz: to reduce the cost of transporting the heavy freight passing between London on the one side, and Birmingham, Manchester and Liverpool on the other.

The result of the competition is given in few words,—

The canal actually carries an annual trade of 1,500,000 tons.

The rail road conveys about 150,000 “

The *increase* of trade on the canal which has had

place since the completion of the railway, is equal

to the whole quantity abstracted by the railway, or 150,000 “

But notwithstanding these facts, the price of the canal shares has been greatly reduced since the completion of the railway, a circumstance of which I have already given a general explanation. The 150,000 tons actually carried by the railway, consists mainly of those commodities which paid the highest rates to the canal; while the coal and other cheap and bulky articles received in compensation, are those on which the lowest rates are assessed. The £100 shares however still stand at £162.

Another important ease of the same character, is found on the extension of the same navigable line from Birmingham to Liverpool. Here the Grand Junction railway, has been laid parallel with the old Grand Trunk canal.\* This railway is likewise one of the first in importance and excellence in Great Britain, though the consideration of expense was permitted to have some influence in the determination of the grade line. The steepest inclination is sixty-one feet per mile.

The road is eminently prosperous, and its stock stands at £221 for £100 paid.

The stock of the canal parallel with it, stands at £990 for £100 paid. The last dividend was sixty-five per cent per annum.

This rail road like the London and Birmingham, of which it is the continuation, is sustained essentially by its passenger traffic. The London and Birmingham conveys about 1,000,000 persons, and the Grand Junction about half that number annually: and they receive for this duty about an average of five cents per mile, or 75 cents per ton per mile.

South of the Grand Junction railway, and frequently in sight of it, runs another canal, which is becoming one of the most interesting in the Kingdom, as the line on which the application of steam to the tugging of boats in trains was first successfully made. This work—the Birmingham and Liverpool Junction canal,—and its competitor the Grand Junction railway, both went into operation about the same time, and became at once competitors with each other, and joint competitors of the Grand Trunk canal. This canal and railway had an equal chance to seize upon the trade of their

\* The Trent and Mersey.



common rival, and the new trade which they created. The canal now carries nearly 400,000 tons per annum, and the railway about the fourth part of that quantity. The railway shares however, stand higher than those of this canal; and for the reason already given—its vast passenger traffic.

The canals between London and Bristol, which come into competition with the Great Western road have suffered much more seriously. Having never been very profitable, nor in the possession of a heavy traffic, when a portion of what trade they had was taken from them, they were left with all their former charges standing against them, and at the same time with diminished receipts. Their shares have of course fallen.

It is in fact, most obvious, that a canal relying, as many of those of Great Britain, on the transportation of manufactured goods, cannot sustain itself without great loss by the side of a railway capable of saving in the item of interest on the value of the goods, by the increased speed which it affords, more than the value of the difference in the cost of transportation. There are thousands of tons of goods sent from a manufacturing district, of which the value is not less than \$10,000 per ton. The interest on that capital is equal to *seven cents per ton per hour*. For such goods time is therefore, an important element. But if the article were coal worth three dollars a ton, this element would be worth but the five hundredth part of one cent per hour—a quantity wholly inappreciable.

The great merit of a railway, for the conveyance of travellers and general merchandise, is its speed; and the great advantage of canals is their ability to carry the heavy products of the earth at a cheap rate—and it is this ability which in England, has preserved the whole system from prostration, and which appears destined for all future time to class these works among the most useful of the inventions of civilization.

It is by no means surprising that the public mind should be carried astray by the performance of modern rail roads. A railway is emphatically a noisy thing, and is withal calculated by the prodigious display and force of its machinery, to excite admiration and applause. Besides, it is the line of travel, and the public who are carried along it have little opportunity, if they were interested in such speculations, to compare its merits, and the benefit which it affords to society, with that which is offered by the canal boat, which it leaves behind.

There are few travellers who pass from Liverpool to Manchester, who ever stop to inquire whether there is any other route by which those cities have commercial intercourse, or whether the rail road is not the only line of trade and travel between them. And yet the rail road over which they are hurried, is but one of seven great avenues leading from the interior to the Liverpool docks.

To understand the situation of things at this point, a good map is desirable; but I must endeavour to make myself understood without that assistance.

There is a continuous rail road from Liverpool to Leeds, which

passes through Manchester, and of which the Liverpool and Manchester road forms a part.

On the North side of this line is the Leeds and Liverpool canal, with a branch belonging to another party, running to Manchester.

This Leeds and Liverpool canal is mainly supported by its coal trade, which it obtains from the mines in the neighborhood of Wigan. When the Liverpool and Manchester rail road, and the North Union road, which may be regarded as one of its arms, were opened, these roads offered a shorter route from this coal field to Liverpool, than the old route by the canal, and the confidence of the canal proprietors was somewhat shaken in their ability to retain the trade.

Twelve years experience has settled that question, which was a very important one in its day.

The Liverpool and Manchester road now has an annual trade of about 180,000 tons.

The trade of the Leeds and Liverpool canal in 1852, just after the opening of the railway was as follows:

Coal tonnage,	330,000 tons.	
Merchandize, &c.,	142,000 "	
	<hr/>	
Aggregate trade in 1852,		472,000 tons.
The trade in 1843, was,		
Coal tonnage,	600,000 tons.	
Merchandize,	156,000 "	
Flags, &c.,	45,000 "	
	<hr/>	
Aggregate tonnage in 1843,		801,000 tons.

The increase of trade on the canal, computed from the time when the rail road had been two years in operation, is nearly equal to twice the aggregate trade on the rail road. The canal shares of £100 now stand at £650.

The canal here alluded to is on the North side of the railway. On the South side there are *two* water lines connecting Liverpool and Manchester, which run many miles very close to the rail road, and I believe in no place are more than six miles distant from it.

The length of the rail road is 31 miles.

The distance by the Mersey and Irwell navigation (a lock and dam improvement) from Liverpool to Manchester, is about fifty miles.

I am unable to state the number of tons which passes along this navigation, though I am confident it is two or three times as great as the tonnage of the rail road. The improvement is now the property of Lord Francis Egerton, who purchased it about two years ago, for the purpose of controlling the tolls.

Some idea of the value of the work may be formed from the market price of the shares, which at the time of the sale were quoted at £360 for £100 paid.

Within bow-shot of the Mersey and Irwell, and connecting the

same cities—Liverpool and Manchester—is the “Duke of Bridgewater’s canal,” now also the property of Lord Francis Egerton.

This being a private work there are no published statements of the amount of traffic upon it; but from information which I obtained at Runcorn from persons who had the best opportunity of knowing, I estimate it at about 1,600,000 tons. In travelling in a packet from Manchester to Runcorn, a trip of five hours duration, I counted no less than 93 loaded boats in motion—of which 68 were ascending and 25 descending.

I was informed by the Agent, that the tonnage had increased about 10 per cent. since the opening of the Rail Road.

If the Rail Road does not carry a vast trade between these cities, it is not for want of opportunity. The trade is there, ready to take the route which offers the greatest aggregate economy; and though the distance by either Canal is 55 per cent. greater than by the Railway, the economy is on the side of the Canal.

Still, it is not to be doubted that the Railway might take the trade of all these works if the stockholders were willing to convey it at a loss, and make up the deficiency from their own pockets. There are but two or three cases within my knowledge, where the peculiar circumstances of the Rail Road are such as to render that movement in the eyes of the stockholders compatible with good economy.

On the Duke of Bridgewater’s Canal, as on many others in England, the competition maintained by the Canal for the conveyance of passengers, is quite equal to that which the Railway carries on for the goods. No less than twelve packet-boats leave and arrive at Manchester daily by this line, besides three by the Mersey and Irwell—making altogether fifteen out and in daily—and all generally well filled. I was informed by the captain of the boat on which I travelled, that the number going by the Canal this year is greater than in any previous year.

The Canals of the Midland Counties offer numerous evidences of the fact to which I have already alluded, of the little appreciation of the public of the magnitude of the traffic of the English Canals. The Railways are the great lines of travel, and by the magnificence of their arrangements and the speed and power of their machinery, force a continual expression of admiration. The Canals are seen only by the boatmen, and the poor wayfarer, to whom they offer for a shilling what the Rail Road will give for a crown, and who are not in a condition to keep the value of the benefit continually before the public eye.

In 1816 the quantity of coal passing along the various Canals of the Midland Counties, was estimated at about 10,000,000 tons. Since that period the coal trade of Great Britain has nearly doubled, and the coal from the mines in these counties has been pushed nearer to the sea-board—but I have no more recent estimate of the value of that portion which is carried on these Canals. It must have greatly increased, though probably not in proportion to the increase of the aggregate trade. I cannot conveniently sum up at



mile and close to the port. The inclinations are all in favor of the heavy trade,—the empty cars only having to ascend the slopes. There is no inclined plane on the main line. The construction of the work throughout the line is equal to that of the modern English Railways generally. The track is built most substantially, and the rails are of a heavy pattern and of a form which is now most approved—viz: the hour-glass shape, and made to reverse. The bridges are all of stone or iron, and have been constructed apparently with an eye to the interest of posterity. The arrangements for discharging the coal are as perfect as the most fastidious mechanic could desire. An admirable dock has been constructed at Middleborough, and the coal is placed on board the vessels at ten distinct drops or staiths. There are generally three tracks leading down to each drop, though I believe that in one or two instances there are more. There are accordingly thirty distinct tracks at the Middleborough end of the line where the trains stand while the coal is discharged. The whole line is provided with a double track and ample turn-outs, and every convenience that can be needed for reducing the charge of agents and avoiding accidents.

The locomotives are plain and cheap, and the cars are both light and substantial. The cars carry twice their proper weight of coal, and weigh with their loads but four tons, or one ton on each wheel. The cost of cars on springs is about £19; those without springs cost £14.

The coal cars now most approved are of wood with wrought iron frames. The average net load is now about 160 tons. The speed is limited by express injunction to six miles per hour—though it is difficult to enforce the regulation strictly.

With these advantages, and a large and well organized trade, they think they are able to work cheaper than any other Railway in England,\* and they certainly do carry on their vast operations with remarkable economy.

The lowest charges on this road are for “seaborne coals,” which are carried an average distance of twenty-four miles. To state the charges on each ton so that they can be understood, we have to make the following calculation:—The rates on this class are,

For “road dues” on 24 miles at $\frac{1}{2}$ d.,	-	-	12 d.
“ use of wharves, - - - - -	-	-	1
“ shipping, - - - - -	-	-	1
“ crossing bridge over Tees, - - - - -	-	-	1
“ passing through the tunnel, - - - - -	-	-	9
“ locomotive power, 24 miles at $\frac{1}{8}$ d., - - - - -	-	-	3
“ use of cars, 24 miles at $\frac{3}{8}$ d., - - - - -	-	-	4 $\frac{1}{2}$

Total charge on one ton, carried 24 miles, - 31 $\frac{1}{2}$  d.

Which is equivalent to 2 $\frac{3}{8}$  cents per ton per mile.

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\*The Clarence Railway company, the immediate competitor of the Stockton and Darlington, and which carried more than 400,000 tons of coal per annum, has just failed.

It is not to be assumed that any of these charges, excepting that for the use of cars, are proportioned to the value of the items on which they are levied. To understand the rates, you are to look at the whole charge on a ton; the arrangement of the items, or the distribution under the several heads, is governed by certain considerations of policy, and are permitted by the peculiarities of an old charter. For instance, they formerly charged  $\frac{1}{4}$  d. per ton per mile for locomotive power, on coals of every description. By reducing that item on "sea sales coals" to  $\frac{1}{8}$  d. and adding 3 d. to the charge for passing through the tunnel, (which was formerly 6 d.) they are enabled to tax the coal that passes through their tunnel and afterward over the Clarence road 3 d. more than they could under the former arrangement. This is the lowest Rail Road tariff I have met with in any part of Great Britain.

On the "land sales coals" they charge as follows:

For "road dues," say 20 miles at $1\frac{3}{8}$ d.,	-	-	-	27 $\frac{1}{2}$ d.
" passing tunnel,	-	-	-	9
" locomotive power, 20 miles at $\frac{1}{4}$ d.,	-	-	-	5
" use of cars, 20 miles at $\frac{3}{8}$ d.,	-	-	-	3 $\frac{3}{4}$

Aggregate for 20 miles, - - - - - 45 $\frac{1}{4}$  d.

Which is equal to about 4 $\frac{1}{2}$  cents per ton per mile. The charge on other portions of the "land sales coals" is more than five cents per ton per mile.

The aggregate charges on miscellaneous freights range between 6 cents and 9 cents per ton per mile.

The fares for passengers are, 1st class 2 d.; 2nd class 1 $\frac{1}{2}$  d. and 3rd class 1 d. per mile.

The road is by no means entirely sustained by its coal trade, though the great bulk of its tonnage consists of that article.

The average traffic of this work for the last few years may be stated as follows:

"Land sales coals,"	-	-	-	300,000 tons.
"Sea sales coals,"	-	-	-	470,000 "
Miscellaneous freights,	-	-	-	40,000 "
Passengers,	-	-	-	325,000 persons.

This, I believe, is the heaviest business that has ever yet been performed by any Rail Road in any country.

As might reasonably be anticipated, this vast traffic has been very trying to the road. The rails first laid down weighed but twenty-eight lbs. per yard. The next pattern was a little heavier, and weighed thirty-two pounds. This was not found to be adequate to the duty, and was in course of time superseded by a new pattern which weighed forty pounds per yard. Experience decided against this also, and as it began to give way a fifty pound bar was put in its place. Some few of the fifty pound rails are still on the road; but they were not found to be equal to the service required, and were superseded as they gradually wore out by a sixty pound pattern. There are many of these sixty pound rails still in use, but the great-

er portion of the road is now supplied with the "double parallel" pattern weighing seventy-three pounds per yard.

The destruction of rails since the first opening of the road I could not ascertain with satisfactory precision; but I think it is equal, on the main stem, to eight or nine entire tracks.

The road was opened in September, 1825; in the year 1828 the trade had amounted to about 80,000 tons per annum, and it is now about 500,000 tons.

A brisk competition is kept up between various Canals and Rail Roads for the conveyance of passengers. On the old Birmingham Canal, a channel literally thronged with boats loaded with coal and iron, and the various products of the manufacturing establishments of Staffordshire, and of which the original shares of £140 are now worth £2,770, a competition is steadily maintained between the packet boats and one of the finest Rail Roads in the world, for the conveyance of passengers between Birmingham and Wolverhampton. On this Canal there are four daily packets each way, which are well supplied with passengers.

Six daily packets, with frequent extras, pass in each direction between Edinboro and Glasgow, along the Forth and Clyde canal in Scotland. The Edinburg and Glasgow railway with which the competition is maintained, is wanting in no element of an excellent and admirable rail road. It was established at a cost of \$175,000 per mile; and every precaution which art could supply was taken to render it efficient and convenient. For the purpose of breaking down the canal, the prices of freight are put exceedingly low, and trains are sent through with four different classes of passengers, with fares corresponding with the comforts allowed them. But still the canal fares are lower than their lowest rates, and the packets are consequently crowded. There were more than one hundred persons in the boat in which I travelled, and the number left on the landing was sufficient to justify the company in sending them on by an extra.

The competition which formerly had place on a little canal connecting the towns of Paisley and Glasgow, and the Glasgow, Paisley and Greenock railway, has ceased by compromise. The canal company no longer carry passengers, and the railway has also ceased to carry freight, excepting only packages of one hundred pounds, or less, weight.

In addition to this the rail road company pays the canal company a consideration, equivalent to about \$1,000 per mile per annum, for withdrawing its passenger boats. The canal carries heavy freight without molestation, and the rail road enjoys the monopoly of the passengers.

This is the most sensible arrangement that I have yet heard of in similar cases. It confines each work to its appropriate business; and the railway being the interloper, and attempting to monopolise the whole trade, ought in justice to pay something for the privilege of continuing its legitimate traffic without interference.

On the route from Lancaster to Preston, the competition for both

freight and passengers has also ceased. The canal was of much larger dimensions than the English canals generally. While the strife continued the swift packets not only took the passengers from the railway, but kept the charges so low for those actually carried by the railway, that the company after several years fruitless labour were compelled to abandon the unprofitable contest; and accordingly leased their road, which had been constructed at great expense, and in superior style, to the canal company.

The most indifferent canal can always sustain itself, *for any sort of traffic*, against the competition of rail roads, if the contest be carried on with proper intelligence and spirit. But if men lay down on the track they may count with considerable certainty on being crushed.

There is one important circumstance that should not be lost sight of in any comparison that may be drawn between the canals and rail roads in competition in England, and those in this country.

The English canals are generally very small, with locks capable of passing boats of but  $7\frac{1}{2}$  feet beam, and 65 or 70 feet long. The American canals, with few exceptions, are in every respect larger and better.

The English rail roads, on the other hand, are the product of the greatest effort of art with an unlimited command of means; and are incomparably superior to any results which we have obtained, or are likely for a long time, to obtain in this country.

The pretensions which are sometimes set up for the superiority of our rail road machinery, over that of the rest of the world, is not in my opinion fully sustained.

There is no country in which machinery of all descriptions is better made, than it is in England. But the difference between us is, that they, having unbounded means, expend vast sums in the graduation of their roads; while we, with limited resources, cannot afford to bore through the hills or cut them down, and are compelled to pass them by steeper grades. To surmount these grades we are obliged to make a different machine, and obtain the adhesion of its whole weight. To avail ourselves of the advantage of that adhesion, we work our engines under a high pressure of steam. And we sometimes burst them. In England the laws for the protection of the lives of citizens are more rigorously enforced, and companies cannot trifle with them, with the same impunity. This consideration, added to the fact, that the canals take the heavy trade and leave the rail roads but passengers and light merchandise, sufficiently explains why their locomotives usually draw less weights. On the Stockton and Darlington road, where the grades are favourable, and the heavy articles are not abstracted by the canals, the trains are very heavy.

In examining the railways of Belgium, which are remarkable as well for their general success as for the economy of their administration, some opportunities were presented for inspecting, also, the condition of the canals of that country. Many of the Belgian canals and all of the rail roads belong to the Government. They



use the railways for the transportation of passengers, and the canals for the transportation of freight. It is true that there is some freight carried also on the railways, but the average amount conveyed on all these roads is but about 25,000 tons per annum.

The produce of the coal mines of Belgium is about 3,500,000 tons per annum. A great deal of iron is made in the country, and the soil is as productive as that of the very best parts of England.

The produce of the soil, the mines, and the factories are carried on the canals. The branch roads leading from the mines cross the great railways and deposit the coal in the canal boats. Some 600,000 tons of coal are carried into Flanders and Holland, and about the same amount into France, by the canals, and the rivers rendered navigable for canal boats, leading in those directions.

The canal from Charleroy to Brussels, was opened in 1833 and conveyed 175,000 tons of coal.

The canal of the Sambre and the Oise was opened in the beginning of 1839.

On the subject of new canals, I may state that the experience of Europe in the use of modern railways has by no means set all such projects aside, though nearly all available ground has been long since occupied.

In the month of August last tenders were to be received for the construction of the canal, from the Scheldt to the Meuse, the expense of which was estimated at one million of Florins.

A law was passed at the last session of the French Chambers, appropriating the sum of 7,000,000 for the Marne and Rhine canal, between Vitsy and Nancy; and 6,000,000 besides for a lateral canal to the Garonne.

In England the old Birmingham canal company opened a new canal some 13 miles in length, the route of which does not deviate materially from their old line, and the object of which is to relieve the locks on their work from the pressure of the boats which constantly throng the canal. There are five magnificent lines of rail road leading out of Birmingham, one of which runs parallel with this canal, and each of which may be regarded as the competitor of some one of its great arms. But these rail roads do not subserve the purpose of relieving the trade, which consists mainly of those coarse commodities that require the economy of canal transportation.

In regard to the important but vexed question of the relative economy of railway and canal transportation, there would be little difficulty in deciding it to the satisfaction of all minds if we could bring the problem down to a mere question of experience and results actually obtained. But it is now rarely presented in this way. On the one hand we have the known and admitted cost of freight on canals, and this we have to compare with the *estimated* cost on certain works, on which it is essential almost for their existence to make the estimate low. It is a comparison of facts on one side with surmise on the other.

I have never yet heard of but one rail road company that pre-

tended to be able to pay their actual expenses for less than two cents per ton per mile; \* though there have been several instances of an intention at some future day to work cheaper than that. Until the thing is accomplished *we are compelled to assume two cents per ton per mile as the present minimum of railway expenses.* Half a cent per ton per mile, though below the average, is not the minimum of the cost of freight on a good canal with horse-power.

But, after all, past experience on this head is of much less value than is generally supposed. A new element has been introduced into the question of canal navigation. The use of steam, even on small canals, has set all our former calculations aside, and completely changed all the data of this problem.

On the Birmingham and Liverpool Junction canal steam tugs have been more than a year in constant operation carrying on the trade by drawing boats in regular and long trains. The canal is of small dimensions, and presents numerous impediments to the success of the experiment. The cross-section is small, the locks narrow, the line crooked, and the bridges frequent and low.

Your canal, on the contrary, has all the advantages of an ample depth and breadth; capacious locks; freedom from the obstruction of bridges, and moderate and well developed flexures. Notwithstanding the impediments on the English line success is complete; and there can be no doubt that with your advantages, and a large and steady trade in addition, it will be still more striking. On the English line from six to ten boats are taken in a train; on yours two or three would be sufficient.

I am not well informed in respect to the tonnage of the boats of the Chesapeake and Ohio canal; but I presume that in estimating their capacity at about 90 tons I shall be within the limit. A small engine—say 15 or 20 horses power—placed in one of these boats will move it with another boat of equal burthen in tow, at three miles per hour.

The capital required will be	
For three boats, a \$1,000 each,	\$3,000
For a 20 horses power engine, a \$2,000	2,000

Aggregate capital required for transporting 250 tons,	\$5,000
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To convey this amount of freight on a rail road, will require,	
A 20 ton locomotive, at	\$10,000
50 cars of 5 tons each, a \$300,	15,000

Capital in an equivalent train,	\$25,000
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The construction of the boats is so simple that they can be kept almost constantly running. No extras are required; no change of engines; and no double or treble set of cars. But leaving out of

\* I do not wish to make any invidious remark in this paper; but the accounts of the only work professing to carry at an actual cost for less than two cents per ton per mile, are not so published as to justify any public confidence in them.

view all such considerations, let me ask, will the wear and tear of three boats resting on a perfectly elastic cushion—smooth water—be equal to the wear and tear of a locomotive engine and 50 cars jolting and thumping along a railway at the rate of seven or eight miles per hour?

A steam tug with its train of six boats or more, is now actually managed in England by three men—an engineer, a conductor and a steersman. There certainly will not then be required more than three men on your canal to take charge of two boats.

On a locomotive and its train there are required an engineer, a conductor, two firemen and four breakmen—and still more to keep the train in proper command if the grades are steep.

There are needed no agents on the canal besides the ordinary superintendents and the lock-tenders.

On the London and Birmingham railway, 112 miles long, there are employed 1,395 persons, besides about 900 “waymen,” whose duty is to keep the permanent way in repair.

It is true that this is the force required for the performance of a great duty. But what is the duty of conveying 150,000 tons of freight and a million of passengers, *compared with the future transportation of the coal and iron with which the mines of Maryland are charged?*

The doubts that are thrown upon the probable extension of the coal trade of this country, remind me forcibly of the times when a famous English writer feared that they might some day have to use coal in England, “if wood be not better cherished than it is at this present,” and that “*sea coles* would be good merchandise even in the city of London, whereunto some of them had already gotten ready passage.”

The like fortune awaits the coal of Pennsylvania and Maryland; but with this difference, that a very few years in this country accomplishes the work of a European century.

This subject has extended much further than I anticipated when I commenced, though I have endeavoured to limit my remarks to the most apposite facts. I cannot well compress it within narrower compass without writing it over again, which my present engagements would not permit

I have the honor to be,

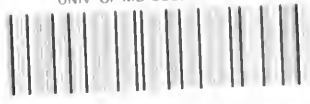
Respectfully your obedient servant,

CHARLES ELLET, JR.

Civil Engineer.



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