

MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	1175	Press ~~Mis.~~
Dated	21-9-	1967.

Not to be folded or roughly handled

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

No. 187. Read the following Proceedings of Government in the Revenue Department, dated 17th September 1867, No. 2186.

Referring for decision of Government of India the question whether Mission Schoolmasters and Presses are subject to License tax under Act XXI of 1867. (Vide Proceedings, Revenue Department, dated 17th September 1867, Nos. 300—302.)

No. 188. ORDER THEREON, 21st September 1867, No. 1175.
To be recorded.

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

13. The coal used I suppose to be the ordinary English export coal, and all coal deteriorates much from exposure to the atmosphere and high temperature; yet from the tables of consumption of coal, and production of gas, appended to Report 65 of the 4th December 1865, and after deducting the full bulk of the oil gas due to the oil used, (though this is not exactly correct,) I find the quantity of gas per ton of coal to exceed 9,000 cubic feet, which is much beyond what should be drawn from such coal as I suppose to be used: and would fully account for the poverty, low specific gravity, and want of illuminating power, which necessitates the admixture of oil gas.

14. The distillation should not be carried beyond five or six hours, at a cherry red-heat, after this the specific gravity rapidly diminishes, and little else but hydrogen and other light gases with little illuminating power pass over; by continuing the distillation to ten and twelve hours the bulk of gas goes on increasing, but at the complete sacrifice of the illuminating power. Oil at Madras is very expensive, and I would strongly advise the discontinuance of its use, and the improvement of the quality of the gas, by a distillation not exceeding six hours, and by the use of a superior gas coal, imported for the purpose.

15. I attach a statement of the prices and quantities of gas coal, showing the yield of gas per ton and the specific gravity, and I need hardly state that the specific gravity of the gas is the best index of the illuminating power. I would recommend the importation of one of the moderately priced Cannel coals, such as the Wigan, Capledray, or Lothian, at about £1-0-8 per ton, and including freight it should be delivered at Madras at about Rupees 32 to 34 a ton, and it must be borne in mind, that the freight of the most inferior coal and the finest gas coal is the same, so that it is bad economy to use an inferior coal.

16. From such Cannel coal as I recommend, a rich gas requiring no addition of oil gas, would be produced, and with Fish Tail or Union burners, consuming from 2 to 2½ cubic feet of gas per hour, yield a full and satisfactory light.

17. In the Reports and statements furnished, there is a difficulty in arriving at any conclusions regarding the results attained and anticipated: as comparisons are made by lights, without defining what a light means. The usual comparison is by the standard sperm candle, and lights are stated to be equal to so many of these as tested by the Photometer, and hence a comparison is possible.

18. It is stated in one Report that the consumption of mixed gas in a burner in the men's Barracks for twelve hours was 8 cubic feet, and it is difficult to estimate what the light could have been: even with pure oil gas 1 to 1½ cubic feet per hour is required to produce a fair light; but of the mixed gas 3 cubic feet per hour must give a light totally inadequate to the purpose. I find from the statements of the expenditure, that the cost of the mixed gas is Rupees 9-1-9 per 1,000 cubic feet, and that the waste by condensation, leakage, &c., was 11-2 per cent.; the cost of the oil gas was Rupees 32-10-9 per 1,000, and the waste 18-86 per cent. The yield from the oil about 100 cubic feet per gallon is a very good result. The usual allowance for waste is 15 per cent., so that the result in the mixed gases is very good. With good Cannel coal at 34 Rupees a ton, and so that the result in the mixed gases is very good. (allowing for deterioration from climate and exposure) only 10,000 cubic feet of gas per producing (allowing for deterioration from climate and exposure) only 10,000 cubic feet of gas per ton (according to the rate of wages given for the mixed gas) the cost per 1,000 cubic feet should not exceed Rupees 7, and 2 cubic feet of such gas per hour should give a light with a No. 2 Fish Tail burner equal to fourteen or fifteen standard candles.

Distribution.

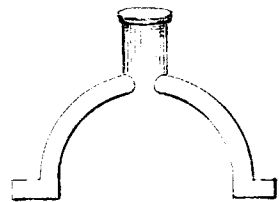
• Marked A.

19. The mains in many places appear larger than necessary. I attach a rough tracing* of what I would propose, which, while securing efficiency, will much reduce the cost.

20. I would add that wrought-iron pipes, if possible, should not be used under ground, except for the actual connexions of the building with the main; and for all detached single, or lights up to ten, cast-iron 1 inch pipe should be used. The wrought-iron pipe corroding rapidly under ground.

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

21. The introduction of junction pieces in the mains for ordinary service pipes seems unnecessary. The usual practice is when the service is of moderate size and the main also, say 1 inch service,



on a 4 inch main, the service is simply screwed into the main; where the main is small compared with the service, a saddle is used, that is a socket for the branch or service is cast in a half round piece of metal to fit the main (a strap securing it to the main with screw bolts and is fitted on with red-lead, and then the main bored and the service secured in the usual way: this is more convenient, and saves much expense in inserting junction pieces, which may be never used,

and are often found when required not to be in the place where wanted. The service pipes appear in some cases unnecessarily large, and several laid to one building, in general one pipe to each building is sufficient. A wrought-iron service pipe of $1\frac{1}{2}$ diameter will supply lights consuming 150 cubic feet per hour; $1\frac{1}{4}$ inch, 100 cubic feet; 1 inch, 60 cubic feet; $\frac{3}{4}$ inch, 40 cubic feet; and $\frac{1}{2}$ inch, 25 cubic feet; and this is on the most liberal scale and allowing for considerable distances, and in ordinary cases an addition to these quantities may be made. But I will notice this subject further, under the head of interior fittings. Cocks or mains are seldom used above $1\frac{1}{2}$ inches, above that dimension either hydraulic or slide valves are used. The hydraulic valve, it is almost needless to remark, is a rod passing through a stuffing box, and raising or lowering a cup containing liquid which closes or unseals the mouth of the pipe, or the case is reversed and the liquid is in the fixed vessel, and the cup or chamber is raised or depressed in it, and opens or closes the communication between the pipes. The slides are of the ordinary construction and worked by screws. The masonry cess pools provided are supposed to be in lieu of syphons, it is feared there would be much leakage in the masonry, and the number seems unnecessarily large; the ordinary cast-iron syphons are quite cheap and are preferable; one at each change of gradient is sufficient, they are fitted with an emptying pipe, covered with a hinge trap of cast-iron. In many cases a governor would be necessary, but in Fort St. George there is so little change of level, that I don't think one is required.

Interior Fittings.

22. The first remark I have to make on this head is regarding the use of copper pipes and fittings, it is remarked by Drs. Edmund Renaldi and Thomas Richardson in their work on the application of Chemistry to the Arts, "Copper pipes are dangerous on account of the production of a peculiar pulverulent deposit formed by a combination of the metal with some of the ingredients of the gas which takes fire spontaneously in the air."

23. By War Office Regulations all interior pipes should be of wrought-iron, and this should not, I think, be deviated from in India, except in small connecting pipes of short length, in the roofs, entirely out of reach of injury, and in this case tin and not composition pipe should be used, as much more safe and lasting. All cocks and small fittings should be of brass, they can be obtained much cheaper at Home than in India. The arrangements at Madras, as far as can be gathered from the Reports sent, differ from that in the Punjab, &c. It appears that at Madras, in the men's Barracks, the lights are all burned throughout the night.

24. Her Majesty's Regulations provide for all lights being extinguished in quarters occupied by the men and families at Tattoo Roll-call, and in family quarters only one light is allowed. In India it appears necessary for many reasons that a light should be burned in each ward of the men's Barracks during the night, but it is certainly unnecessary that more than one should be so burned, and is decidedly objectionable as increasing the heat in buildings already overheated, nor does it seem necessary in married quarters, if allowed it should only be a burner turned down to the lowest, and consuming say $\frac{1}{2}$ a cubic foot of gas per hour.

25. The allowance of gas for Barracks, by Her Majesty's Regulations, is 1 cubic foot of gas per 1,000 cubic feet of space, in burners consuming 5 cubic feet each burner per hour; this

*Proceedings of the Madras Government, Revenue Department,
17th September 1867.*

4. It is, however, to be observed, for the information of Marriage Registrars generally, that official letters and packets exclusively on Her Majesty's service, addressed to Privileged Offices by Marriage Registrars and Ministers of Religion appointed under the provisions of the Legislative enactments for the purpose of solemnizing marriages, do not require postage labels. In addressing such letters to a privileged office, such as that of the Chief Secretary, the full signature and official designation of the person by whom such letters are despatched must be endorsed on the cover, with the words "on Her Majesty's Service only," together with the official designation of the person to whom the cover is addressed.

No. 302. ORDER THEREON, 17th September 1867, No. 2,186.

Miscellaneous

1. Ordered that the question raised as to the liability to License tax, under Act XXI of 1867, of Mission Schoolmasters, and Mission Presses established solely for Mission purposes, be referred for the decision of the Government of India.

2. The point has not been ruled here by Government, as supposed.

(True Extract.)

[Signature]
Secretary to Government.

To the Public Department.
,, the Ecclesiastical Department.

And S. T. Augustin.

