Cupola House,
26, Carlyle Square,
Chelsea. S.W.

July 9th 79
Wednesday

My dear O'Gorman Mahon
we have a few
friends dining here
on Friday next at
½ past seven your
Cousin I believe among
the number. if you
are not engaged will
you also
Yours very
William Stoddart

Broomfield Place
Ealing W
July 21. 1873

My dear Colonel

Should nothing occur in the mean time to change my plans I hope to pay you a visit on Wednesday next; but I think not before one o'Clock as I have an engagement here in the morning. I think that then I may be able to dislodge the enemy finally.

In haste Most truly Yours
Denis Brownell Murphy

July 22, 1873

Colonel Richards
begs to informe
Colonel The O'Gorman
Mahon that it
is a week since
he sent the parcel
from his Brother
as addressed
to The O.G.M.'s
Club, The Civil

& Military in
Regent St, by
a Special Messenger

22 July 1873

18, Lower Seymour St.,
Portman Square. W.

July 24th. 1873

Dear Colonel,

Miss Mahon & Mr. Delaney are going to Greenwich to have a little plain dinner on Thursday next. If you Colonel should have nothing better to do, I would be glad if you would join us, to be a thungerford Steam Boat Pier at

2 o clock precisely on —
Thursday next. an answer
by return of Post will oblige
as I have to write to Miss
Mahon. at Sunbury she
does not return untill to=
morrow night.

With Kind Regards —

Yours faithfully

J. H. Brand

London
July 29 1863

My dear Colonel
On enquiry I
find that the
War Office do
take the opinion
of C.O.s of militia
as to appointing
officers; on which
account I can very
likely serve your

nephew. I shall ask for a company for him from which he can if he pleases get back into the army. You told me that his name is Charles George Mahon, but I must also know his exact age and anything else that I can learn. His height for instance.

I do not know of any vacancy at this moment but there are 5 battalions in Mx so that it is not likely that he will have long to wait.

Yours truly

Wellington

No. 1 St. Swithins Lane
July 31st. 1873

To the Chairman & Directors
of the Agricultural & General Drying Co. Limited

Gentlemen

I have the honour to report to you the results of the experiments made with the Drying Cylinders at Messrs. Schroder's Guano Works Victoria Docks from the 16th of June to the 19th July 1873 -

Interpretations

No. 1 Shall be understood to refer to the Old Cylinder belonging to Mr. Alfred Borwick

No. 2 Shall be understood to refer to the Cylinder belonging to Mr. H. A. Gibbs -

Description of Machines

No. 1 Consists of a Wrot Iron Cylinder about 25 feet long, revolving in a stationary wrot Iron casing leaving a space of about 2 inches between the casing & cylinder; the Fire grate is underneath the casing, the hot air passes thro an 18 inch pipe to the air duct which is made to revolve the opposite way to the cylinder; is then distributed inside the Cylinder, and is drawn off at the far end by the Chimney.

No. 2. This machine consists of a Wrot Iron revolving cylinder about 24 feet long, having a stationary air duct passing thro the centre; the Fire Grate is detached from the cylinder; a large Fan is placed over the top with its suction pipe communicating with the furnace, which draws the hot air from the Fire and passes it directly thro the air duct into the cylinder, this is also drawn off into a chimney at the opposite end -

It is to some extent useless for me to describe to you the machines with which you are so well acquainted, I have however done so that you may be better able to follow me in the results and remarks on each machine.

Remarks on each machine

No. 1 This machine was quite unfit for accurate trials, but I was of opinion that it would run long enough to give some data as to the quantity it would dry & its consumption of fuel.

It was faulty in every part; and when I strengthened it in one place it gave way in another, and at last so buckled & twisted that it became useless, one great fault in its construction is the narrow space between the cylinder & casing being only 2 inches, the draught it almost nil. & the consequence is the fires will not burn & the small space would soon become choked with soot.

The required particulars were just obtained when the cylinder positively broke down altogether. I have given you a table of results & you will see by that, we ran 8½ hours the day before it collapsed.

No. 2 The results obtained by this machine were very satisfactory & exceeded my utmost expectations, and when the larger pullies were placed on ran very steadily, and turned out the guano dry, and with the exception of the wet lumps, did its work well; this machine was not constructed to dry such materials and could be modified to dry the average quality of guano that has been run thro.

The Fan bearings became very hot, necessitating free use of oil.

See Table for results. these were taken by my assistant, which no doubt Mr. Sowell will verify.

Other matters beyond actual production and consumption have to be considered viz. The power to drive the machinery. Consumption of fuel in furnace, labor + cost of construction. It may be interesting to compare these points.

1st Horse power required. The two cylinders took about the same power to drive them, viz from 2 to 3 Actual Horse power, but No 2 has a fan to be driven, which takes not less than 7 Actual Horse power to drive it, this I consider a great hinderance to the economical working of the principle, this extra Horse power representing in fuel, oil, straps, water to not less than 10/- per day of 12 hours for each machine.

2nd Consumption of fuel. For this I must again refer you to the Table of results, it shows that No 1 requires 104 lbs of coal per Ton dried + for No 2 - 132 lbs of coke. but both might be constructed to consume much less.

With regard to No 2, part of the principle is to draw the hot air from the Boiler flues with a view to the utilization of the waste heat. I considered this matter very carefully making the experiments shown in the Table.

On applying the pyrometer to the Top part of the furnace it immediately sent the indicator to its full height viz 1500° so that I cannot tell how much it was above this, on placing the instrument in the Fan suction just before entering the fan, it registered from 400° to 1150° (see Table) and at the ~~Bottom~~ Discharge from Fan between 500° to 800°, the Chimney bottom indicating from 350° to 250°.

These results show a serious loss of heat in passing thro' the fan. The loss of heat from a direct fire being so great, it would be of no practical use to attempt to utilize the heat from a Chimney

I think I can explain this more fully. The heat at the bottom of a Chimney should not be more than 500° and in the proportions above this would be 300° on passing thro' the fan, this is only the heat shown in the bottom of the cylinder Chimney, and if you draw the Boiler fires it will give the extra consumption of fuel by the stronger draught.

As the results of my investigations & experiences I should propose to construct a machine as follows. A cast iron cylinder, 4 feet in diameter and about 16 feet long on the principle of No. 1, to revolve over the fire, but with a stationary air duct as in No. 2 and an arrangement for spreading out the lumps; if the guano is to be the same as the samples we have been drying up to Friday, but if they intend to dry such Guano as we dried on Friday, it will require a revolving air duct with spreaders & scrapers, for the guano was so soft that it was with difficulty the men could throw it off the shovels, and we were obliged to run a considerable quantity thro a second time. I should propose the cylinders to be set in Brickwork on the plan of those at Leeds.

I estimate the quantity (the same as we have dried up to Friday the 18th of July) each machine would turn out would be 22 cwt of dried guano with the consumption of 1 cwt of coal at most per hour. and that the cost would be about

£400 per pair including brickwork., or the probable cost of a pair of well constructed No. 2 cylinders

I have endeavoured to give an independent report confining myself to the actual facts ~~taken~~ from daily working & I shall have great pleasure in attending your Board to make any explanations or answer any questions.

I feel confident that Messrs. Schroders will not meet with any machines to do their work more thoroughly or economically

Believe me Gentlemen
To remain
Yours very Faithfully
Thos S. Wilson M. I. M. E.

Results of Trail of No. 1 Cylinder

Monday June 23rd 1873
Time working 6 hours
Weight of Guano Dried 66 cwt 48 lbs
Coals used 4 cwt 56 lbs
Guano Dried per hour 11 cwt 8 lbs
Coals used per Ton 1 cwt 41 lbs

N.B. This was before speeding
This was to dry.

Tuesday June 24th 1873
Time working 5 3/4 hours
Weight of Guano Dried 101 cwt
Coals used 4 cwt 56 lbs
Guano Dried per hour 17 cwt 63 lbs
Coals used per Ton - 91 lbs.
N.B. The lighting the fires is included in the coal

Wednesday June 26th 1873
Time working 5 1/2 hours
Weight of Guano Dried 70 cwt 90 lbs
Coals used 3 cwt -
Guano Dried per hour 13 cwt
Coals used per Ton. 96 lbs.

Thursday June 26th 1873.
Time working 8 1/2 hours
Weight of Guano Dried 142 cwt 92 lbs
Coals used. 8 cwt.
Guano Dried per hour 17 cwt
Coals used per Ton 1 cwt 13 lbs.

Mean results after speeding

		Guano Dried	Coals used	Dried per hour	Coals per ton
		cwt lbs	cwt	cwt	lbs
Time	5 3/4 hours	101 - 0	4 . 56	17 . 63	91
"	5 1/2 "	70 . 90	3 . 0	13 - 0	96
"	8 1/2 "	142 . 92	8 . 0	17 - 0	125
Total	19 3/4	314 . 70	15 . 56	47 . 63	312
Mean	6 7/12	104 . 95	5 . 19	15 . 96	104

Results of Trial of No 2 Cylinder

Tuesday July 15th 1873

Time working	5 hours
Coke used	5 cwt 56 lbs
Weight of Guano dried	119 cwt 36 lbs
Guano dried per hour	23 cwt 96 lbs
Coke burn per Ton	103 lbs

Wednesday July 16th 1873

Time working	5 hours
Coke used	6 cwt 83 lbs
Weight of Guano dried	104 cwt 45 lbs
Guano dried per hour	20 cwt 98 lbs
Coke used per Ton	1 cwt 31 lbs
Weight of Raw Guano	122 cwt 69 lbs

NB. 18 cwt of this came out in round balls hard on the outside but quite wet inside.

Thursday July 17th 1873

Time working	7 hours
Coke used	9 cwt 88 lbs
Weight of Guano dried	147 cwt 12 lbs
Guano dried per Hour	21 cwt 2 lbs
Coke used per Ton	1 cwt 36 lbs
Weight of Raw Guano	162 cwt 10 lbs

Wet lumps not weighed

Friday July 18th 1873

Time working	8 1/2 hours
Coke used	9 cwt 7 lbs
Weight of Guano dried	80 cwt 35 lbs
Guano dried per hour	9 cwt 60 lbs
Coke used per Ton	1 cwt 29 lbs
Weight of Raw Guano	92 cwt 92 lbs

A large quantity of this sample was like thick mud it sticks to the shovels and was difficult to feed. Stopped machine 2 hours, this is taken from the time.

NB- I have not taken the last result as it was not a fair sample

	Time hours	Guano dried cwt lbs	Coke used cwt lbs	Guano dried per hour cwt lbs	Coke per Ton. cwt lbs
	5	119 - 36	5 - 56 lbs	23 - 96	" 103
	5	104 - 45	6 - 83 lbs	20 " 98	1 " 31
	7	147 - 12	9 - 88 lbs	21 " 2	1 - 36
Total	17	370 - 93	22 - 3	65 " 84	3 - 58
Mean	5 2/3	123 - 68	7 - 38	21 - 103	132 lbs

Tuesday July 15th 1873

Time working	6 hours
Cobs used	3 cwt 3 lb
Weight of Grains already	119 cwt 3 lb
Grains dried per hour	23 cwt 0 lb
Cobs burn per hour	15 lb

Wednesday July 16th 1873

Time working	5 hours
Cobs used	6 cwt 3 lb
Weight of Grains already	142 cwt 3 lb
Grains dried per hour	20 cwt 3 lb
Cobs used per hour	1 cwt 3 lb
Weight of Raw Grains	122 cwt 6 lb

NB. 18 cwt of this grain was put in grains bulk dried and the rest put into sack made.

Thursday July 17th 1873

Time working	7 hours
Cobs used	8 cwt 3 lb
Weight of Grains dried	147 cwt 12 lb
Grains dried per hour	21 cwt 2 lb
Cobs used per hour	1 cwt 3 lb
Weight of Raw Grains	162 cwt 10 lb

Not enough put into sack

Friday July 18th 1873

Time working	8 ½ hours
Cobs used	8 cwt 3 lb
Weight of Grains dried	170 cwt 13 lb
Grains dried per hour	9 cwt 6 lb
Cobs used per hour	1 cwt 2 lb
Weight of Raw Grains	182 cwt 3 lb

A large quantity of this grain was for the first round of grains & the others each was different in bulk. Different machine & hours, the cobs from the stack.

NB. 3 hours not taken the last round. Was given out as far example

	Time hours	Grains dried cwt lb	Cobs used cwt lb	Grains Raw cwt lb	Cobs per hour cwt lb
1st	5	119 - 3	5 - 3 lb	123 - 6 lb	1 - 16 3
2nd	5	10 - 15	6 - 3 lb	23 - 0 lb	1 - 21
3rd	7	147 - 12	8 - 3 lb	170 - 13 lb	1 - 2 lb
Total	17	376 - 13	22 - 3	63 - 6 lb	3 - 7 lb
Raw	5 ½	123 - 6 lb	7 - 3 lb	21 - 10 3	1 3 lb

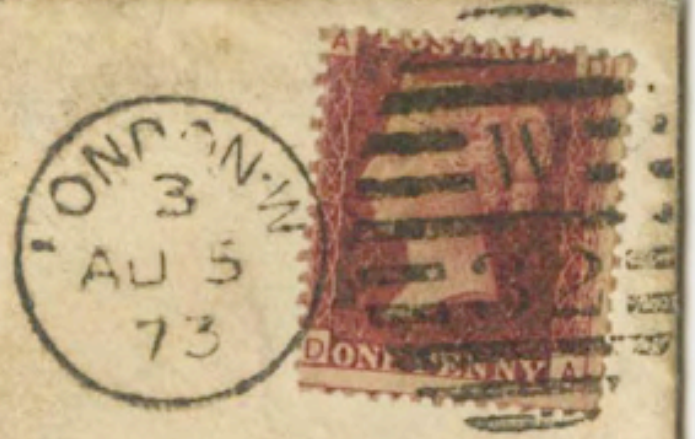
	Time hours	Guano Dried lbs	Coal or Coke used lbs	Dried Guano per Hour lbs	Coal or Coke per Ton
Mean No 1	6 4/12	104.95	8.19	15.96	104 lbs
" No 2	5 2/3	123.68	7.38	21.103	132 lbs.

In No. 2 the coke consumed to light the fires is not included would be about 56 lbs.

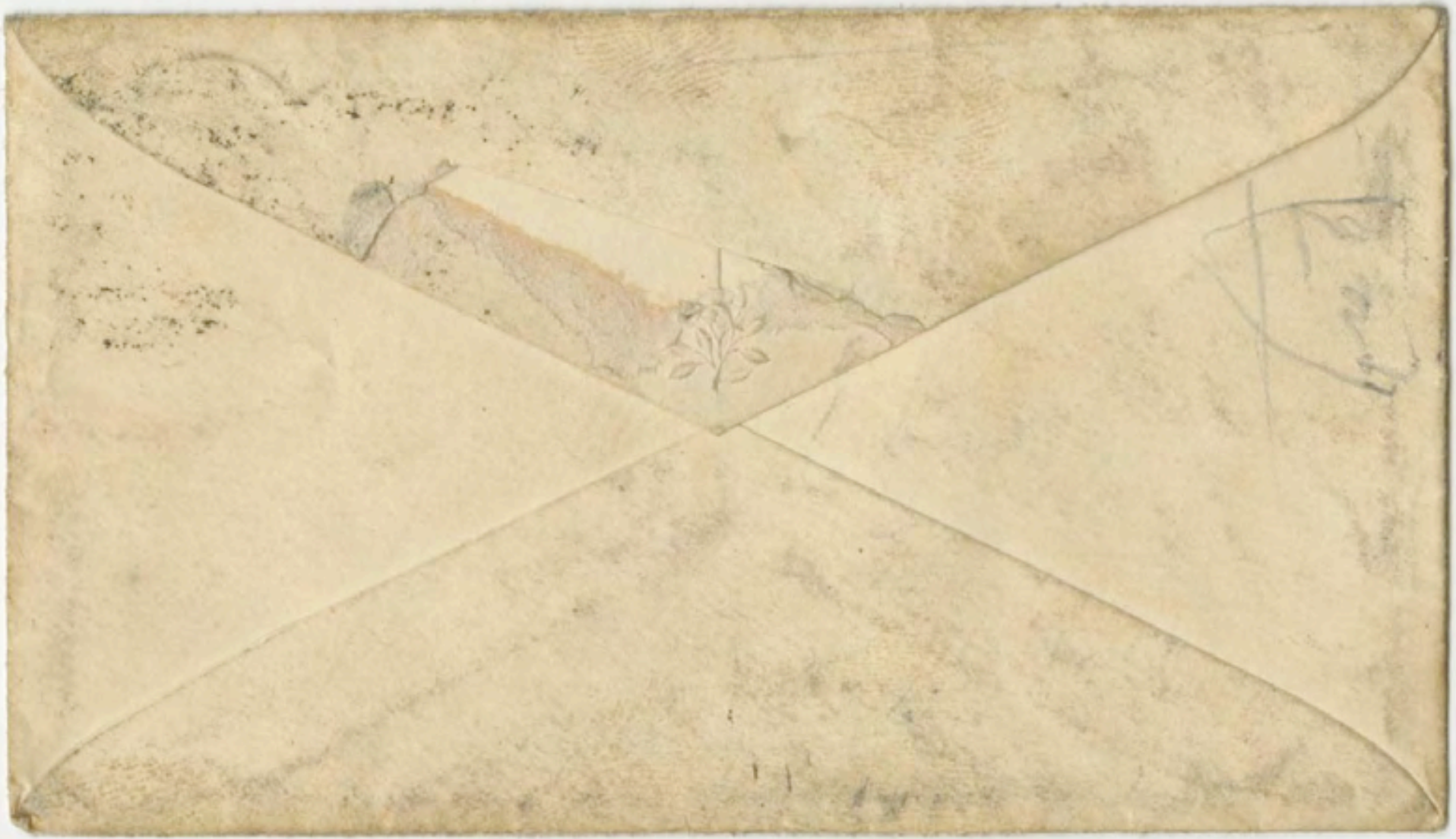
Temperatures taken from No 2.

Top of Furnace	Entrance into Fan	Discharge from Fan	Chimney Bottom
Over the Furnace the heat was above 1500 °: pyrometer does not indicate higher	1150 ° 1100 °	800 ° 600 — 600 — 700 — 600 700	325 ° 250 ° 300 ° 250 ° 350
	2 | 2250 °	6 | 3900	5 | 1475
Mean	1125	Mean 650 °	295 °

Could not take more at entrance of Fan on account of shaking the pyrometer with the draught.



Colonel
Th. Gorman Mahon
37 Maida Vale



London
Aug 5 /73

My dear Colonel

It is a pity that you don't tell me in which of the 5 Regiments of M X Militia the vacancies are. I had told you that there were 5 and that the vacancies are filled up by the

delay, for he goes to Scotland to shoot grouse.

Yours sincerely
Wellington

I am going away in an hour.

government on the recommendation of the C O's direct as no report is made to the office of the Lieutenancy I cannot possibly know when vacancies occur.

If the Clerk of the Lieutenancy has not yet com=

municated with all the Lt Cols you nephew may miss these vacancies, not by my neglect.

I send you note to R Nicholson Esq as Spring Garden the Clerk of the Lieutenancy, and I recommend you to call there, without

No. 1 Swithins Lane
Augt. 6th 1873

To the Agricultural & General Drying Co. Limited

Mr. Chairman
Sir

At your request I have made the following report on the performance of the present Cylinders at Leeds, and will as far as I possibly can, answer your questions seratim.

The undermentioned figures are from the daily reports which are signed by the manager and from these I will answer the vital questions viz' work done for coal consumed. The others I will answer, ~~[illegible]~~ and am prepared to verify my statements to the satisfaction of all interested

Question 1st. Amount of Water expelled per hour?
Answer 1st. 559 lbs.
Q 2nd Amount of fuel used per hour?
A 2nd. 86.9 lbs of coal
Q 3rd Amount of power used?
A 3rd About 1½ Horse Power (Actual)
Q 4th. How long have they been continuously at work?
A 4th About 3 months started 26 of April 1873

Q. 5th. Have any of the parts broken, if so which?
A 5th A segment came off thro defective workmanship, which was replaced, this is all the repairing that has been done to either since commencement.
Q 6th. Have either of the cylinders or air ducts choked or stopped by reason of an overcharge?
A 6th. No, not the least sign of choking, and 14 Tons 13 cwt has been passed thro one in 22 hours.
Q 7th. Has the Guano accummulated on either scrapers or air ducts, or in any part of the Cylinders?
A. No. We have sometimes to remove rags or woollen of which there are large quantities in the Leeds Sewage, but no manure. the cylinders are examined say about once in 2 months.
Q. 8th & 9th. What is the temperature of air going into the air duct? and what at the base of suction shaft?
A. 8th & 9th. This has never been tried

Having answered all queries, I will now take the daily reports for one month, and from the average prove the above. I have taken No 3 cylinder throughout.

All these figures are those of the managers of the Leeds Sewage Works, and are signed by him in the daily reports, which can be seen at the office of the Native Guano Co Office.

	A		B		C		D		E
June 18	34		10		16.03		24		22
" 19	21		10		24.68		14		12
" 20	11		1		14.68		10		11
" 21	8		0		9.81		12		8
" 22	13		0		16.29		11½		13
" 23	23		0		26.68		12		8
" 24	31		1		31.20		12½		13
" 25	30		3		33.68		12½		14
" 26	19		3		22.81		12½		13
" 27	30		1		31.13		12½		14
" 28	34		0		34.68		12½		13
" 29	37		3		40.20		12		8
Average	26.4		1.4		25.4		12.4		10.2
Total	368.4		19.6		354.6		173½		142½

Daily Reports
For June 1873 Leeds.

A = Date of Month
B = Quantity of Manure dried at 14% moisture
C = Quantity of Moisture in Mud before Drying
D. Time Cylinder was running
E. Quantity of Coals used
F. Remarks.

A 1873	B cwt. qrs.	C %	D hours	E cwt.
June 4	96. 0	60.93	24	22
" 5	109. 0	54.68	24	13
" 6	23. 1	79.68	17	12
" 7	50. 2	57.81	12	11
" 9	52. 2	56.25	10	11
" 10	53. 0	56.25	11½	12
" 11	69. 2	51.50	12	8
" 12	79. 3	57.81	12	8
" 13	58. 3	53.12	12	12
" 14	38. 3	43.75	7	2
" 17	21. 3	85.93	1½	14
" 18	6. 3	79.68	5	2
" 19	33. 3	64.06	12	8
" 20	38. 1	62.50	12	11
" 21	26. 0	48.43	7	6¾
" 23	13. 1	92.18	1½	5
" 24	30. 0	59.37	9	8
" 25	31. 0	64.06	12	9
" 27	37. 2	62.50	12	8
19 days	869. 1	1190.49	235½	182¾
Average 1 day	45.75	62.7	12.4	9.62.

These figures show that about 6.5 lbs of water are evaporated by 1 lbs of coal; This is a very good result when it is considered that the cylinder is exposed to the weather, and that it is generally stopped at night; the amount of coal includes the coal required to light and heat the cylinders & entire construction, From these facts I hoped that far better results would have been obtained by Mr. Borwicks' cylinder at Messrs Schröder's and they would have been obtained with a properly constructed machine.

It may be instructive to compare this report with the one from Schröder's

I was not able to ascertain the weight of raw guano only in the undermentioned case before drying, but these will serve for a rough comparison

	Weight of Raw Guano lbs	Weight of Dried Guano lbs	Moisture evaporated C. lbs	Coke used C lbs
July 16th 1873	122.69	104.49	18.20	6.83
17 "	162.10	147.12	14.110	9.88
18 "	92.92	80.35	12.57	5.7
			45.75	21.66
			112	112
			90	42
			495	231
			75	66
			5715	2418 lbs.
			4836	
			2790	
			2418	
			3720	
			2418	
			1302	

2418) 5715 (2.11 lbs of moisture evaporated per lbs of coke

Thus present cylinders at Leeds evaporate about 6.5 lbs those at Messrs Schröder's 2.11 lbs of water per 1 lb of coke.

I remain Dear Sir
Yours very faithfully
Thos S. Wilson M. I. M. E.

August 15, 1873

L. E. Cook
Dublin Ind
18th 1873

My dear friend
Unless a
release has been
made within
a year, to Jno
Reed, I would
the proceeding
pass

to the Secretary

"The answer"

to your queries

I send you

my thanks

M. S. Greenfield

Oct 8 1862

Walmer Castle,
Deal.

Aug 25/73

My dear Sir,

I send you letters from the two Chancellors which Iought to have forwarded earlier.

Yours sincerely
Granville

The
O Gorman Mahon