

Photographic Sciences Corporation

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

**CIHM/ICMH
Microfiche
Series.**

**CIHM/ICMH
Collection de
microfiches.**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1987

Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☒ Coloured covers/
Couverture de couleur
- ☒ Covers damaged/
Couverture endommagée
- ☐ Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/
Le titre de couverture manque
- ☐ Coloured maps/
Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- ☐ Bound with other material/
Relié avec d'autres documents
- ☐ Tight binding may cause shadows or distortion
along interior margin/
La reliure serrée peut causer de l'ombre ou de la
distorsion le long de la marge intérieure
- ☐ Blank leaves added during restoration may
appear within the text. Whenever possible, these
have been omitted from filming/
Il se peut que certaines pages blanches ajoutées
lors d'une restauration apparaissent dans le texte,
mais, lorsque cela était possible, ces pages n'ont
pas été filmées.
- ☐ Additional comments:/
Commentaires supplémentaires:

- ☐ Coloured pages/
Pages de couleur
- ☐ Pages damaged/
Pages endommagées
- ☐ Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- ☒ Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- ☒ Pages detached/
Pages détachées
- ☒ Showthrough/
Transparence
- ☐ Quality of print varies/
Qualité inégale de l'impression
- ☐ Includes supplementary material/
Comprend du matériel supplémentaire
- ☐ Only edition available/
Seule édition disponible
- ☐ Pages wholly or partially obscured by errata
slips, tissues, etc., have been refilmed to
ensure the best possible image/
Les pages totalement ou partiellement
obscurcies par un feuillet d'errata, une pelure,
etc., ont été filmées à nouveau de façon à
obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
				<input checked="" type="checkbox"/>							

The copy filmed here has been reproduced thanks to the generosity of:

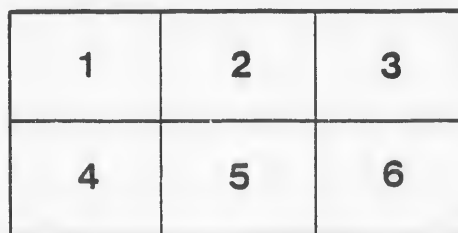
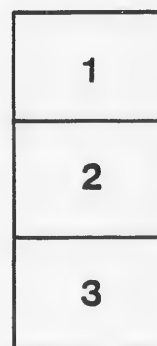
The Nova Scotia
Legislative Library

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol ➡ (meaning "CONTINUED"), or the symbol ▼ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

The Nova Scotia
Legislative Library

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole ➡ signifie "A SUIVRE", le symbole ▼ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

NOVA SCOTIA
LEGISLATIVE LIBRARY



PROVINCE HOUSE



P.

Gas=

13

REPORT
OF THE
PROVISIONAL COMMITTEE

Appointed by the Stockholders

OF THE
Gas-Light and Water Company,

TO

Ascertain the whole cost

OF

ERECTING GAS WORKS

FOR THE

TOWN OF HALIFAX.

HALIFAX, N. S.

Printed by John Munro

1840.

NS

380

103

H

TR

COMMITTEE

Appointed at a General Meeting of the Stockholders.

Honorable J. Leander Starr,
Richard Brown,
Andrew Richardson,
John Duffus,
Andrew McKinlay,
Alexander McKenzie. } Esquires

When the whole Stock is subscribed for, a Board of Directors will be elected under the Act of Incorporation.

2668

Gas Light and Water Company.



COMMITTEE ROOM,
HALIFAX, 21st July, 1840.

AT a Meeting of the Committee, it was Resolved, that the following extract from a lengthy Report received by the Secretary of the above Company, from ANDREW LIDDELL, Esquire, of Glasgow, together with the Estimate which accompanied said Report, relative to the cost of erecting the proposed Gas works for the Town of Halifax, should be published for the information of Stockholders and other persons interested in carrying the objects of the Company into immediate operation.

The plans and specifications received by the Britannia, may be seen at any time, at the office of the Secretary, where they now lie for the inspection of Stockholders and other persons desirous of obtaining information on the subject.

GLASGOW, 27th May, 1840.

WM. M. HOFFMAN, Esq.,

Secretary Gas Light and Water Company, Halifax.

Sir—

Your letter of the 3d of April, to Mr. James J. Grieve, of Greenock, has been entrusted by that gentleman to me to report upon. I take this duty in hand, with some hesitation, because of the uncertainty of cost always attending erections in Foreign countries; and although I may, from the best information I have of similar work when done in any part of this country, make a fair allowance for all contingencies, yet, on this point, I may make somewhat erroneous calculations, and that consequently the real cost of the work, when done, may, to a limited extent, exceed or come short of what I now state. I will go into detail, thereby giving you the power of correcting my errors, at least in the cost of house erections, which must be done by resident

tradesmen. I should here state, that of late years, and for the purpose of saving expense, Gas holders have almost universally in this country been erected out of doors. But from extreme frosts in Halifax, which in all probability would freeze the water in the tanks if not within a house, I have, agreeable to Mr. Grieve's suggestions, included in your estimates, a house for the Gas holders.

For the purpose of embracing every enquiry in your letter, I have classified the whole under 5 distinct heads or Queries, viz:—

Query 1st—Probable expense to put the work in full operation?

Query 2d—At what rate per foot or ton can main pipes and collateral branches be got?

Query 3d—At what rate can such be added, from time to time, as may be required?

Query 4th—The rate at which Posts and Lamps for Streets can be purchased and fitted up? and to this query Mr. Grieve suggests I should inform you of the prices of inside fittings for houses, &c.

Query 5th—The annual expense for Gas for each street Lamp?

I now answer these queries in their order.

Answer to Query 1st.—In the estimate for Gas work erections, I have assumed 18 Retorts, which, when ordinary or average quality of coal is used, may, when in full operation, produce about 60,000 cube feet of Gas every 24 hours. Two Gas holders, each 40 feet diameter by 16 feet deep cube contents about 20,000 feet each, powerful condensers. Tar vaults. Purification by means of cream and dry lime. From all the information I can collect of the population of, and the purposes for which Gas will be applied in Halifax, I am of opinion that the size of apparatus is more than sufficiently large for the present demand in Halifax.

Answer to Query 2d.—The price of main and other Pipes I assume to be the price they are to be purchased at in Britain—plus the freight and charges. I have measured by the scale the streets marked in the plan with red ink. The name and length of each street is given in yards of three feet to the yard.

Answer to Query 3d—These can be added afterwards when required, at or about same rate as now quoted in estimate of costs.

Answer to Query 4th.—There are such a variety of patterns and prices of Lamp Posts and Lanterns for Streets, that no decided answer can be given till the pattern is fixed on. But assuming that No. 8 pattern was adopted, it costs in Glasgow, £1 5 0 ; Lantern on No. 7 Post costs £0 9 6. The fitting up in Halifax requires a large stone sunk into the ground of 2 or 3 cube feet contents for bating the Post upon, price of which you can supply. The Pipes, stop cocks, &c. for supplying the Gas may be estimated at £1 5s to £1 10s each Lamp. The cost of each is, say

Lamp Post No. 8	£1	5	0
Lantern on No. 7	0	9	6
Glazing do	0	5	6
Gas Pipes & Lamp iron	1	10	0
<hr/>			
Large Stone, say	£0	8	0
Freight of Lamp Post	0	2	0
			£0 10 0
<hr/>			
£4 0 0			

In regard to the costs for inside fittings, I send you current list prices by Andrew Liddell and Company, of every article used in Gas fitting, and a pattern book of Gas Lustres, &c. with the prices attached. I fear that the minute details given in the list of prices may not be understood. You will approximate near enough for your present purpose by assuming inside fittings inclusive of every item required for giving light, at 6d to 9d sterling per lineal foot of pipe used. Suppose a house, where a 100 feet of pipe is used, the cost may be somewhere about £3 10s sterling. To this must be added ornamental work, such as lustres, brass brackets, pillars, &c. when used to the value of these you will find in the pattern book. The Gas Meters, that is a machine for indicating the quantity consumed in each house, falls also to be added : price £1 15 0 for small burners, and £2 to £4 for larger.

Answer to Query 5th.—The annual expense for Gas in Street Lamps cannot be quoted till the following facts are ascertained :—

1st. The price at which Gas can be manufact'd in Halifax.

2d. The description of burners to be used in the Lamps whether the jet burners which consume, say 1 cube foot of Gas per hour, and gives light equal to 1½ or 2 candles, 6 in the pound, or the flat flame burners which consumes 2, 3 or 4 feet per hour, and gives light corresponding. And 3d. how many nights in the year and how many hours each night the Gas will be kept burning. In this country the Gas in some towns is used only 8 months in the year, none being used in May, June, July and August. In most cases the street lights are continued from sunset to sunrise, but in many cases they are extinguished at midnight. You may find it advantageous to have small size burners in some parts and large size in other parts of the Town, and you may extinguish some at midnight, and continue others till sunrise. For data in mean time, you may average the cost of each Lamp, inclusive of lamp lighters, wages for lighting, extinguishing, and keeping the lanterns clean, at £2 to £3 for each per annum.

Having answered all your queries, I now refer you to the documents which accompany this.

(Signed)

ANDREW LIDDELL.

P. S. "It may be proper to add that your work being about to be erected in a Foreign Country, where additions when required cannot at all times be very easily got, I have made it more complete, and of larger proportions to the population of the town, than I would have suggested, had the work been intended for any town in Britain. And I have assumed the progressive increase of population anticipated in Halifax. A Gas work sufficient for your present demands could be erected on a scale so as to reduce the first cost, say £2,000. You are judges of the probable increase of population.

(Signed)

A. L.

Estimate of Gas Apparatus for Halifax, May, 1840.

Goods delivered in GREAT BRITAIN.

	£	s	d	£	s	d
9 round Retorts 6 ft lg x 1 ft 3 ins dia.						
9 D, or boiler bottomed Retorts 60x20						
Furnace mounting for above, complete						
Stand and dip Pipes						
Hydraulic Main						
Tar cistern						
Condensers						
6 dry lime purifiers						
2 cream of lime purifiers						
1 cream of lime preparer						
Valves to supply the above vessels						
Materials for 2 Gas holders, 40 feet diamr. x 16 feet deep						
Retort house iron roof, made to take on slates						
2 Pumps						
Pipes, &c. for uniting all the above vessels and apparatus				1230	0	0
MAIN PIPES—prices quoted, include what bends and water traps it is supposed will be required to complete the quantity of Pipes stated						
950 yards of 9 inch bore, at 11s 6d	546	5	0			
530 " 4 " 4s	106	0	0			
1579 " 3 " 3s	235	10	0			
2900 " 2½ " 2s 4d	338	6	8			
3800 " 2 " 1s 9d	332	10	0			
1700 " 1½ " 1s 4d	113	6	8			
11456	1671	18	4			
Supposed quantity of branch pipes, say 1500 yards ¾ inch, best patent malleable iron, at 1s 1d.	81	5	0	1753	3	4
Carried forward, £				2983	3	4

			£	s	d	£	s	d
<i>Brought forward, £</i>						2983	3	4
2 cast iron tanks 41 ft dia. nr x 16½								
deep, all materials for which shipped								
in Britain say each £560			1120	0	0			
Fitting together the Tank at Halifax,								
say each £90			180	0	0	1300	0	0
Fitting together the Retorts and other								
apparatus at Halifax, also the two								
Gas holders						550	0	0
Laying the main Pipes, including lead								
and other materials, used in laying,								
&c.								
950 yards 9 inch bore, at 1s 9d			83	2	6			
530 " 4 " " 1s 4d			35	6	8			
1570 " 3 " " 1s			78	10	0			
2900 " 2½ " " 10½d			126	17	6			
3800 " 2 " " 10d			158	6	8			
1700 " 1½ " " 9½d			67	5	10			
			549	9	2			
1500 " ¾ inch branch pipes at 8d			50	0	0	599	9	2
<i>Brick Work—</i>								
Chimney, 80 or 100 feet high								
18 Retorts								
Flues, and chamber for evaporating								
cream of lime						420	0	0
						5852	12	6
<i>Mason Work to be done at Halifax</i>								
Retort house								
Gas holder house								
Apparatus shed								
Manager's and other houses under								
same roof								
The surrounding walls, &c. about								
2034 square yards of Building, at 6s.								
per square yard, supposed to be the								
rate at which such work can be done								
for at Halifax						610	4	0
<i>Slater and Plumber Work, on roofs of</i>								
all houses, say 2250 square yards at								
2s 9d, supposed rate						309	17	6
						6772	14	0
<i>Carried forward, £</i>								

£	s	d	£	s	d
Brought forward, £	.	.	6772	14	0
<i>Carpenter Work—</i>					
Retort house, roof of iron					
Apparatus, shed roof, 371 square yards					
at 3s 6d	64	18	6		
Manager's and counting house roof					
660 square yards	115	10	0		
Gas holder roof, bound work, 848 do					
at 7s	296	16	0		
346 running feet of gas holder beams					
12 ins. x 8 ins. at 1s 6d	25	19	0		
10 sky lights	12	10	0	515	13
This item rated at Glasgow prices.				6	
Inside finishing of manager's house					
and counting house					
Furniture for counting house					
Workmen's Tools, main gate					
Doors and Windows about the prop'ty					
This item rated at Glasgow prices				215	16
				0	
<i>Freight—</i> Iron work, say 500 tons					
Bricks, lime, &c. 200 "					
700 tns. at 12s				420	0
				0	
<i>Superintendent</i> from Britain to look					
after the work getting made and for-					
warded from Britain, and afterwards					
seeing its erection in Halifax and					
superintending the work for say 3					
months after the Gas has been made					
and distributed through the mains,					
say 12 or 15 months—say				280	0
				0	
			£	8204	3
				6	

The Committee having received, per steamer Britannia, the foregoing Report and Estimate, beg leave to state for the information of the present Stockholders, and those persons who are favourable to the project of lighting the Town with Gas, that they have carefully examined the documents sub-

mitted for their consideration, and are of opinion that the plan of the works, as laid down by Mr Liddell, is by far on too extensive a scale for the population and present demands of Halifax. They readily concur with Mr. Liddell in the opinion that all due allowance ought to be made for the progressive increase of population, especially in the erection of Gas works in a distant country, where additions, when required, cannot at all times be easily obtained; but at the same time, they cannot imagine that the increase of population will be of so rapid a character, as to require so great and disproportionate an outlay in the first instance as that contemplated by Mr. L's estimate. The chief causes hitherto assigned for the complete failure of all our undertakings of a public character in the town of Halifax, have been the anticipation of too much from the enterprise, and the injudicious expenditure of money and means, without attaining the proposed end; the Committee would therefore, most strenuously urge upon the Shareholders, the necessity of proceeding with the present works on the most economical system, inasmuch as they feel satisfied that Gas works sufficiently large for Halifax at the present day, will be equally so for a period of 20 years hence, with the exception of additional main pipes that may be required to be laid down by the Company from time to time, as the demands of the population increase, and the people from practical experience becoming convinced of the utility of such an establishment, will then most readily advance such funds as may be required for the further extension of the works.

The greatest annual consumption of Gas in the town of Greenock, with a population of about 30,000, has been $15\frac{1}{2}$ millions of cubic feet, while the Gas works for Halifax, if completed on Mr. Liddell's scale, and according to his plans and estimates, would annually produce $19\frac{1}{2}$ millions of cubic feet, to be consumed by a population amounting in number to only one half. The Committee therefore feel satisfied that reductions to a considerable amount may be made in various items mentioned in Mr. Liddell's estimate, so as to admit of works sufficiently large to meet the exigencies of Halifax at the present day, and capable of supplying its increased demands for years to come, being erected for a sum not exceeding £11,000-Halifax currency.

The Committee cannot find any instance on record of the failure of Gas Companies, either in Europe or America,

but on the contrary, have ascertained from undoubted sources, that in every instance (where judiciously managed) they have been a source of great profit to the Stockholders.

In many parts of Scotland, the dividends of some of the Companies have yielded far more than the ordinary interest on the capital invested, and in Aberdeen in particular, the works, after receiving several considerable additions, have paid 12½ per cent, and the shares when sold in the market, have brought a premium of 300 per cent.

In Boston a Company has been in operation for a period of 12 years, and has paid dividends of 12 per cent, though only a portion of the storekeepers consume the Gas, and as yet the article is not introduced into dwellings. The stock is never in the market, and is constantly improving. In Baltimore and New York, where their advantages are by no means equal to those of Halifax, the Stock is considered one of the best in the market. In the former place the Stock of the Company is 35 per cent above par, with a surplus fund always in hand, and paying an annual dividend of 8 per cent, and in the latter city, notwithstanding the Company has had many difficulties, to contend with, still the Stock is 45 per cent in advance of the par price. They annually lay by a considerable surplus, besides paying dividends of 10 per cent.

With all these facts before them, the Committee cannot but feel satisfied that the Stock in this country, (if entrusted to the management of men of prudence, and having a due regard to the strictest economy in the erection and completion of the works) must pay equally well with those places already referred to: they would therefore beg to press upon the Stockholders, the necessity of having the stock list immediately filled up to the amount required by the act, viz: £20,000, in order that the Company may go into immediate operation; and further to call their attention to the fact already stated by them, that the outside estimate of the works necessary for Halifax, at the present time amounts according to their opinion, to the sum of £11,000 Halifax currency, out of which Stock has been already subscribed for, to the amount of £10,000, which leaves a balance of £10,000, still to be taken up before the Company can be entitled to the privilege of the Act of Incorporation, which has already passed into a Law, but cannot be made available until the whole amount of Capital required by its provisions is taken up.

The Committee would therefore, in conclusion, advise that the Stockholders do inform the Secretary on or before the 31st day of August next, whether they will consent to increase their respective stock, and to what extent ; and those who have not already subscribed, but are friendly to the institution to make application for stock before that day, so as to enable them to be called together under the act for the purpose of being organised as a company, and commencing operations with as little delay as possible.

By order of the Committee,

W. M. HOFFMAN, SECRETARY.

wise that
before the
ent to in-
nd those
o the in-
lay, so as
ct for the
mencing

ETARY.

