

Capt C. H. Studding
Annapolis

28 Broadway New York
12th July 1853.

Dear Sir. We have been delayed longer than we anticipated in our estimate for your Gas & Steam apparatus, having found it necessary to collect certain parts and details from various quarters where we have executed works of similar character.

In reply to your letter (not this moment at hand) suggesting that the difference in the cost of coal and resin gas works may prevent your contracting for coal works we have to remark that we have at various times had occasion to look at the relative first cost of coal and resin works, and of producing coal and resin gas. Until recently we have decided in favor of resin for such small work as we have usually undertaken. Say for two to three hundred lights - Our impression has been, that that resin was the cheaper material, or that resin gas ought from the nature of things to be made with less skill or labor than coal gas, but, that from the comparative novelty of gas lighting in this country, and the mystery attached especially to coal gas, there had been a want of adaptation of coal gas works and pumps to small establishments.

Resin gas apparatus from its reputed simplicity, compactness, and easy management had become generally recognized as the most suitable for producing the "home made article". And was

therefore likely in most cases to prove satisfactory.

Within the last year however we have examined this subject pretty closely. Having found that in several coal works recently built for lighting small towns, less skill and labor were required in their management, than in our best resin works, we became fully satisfied, that if any obstacles existed to the reduction of coal works to the smallest scale now deemed practicable for resin or oil they were only such as could be readily removed. Late in the season we rec'd an order for a resin apparatus for 200 lights - but on our representations the proprietors concluded to try a coal apparatus, which we have since completed. We have not heard from it, but at the close of the season we shall no doubt be able to furnish you with every particular in reference to its working, economy &c. In this case the difference of cost was about 20¢ in the gas making portion of the work, and probably not over 5¢ in the whole cost.

It may be well to say here that whatever excess of cost there may be, is confined to the Retorts, which are larger, the Purifiers, which are not required for resin gas, and some enlargement of the Gasholder - Per contra - resin retorts though smaller are more complicated, and have several parts, joints, etc not belonging to coal retorts. Besides a troublesome appendage called a "melting box", and another called a "cooler" which must be kept supplied with running water, by which for feeding which require constant attendance &c.

The "condenser", not a small item, is common to both. As we have already stated, the cost of labor and attendance

is in favor of coal. and coal is the cheaper material

Summing up and comparing the various items just mentioned, we find that by substituting Rusin works for coal in our estimate enclosed, a saving can be effected of about \$400.00. The estimate now stands thus - Retorts, Cradles, Wash, Pumps, Tanks and Gas holder complete 3598.00 - Mains, Pipes, fittings & outside the works 4402.00 For Rusin works it would stand - Inside the works 3198.00 Outside the works as before 4402.00 - together 7600.00

Our estimate embraces as many and minute details as are usual or necessary. - If further particulars are wanted in explanation, we shall of course be most happy to give them.

The estimate for Steam Apparatus, which has been prepared in detail, includes the whole range of buildings from the Laboratories to the Chapel, Steam Wash room, and drying room, Tanks for hot and cold water for the use of the wash room and bathing rooms, &c. and amounts to £10.500. which sum may be somewhat modified by changes in the boilers in the washing and bathing department, and in the mode of conveying steam to the buildings. but we consider it large enough to meet every contingency. In view of the extraordinary distance through which steam has to be carried to reach the most distant point it may be questioned whether each of the buildings may not be more economically fitted up and warmed by a separate hot water apparatus with pipes led through the rooms.

We have not as you will notice, included in either

of these estimates the cost of buildings. We have
however, prepared a plan, and will send forward the
estimate as soon as we get it ready. We are by no means
desirous of including the buildings in a contract, and should
feel quite as well satisfied to furnish plans, and leave this
portion of the work with you.

We have also omitted an estimate of the
cost of fitting up bathing rooms. This (with the exception
of the hot water supply which we have provided) is entirely
carpenter's and plumbers work, and we are obliged to call
on other parties. As soon as we get the needed information
we will write you.

Respectfully Yours

Walworth & Mason.