

**Mr Donaldson's letter on the cost and distribution of manure : 5th March, 1849.**

**Contributors**

London (England). Metropolitan Commission of Sewers.  
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## Metropolitan Commission of Sewers.

OFFICE, 1 GREEK STREET,  
5TH MARCH, 1849.

MY LORDS AND GENTLEMEN,

With reference to the Minute of the Works Committee of the 21st of February, "That it be recommended that Mr Donaldson proceed with the distribution of liquid manure in continuation of the order of last year," I beg to submit a statement of what appears to be the best mode of further carrying out the experiments with celerity and economy.

The hose-pipes used last year will be again available, excepting two or three pieces which have been used for other purposes. The stock in hand, when the work was discontinued, consisted of eight pieces of suction-pipe, one hundred and eighty yards of  $4\frac{1}{2}$ -inch discharge canvas hose-pipe, and three hundred and twenty yards of  $2\frac{1}{2}$ -hose-pipe.

I propose an additional length of three hundred yards of  $3\frac{1}{2}$ -inch hose, and two hundred yards of 3-inch ditto, with lateral apertures, or with jets, as shall be found best in practice. By the use of 3-inch hose and jets, instead of the  $2\frac{1}{2}$ -inch hose used last year, two men will do as much in a given time as could last year be done by four. The Commissioners' barge fitted up with steam-engine and pumps I propose to keep at work applying the liquid to the land; and for its conveyance I propose to employ as many boats or barges as may be necessary to keep the engine at work.

I consider six barges of forty-five to fifty tons each will be sufficient; and I propose to load them at the Northumberland-street Sewer by means of a hose-pipe carried up the sewer to where its invert is above high-water level; and through this hose-pipe the water will run into the barges without the aid of pumps.

The barges, I expect, may be hired at about 30s. or 36s. a week. Some fittings in them will be requisite to prevent the surging of the liquid from upsetting them. Slight wooden partitions, lengthways, with a light covering will, I presume, be sufficient.

The cost of the additional hose-pipes will be—

	£	s.	d.
300 yards of 3½-inch, at 1s. 6d. per yard . .	22	10	0
200 yards of 3-inch, at 1s. 2d. per yard . .	11	13	4
	34	3	4

The probable amount of wages weekly, as follows:—

1 engine-man, at 30s. per week . . .	1	10	0
3 labourers spreading, 20s. each per week . .	3	0	0
1 barge-man, 36s. „ . .	1	16	0
6 assistants ditto, 20s. „ . .	6	0	0
1 labourer loading, 24s. „ . .	1	4	0
1 gangman to superintend and assist, 30s. . .	1	10	0
Wages . . . . .	15	0	0
Barge hire, 6 at 36s. each per week . . .	10	16	0
Horse hire for hauling barges, 2 at 10s. a day each, per week . . . . .	6	0	0
Coals for engine, per week . . . . .	1	10	0
Total per week . . . . .	33	6	0

Besides which there will be the tolls and other charges upon the River and Canals: appended are lists of each. The tolls for manure upon the River are—

To Brentford, 1½d. per ton . . . . .	} Charged on Register Tonnage.
Isleworth and Richmond, 2½d. per ton . . . . .	
Twickenham and Teddington, 3½d. „ . . . .	

Upon the Regent's Canal the toll for manure in boats is 6d. and in barges 7d. per ton, with a further charge of 6d. per ton for loading or unloading in the water-way.

On the Grand Junction Canal the toll on manure (unmanufactured) is one halfpenny per ton per mile, but not to exceed 2s. 1½d. per ton in all, and a charge of 2d. per ton for unloading over the towing-path. On the Basingstoke Canal it is from 6d. to 2s. 6d. per ton according to distance.

With these proposed arrangements I expect to be able to apply about 300 tons of sewer-water per day, or from 1,800 to 2,000 tons per week.

I propose to apply about fifty tons to the acre. The quantity applied last year was from sixteen to twenty and in two cases thirty tons to the acre; and from what I have seen of its effects, I am of opinion that a much greater quantity may be applied to advantage. If I am successful, according to my estimate as above, in applying 2,000 tons per week at fifty tons to the acre, the cost per acre will be about 17s., exclusive of tolls, which on an average will amount to 3d. per ton, or about 25s. per acre.

The Grand Junction Canal Company, on my explaining the object and extent



of the experiments, returned all the tolls paid last year. The Regent's Canal Company charged 1d. per ton, allowing a drawback of 5d. per ton from their usual lowest charge.

I applied also to the Committee of Management of the Thames Navigation, through Mr. Leach, who attends thereto in the Hammersmith District, as I understand that tolls on the River are chargeable only upon goods carried for profit or gain; but I did not meet with so liberal treatment from them as from the Canal Companies. The reply I received from Mr. Leach was to the effect that he had laid my letter before the Committee, and they did not see any reason why sewer-water should be exempted from the usual tolls as manure.

As regards the cost of applying liquid manure to land in comparison with that of solid manure—

In the Minutes of Evidence given by Mr. Smith of Deanston, eighty tons (17,920 gallons) of sewer-water are stated as equal to  $5\frac{1}{2}$  cwt. guano, or fifteen tons of farm-yard dung: and to apply fifteen tons of farm-yard dung in the usual way will cost about 17s.; and the application of eighty tons of liquid, as I have applied it with the pumps and hose-pipes, will cost about 7s. 6d., that is, supposing both solid and liquid to be carried a quarter of a mile.

Since writing the above, I have walked over the fields to which the sewer-water was applied last year; and where the ground is tolerably dry, the extent to which it was applied is distinctly marked by the growth and colour of the herbage; but where the ground is wet, no apparent effect is yet produced.

It has occurred to me that as (other conditions being equal) the comparative value of sewer-water is indicated by its specific gravity, an instrument for measuring that readily would enable me to judge with greater certainty of the best to be used.

I have the honour to remain,

My Lords and Gentlemen,

Your obedient Servant,

G. DONALDSON.

MR DONALDSON'S

LETTER

ON THE

COST AND DISTRIBUTION OF LIQ  
MANURE.

5th March, 1849.