DOCUMENTS RELATING TO THE PROGRESS OF THE LONDON to CAMBRIDGE CANAL
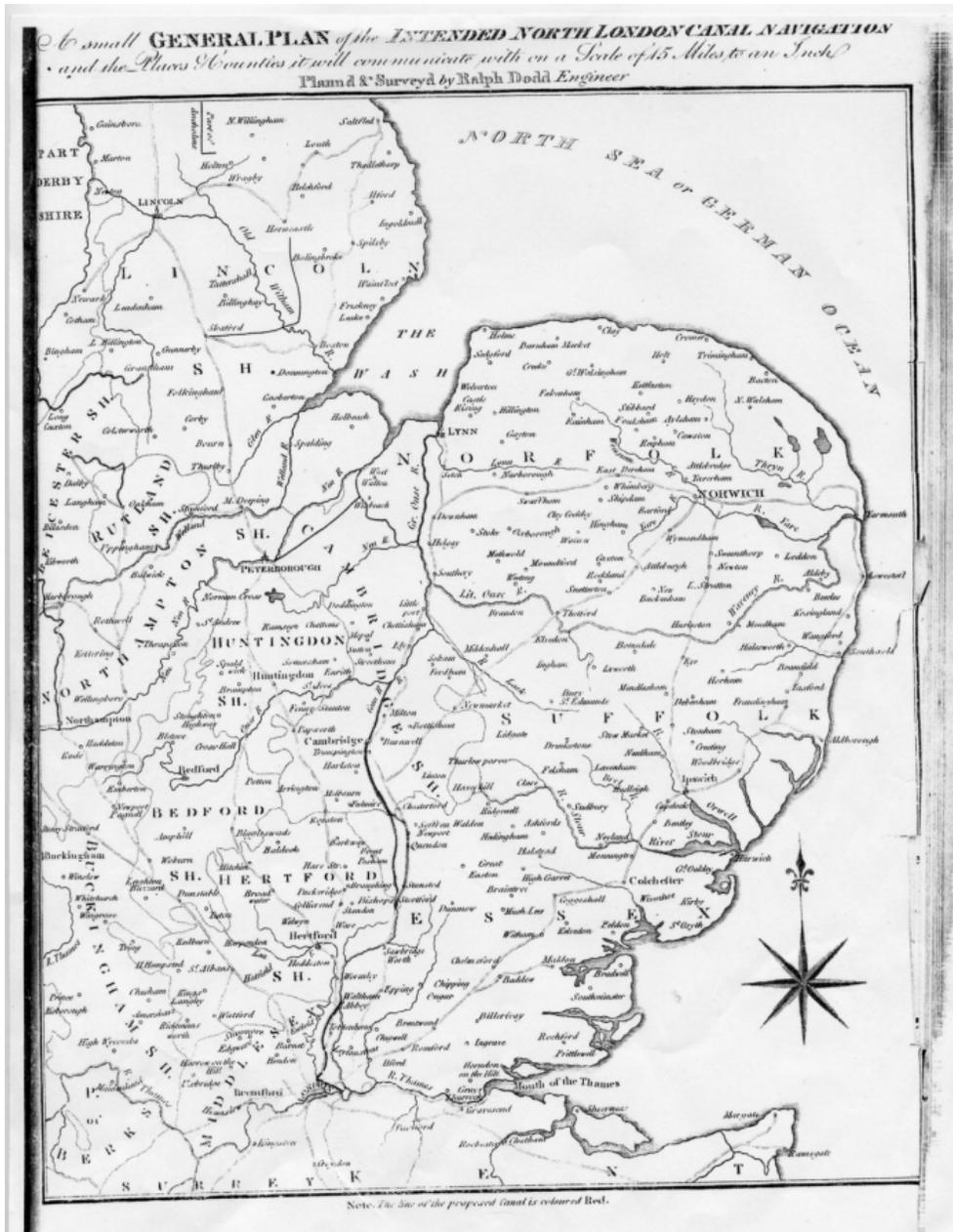
Part 5

"This plan by Dodd "A small general plan of the intended North London Canal Navigation ..." is a single sheet with "Mr White - Solicitor"written in ink on the reverse.

It is bound in "Cambridgeshire Acts of Parliament (1793-1834)" a collection of items compiled by Charles Henry Cooper (1808-1866), Cambridge Town Clerk.

It is bound alongside "London and Cambridge Junction Canal: data upon which the company have founded their calculations". June 1813, which also has "Mr White, Cambridge, Nov 1813" written in ink on it. But doesn't appear to part of the same document."

Note from Chris Jakes, the curator of the Cambridgeshire Collection. The map appears to refer to an earlier proposal in 1802 for a similar canal, originally surveyed by Robert Whitworth in 1773

Ref C.34.1

[cover]

LONDON and CAMBRIDGE
JUNCTION CANAL

DATA

UPON WHICH THE COMPANY HAVE
FOUNDED THEIR CALCULATIONS

June, 1813

Handwritten : *"From Colonel Ducket"*

[1]

ROUGH SKETCH
OF THE

LONDON AND CAMBRIDGE JUNCTION CANAL

The dotted Line represents the intended Canal and Branch. The black Lines are the present Navigations.
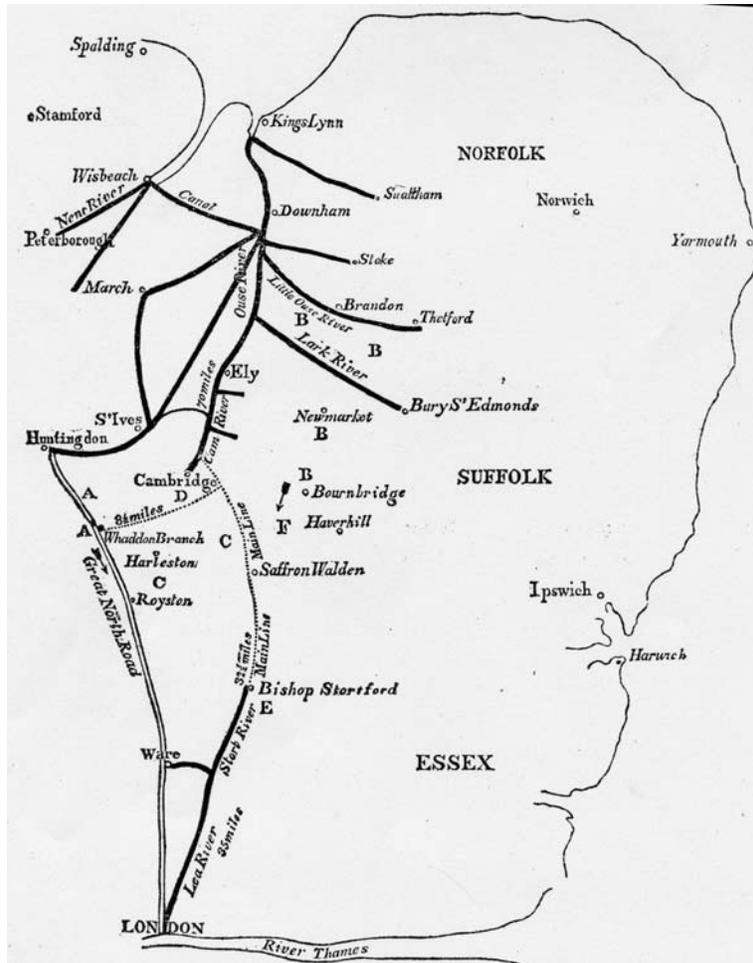
DATA

Upon which the LONDON and CAMBRIDGE JUNCTION CANAL COMPANY have founded their Calculations.

I. – LENGTH OF THE CANAL.

	Miles
1. Distance from King's Lynn to to the point of Junction in the Cam River	70
Ditto from the Cam River, by the proposed Canal, to Bishops Stortford	32½
Ditto from Bishops Stortford to London Bridge	35
	137½

[2]

Miles

Length of the Branch from the main Canal to the Great North Road   8½

Canal as above   -   -   -   _   -   -   -   32½

Water-carriage to be created   41

2. The number of Locks will be   52.

-    -   Tunnels   -   3 ;   whose united length, compared with only two upon the Grand Junction Canal, will be less by 1903 yards. The embankments will be inconsiderable, and the Branch to the Great North Road is upon a dead level.

II.-TOLLS.

The Tolls granted by the Act are 3d. per Ton per Mile.

	s.	d.
The Tolls upon the Lea and Stort Rivers may be taken at - - -	5	0
Ditto, Canal, or 32½* miles x 3d. -	8	3
	13	3

* Fractions of miles pay as miles.

III-PRESENT TRADE.

1. It appears that the number of horses drawing regular waggons, laden with produce from the country marked A, for the London market, and passing upon the Great North Road at Whaddon, amounted, upon a weekly average, to 297.

Horse.		Cwt.		Horses.	Weeks.	Tons per Annum.
If 1	:	15	:	297 x	52 ==	11,583

2. It appears that the number of horses drawing waggons through Bourn Bridge, laden with produce from the country marked. B, and passing through Bishops Stortford for London by land, amounted, upon a weekly average, to 422. Vans or light waggons are not included.

Horse.		Cwt.		Horses.	Weeks.	Tons per Annum.
If 1	:	15	:	422 x	52	= 16,458

3. Two miles to the South of Cambridge is a village named Trumpington, marked D, where the road divides to Royston and Saffron Walden; and where a weighing machine has not long been erected. The weekly number of horses drawing waggons through this village was 1537. Single-horse carts, drawing coals, and the immediate local trade, were not included. It appeared, from actual observation, as well as subsequent overweights, that each horse drew, upon an average, one ton, or 79,924 tons per annum. This line of conveyance has since been diminished by many waggons taking a circuitous route to avoid the weighing machine; but the aggregate number., and ultimate direction, remain the same.

4 The produce of the land in Cambridgeshire, to the South of the weighing machine, marked C, was estimated in the following manner:

By the Population Returns in 1801 it appeared, that the parish of Harlston, marked C, contained, by actual admeasurement, 1500 acres; and that the surplus produce (after

deducting Oats, Tares, Turnips, Grass, Seeds, Fallows, and Orchards, and after allowing 12½ bushels for every man, woman, and child, and for seed) amounted, by specific enumerations, to two quarters of grain per acre.

<div align="center">[3]</div>

	Miles.
Draw a line due South from the weighing machine D towards the borders of Cambridgeshire	10
Bisect this line by another from East to West	24
Square miles	240
Acres in a square mile	640
	153,600
Deduct for hills and barren soils	25,000
	128,600
Multiply by two quarters, surplus produce	2
Six quarters to one ton	) 257,200
Tons	42,866

By the Population Returns in 1811 it appeared, that an increase of one third, with corresponding deductions, had taken place	14,288
Tons	57,154

	Tons.
5. The trade of Bishops Stortford was known at the time	42,500

<div align="center"><i>Recapitulation.</i></div>

	Tons.
1. Trade, passing the Great North Road at Whaddon	11,583
2. Ditto by Bourn Bridge	16,458
3. Ditto, from and to Cambridge, in one direction	79,924
4. Surplus produce of the southern part of the County.	57,154
5. Bishops Stortford trade	42,500
Tons	207,619

The supply of Coals, and the trade to the country marked A, as well as to that marked F, are not taken into the above account. The trade, particularly in Coals, is considerable. The produce, brought forward, is not the result of favourable years; and in the case of the traffic by the North Road, as well as through Bourn Bridge, the draught of the horses has been lowly estimated. The .same also, with the produce of the country marked C.

<div align="center">IV.-EXPENSE OF CONVEYANCE.</div>

1. Land. Carriage, as collected from the Waggon-offices, Bills, and other authentic sources.

	Miles	Expense per Ton.
		£ s. d.

From London to		Miles	£	s.	d.
	Brighton	54	6	0	0
	Peterborough	78	6	0	0
	Portsmouth	72	8	0	0
	Bury	71	5	10	0
	Huntingdon	59	4	10	0
	Newmarket	62	4	0	0
	Swaffham	93	7	0	0
	Brandon	78	5	0	0

[4]

	Miles	Expense per Ton.		
		£	s.	d.
From London to Leeds	196	16	0	0
Bristol	118	10	0	0
Stamford	89	7	0	0
Bedford	50	4	0	0
Norwich	109	8	0	0
Cambridge	51	3	0	0
Canterbury	56	9	0	0
Oxford	57	4	0	0
Cambridge to Saffron Walden	15	1	3	4
Saffron Walden to Bishops Stortford	12	1	0	0
Average of land carriage per ton per mile		0	1	7¾

2. Water Carriage.

	Miles	Expense per Ton.		
		£	s.	d.
From London to Bishops Stortford	35	0	14	0
Lynn to Cambridge	75	0	7	0
Thetford to Cambridge	60	0	7	6
London to Bristol	168	2	0	0
Basingstoke	70	1	6	8
Derby, Birmingham, Manchester, &c.	600	15	0	0

In the three last, viz. Bristol, Basingstoke, and Derby, &c. the highest rate has been stated, although at the wharfs they charge much lower; and these charges are for the smallest and most valuable packages, carried by canals, conveyed, in the last case especially, at the rate of 40 miles a day - consequently not applicable to bulk and small value.

	s.	d.
Average of water carriage per ton per mile	0	4½
land	1	7¾
Average saving to the Public per ton per mile	1	3¼

3. A barge of 20 tons can easily work 20 miles in one day, which at one penny per ton per mile (the barge working only 200 days in the year), will give £333   6s. 8d. per annum.
A barge of 40 tons costs complete £550.- consequently a barge of 20 tons may be taken at £300. To apply this to the future trade between the Cam river and London, distance 68 miles:

	£	s	d
A barge at one penny per ton, for 68 miles	0	5	8
Tolls as No. II.	0	13	3
Extras, the same as are now paid for a barge of 40 tons	0	3	2½
	£1	2	1½

Wages to the amount of 2s. 9¾d. such as *are now* paid, are included in the .5s. 8d. This leaves a profit, per ton, of 2s. l0¼d. x 20 tons=£2. 17s. 1d.
A barge of 40 tons will, in a bad year, go 38 times from Bishops Stortford to London; consequently, a 20 ton barge can make 20 trips to and from London, or convey 40 cargoes in a year.

[5]

Profits upon a 20 ton barge £2. 17s. 1d. x 40 =   £119 3s. 4d.
But the navigation will be for 40 tons between Cambridge and Bishops Stortford, as it is now for 40 tons between Bishops Stortford and London; consequently the profits must be greater.

	Per Ton.		
	£	s.	d.
But taking the barge-hire upon 20 tons at three halfpence per ton per mile, the expense of conveyance will be	1	4	11½

Consequently the profits, by the same ratio, will be £227. 10s. per annum upon a. sunk capital of £300.

4. To prove the saving by water, in relation to the particular country :

	Per Ton per Mile.	
	s.	d.
Land carriage from Cambridge to London	1	2
Water carriage, supposing the ton to cost £1. 5s. 6d.	0	4½
Saving to the Public per ton per mile	0	9½

Ditto upon 200,000 tons for one mile	£7,916	13	4
21 ditto	166,250	0	0

And in this estimate of water carriage (Section 3.) the comparative cheapness of conveyance in the Fens, by the Ouse, Little Ouse, &c. has not been taken into consideration.
It has been proved, therefore, that the Company can carry at the rate of one third of the price of land carriage.

V.-ESTIMATE.

	Miles.	
Estimate for making the main Line,	32½	£524,000
Ditto Branch	8½	44,000
		£568,000

Mr. Rennie has framed his estimate upon the following principles:

1. By taking every article at the highest possible price.

2. By checking it with the actual and recent expense of the dearest and most difficult Canal in England. Thus, for instance, the Kennet and Avon cost (exclusive of unconnected purchases and of payment of interest)   £620,000

Miles.	£	Miles.	£
If 56 :	620,000 :	41 . =	453,928

Steam-engine, when the trade shall]		
exceed 200,000 tons]		15,000*
Contingencies - - - - - - -		99,072
		£ 568,000

*The compensations prescribed by the Act, will be covered by the above sum of £15,000

[6]

VI..--PROFITS.

The Profits upon the present Trade may be thus calculated:

				Tons.
1 . Present trade				207,619
Deduct for round numbers				7,619
				200,000
	Miles		.s. d.	£
Twenty-one miles, or half of the water carriage,	21	x	5 . 3 =	52,500
Nine percent. upon £ 568,000				51,120
				1,380

2. That this is a fair ratio, may be deduced From the following calculations:

	£	s	d
1. The trade enumerated at Whaddon will go the whole way to Bishops Stortford, 32 miles x 8s.	4633	4	0
2. Through Bourn Bridge,			
¼th, or 4115 tons, will go 26 miles x 6s. 6d.	1337	7	0
¾ths, or 12,343 do. 32½ do. X 8s. 3d.	5091	9	9 .
3. Trade of Cambridge, as above,			
½ or 39,962 tons x 8s. 3d.	16,484	6	6
Ditto ditto x 4s	7992	8	0
- - - - - -			
4. South of the County of Cambridge,			
57,154 tons x 3s. 6d.	10,001	19	0
5. Bishops Stortford trade,			

½ will go 14 miles, or 21,250 tons x 3s. 6d.	3718	15	0

The coals, now sent from London, will be sent from Lynn

5000 chaldron, or 6250 tons x 8s. 3d.	2578	2	6

30,000 quarters of barley, now sent from London, will be

sent by the Canal from Norfolk, 5000 tons x 8s. 3d.	2025	0	0
Gross income	£53,862	11	9
Nine percent.	£51,120	0	0
	2,742	11	9

VII.-FUTURE PROFITS.

Additional profits may be estimated upon the following data :-

I. The nature of the articles composing the above Tonnage. They are, for the most part, supplies for the London market. Coal, Iron, Lime, and Stone, which constitute a staple trade upon most Canals, form but a small proportion of this Tonnage. That these four will be important articles, may be thus deduced:

> 1. Coal may be had in any quantity, and at a moderate freight, from Lynn to Cambridge. The entire district of the intended Canal is supplied from Cambridge by land carriage and short measure.

[7]

> 2. An Iron Foundery flourishes at Saffron Walden, to which all the materials, &c. are brought by land carriage.- It has only been lately set up.
> 3. Lime,- Building Stone,-Brick Earth, to any quantity, and of the first quality, may be had near the line. These articles are now necessarily limited by the capital vested in land carriage being appropriated to the conveyance of objects of greater value.

II. There are now four heads to the Line of Navigation.

	Population.	Distance between the two.
1. Lynn	10,529	75 miles.
2. Cambridge	11,108	
3. Bishops Stortford	2,630	35
4. London	1,220,000	

Consequently, when the Canal is made, the increase of trade will be in some proportion of 10,259 inhabitants over 2630 inhabitants, in respect of population, and of 138 miles over 35 miles, in respect of distance, taking London as the point to act from; and, *vice versa*, taking Lynn as the other head, in some proportion of 1,220,000 inhabitants over 11,108 inhabitants, and of 138 miles over 75 miles, assuming as a basis, that water carriage is productive in proportion to its length.

III. There is, ~~perhaps~~ no one single Canal in England, which has not doubled its trade, at the end of the first 20 years; ~~nor is this proposition inapplicable to those which have produced little or no return to the Undertakers, since it is evident, that if there was no trade, previous to a Canal being made, any subsequent trade must be a duplicate of 0.~~

Twelve of the oldest Canals in England, whose average age is 32 years, pay now 34 per cent. dividend, making their Shares £680 each.

Seventeen Canals, each 20 years old, pay now 8 per cent. dividends, making their Shares £400 each.

To illustrate this more locally, the town of Bishops Stortford, which had little or no previous trade, had, at the end of the first 20 years, from the river Stort being made navigable, 19,000 tons - at the end of the next 20 years 40,000 tons; and therefore, if the proposition of doubling be true of a confined trade, it must be true of a trade where there can be no rivalry, and no monopoly.- There is, consequently, the security of experience, that if the existing trade is equal, upon the intended London and Cambridge, to pay 9, it must be equal, at the end of 20 years, to pay 18; and at the end of 40 years, to pay 36 per cent.

IV. It costs more to send one ton of goods from London to Cambridge by land, than from Bristol to London by water ;

$$\begin{array}{ccccccc} & \text{£} & \text{Miles.} & \text{£} & & \text{Miles.} \\ \text{For if } 2 & : & 118 & : & 3 & = & 177 \end{array}$$

Consequently Cambridge is, to all commercial purposes, further from London than Bristol, or 177 miles from London.

But with the Canal, Cambridge would be, commercially, only 17 miles from London,, since if

$$\begin{array}{ccccccc} & \text{d} & \text{Miles.} & \text{d} & & \text{Miles.} \\ 14 & : & 51 & : & 4\tfrac{1}{2} & = & 16\tfrac{1}{2}\,1/8 \end{array}$$

But if three times the present work may be done at the same expense, three times the present trade may be created. The extent of future demand must, of course, be a speculation guided by experience; but of the power of the country to afford the corresponding supply, those who know it the best will doubt the least.

Letter from Jno Nash at Whittlesford dated Aug 26th Thursday (which would have been 1813, 1819 or 1824)

Dear Fred

I received your letter on Monday and from the contents believe you misunderstood me.

The object we have in view is merely to make our river navigable from Camb to Littlebury & it is thought it can be done without going to Parliament for a Bill.

The Iron railway is an afterthought of my own, that in case we did accomplish the one whether the other fm Littlebury to Stortford would be a feasible thing – and knowing you had turned your attention to the subject I wished to know the result of your enquiries, i.e. what would be the expence per mile and what route it would take. Martindale, who speaks for Donkin says now our river will not cost £12,000. I do not understand it but am to meet Donkin on Friday on the subject.

If you have time just write me frm *Salton* tomorrow & say how a railway is to be taken over an hilly country = what distance you will have to make frm Littlebury, & what expence per mile, with the tonnage a single horse will take?

In haste yours very sincerely Jno Nash

Am I to join you in the malting business? I am ready JN

Pray see after Rolfes Maltings? Taylor to dine with me next Monday week shall be glad
to see you