

Papers relating to the building of the Gentlemen's Lodge

Publication/Creation

1875 - 1876

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Lodge Buildings The Retreat.

Mem. own Estimate of Cost.

Bricks	1914. 2. "
Stone	501. 15. "
Plaster	296. 6. "
Wood	1463. 11. "
Slating	419. 11. "
Plumbing	495. 6. "
Painting	60. " "
Smith -	<u>170. 15. "</u>

5321. 6. "

Additional Turkish Baths. 600. " - "

Brick & Stone to Flues. 100. " - "

Ventilating Tower 150. " "

Added as desired by
Messrs. Haden for fixing
Works to Turkish Bath.

Extra depth of Foundation
by taking Building lower
into the field — } 75. " - "

Conservatory at end of
Corridor — } 130. " - "

Plaster Arches in Corridor
& Cornices in Bedrooms. } 100. " - "

Glass & Belles. £20/- — 55. " "

Lead Pipes for Ventilating 200. " - "

1440. " - "

£ 6761. 6. "

Messrs. Haden General Warming 500. " - "

Ventilating 40. " - "

Turkish Bath 126. 10. "

£ 726. 10. "

July 5. 1898

Little Breckinridge

the Mount

them, now estimated
of cost

Dear Friend

I am obliged

for thy kindly sending

by R. Ware the plan

of the lodge should

like to know if I

may attending the

me

lea

bu

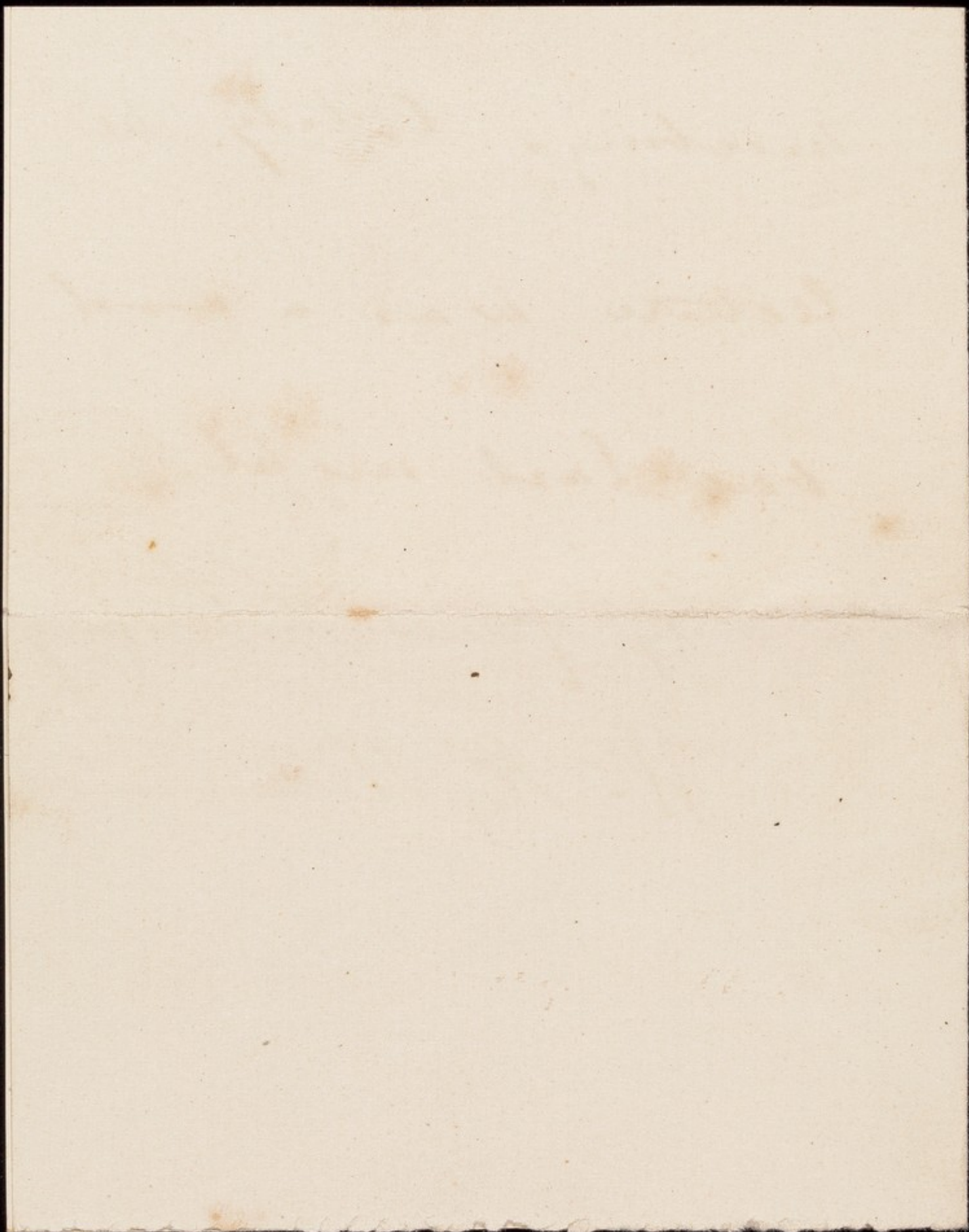
meetings lately. The

lecture was a good

one last night.

Thy friend respectfully

Wm. H. Horniman

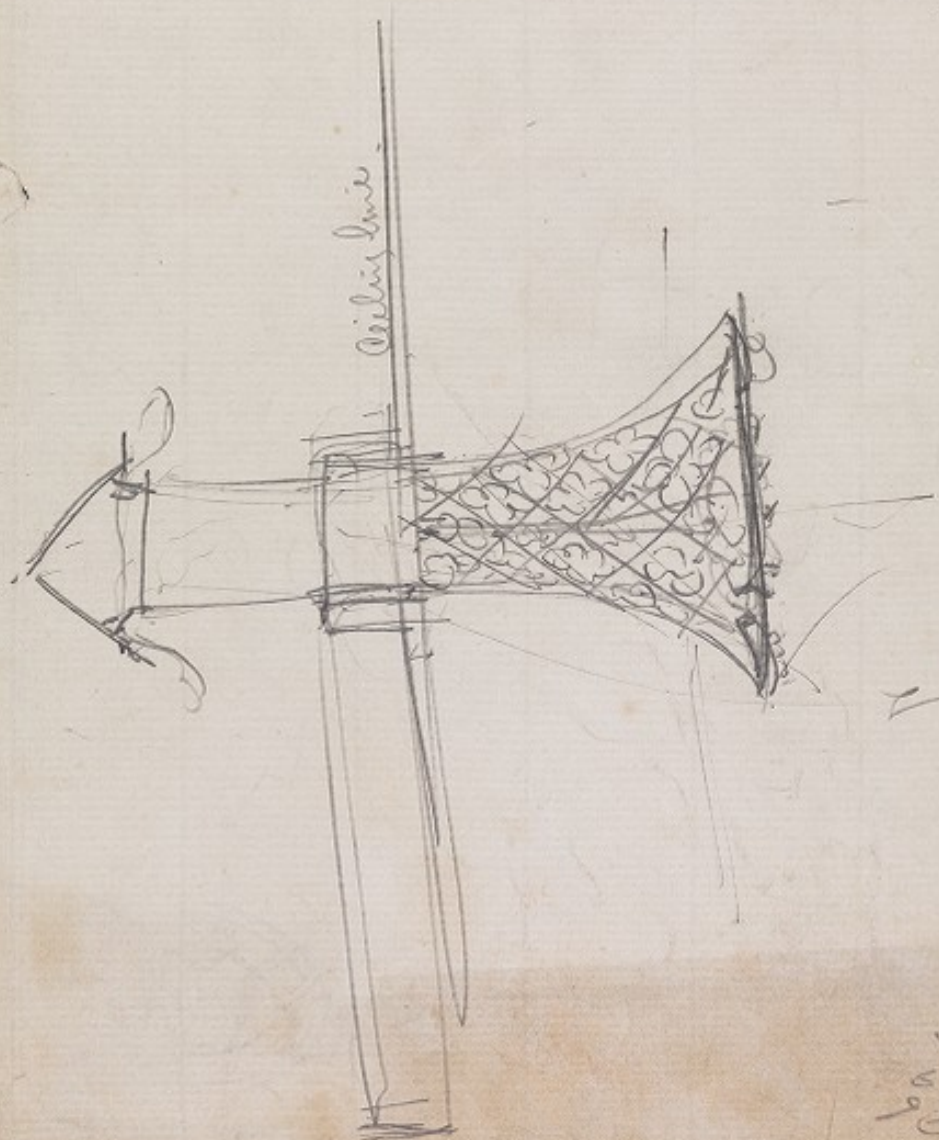


With plan of the new Lodge

W^r Baker

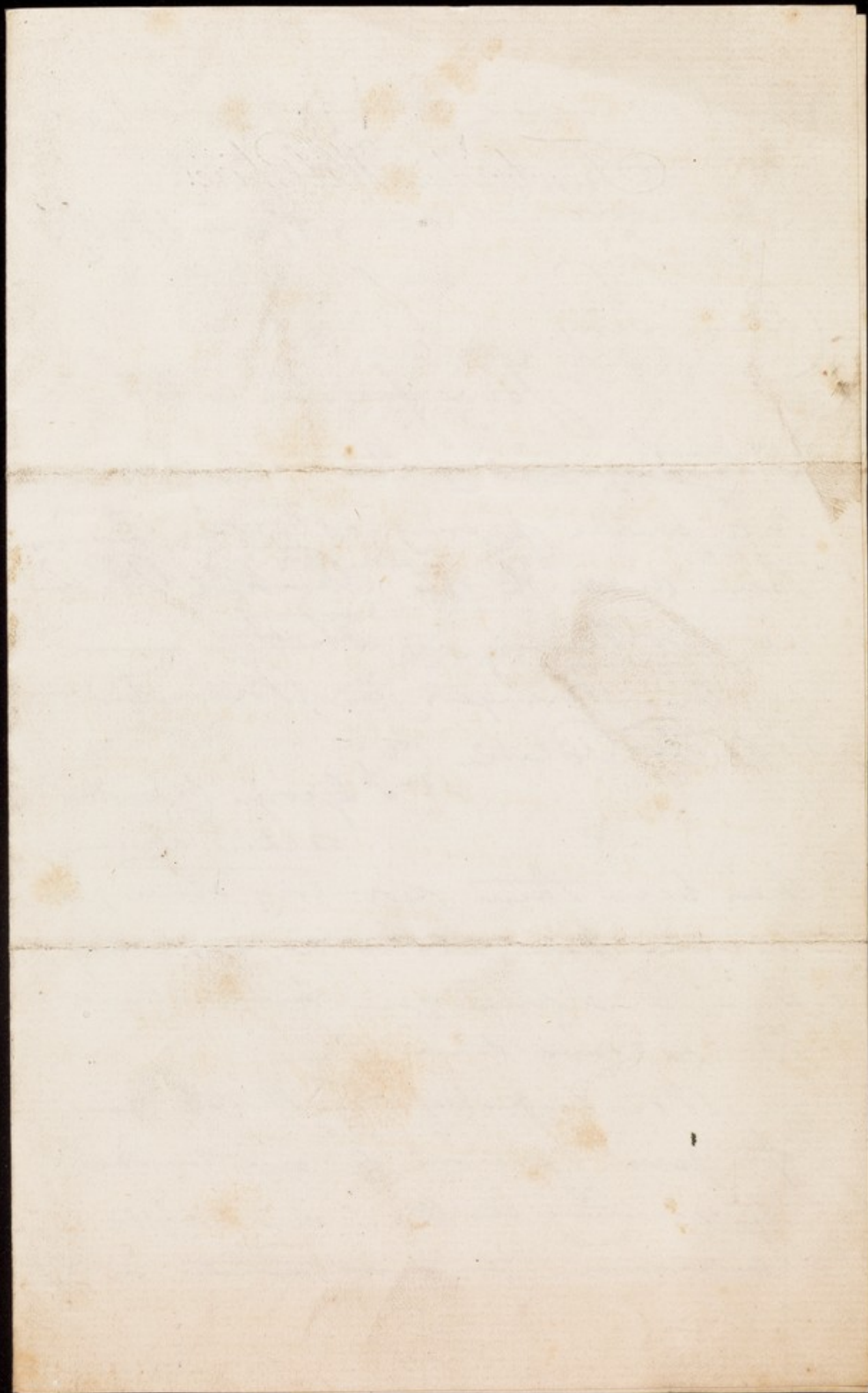






airing line

19/12/51
J. S. 10



Frowbridge. Wiltshire.

April 17/1895

(Dear Sir)

Your favour is to hand
I am beg to say that we were
not aware of any alterations having
been made to ~~the~~ Fiskil Bath
at Mr Pease at Hutton —

Our Managers in Manchester
W L Blake

15 St George's Chambers
Abchurch Lane

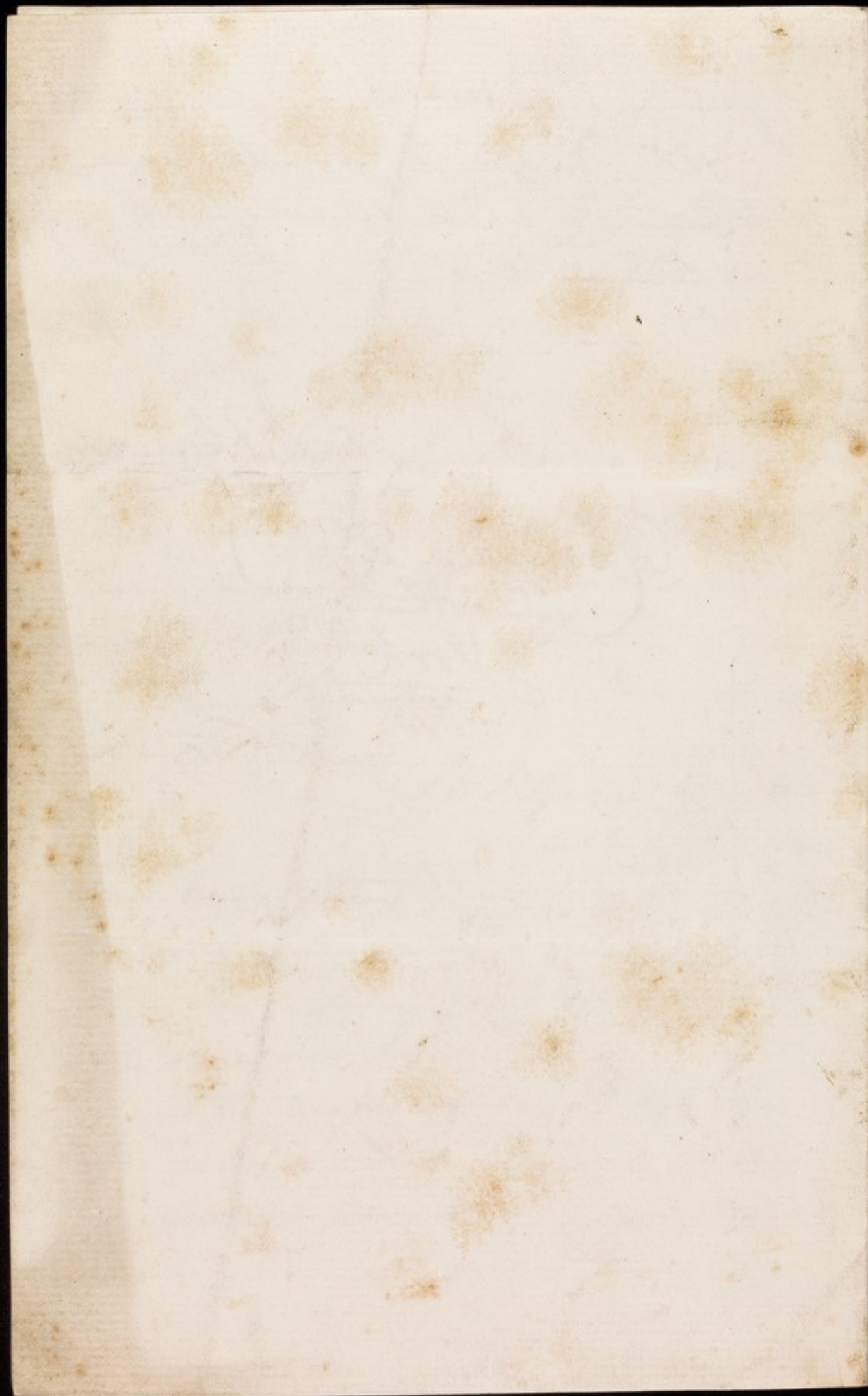
has been there not long since, &
we write him about it, requesting
him to inform you direct about
it to save time —

We respectfully thank you
for your opinion of our mode
of executing work — and will
endeavour to substantiate it, if

1771
In doing with your commands
We make it a rule never
to leave a work unsatisfactory, if
we know it -

We are yours B.D.
G. M. Haseltine

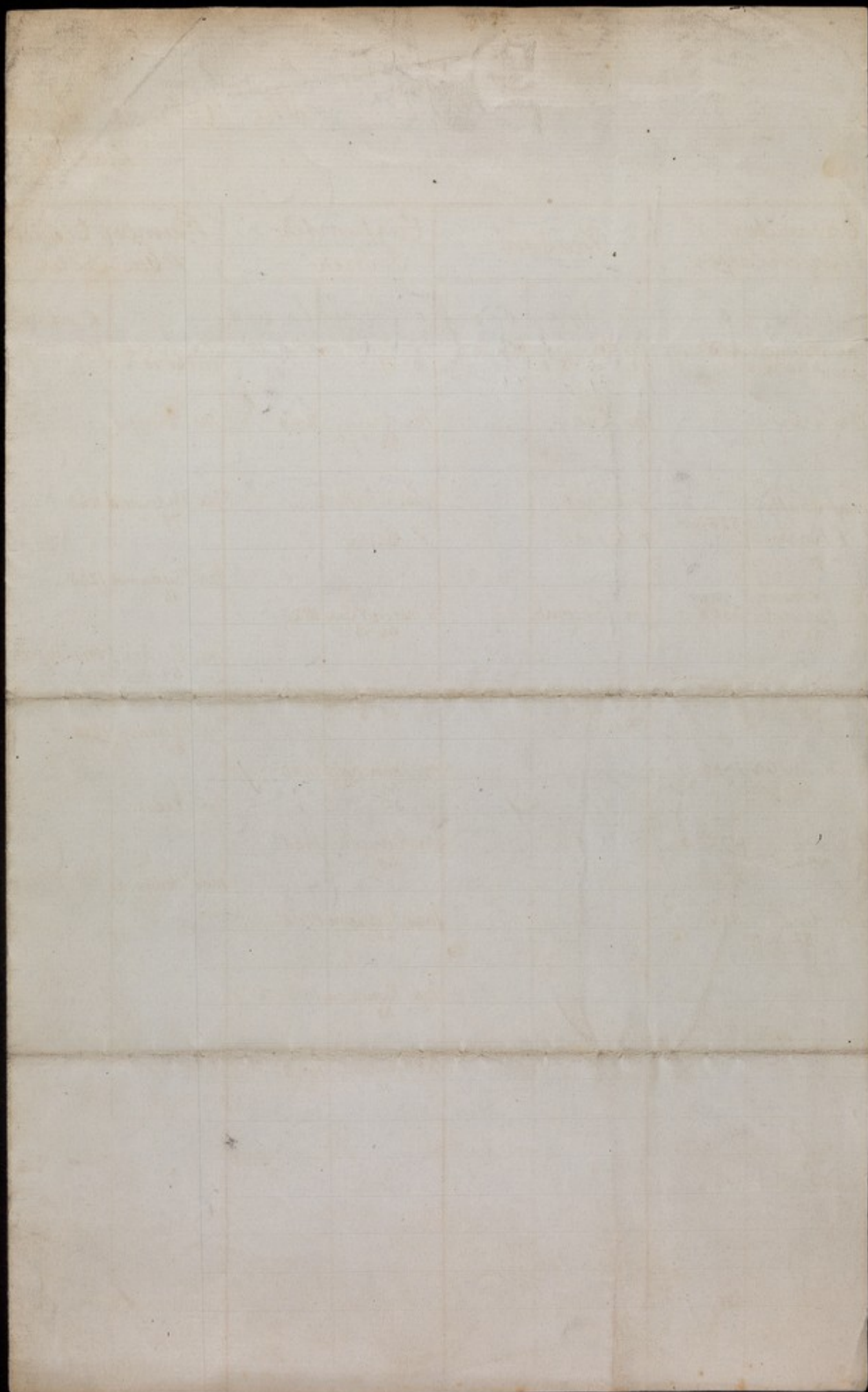
Ld. Provost Eng^l
Bootham
York.



Contract

Retreat Committee —
or
J. Baker.





The Retreat York - 1

List of London

Excavator & Bricklayer. -		Mason. -		Carpenter & Joiner. -		Plumber Glazier & Gas-Fitter. -		Sl
L - s.		L - s. d		L s d		L - s. d		
Mr. Mennell.	2832-10-	Mr. Heldon.	604-10-	Mr. Simpson.	1746-10-	Mr. Lyons.	964-17-9	Mr. Wode
Veran	70-10-0	Veran	49-15-0	Veran	29- - -	Veran	60-18-6	
			39-15					
Mr. Gray.		Mr. Gray.		Mr. Gray.	2060- - -	Mr. Gray.		Mr. Gray
				54-0/0.				
(Stone & Wood)								
Messrs Shaftoe		Messrs Shaftoe		Messrs Shaftoe		Mr. Underwood	1060- - -	Messrs Cat
& Barry.	5283 - - -	& Barry.	- - -	& Barry		79 - - -		
92 - - -								
& Mason						Mr. Prudameo	1268 - - -	Mr. Wode
Mr. Biscoomb.	3598 - - -	Mr. Biscoomb.	- - -	W. Mason & Son	1820 - - -	96 - - -		
54-12 - -				34-16 - -				
						Mr. Larker.	891-14-18	Mr. Carr
Messrs Walker.	2840 - - -	Mr. Prest.	761-17-2	Messrs Bellerby.	1710 - - -	57-3-3		
75 - - -		33-12-6		33-5 - -				
		Adt. 22-11-10				Mr. Dunn.	1215 - - -	Mr. Baw
Mr. W. Laylor	2750 - - -			Mr. Mansfield	1420 - - -	56-1-7		
49 - - -				30 - - -	545 - - -			
				36 - - -		Mr. Giles.		
Mr. Lee.	2172-2-7	40-18 - -	101	Mr. Harrison.	1668 - - -			
				35 - - -				
						Messrs Hodgson.		
Mr. Hidd.	3331-17 - -			Messrs Harrison	1790 - - -			
& Mason				45 - - -				
82-16-0.								
				Mr. Bowman	1916-16 - -			
				30 - - -				
				Mr. Holmes.	1645 - - -			
				50 - - -				

York - Proposed Lodge Buildings.
of Lenders. - opened July 5th 1875.

Slater. -	Plasterer. -	Smith. -	Painter. -
Mr. Hodgson 410 - - -	Mr. W. Haud. 371 - - -	Mr. L. Hawley 205 - - - Verk 75 - - -	Mr. Webster. 66 - - - Verk 5-5 - -
Mr. Gray	Mr. Gray	Mr. Gray.	Mr. Gray.
Mess ^{rs} Cattley 339 ✓ - -	Mr. L. Rawling. 353 - - ✓	Mr. Fryer. 229-3 - - 144-9 - -	Mr. Thomas 72-17 - - 8-14 - -
Wood.	Mr. Croft. - 359 - - -	Mr. Bouzfield 229-16 - - 135 - - -	Mr. Matterson 64-17-6 13-15 - -
Mr. Carlill. - - - -	Mr. Young. 396 - - -	Mr. Walker.	Mr. Pearson. 74-14 - - 7-10 - -
Mr. Baynes. 348-16 -	Mr. Gibson. 300 - - -		
	<u>Lowest.</u>	<u>L - s - d</u>	<u>Verandah</u>
	Bricklayer Lee	2172-2 - -	40-18-0
	Mason Helidon	604-10 - -	15 - - -
		2776-12 - -	
	Joiner - Mansfield.	1420 - - - 545	36 - - -
	Plumber Parker.	891-14-8	57-3-3
	Slating Cattley.	339 - - -	- - -
	Plasterer. Rawling.	353 - - -	- - -
	Smith. Hawley.	205 - - -	75 - - -
	Painter. Webster.	66 - - -	5-5 - -
		6176	
	Wirework. -	6051-6-8	223-6-3
	Bronmongery.	59 - - -	
	Stoves & Mantels	68 - - -	
	Tiles.	30 18 - -	
	No. Turkish Bath.	250 - - -	
	Verandah.	286-18-3	
		6756-2-11	
		588-1	
			Tiles 63-12 - -
			286-18-3

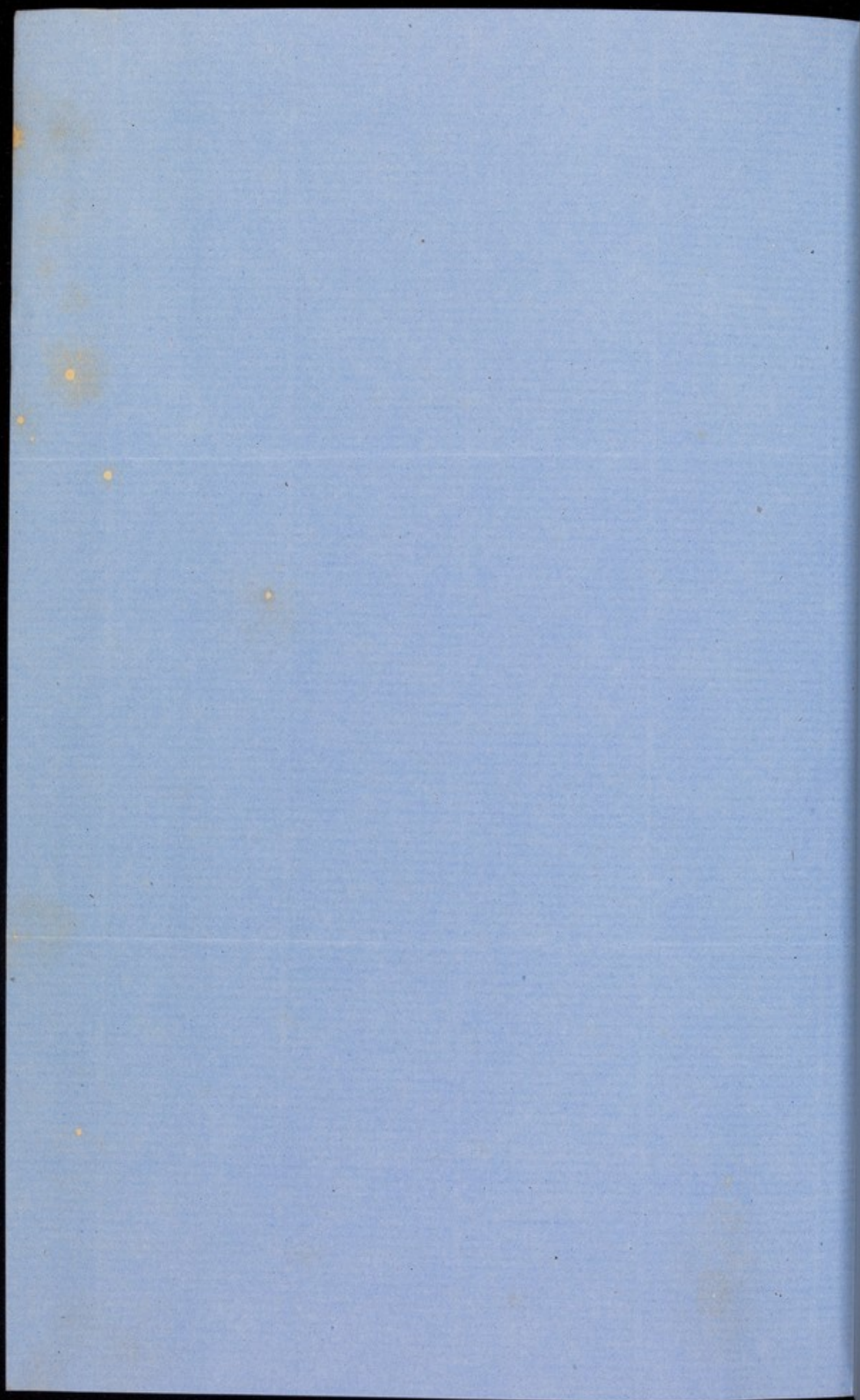


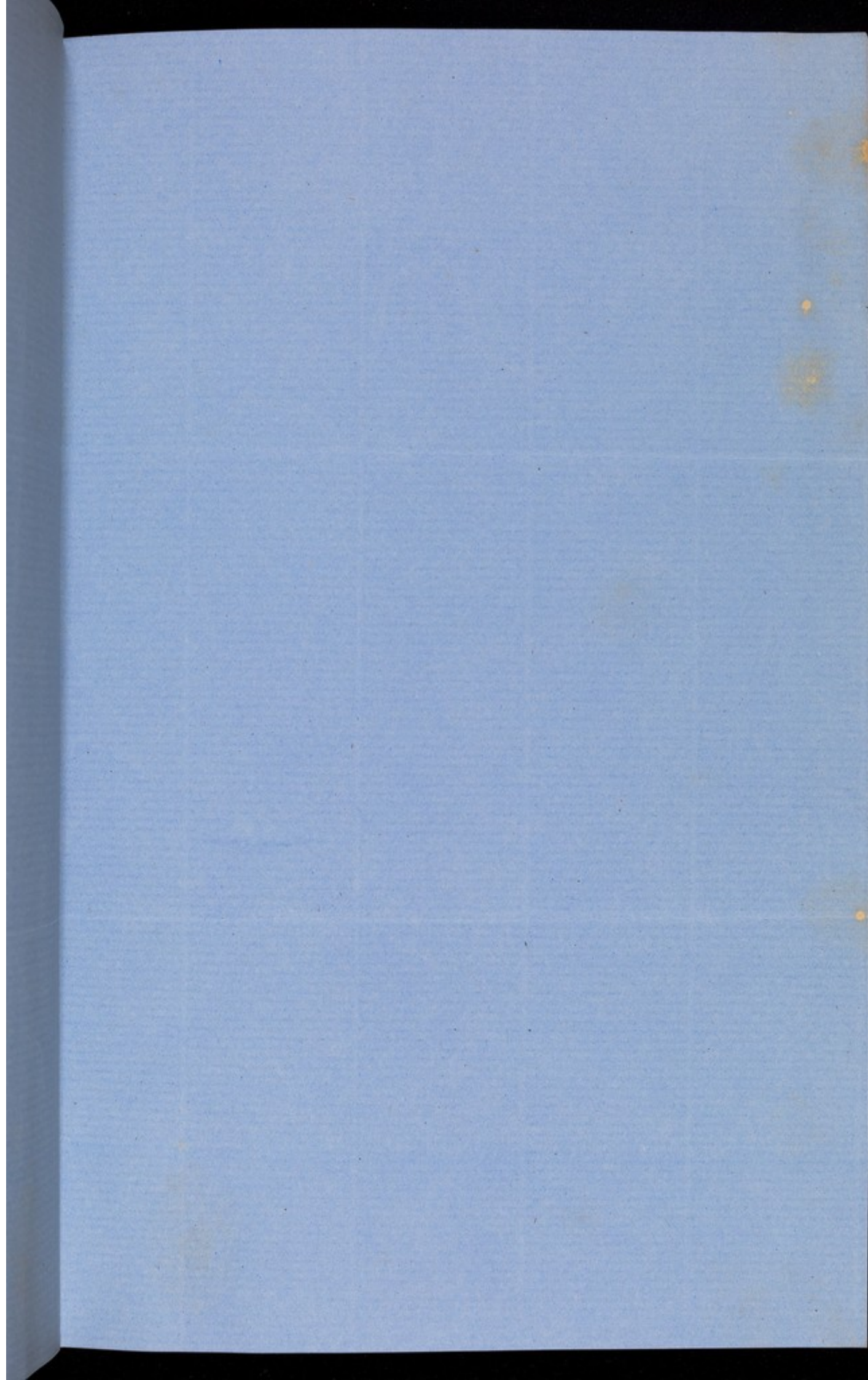
27 Stonegate
Decr. 15th 1876.

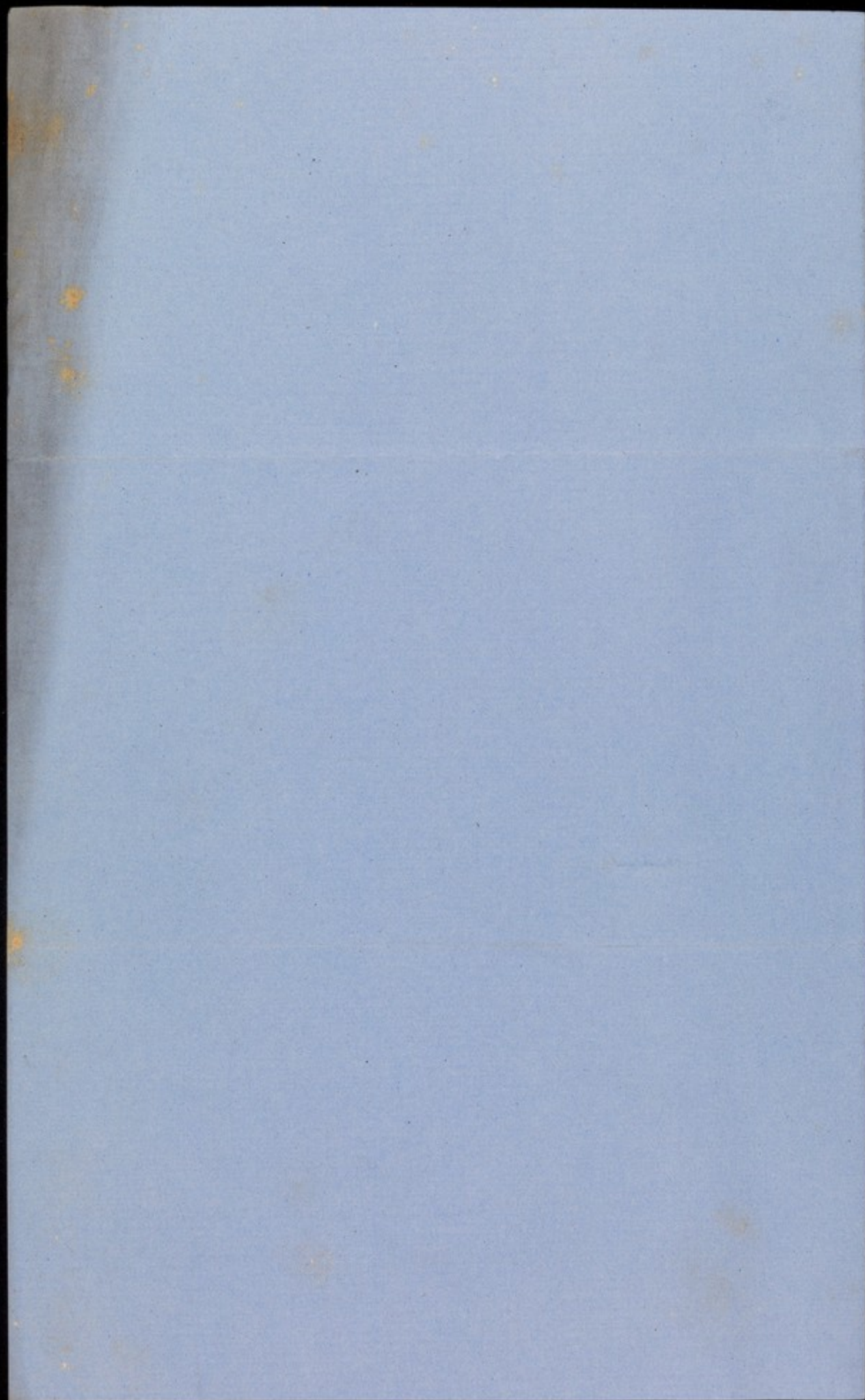
Gentlemen's Lodge Buildings
Near Mr Baker,

I am sorry
to hear of Cook's remissness
respecting the lads playing
in the building - it is a
matter I have spoken of
to him several times. -
I have written to him to
change his dinner hour,
so that he may be at liberty
to look after them during
their dinner hour. I have
also written to Mansfield
to instruct his lads that
it will not be permitted. -

Yours very truly
Edward Taylor.







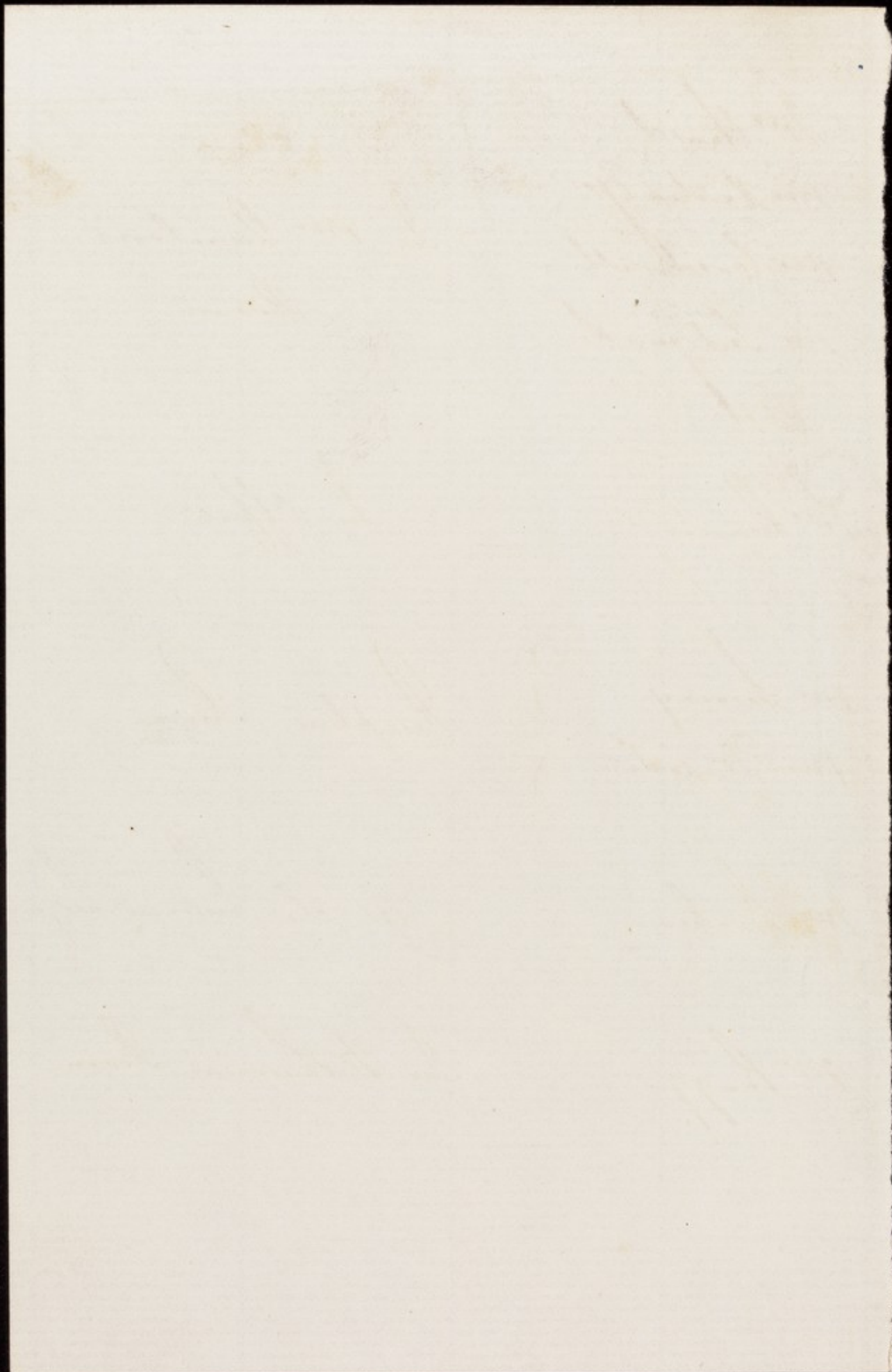
Mr. Haard }
Mr. Haden } In Mr. Leavelle's
Mr. Caldwell } Room.
Mr. Sedgwick }

Mr. Graves - In Office

Mr. Tracy }
Mr. Dunsdale } Reception Room

Mr. Leacher. At the Entrance Lodge

Mr. Bagg. In Dr. Thomas's Room



✓ Alteration of Water Supply to Top Centre.

New Entrance Door.

Removal of passage door near
Kitchens.

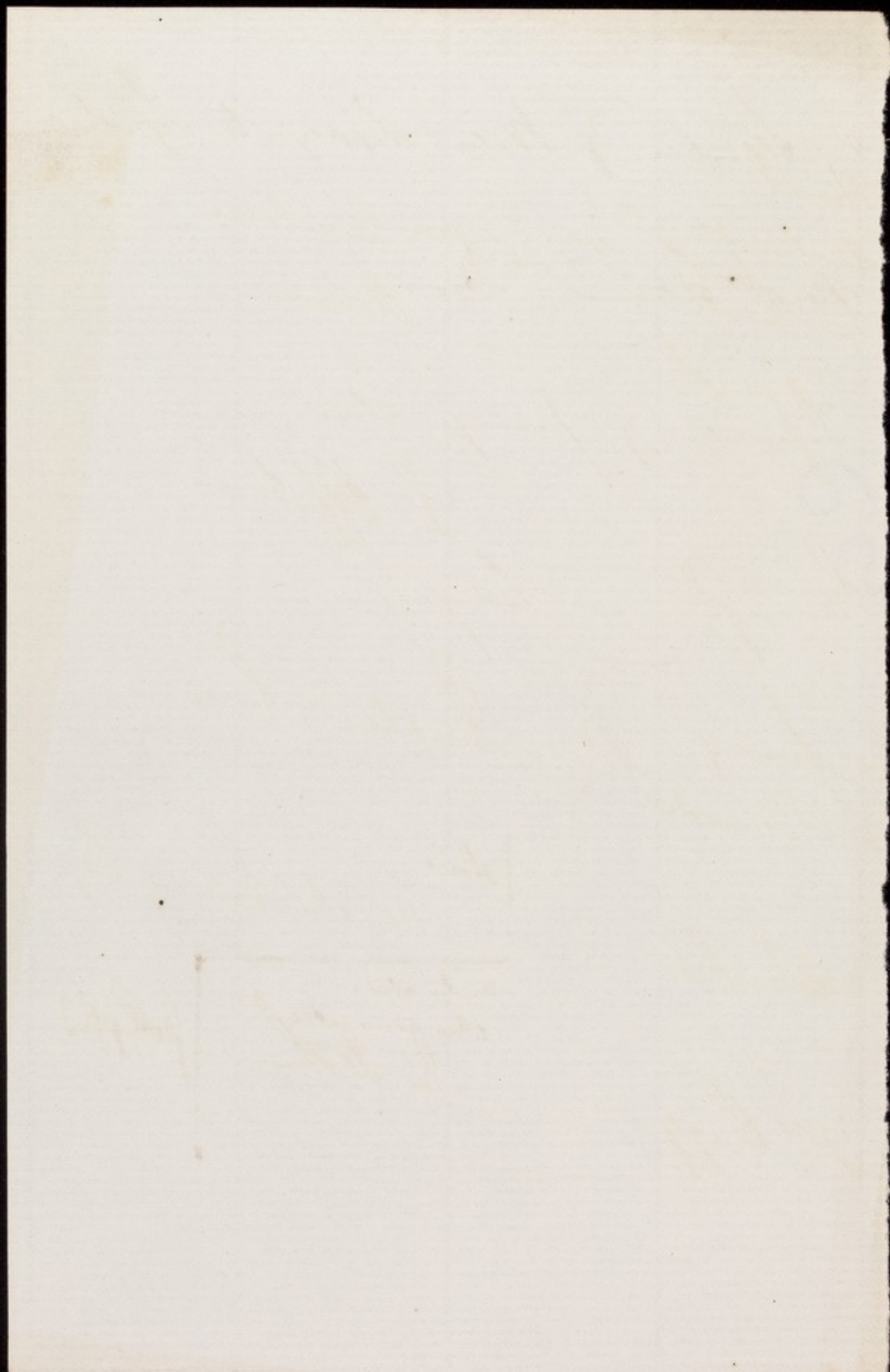
Amangth. at Lodge.

Gas in Reception room

stairs

under stairs
also W.C. cellar.

from B.G.



Arrangements for Lodge Patients

John H. Bragg.

D. Thurman's Room

Mr. Dunsdale Reception Room

Dining Room
Chasteland

Mr. Craven

The Office
Pratender in Mr. Dalton

Mr. Treacey Reception Room.

D. Fawcett's Room.

Mr. Head

Mr. Hodgson's Room
via Robinson.

}
Bunkhouse

Mr. Caldwell

Mr. Hodgson's Room

Mr. Harding

John Wells Room.

Mr. Sedgwick

Sam. L. Reynolds Room

Mr. Leacher (2)

The Friends' Retreat,
near York.

By Her Majesty's Royal Letters Patent.

INSTRUCTIONS

FOR THE USE OF

BRÖNNER'S

PATENT

IMPROVEMENTS IN GAS LIGHTING.

Sole Consignees for Great Britain and Ireland—

HENRY GREENE & SON,

16 & 17, KING WILLIAM STREET, LONDON BRIDGE;

138, REGENT STREET, W.; 8, PAVILION BUILDINGS, BRIGHTON.

*Agent
by Appointment,
Edmund Wheeler,
48, TOLLINGTON ROAD,
HOLLOWAY, LONDON, N.*

INSTRUCTIONS

FOR

THE USE OF BRÖNNER'S PATENT IMPROVEMENTS IN GAS LIGHTING.

SECTION 1.

Explanation as to the Patent Burners.

The burners are of two distinct kinds, A and B, and each has eleven various sizes, viz.:—1, 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, 6, 7 and 8.

A burners to be used in globes only.

B burners for use in open air, or with patent tin shades.

A.—GLOBE BURNERS: by combining these with BRÖNNER'S Globes (see Section 2), an extremely soft, steady, and agreeable light is obtained with no hissing noise, and without the heat and smoke produced by Argand or other burners. If a paper shade be fixed on the glass globe, the light is unsurpassed for use in offices, on writing-desks, &c., without being in any way painful to the eyes. For drawing rooms, dining rooms, or large public saloons, where an elegant light is desired, the Patent Cornelian Globes, plain or decorated, are specially recommended, and the brilliant but yet soft light produced, renders gas lighting admissible in every place from which it has hitherto been excluded. The ordinary English globes may be used for the Patent Burners, not exceeding sizes Nos. 3 or $3\frac{1}{2}$; but there is little difficulty in inducing their discontinuance, by a comparison of their effect with that produced by BRÖNNER'S. It should be distinctly borne in mind

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that all pine and melon globes, basins, or saucers are objectionable, both with BRÖNNER'S or any other burners: they are at the best of very questionable taste, and every one of them, more or less, interfere with the proper and natural shape of the flame—in fact, to ensure the best result from any burner, the globular form of glass, as near as possible, should be always adopted.

B.—OPEN-AIR BURNERS, or such as can be used without glass globes. These burners may also be used with BRÖNNER'S Patent Tin Shades; this sort of lighting is specially fit for factories, where a steady and practical light for work-benches is required. There are two different sorts of tin shades, each in different sizes, viz.:—Nos. 1 and 2 for the use of several persons; Nos. 3, 3½ and 4, for the use of one person. These shades are adapted to the different size of burners required.

The external body of the BRÖNNER'S burner is of brass, so constructed that it can be screwed on to all gas fittings; but the essential parts necessary to produce by their scientific arrangement and construction increased beauty of light, and saving of gas, these are manufactured of Steatite, an incorrodible material, neither changed by heat nor injured by exposure to damp. As the size of the flame is produced solely by the quantity of gas admitted at the base of the Patent Burner, it is at that point the size of the aperture varies, but the heads of all the A burners, from No. 3 to 7 are the same; for the smaller sizes a slightly different sized head is used. For the B burners, a different shaped head is supplied; hence it is necessary to describe for which purpose the burners are required.

Both kinds (A) (B) are numbered respectively as under, each consuming a corresponding quantity of cubic feet of gas per hour, at the usual burning pressure.

(A) or (B) number	1	2	2½	3	3½	4	4½	5	6	7	8
Consumption per hour in cubic feet	1	2	2½	3	3½	4	4½	5	6	7	8

NOTE.—Each burner is accurately tested to produce this result, so that with a careful selection as to size, the exact light that is required may be secured in the respective parts of any establishment. The taps being turned on full, servants or workmen cannot unnecessarily increase the light or consumption of gas by tampering with the burners.

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SECTION 2.

As to BRÖNNER'S Globes and other Accessories.

OFFICE LIGHTING.

For use over writing-desks, globe No. 1, in connection with paper shade No. 1 or 2, will be most practical; for exceptionally strong lights, globe No. 51, and paper shade No. 3, should be employed. For delicate eyes the Cornelian globe No. 9 or 59, with the corresponding paper shade, is recommended. If the burner has not only to light the desk, but at the same time the room, or part of it, a Cornelian globe, without shade, is most suitable.

SALOON LIGHTING.

For dining and drawing rooms, libraries, or in assembly rooms, clubs, hotels, &c., &c., Cornelian globes ought always to be used; it is true, however, these globes absorb some part of the light, and where saving of gas is the only consideration they must not be employed, but plain or partly frosted and cut globes, as No. 1, 2, 4, 51, and 52; still, for comfort and elegance, the use of Cornelian globes is extremely desirable.

In fixing the smaller globes, care should be taken that the flame does not come too near the glass, in which case larger globes should be used. *As a rule, no burner above No. 3½ ought to be employed with a small globe.*

MANUFACTORIES, &c.

These are mostly to be fitted with the B or Open-Air Burners, as per Instructions in Section 1, page 3.

SHOP LIGHTING, &c.

The size of the burners and globes must mainly depend upon the kind of business and its requirements; but if the lights are exposed to much draught the B burners, *in globes*, are recommended. But this is to be taken quite as an exceptional case, and is only to be adapted where great draught exists, and even then only small burners should be used.

PUBLIC STREET LIGHTS, PUBLIC GARDENS, RAILWAY PLATFORMS, &c.

The B burner is best suited, for the reasons previously given. It is desirable that the lantern be sufficiently wide for the flame, and where there

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is an unusually strong draught, the opening at the bottom should be protected by wire gauze, to prevent a flickering light.

NOTE.—In all practicable cases it is an advantage to use globes, for not only do they steady the light against draught and prevent it smoking, but they also effect an economy in consumption of gas by not requiring so large a size burner, as is otherwise a necessity.

The bottoms or openings of globes may also be protected from the effect of wind by means of fine gauze or perforated zinc with complete success, the B burner being used in such cases in place of the A, as per instructions for shop lighting.

SECTION 3.

Prompt Method of ascertaining probability of saving Gas, &c., by use of a "Test or India-rubber Burner."

1st.—To determine whether BRÖNNER'S system can be advantageously applied.

This *India-rubber burner* is simply the head part of a BRÖNNER burner with India-rubber tube to connect it temporarily with an ordinary fish-tail burner, and by its means a very fair probability can be ascertained whether, and to what extent "BRÖNNER'S System" can be usefully adopted. The India-rubber tube should be passed carefully over the fish-tail burner without extinguishing the light, when the effect will be most striking; the illuminating power of the flame of the two burners, one on the top of the other, being more than double that of the ordinary burner alone; the consumption of gas in both cases being naturally exactly the same. It is *clear* that, when *double* light can be produced with the *same* quantity of gas, *equal* light can be obtained with proportionately *less* gas.

This experiment can only be made on fish-tail burners; on bats-wing burners, the cut would partly be stopped by the India-rubber tube, and Argand burners are, in consequence of their shape, quite unfit for it.

In case the India-rubber burner does not produce any effect, it is a proof that BRÖNNER'S System cannot in that instance accomplish its ordinary

results. Nevertheless it is often possible, even under great disadvantage, by management, to effect a saving of gas, as in many places in an establishment much gas is wasted by the injudicious use of larger burners than are required in special positions, a fault that can be corrected by the great variety of sizes of BRÖNNER'S burners, which afford an exact adaptation of light for the particular purpose; and thus, by careful choice of the size for each special place throughout, the quantity of light required may be given and yet a considerable saving of gas obtained. The exactness of the make of BRÖNNER'S burners enables this to be managed to a great nicety.

If the desirability of this re-arrangement of burners throughout an establishment cannot be satisfactorily shown, it is better to take no further action, unless the adoption of BRÖNNER'S burners should be desired in consequence of the other advantages of the system, viz. :—The steady and soft light produced by using the proper shaped globes or tin shades, without heat, smoke, or the breakage of cylinder glasses, &c., &c.

Under any circumstances, however, it is necessary to visit the place during an evening when all the burners are lighted, that it may be seen if the gas is burned in a favourable or in an unfavourable manner, and so to ascertain to some extent if it be possible to procure great improvements in lighting, or to give a saving in the consumption.

2nd.—To ascertain whether saving in gas consumption can be effected and improved light given.

In order to be quite sure that a saving can be obtained, one burner out of any establishment should be selected as an average in respect of the strength of light, which burner is admitted by the consumer to give the power of light required for the purpose. *On the top of this flame the India-rubber burner is to be put on, BUT WITHOUT TOUCHING THE TAP*, when, should a much larger and brighter light be obtained, a great success may be calculated on throughout the entire building.

In connection with this test, carefully examine all the flames, and especially notice if the bats-wing or fish-tail burners burn quite steady, stiff, do not flicker, and are of a bluish white colour; if so, it may be assumed at once they burn too much gas in proportion to the light given, and hence a great saving can be effected by BRÖNNER'S burners. But if the flames of these burners are yellow and clear, like the colour of the flames of BRÖNNER'S burners, if they flicker much up and down, it would indicate the absence of the usual pressure, and consequently a great saving cannot

be effected. Yet there are some ordinary burners which produce a yellow and clear light similar to BRÖNNER'S, and have at the same time a steady and quiet flame; against these a saving may yet be obtained, because the steadier a gas light is burning, the more gas it consumes; and, on the contrary, the more flickering it is, the less gas it requires to produce the same illuminating power.

NOTE.—Where the object to save gas is imperative, it is necessary to be *very* careful in the selection of the size of burners, so as not to exceed the illuminating power of the old burners, to the injury of the principle of saving.—(See also Section 4).

SECTION 4.

General Instructions for selecting the proper size of BRÖNNER'S Burners.

Great care should be taken in selecting from the variety of sizes those burners which will give the amount of light wanted in the different parts of a house or establishment when *all lights are burning*.

If the question raised is only to improve the light, and not to save gas, the India-rubber burner should be applied over the ordinary burner, and on another pipe a BRÖNNER'S burner should be fixed of a size which should give rather less light than that produced by the India-rubber burner. This will be the correct size to give increased light without more gas being consumed.

But, to be quite certain that the proper size has been selected, the mode of proceeding is thus:—After having determined which size of BRÖNNER'S burner is probably correct, it should be screwed on a chandelier or bracket near to some one ordinary burner which may be considered as producing an average light of those in use throughout the building, and on placing the India-rubber burner over it, if the flame produced be considerably stronger than BRÖNNER'S burner, it is evident the latter must effect a corresponding saving of gas, and that the BRÖNNER'S burner selected is the right size.

In selecting the particular size required of BRÖNNER'S burners for replacing Argands, no India-rubber burner can be used, but the eye only can judge which size is to be taken for giving the necessary light and no more.

If the trial is made where glass globes are used, the ordinary burner, triangle and globe, should be unscrewed, and a BRÖNNER'S burner (A), No. 2, fixed in its place with its triangle and globe; if the object be to save gas, careful observation should be made that the light from the new burner is exactly the same, and no more than others still remaining in the room; and to try this accurately, BRÖNNER'S triangle and globe should be used as against the old burner triangle and globe. If the trial is to be on a burner not used in a globe, a (B) burner, No. 2, should be first tried, if the strength of the light obtained by the No. 2 is not sufficient for the purpose, a No. 2½ is to be tried, if this will not do, a No. 3, and so on until the light is found satisfactory.

In judging the illuminating power of a light, it must carefully be avoided to look into the flame; on the contrary, the eye should be protected against the blinding glare of light, and its effects upon the objects which are to be lighted only should be considered.

In doubtful cases, when one number seems to give rather more light, and the preceding lower number apparently gives a less light than wanted (especially when a large quantity of BRÖNNER'S burners are to be fixed), it is always advisable to take the *lower* number, because when all the old burners have been removed, and BRÖNNER'S burners fixed in their places, as there will be a smaller consumption of gas, the pressure will increase, and consequently the burners will produce a brighter light than the *one* sample of BRÖNNER'S burner fixed for a trial amongst a great number of common burners.

This precaution must never be lost sight of, particularly in establishments where the taps have been turned on only *half full*, or where the gas pipes were not large enough for the great consumption of the former large size common burners, but will be sufficiently large for the less quantity of gas required for BRÖNNER'S burners. As BRÖNNER'S burners are to be burned with *taps full on*, it may, in such a case, even happen that, notwithstanding the most careful choice of the number, the pressure increases so much that all the burners must be again changed for smaller sizes; supposing the right selection now to be made, the result will give a considerable saving of gas, with a most agreeable and steady light, not in excess of the requirement.

SECTION 5.

To prove by the Customer's Meter the probable Saving to be effected by BRÖNNER'S system.

To remove the suspicions which the public have (not without reason) against everything new, and to afford every facility to the consumer to be satisfied of the advantages of BRÖNNER'S system without risk, it is necessary to offer to ascertain by their meter the consumption of their burners during a certain time in the evening, with the tap at the meter turned on full, and to change next day the burners, and take by the meter the consumption of the new burners for the corresponding time, in which way a practical and accurate test is obtained, after which not the slightest doubt can exist that the introduction of BRÖNNER'S system is of advantage. This trial gives also the data for calculating the time required to save the cost of new burners out of the saving of gas.

Or if it be preferred to make the test in a shorter time, it should be carefully noted how many minutes and seconds are occupied in the consumption of a certain quantity of gas; say, for instance, 100 cubic feet; from which it can be easily calculated how many cubic feet the burners that are being tested would consume in one hour.

This may be illustrated by taking an establishment where there are, say 600 lights burning, which are found to consume 100 cubic feet of gas in 130 seconds. So, if 600 burners consume in 130 seconds 100 cubic feet, the consumption of one hour will be 2,769 cubic feet.

1 hour = 60 minutes, or 3,600 seconds — 100 cubic feet.

Divided by 130 seconds = $360,000 \div 130 = 2,769$ cubic feet.

consumed per hour, or $4\frac{1}{2}\%$ cubic feet per hour for one burner.

Where Argand burners are in general use, no great saving can be effected, as Argand burners, when well manufactured and well managed, produce an illuminating power in proportion to their consumption of gas, and it is difficult to obtain a saving; nevertheless, it is possible, although it may not be so considerable as against fish-tail and bats-wing burners, because—

1. The Argand burners are, as a rule, not well made, and the less jets they have the worse they are.

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2. Few people understand how to manage them in such a way as to obtain the greatest amount of light out of the gas which is burned.

3. Even if they are well understood and well managed, they generally give more light than is wanted (for instance, in offices, &c.); thus they also use more gas, whereas by the great variety of sizes of BRÖNNER'S burners, just the right amount of light can always be given, and hence no light or gas is wasted.

Again, Argand burners are not generally liked, because, with exception of the strong light they produce, which can be just as well obtained by BRÖNNER'S burners, they have a great number of inconveniences, such as excessive heat, liability to smoke, and breaking of glass chimneys, all of which is entirely avoided by BRÖNNER'S burners.

SECTION 6.

Instructions for Fixing BRÖNNER'S Burners and Triangles.

1st.—BURNERS.

The burners are to be screwed in the ordinary way into the socket. Should the thread not fit, it can be made to do so by using a screw tap, which is supplied for this purpose.

A little white lead should be used for obviating any leakage of gas from imperfect fit, but taking care, in applying it to the thread, not to stop the aperture at the base.

The steatite head of the burner should also be fitted on with white lead, for similar reasons.

The burner should be fixed so that the flat side of the flame is in a right angle to the branch of the chandelier or lamp.

If the shape of the flame is not regular, the slit on the top of the burner must be cleaned by a piece of paper or pasteboard, *but never by a knife*.

If necessary a straight socket can be easily adapted to raise the burner from the chandelier, and this is especially necessary where an Argand burner has been taken off.

SOLE CONSIGNEES FOR GREAT BRITAIN AND IRELAND,
HENRY GREENE & SON, 16 & 17, KING WILLIAM STREET, E.C., LONDON.

When applying the burner to "star lights," it is necessary to make use of an elbow socket, so as to secure at least an angle of 45 degrees, or the flame will be more or less unsteady in proportion to the pressure of the gas, and where this is but ordinary, the burners must be fixed *perpendicularly*, with or without globes, to ensure good effect and perfect success.

For "sun lights," and in purely horizontal positions, the BRÖNNER Burner cannot be adapted.

2ND.—TRIANGLES AND GLOBES.

BRÖNNER'S Triangles should always be used with the burners, even though it is desired that the English globes should be retained. There are three thumb screws with these triangles, which make the globe to be fixed concentric with the flame, and thereby they assure a better light; moreover, these triangles are arranged to receive the globe at the proper position from the flame, which cannot be the case if the old triangles are retained below the BRÖNNER burner. The BRÖNNER triangles are shadowless, and are supplied either lacquered, bronzed, or electro-plated.

PRICE LIST OF Brønner's Patent Gas Burners & Accessories.

PATENT GAS BURNERS, Two Shillings each.

These Burners are constructed especially for the use to which they are to be applied. Those intended for use in globes are called **A Burners**, and must never be used without globes. Those for burning in the open air or under patent tin shades are called **B Burners**.



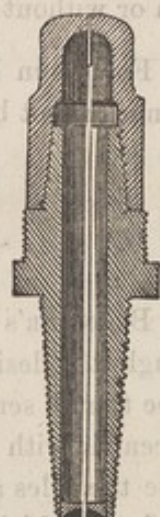
A. No. 1, 2, 2 1/2.



A. No. 3 to 8.



B Burners.



Section.

ACCESSORIES.

GLASS GLOBES, 6-inch.

No. 1. Clear	each	1	0	No. 4. Frosted	each	1	3
" 2. Half-frosted	"	1	3	" 9. Cornelian	"	2	0

GLASS GLOBES, 7 1/2-inch.

No. 51. Clear	each	1	3	No. 59. Cornelian	each	3	0
" 52. Half-frosted	"	1	6	" 63. Ditto, with red and gold stripes	"	5	0
" 54. Frosted	"	1	6				

GLASS GLOBES, 7-inch.

No. G, 2040. Cut lines	each	2	0	No. G, 2024. Richly cut Greek key	each	4	0
" G, 2045. Cut stars	"	2	6	" G, 2634. Engraved classic border	"	5	0
" G, 2063. Richly cut double diamond	"	3	6				

GLASS GLOBES, 8-inch.

No. 151. Clear, with large opening	each	2	0	No. 159. Cornelian, with ditto, each	3	6
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TRIANGLES.

No. 1. For globes with small openings	each	0	6	No. 2. For globes with large openings	each	0	9
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PAPER SHADES AND FRAMES.

No. 2. For 6-inch globes, the shade and frame	1	3	No. 3. For 7 1/2-inch globes, the shade and frame	1	6
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Large Paper Shades, at proportionate prices, are supplied for special purposes.

PATENT TIN SHADES WITH TRIANGLE.

No. 1. Round Shades, for work-tables, 6-inch diameter	each	2	9	No. 3 1/2. Work-bench Shades, for a large burner	each	2	0
" 2. Ditto, 13-inch diameter	"	4	6	" 4. Ditto, for an extra large burner	"	2	3
" 3. Work-bench Shades, with elliptic fronts, where a strong light is required, for one person	"	1	9				

ELBOWS	each	0	6
STRAIGHT SOCKETS	"	0	3

EXTRA STEATITE HEADS, for the burners	each	0	2
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By Her Majesty's Royal Letters Patent.

TESTIMONIALS AND REPORTS

IN FAVOUR OF

BRÖNNER'S

PATENTED

IMPROVEMENTS IN GAS LIGHTING.

INCREASED LIGHT, WITH ECONOMY OF GAS!!!

Sole Consignees for Great Britain and Ireland—

HENRY GREENE & SON,

16 & 17, KING WILLIAM STREET, LONDON BRIDGE;

138, REGENT STREET, W.;

8, PAVILION BUILDINGS, BRIGHTON.

Appointed Agent



HENRY GREENE & SON, SOLE CONSIGNEES
FOR GREAT BRITAIN AND IRELAND
16 & 17, KING WILLIAM STREET, CITY

BRÖNNER'S PATENT SYSTEM OF GAS LIGHTING.

THE special attention of Gas Engineers, and all large consumers of Gas, is invited to the advantages introduced into Gas Lighting by Brönnner's Patented improvements, effecting an immense economy of Gas, varying from 20 to 30, sometimes 40 and even more per cent., and in addition to this large saving in the consumption there is also obtained a softness, brilliancy, and steadiness of light unequalled by any of the ordinary burners in general use. The Brönnner's system of Gas Lighting can be adapted to the general fittings of large establishments or of any private dwelling house; it consists of various sizes of burners and of globes and triangles, altogether differing from those of the usual fish-tail burners. For instance, in the Brönnner's burners the Gas is allowed to pass out of the orifice from which it is emitted, without that disagreeable hissing sound inseparable from most of the burners as have hitherto been supplied, and the flame thus produced is kept perfectly steady by the larger opening which Brönnner's globes have, in distinction to the ordinary globes, of which it may be here mentioned that any departure from a spherical shape will more or less produce an unsteady and flickering light. In the search after novelty of shape and style, this important desideratum, viz., steadiness of light, has been in a great measure lost sight of, and the result is that painful effect upon persons of delicate sight which is so much complained of as one of the evils of Gas lighting, but which it is intended by Brönnner's system entirely to correct, while at the same time Gas being economised, a much less heat is evolved than is found by the use of other burners. This absence of flickering, of smoke, and of heat, renders this system of lighting available for all large establishments, both public and private, and especially in the reception rooms of the nobility and gentry, from whence, as a rule, Gas has hitherto been carefully excluded. The experience which has now been gained has convinced those who have had these burners fixed of the valuable character they and their accessories possess in the large saving of Gas which they produce, simply by thoroughly consuming it as it is emitted from the burner, instead of it being propelled into the atmosphere to the injury of both health and furniture. The Consignees therefore draw particular attention to these great advantages, which have been practically endorsed, not only by the certificates which are annexed, but also by the official reports of the Government Gas Referees, and that of Dr. Whitmore, the Gas Examiner for Marylebone, extracts from whose remarks are appended. As compared with Argand burners, the advantages which Brönnner's system possess are—greater simplicity, the absence of the chimney and its consequent liability to breakage, also the absence of smoke, which Argand burners are especially liable to, unless carefully watched; and lastly, the much less heat which Brönnner's burner causes, even as against the most improved Argand burner that has been produced. The cost of Brönnner's Patent Gas Burners is in ordinary circumstances repaid in a few weeks by the saving of Gas, so that in effect they cost the consumer nothing. The burners are of two distinct kinds (A and B), the A burners being for use in Globes only; B burners are for use in open air, in street lamps, or on railway stations, and with patent tin shades for Factories, work benches, &c., &c. Each kind of burner has eleven different sizes, namely, 1, 2, 2½, 3, 3½, 4, 4½, 5, 6, 7, 8, corresponding to the number of feet of Gas per hour which they are warranted to consume at an ordinary working pressure.

HENRY GREENE & SON, SOLE CONSIGNEES

FOR GREAT BRITAIN AND IRELAND,

16 & 17, KING WILLIAM STREET, CITY.

SPECIAL NOTICE.

The Consignees or their Agents undertake to demonstrate practically to the public, on their own meters, the great economy of BRÖNNER'S PATENT BURNERS, by noting the consumption of gas for any definite period with any burners which are in use, then to change them for BRÖNNER'S PATENT BURNERS, note the consumption with *them* for a corresponding definite period, and should the economy not prove to be from 20 to 35 per cent., with equal light, they will replace the original burners free of charge.

CAUTION.—The public are particularly cautioned against spurious imitations of BRÖNNER'S PATENT BURNERS. The genuine burners and their accessories can only be obtained from the Consignees, or their duly appointed Agents. Each burner has the name of the Patentee impressed in it. The spurious burners *will choke* in a very short time and soon become perfectly useless.

Extracts from Certificates received as to the actual practical tests of BRÖNNER'S PATENT GAS LIGHTING IMPROVEMENTS; attested copies of the Original Certificates may be seen at the Offices of the Sole Consignees.

RAILWAYS.

GREAT NORTHERN RAILWAY.

KING'S CROSS STATION.—The departure platform has been fitted with BRÖNNER'S PATENT BURNERS, and has been in working order since 1st January, 1869. The result has been a better light, and a saving of Gas over the corresponding six months up to Midsummer, 1869, of 1,072,000 cubic feet. The burners are being gradually introduced into other stations on this line.

METROPOLITAN RAILWAY.

Every station on this line, from Moorgate Street to Edgware Road inclusive, has been fitted with BRÖNNER'S BURNERS. The result being better light, with a saving of 29 per cent., as vouched for by the Company's Engineer.

GREAT WESTERN RAILWAY.

The stations at Bath, Reading, Great Malvern, Slough, &c., are fitted with BRÖNNER'S PATENT BURNERS, preparatory to the whole line being supplied therewith; the Company's officers certify a saving in average of 28 per cent., with equal light.

NORTH LONDON RAILWAY.

Most of the stations on this line are fitted with BRÖNNER'S PATENT BURNERS. The General Manager certifies to the light being perfectly satisfactory, and to the great saving (28 per cent.) that has been produced.

HENRY GREENE & SON, SOLE CONSIGNEES

FOR GREAT BRITAIN AND IRELAND,

16 & 17, KING WILLIAM STREET, CITY.

RAILWAYS—Continued.

GREAT EASTERN RAILWAY.

The station at Stratford and the engine house there have been fitted with BRÖNNER'S BURNERS, and a thorough test as to comparative consumption has been taken in the large engine shed attached to this station. The result, as marked by the meters fixed for the purpose, is upwards of 30 per cent. of saving by BRÖNNER'S BURNERS over the burners used in competition, the light in each case being equal.—August, 1869.

LONDON, CHATHAM AND DOVER.

After a small trial of three burners at Victoria Station, which showed a very large saving of Gas, the Chief Engineer directed the Walworth Road Station to be fitted up throughout. Here there are about fifty burners, and the result of the trial shows an average saving of at least 26 per cent. as against the consumption of Gas in the corresponding period.

PUBLIC BUILDINGS, CLUBS, WAREHOUSES, TAVERNS, Etc.

COPENHAGEN.—KJOBENHAVN'S SUMMER TIVOLI.

The Directors certify, that in view of the adoption of BRÖNNER'S PATENT BURNERS, they caused the consumption of Gas in the whole establishment to be ascertained for eight days, from 9.30 p.m. to 10.30 p.m., when all the lights were burning. The consumption of Gas, with 700 Burners, was found to be as under:—

WITH OLD BURNERS.			WITH BRÖNNER'S PATENT BURNERS.		
July 2, 1868,	{ From 9.30 to 10.30 inclusive. }	Cubic ft. 32,360	July 22, 1868,	{ From 9.30 to 10.30 inclusive. }	Cubic ft. 26,280.
to					
July 9, 1868.					
Averaging 4,045 cubic feet per hour.					

July 29, 1868.	Averaging 3,285 cubic feet per hour.	
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Or a saving of Gas of 20 per cent.

The light is very superior in every respect, and the Cornelian globes in the Concert Room produce a very elegant and imposing effect.

N.B.—As the Gas is burning in these Gardens about five hours every night, the saving by BRÖNNER'S BURNER amounts to about 30,000 feet of Gas per week.

Dated, Copenhagen, 11th August, 1868.

THE LONDON,

191, FLEET STREET, September, 1870.

I must say that the BRÖNNER'S BURNERS and GLOBES please me very much, and I believe they are economising my consumption of gas as well as producing a better light.

F. SAWYER.

HENRY GREENE & SON, SOLE CONSIGNEES

FOR GREAT BRITAIN AND IRELAND,

16 & 17, KING WILLIAM STREET, CITY.

PUBLIC BUILDINGS, WAREHOUSES, &c.—continued.

FREEMASONS' TAVERN COMPANY.

By direction of the Manager of this Company, a special meter was fixed in the extensive cellars attached to the Tavern, when it was found that the consumption of thirteen ordinary burners during two hours was 150 cubic feet. After which these old burners were replaced by thirteen BRÖNNER'S BURNERS, giving precisely the same light, and the consumption was 90 feet, equal to a saving of 40 per cent. This trial was found so satisfactory that a further test was taken with thirty-two burners in the kitchen and offices attached thereto. The result of this second trial for two hours, with all burning, was 300 feet with old burners, and with the BRÖNNER'S BURNERS the consumption was 220 feet, equal to about 27 per cent.

In consequence of this really large saving of Gas, combined with the absence of much heat and smoke, the whole of the burners in the chandeliers, brackets and pendants throughout the reception-rooms, staircases, and offices, in all about 250 burners, have been changed, and are giving the greatest satisfaction. Most of the lights are supplied with the New Cornelian Globes, which form an important medium for securing a soft and pleasing light, producing an extremely elegant effect throughout the building.

MIDDLESEX HOUSE OF CORRECTION, COLDBATH FIELDS.

The Governor, Colonel Colvill, certifies that 258 burners have been fitted in the D wing of this building, and the saving produced, after a very careful test, *with equal light*, was found to be 33 per cent. Appended are the details of this trial.

WITH OLD BURNERS.			WITH NEW BRÖNNER'S.		
April 29, 1869.	{ Four hours' }	Cubic ft.	May 3, 1869.	{ Four hours' }	Cubic ft.
" 30 "	{ consumption }		" 4 "	{ consumption }	
May 1 "	{ each night. }		" 5 "	{ each night. }	
		4,950			3,320

RADNOR TAVERN, HOLBORN.

Mr. Mills, the Proprietor, certifies to a saving of 25 per cent. in consumption of Gas, *with better light*.

JUNIOR ATHENÆUM CLUB, PICCADILLY.

This Club has recently removed to the mansion in Piccadilly, corner of Down Street, and has been in a great measure supplied with BRÖNNER'S System of Gas Lighting, which is in admirable working order.

39, OXFORD STREET, W.,

LONDON, 4th February, 1869.

I am so very much satisfied with the BRÖNNER'S GAS BURNERS that have been put up in part of these premises, as far as increase of light and decrease of heat is concerned, that I shall be glad if you will have the burners fitted all over the place.

W. S. BURTON.

HENRY GREENE & SON, SOLE CONSIGNEES

FOR GREAT BRITAIN AND IRELAND,

16 & 17, KING WILLIAM STREET, CITY.

PUBLIC BUILDINGS, WAREHOUSES, &c.—continued.

LOOKING GLASS & CABINET WAREHOUSE,
150, 151, & 152, ALDERSGATE STREET,
LONDON, 25th January, 1869.

I have much pleasure in stating that before adopting BRÖNNER'S PATENT BURNERS, I established a critical test on one meter supplying 21 lights; I found on one evening the old burners consumed 290 feet, and the following evening in the same time, with new burners, the consumption was but 150 feet, and the light given was, to my mind, greater. I have also tried one of the burners in my private office, in place of an Argand; the illuminating power is as great, and there is an entire absence of the heat that is so disagreeable in the Argand burners. I have given instructions to have the BRÖNNER'S BURNERS fitted to all lights in my several establishments.

GEORGE SIMS.

COLONIAL BANK,
13, BISHOPSGATE STREET WITHIN, E.C.
LONDON, 4th January, 1869.

I have pleasure in giving you the result of the trial of the NEW BRÖNNER'S PATENT BURNERS against the old Batswing burners; the latter consumed fully 100 feet, while the new burners, in exactly the same period, consumed only about 60 feet, a saving of 40 per cent., with, so far as we could judge by the eye, an equal amount of light.

T. W. CLARK, MANAGER.

3, NEW EARL STREET,
LONDON, February 3rd, 1869.

We have given the PATENT BURNERS of "BRÖNNER'S" a fair trial, and believe there is a saving of 30 per cent. in consumption, besides being clearer, and giving a better light.

C. & S. GRIMWADE.

GENTLEMEN,

TERMINUS HOTEL,
LONDON BRIDGE, September, 1870.

I am pleased to say that BRÖNNER'S PATENT GAS BURNERS, which you fixed over the whole of this hotel, give me perfect satisfaction.

The light is superior to that obtained from the burners removed, and a saving of at least 20 per cent. of gas has been effected this past half-year, as compared with the corresponding period of last year.

Messrs. H. GREENE & SON.

ALBERT GEARING.

148½, FENCHURCH STREET,
January, 1870.

We are now in a position to say that the BRÖNNER'S BURNERS supplied by you effect a saving in our consumption of gas of 25 per cent., with an equally good light.

W. RITCHIE & SON.

HENRY GREENE & SON, SOLE CONSIGNEES
FOR GREAT BRITAIN AND IRELAND,
16 & 17, KING WILLIAM STREET, CITY.

PUBLIC BUILDINGS, WAREHOUSES, &c.—continued.

BRITISH AND FOREIGN SCHOOL SOCIETY,
STOCKWELL COLLEGE.

The Secretary of British and Foreign School Society expresses his opinion that the light from BRÖNNER'S PATENT BURNERS is more diffused and brilliant than that from the old burners which had been replaced; while the Gas Engineer to the Society, attests that there is a saving in consumption of gas of more than 30 per cent.

The result of numerous experiments on Bunsen's Improved Photometer, with BRÖNNER'S GAS BURNERS, as against Fish-tail jets in general use, is as under:—When both kinds of burners produce *equal light*, the *saving* of gas at ordinary pressure is about 27 per cent. in favour of BRÖNNER'S SYSTEM; when both kinds consume an *equal quantity of gas*, the increased light produced by BRÖNNER'S BURNERS is about 20 per cent. in *excess* of the Fish-tails; and in the larger sizes is upwards of 26 per cent. The light from BRÖNNER'S BURNERS is exceedingly *soft, steady, and brilliant*, the combustion of gas is *very perfect*, and the amount of *heat evolved considerably less* than that from any other burner with which I am acquainted.

Chemical Laboratory,
Court House, Marylebone,
February 4th, 1869.

J. WHITMORE, M.D.,
Chemical Examiner of Gas for the
Parish of St. Marylebone.

The WORCESTER ROYAL PORCELAIN CO., Limited,
WORCESTER, February 6th, 1869.

I have pleasure in informing you that your PATENT BURNERS, which we have introduced into our offices, and have now had in use some weeks, have given great relief from heat, and a better and more steady light than the ordinary burners we had in use; our clerks express the greatest satisfaction at the change: they find the soft and steady light produced by your burners a very great comfort and relief, and I can say the same for the lights I have in my private office.

EDWARD PHILLIPS, MANAGING DIRECTOR.

INDIA RUBBER MILLS,
TOTTENHAM, March 10th, 1871.

Messrs. H. GREENE & SON.

In reply to your inquiry as to the result of your system of Gas Lighting, in connection with pressure gauges you have fixed on the various floors of our factory, we herewith send you the figures, showing the comparative consumption of the quarter ending Dec., 1869, and Dec., 1870—the light in each case about equal:—

	Cubic feet.
With ordinary burners, Oct. 25th, 1869, to Dec. 29th, 1869	823,900
With BRÖNNER'S BURNERS, in conjunction with pressure gauges, 1870	598,350
	Saving..... 225,550
Or rather exceeding 27 per cent.	

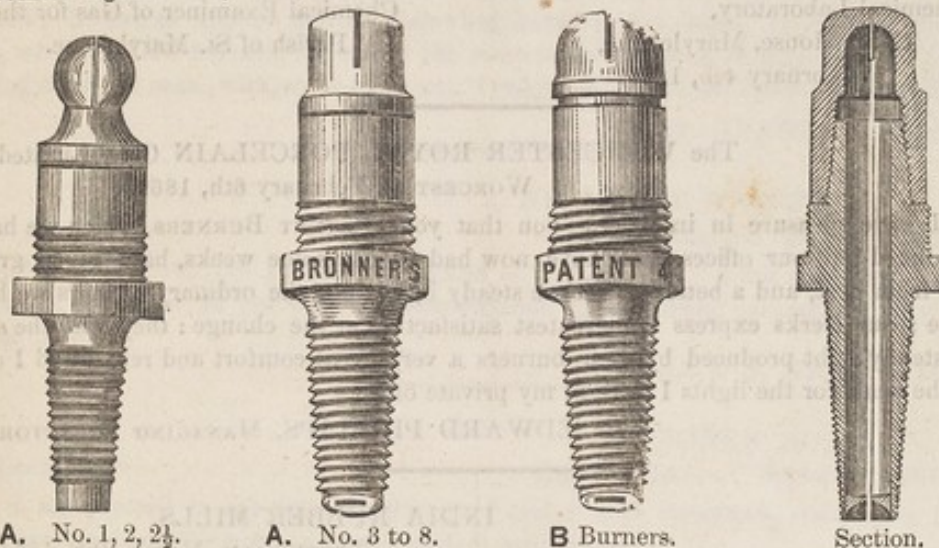
WARNE & CO.

HENRY GREENE & SON, SOLE CONSIGNEES
FOR GREAT BRITAIN AND IRELAND,
16 & 17, KING WILLIAM STREET, CITY.

CAUTION!

It having come to the knowledge of Messrs. GREENE & SON that Gas Burners, not manufactured by Mr. BRÖNNER, but constructed similarly thereto, had been imported into England and sold as BRÖNNER'S Burners, Proceedings in Chancery were at once instituted to restrain the offender from selling Gas Burners made according to Mr. BRÖNNER'S Invention, or in any wise counterfeiting or imitating the same, or infringing or violating Mr. BRÖNNER'S Letters Patent; and he has thereupon entered into an undertaking and agreement in writing, not to sell, or offer or expose for sale, without Mr. BRÖNNER'S license, any Gas Burners made according to his Invention, or any Gas Burners similar thereto, or only differing colourably therefrom.

All persons are hereby cautioned against selling any Burners purporting to be BRÖNNER'S Burners, or any Burners similar thereto, or only differing colourably therefrom, and thereby rendering themselves liable to Legal Proceedings; and the Trade and Public generally are Cautioned against purchasing any Gas Burners purporting to be BRÖNNER'S Burners, not supplied through Messrs GREENE & SON, or their duly appointed Agents—they being the Sole Consignees and Agents for the United Kingdom.



THE GOVERNMENT GAS REFEREES, in their Report, issued in June, 1869, notify that BRÖNNER'S PATENT GAS BURNER, consuming 5 feet per hour, gives a light which, for the purpose of comparison, may be described as equal to 99, whereas ordinary Fish-tail Burners produced, with SAME QUANTITY of Gas, a light equal only to 27, the additional light obtained by BRÖNNER'S BURNER being the result of its superior construction.

The Consignees or their Agents will be happy to advise with architects, gas engineers, and the public generally, as to the mode of introducing BRÖNNER'S SYSTEM OF GAS LIGHTING into every description of building; and they invite all who are interested in the development of the art of Gas illumination to visit their offices, and to bring with them any Burner they desire to test Photometrically as to the comparative light produced with any given quantity of gas consumed.