

MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	1174	Press ~~Mis.~~
Dated	185-186 29-9-1867.	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Department,
21st September 1867.*

No. 185. Read the following Proceedings of Government in the Public Works Department, dated 10th September 1867, No. 2778.

Communicating report by Colonel Robertson in England on the project for the extension of the Gas works in Fort Saint George. } (Vide Proceedings, Public Works Department, dated 10th September 1867, Nos. 204 & 205.)

No. 186. ORDER THEREON, 21st September 1867, No. 1174.
To be recorded.

(Signed) A. J. ARBUTHNOT,
Chief Secretary.

No. 204. Read the following Despatch from the Right Honorable the Secretary of State for India, (Public Works,) to His Excellency the Right Honorable the Governor in Council, Fort St. George, dated India Office, London, 9th July 1867, No. 20:—

On receipt of your despatch No. 10, of 5th March last, relative to a project prepared by Dr. Wyndowe and Captain Goddard for improving and extending the Gas Works in Fort St. George, I caused all the correspondence on the subject to be placed in the hands of Colonel Robertson, whose opinion has recently been taken with respect to a similar project for lighting the Cantonment at Rawul Pindee, and who is believed to be specially acquainted with the practical working of gas in India.

* Dated 14th June 1867.

2. From the enclosed copy of Colonel Robertson's Report, *(accompanied by a sketch,) it will be seen that he recommends certain alterations in the plans prepared by the local Officers, especially as regards the machinery and apparatus. I would suggest that Colonel Robertson's Report be forwarded to Dr. Wyndowe and Captain Goddard, with a view to their embodying in an amended project such of the proposals contained in it as, after mature consideration, may seem applicable to the circumstances of the case. When such an amended project has been approved by your Excellency, an Indent for the whole of the apparatus, pipes, and fittings which may be required, should be transmitted to this Office in the usual manner.

3. I have desired that the specimens of coal, burners, pendants, pipes, and gas fittings referred to in the concluding paragraph of Colonel Robertson's Report should be sent out without delay for the assistance of the local Officers in making revised arrangements.

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From Colonel A. ROBERTSON, to the Director General of Stores, Cannon Row, dated Lundin Links, Largo, Fifeshire, 14th June 1867.

1. In accordance with the instructions contained in your letter of the 20th ultimo, I have the honor to submit my report upon the project for the extension of the Gas Works at Fort St. George.

2. I fear the time occupied in the preparation of this report may appear long, and that the report itself so short and simple will add to this conviction, but it requires much time and consideration to go fully into a project such as this, and to understand fully what has been done and what is contemplated. The papers have all been returned by Railway Parcel Department by Great Northern Railway.

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Report upon the project for lighting Fort St. George with Gas, prepared agreeably to instructions conveyed in letter of the 20th May from the Director General of Stores.

1. In dealing with the subject of the gas scheme, present and proposed, for Fort St. George, it appears convenient to divide the subject into four heads, Machinery, Manufacture, Distribution, and Interior fittings.

2. The existing apparatus appears to have been entirely got up at Madras, and does great credit to the science, ingenuity, and skill of all concerned.

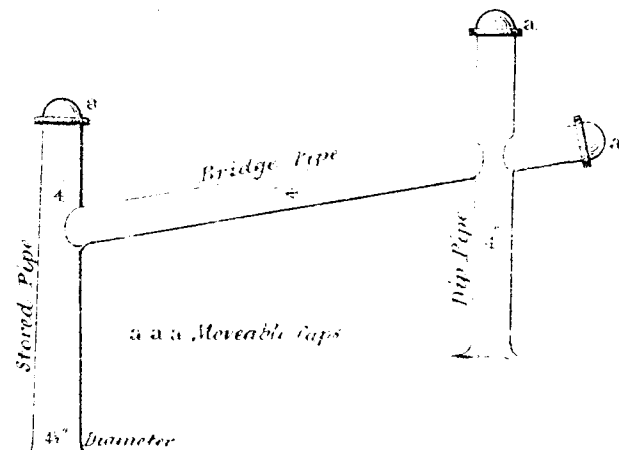
Machinery.

3. Of the Machinery for the production of the gas, the retorts and ovens seem satisfactory. The stand-pipes or pipes ascending from the retorts to the hydraulic main are, in my opinion,

10th September 1867.

too small, the practice on this point is very varied, but from 3 to 4 inches diameter are the usual sizes, and I think the latter is to be preferred, as there is much fouling. The stand-pipe is frequently made of a larger diameter at the mouth piece, and tapered to a smaller size at the top, as it facilitates cleaning, and I would recommend $4\frac{1}{2}$ inches at the mouth piece and 4 inches above at the bridge. The bridge and dip pipes are formed in various ways, but in all cases the pipes are carried up beyond the bend, and have a movable cap to allow the clearing of the pipes.

4. The best form seems this—



The capacity of the hydraulic main might, with advantage, be slightly increased.

5. Several tar cisterns are employed, and of small capacity; it is usual to have one of full capacity placed in a situation below all the apparatus, and carry all overflow pipes to it, sealing the ends by a seal cap, that is allowing the ends to dip into a small vessel which remains full and closes them though the main cistern be emptied. In the proposed apparatus all the purifiers, &c., are in duplicate: this is always advisable, and valves and connexions should be added, to admit of any vessel being shut off for repair or renewal of material without interfering with the process of manufacture, such valves may be contemplated, but I do not see them provided in the estimates, or indicated in the plan. All the connecting pipes in the apparatus as proposed, should not be less than 4 inch diameter; that is the pipes connecting the different purifying vessels.

6. The condenser, as proposed with seven pairs of pipes, seems sufficient; but I would recommend the annular form, with say, internal pipes $2\frac{1}{2}$ inches and external 7 inches, interior diameter, a current of air passing through the inner pipes, the gas in the annular space, and the outer pipe enveloped in straw, and a shower of water directed on it, from wrought-iron pipes properly arranged for the purpose to carry this out effectually. A cistern should be provided, raised on columns, and a pump worked by power for filling it.

7. For the quantity of gas proposed it would probably be advisable to add a third lime purifier, so that the gas might always be passed through two, while the third was being cleaned and renewed.

8. It is usual to arrange the inlet and outlet pipes from the gas holder in a syphon box, so as to collect any liquid, and a fixed pump is provided for pumping off the liquid.

9. The retorts proposed, worked night and day, and with six hour charges, should produce each from 2,000 to 2,400 cubic feet, or for each bench of two say 4,500 cubic feet in the twenty-four hours; so that in general three sets of two retorts will be sufficient for the supply, but to allow for repair, &c., the five pairs are not more than sufficient.

10. Looking to the estimates of cost, I consider the whole apparatus required could be obtained much more economically from home.

11. The gas holder proposed is stated to be 35×17 . It is generally preferred to keep gas holders as low as possible, and I would suggest 40×12 as a better proportion.

Manufacture.

12. Considering the whole of Dr. Wyn-

dowe's report, I am led to the conclusion that the distillation of the coal is carried too far; the data is insufficient for me to conclusively to assert this, as no detail of the process is given, but Dr. Wyn-dowe states the poverty of the gas, and from the other details its low specific gravity is to be inferred.

Read the following papers:—

No. 300. Proceedings of the Madras Government in the Public Department, dated 26th June 1867, No. 745.

Read the following letter from the Reverend H. CORDES, of the Leipzig Evangelical Lutheran Mission, Tranquebar, to the Chief Secretary to Government, Fort St. George, dated Tranquebar, 17th June 1867.

1. I have the honor to bring to the notice of Government that License tax has been taken from the few English and Tamil Schoolmasters of our Mission, whose annual salary, including grants-in aid, amounts to 200 Rupees and upwards, whilst we were credibly informed that no License tax was taken from any of the Schoolmasters of the Gospel Society, &c. I humbly request that the exemption actually granted to them may equally be granted to our Schoolmasters, and that re-payment of the tax paid by the latter may kindly be ordered by Government.

2. I would furthermore take the liberty to inquire whether the Superintendent of our Mission Press may not be included among the persons exempted from License tax. Our Press is established entirely for Mission purposes, and even the few emoluments obtained by printing for others are not applied to any personal use, but fall into the General Mission Treasury, out of which the Press has been established, and is continually maintained. We should feel thankful if Government would order the re-payment of the 10 Rupees License tax paid by the Superintendent of our Press.

The Government regret that they cannot comply with the requests contained in the foregoing letter. The Towns' Improvement Act provides for the exemption from taxation of those persons only who, by reason of poverty, may be unable to pay any of the rates and taxes leviable under the Act; and the power of exercising the discretion thus provided is vested in the Commissioners, subject to the sanction of the President.

No. 301. Proceedings of the Madras Government in the Ecclesiastical Department, dated 30th August 1867, No. 205.

Read the following letter from the Reverend H. CORDES, Leipzig Evangelical Lutheran Mission, Tranquebar, to the Chief Secretary to Government, Fort St. George, dated Tranquebar, 29th July 1867.

1. I petitioned Government on the first of June A. C., praying for instructions in certain things connected with the present Marriage Law for Native Christians. As the Home Society of our Mission, as well as our Mission Council here, are anxiously waiting for a reply, I take the liberty of inquiring whether I may still hope that the important subjects of my petition have engaged the earnest attention of Government, and that this Mission, as well as the Protestant Mission in general, will soon be favored with clear instructions on points of law so vital to the morality and discipline of their congregations.

2. Upon my petition for exemption from License tax on behalf of certain agents of our Mission, I received the Order of Government, dated 26th June 1867, No. 745, deciding the case, not according to the provisions of the License Act, but according to those of the Towns' Improvement Act, which is not in force in

Tranquebar. On a representation to the Acting Head Assistant Collector of Mayaveram, I was further informed that the power of exemption contained in Section 4 of Act XXI of 1867 is vested in the Governor General of India in Council, and not in the Madras Government; but I have neither to petition for the exemption of a whole class, to which case Section 4 of the Act strictly applies, nor have I to ask for a revision of assessment, in which case Section 12 of the Act undoubtedly would apply. My petition concerned the question whether the general exemption granted to Missionaries may not be applied to Mission Agents, whose being taxed would be equal to the Mission itself being taxed, and who actually seem to be exempted in other Missions. I simply state this for explanation's sake, and leave it entirely to Government to decide whether anything can yet be done or not.

3. Several years ago, I was kindly advised by the Chief Secretary to apply to any Resident at Tranquebar entitled to frank, asking him to frank the quarterly Returns of Baptisms and Burials which I have to transmit to Government. Recently, the change in the franking system made this impracticable, but as I now hear that official papers may be sent to Privileged Offices without affixing postage stamps, I take the liberty to inquire whether I am permitted to send my Returns to your address in this manner.

From the Postmaster General, Madras, to the Acting Under Secretary to Government, Fort St. George, dated Ootacamund, 26th August 1867, No. 1,710-9 P

I have the honor to acknowledge the receipt of your communication, No. 258, of the 23rd instant, and, in reply, to state that as it appears that Marriage Registrars and Ministers of Religion are to be regarded as Public Officers when communicating on the public service with any privileged office, I consider that the letters on the public service which may be addressed by the former to the latter may be passed as privileged, provided that the conditions as to form, prescribed by the rules, are complied with.

1. The Reverend Mr. Cordes will be informed that the Memorial forwarded by him to this Government on the 1st June last, praying for orders upon several points connected with the present Marriage Law for Native Christians, has been made the subject of communication with the Government of India, with a view to legislative action being taken for the relief of Christians, whether Native or European, by enabling them to obtain divorce in India, on proof of adultery or cruelty. The result of this communication will be made known to Mr. Cordes in due course.

2. The question raised as to the exemption of Mission Agents and Schoolmasters from payment of License tax under Act XXI of 1867 will be disposed of in the Revenue Department.

3. With reference to the question raised in the last paragraph of Mr. Cordes' letter, it is remarked that the Certificates of Marriages celebrated by him under Act V of 1865 are to be submitted by him, not to the Chief Secretary to Government, but to the Marriage Registrar of the District, and that the latter Officer, not being privileged, all letters to his address must be stamped.

allows for an inferior quality of gas, and an equivalent light would be given by $2\frac{1}{2}$ to 3 feet of good Cannel coal gas, and it may be taken as one light to every 5,000 cubic feet of space. The plans sent do not show the distribution in the men's Barracks, Privies, &c., &c., so I am unable to state in detail what I would propose, but I will state generally what has been arranged for Rawulpindee. For each Company Barracks, the buildings being all detached, a 1 inch iron service pipe conveys the gas from the main, the pipe is carried up the wall of the main ward to the roof about $3\frac{1}{2}$ feet above the floor, a stop cock is placed enclosed in a locked box, for shutting off the gas throughout the building: for the main lights, the 1 inch pipe is carried along the roof just under the beams the whole length of the building, and branches taken off to pendants at proper intervals; when the building is long the pipe is diminished to $\frac{3}{4}$ inch diameter at half length.

26. Just under the shut-off cock, on the first service, a $\frac{1}{2}$ inch pipe is connected and also furnished with a cock and lock-box, this pipe is carried up to the roof and along the building parallel and along side the other, and from it the night lights one to each ward are supplied. At Tattoo Roll-call, or 9 o'clock, the ordinary lights are extinguished, and the cock on the 1 inch pipe shut off, leaving the night light controlled by the cock on the $\frac{1}{2}$ inch pipe.

27. For privies, urinaries, &c., a small burner consuming 1 cubic foot of gas per hour is provided and controlled by a separate cock. By War Office Rules, all pendants for Barrack-rooms should be of wrought-iron pipe and without roof joints, but with strong roof plates; should the rule as to extinguishing a large portion of the burners at 9 P. M. be carried out, it will materially modify the requirements in the way of gas.

28. For the supply of the various buildings, when of any size, I observe by the plans that several service pipes are taken from the main; for instance, for the Government Offices, eight service pipes are shown of 1 inch each, the usual practice is to have only one service pipe of suitable size connected with a metre to check the consumption of gas and carrying necessary pipes from it to the different parts of the building. For the Government Offices I would propose to place a metre in some convenient place near the centre of the building and take a service pipe of 2 inches wrought-iron from the main, which, as the distance is short, would be amply sufficient for the supply of the whole building, from the metre a $1\frac{1}{2}$ inch pipe on each side would convey sufficient gas to each wing, the size of the pipe being diminished as the lights were supplied. In the same way for the Church, a $1\frac{1}{2}$ inch or $1\frac{3}{4}$ inch pipe would be sufficient. Of the pendants, &c., I can say nothing, as the mere description, Patent pendant is not understood, but for ordinary purposes the simple double pendant, that is, a single descending pipe of $1\frac{1}{2}$ inch wrought-iron fixed to a roof-plate and having two arms about 2 feet long of $\frac{3}{4}$ th inch iron pipe with $\perp$ cocks and screwed jets sockets is a good description. The Union or Fish Tail jet is the one most approved of, and is generally preferred to the Bat wing. The Argand is a very expensive light, consuming a large quantity of gas in proportion to the light; as a general rule, Scotch Unions No. 0, 1, 2, and 3, will be found suitable for all purposes. For Rawulpindee the $\perp$ cocks have galleries lined with wire gauge, glass globes, and punkah tops of wire gauge, to protect the lights from currents of air. For the Church the amount of light appears small.

Recommendations.

29. Having completed the duty assigned me in reporting upon the project generally, I would venture to add a few recommendations—

1st.—I would recommend that an early opportunity be taken of sending out to Madras 10 or 15 tons of moderately priced Cannel coal, such as the Wigan, Capledray, or Lothian, from £1-0-8 to £1-0-10. The apparatus at Madras is in working order, and they would at once be able to test what I have stated regarding the discontinuance of oil, &c., and arrange accordingly for the extension.

2nd.—It seems doubtful whether the burners are what they should be, it would, therefore, be advisable to send out, say a gross of No. 2 and a gross of No. 3 Scotch Union or Fish Tail burners screwed, the oil gas burners which they have will supply the place of No. 0 and 1, though a few of each might also be sent.

*Proceedings of the Madras Government, Public Works Department,
10th September 1867.*

3rd.—It is doubtful what description of pendant are in use, and I think it would be an advantage to send out one double pendant (as arranged for Rawulpindee, and according to War Office Regulations) for the men's Barracks, with globes, &c., complete, and cost, so that they may compare it with what they have in use.

4th.—A specimen of cast-iron 1 inch and 1½-inch pipes, with turned and bored joints, one or two lengths of each might be sent out.

5th.—Specimens, say one of each minor gas fittings, with cost.

List of several Cannel Coals.

Cannel or Parols Coals.	Cubic feet of gas per ton.	Illuminat- ing power.	Specific gravity.	Price	Where delivered.
				£. s. d.	
Wigan Cannel	11,400	20.00	.528	0 17 0	At Liverpool.
Boghead	15,000	37.75	.752	2 15 0	„ Leith.
Capledray not	14,000	19.75	.577	1 8 6	„ Burntisland.
Telmahogo... ..	13,000	27.10	.642	1 12 6	„ Glasgow.
Wemyss	14,500	21.50	.580	1 0 0	„ Leith.

14th June 1867.

(Signed) A. ROBERTSON, Colonel.

No. 205. ORDER THEREON, 10th September 1867, No. 2,778.

CIVIL WORKS. No. 23.

1. Communicated to the Superintending Engineer of the 4th Division in continuation of G. O. No. 682, dated

5th March 1867, and with a request that Captain Goddard may be directed to prepare and submit an amended project for improving and extending the Gas works in the Fort with reference to the suggestions offered by Colonel Robertson.

2. The articles referred to in paragraph 3 will be forwarded on receipt.

(True Extract.)



Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer, 4th Division, with a copy of the Sketch Plan.

„ Public Department.

„ Military Department.

Capt. Goddard Gas Works

Exd. S. T. Augustin.

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