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Gas and Gas Meters.

OFFICE PHILADELPHIA GAS WORKS,
March 13, 1858.

Mr. Editor—Will you allow me space for some remarks upon a subject of interest to householders and others, which is just now exciting much public attention. I allude to the complaints against gas meters that pervade the public prints, very much in the manner of an epidemic.

The prevailing condemnation of these useful instruments had its recent origin in the revelations of a meter maker in New York, who seems to have a desire to atone for his previous dishonest practices by a public confession of them.

Whether frauds be owing to, are real or imaginary, is unknown to me, as the Philadelphia Gas Works have never had any dealings with him; they having with extreme caution refused to buy meters from any manufacturers whose work could not be shown to be accurate and reliable. As it was naturally to be expected, that doubts and suspicions would occasionally arise with respect to the correctness of the measurement of gas by the meters, precautions were taken at an early period in the history of these works to ascertain and establish by clear evidence the proper accuracy of every meter before putting it in use.

These records are preserved at the gas works, and show the character of each meter that has been proved during the past fourteen years, amounting to more than fifteen thousand. The rule of proof is to reject every meter that varies in the slightest degree from the prescribed limits of correct measurement, and the records will show that the average deviation of the whole number accepted for use is within a very minute fraction of absolute accuracy.

The former of these causes of error is believed to be effectually avoided by the system of proof adopted at these works; and as a precaution against the latter cause of error, all the meters in use are examined and tested at frequent intervals by the inspectors, who are carefully trained to their duties, and instructed to keep them as nearly as possible in the proper condition for correct measurement of the gas.

But the inquiry naturally arises, how can it happen if the meters are so correct, that complaints are so frequently made of the irregularity of the amount of gas bills? This inquiry has engaged the attention of the officers of the gas works for many years, who, with an earnest desire of ascertaining the truth, have patiently investigated the subject. The results of these investigations show that the complaints arise from various different causes.

The number of gas bills issued from the offices of the Philadelphia Gas Works, is over 8000 per month, or about 100,000 a year. With respect to the greater part of these, say about 98 per cent., there is no complaint, nor, as is believed, is there any just cause for complaint.

Of the complaints made, some are found to be without any reasonable cause, having their origin in the peculiar disposition of the individual. Many of them, however, arise from real causes, which are of various kinds. Some cases are isolated, others are common to particular localities, or particular seasons of the year. For example, the bills rendered in February, March and April, are usually the heaviest of the year, and give rise to the most frequent dissatisfaction to persons who, on the approach of spring, forget the length of midwinter evenings. Again, in a dull business season, many stores and factories cease to light up at night, and the diminished draught on the local mains causes an increase of local pressure, whereby the gas bills of the immediate neighborhood are unexpectedly augmented.

The latter mode is preferable, as it is not subject to change by the meter inspector, whose operations require him to turn the stop at the meter, who cannot always restore it to the desired position, though his instructions are to do so as nearly as practicable.

The effect of lighting up a lofty building is to check greatly the flow of gas into adjacent houses of less elevation, in the same manner as a hydrant let run in the yard of a house will stop the supply of water to the bath room, in an upper story. The tendency of gas being to flow out of the highest opening as that of water is to issue at the lowest. The isolated cases are of two kinds, one in which there is a sudden increase in a particular bill, and the other showing a gradual and continued increase during many months, or even years.

The former sometimes arises from an additional number of burners, whose existence is forgotten; sometimes from an unknown use of light by a member of the family; sometimes from an undiscovered leakage of the fitting, and occasionally from an error in taking the state of the meter at that or the previous quarter. The latter cases are easily disposed of by a correction of the bill as soon as the error is discovered, but they are of rare occurrence—their average being less than one in a thousand.

The cases of gradual and continued increase of the bills generally arise from the gradual enlargement of the burners, either designedly or by the chemical and mechanical action of the burning gas. The increased consumption of gas thus produced is not usually accompanied by a corresponding increase of light, and the small additional light obtained is generally unheeded, probably on the same physical principle that makes persons unconscious of the increased craving for and use of most artificial indulgences.

The proper remedy for these cases is the removal of the old burners and substitution of new ones of the proper size. In doing this, it will be most prudent to obtain them from some established gas fitter, and not from itinerants who haunt the houses of citizens to delude them by specious promises of great saving from buying their burners and their advice. In dealing with these people the citizen is almost sure of being deceived without chance of remedy.

The general regularity of the record of the meters in this city, in cases where the circumstances under which they are used are unchanged, becomes very evident on examining the office registry of the bills for successive years. Two series of these records for different localities, not affected by the vicinity of large stores or factories, show the following results. Twenty bills taken indiscriminately of houses in the Thirteenth Ward amounted in March, 1857, to \$242.15, and in March, 1858, to \$229.53; the difference \$12.62, being five per cent. less this year than last. Twenty bills taken in like manner, in the Eighth and Ninth Wards, amounted in March, 1857, to \$398.75, and in March, 1858, to \$398.07; the difference being 68 cents, or less than one-fifth of one per cent.

JOHN C. CHESSON, Engineer P. G. W.

Breaking Ground for the New Grand Reservoir.

FIRST SPADEFUL OF EARTH TURNED BY MYNDEBT VAN SCHAIK—ADDRESSES BY HON. LUTHER R. MARSH, MYNDEBT VAN SCHAIK, MAYOR TIEMANN AND OTHERS.

The Court having decided, after a lengthy investigation of nearly a year, that Messrs. Fairchild, Coleman, Walker and Brown were the lowest formal bidders for the contract for building the new grand reservoir in Eighty-sixth street, the work of breaking ground was commenced on Saturday last. Some idea of the magnitude of the work may be conceived from the fact that it will cover one hundred and six acres of ground in the Central Park; will hold, when finished, 1,029,880,145 gallons of water; and will cost \$632,433 33. The contractors—Fairchild, Coleman, Walker and Brown—were the next lowest bidders to Bismore & Wood, whose bid was \$614,298 97, which was thrown out on account of some illegality in the form of the sureties.

MYNDEBT VAN SCHAIK, the venerable President of the Croton Board, addressed the assemblage and said—We are assembled to-day to perform a primitive and simple work—that of putting a spade in the ground. It is indicative of the construction of a large work, perhaps of the greatest domestic lake in the world, for the purpose for which it is intended. I am very sorry that his Honor the Mayor is unable to be present. I congratulate the members belonging to the Common Council that this day has arrived, and I feel thankful to them for giving us their countenance. I respectfully invite gentlemen, who may be inclined to speak upon this occasion, to offer their sentiments at the proper opportunity. An arrangement was made with the Commissioners of the Central Park for the purpose of procuring for the aqueduct the best ground that could be obtained, by altering the rectangular line of that which was purchased by the Corporation for the reservoir into the form of a lake. It has been called the Lake of Manhattan, after an old Indian name. The reservoir will contain 122,035,966 cubic feet of water, which is equal to 1,029,880,145 New York standard gallons. Our present supply from the two reservoirs would be, if they were ever full, 222,500,000 New York standard gallons, making an aggregate of 1,252,000,000, provided they are ever filled to the top water line. Of late that has not been the case with our reservoir. It has been found that when the supply will last for only five or six days. That fact shows conclusively that the public authorities of the city have delayed to build this reservoir as long as it was possible to do so with impunity. When the reservoir shall be constructed, we think that the consumption of the city will extend to 46,000,000 gallons every twenty-four hours. That rate of consumption would give a supply of thirty-one days. It is a subject of great congratulation that we have obtained the ability to construct a reservoir which will protect the city to that extent. A survey of the stream, lakes, and ponds which lie at the headwaters of the Croton is being made, for the purpose of forming dams at the proper places, to collect water, which is to be thrown into the running stream; but it

will become necessary to shut off the supply. In respect to the city, the alterations which are necessary on the High Bridge will be made in time to bring over the whole quantity of water which the aqueduct can carry, and that has been estimated to be 60,000,000 gallons—it may possibly bring more in reality. I think, now that after ten years, or nearly ten years' struggle with this question, we may consider the city as having obtained, when this reservoir shall be completed, and all the water flowing into it, sufficient security to be relied upon for thirty-one days, should any disaster happen to the aqueduct of an unusual character, to suspend the running supply for that period of time or longer. The calculations of the progress of this city in population and wealth, and the circumstances of its connection with foreign cities, and its connection with the interior of the country and its productiveness, lead the mind to suppose that the city of New York will eventually contain a vast population. When that time arrives I have no doubt that it will be indispensable to construct another aqueduct, to go as far up the Hudson river as it is possible to go to procure fresh water for the purpose of obtaining a supply. If we lived in a country subjected to earthquakes, where the convulsions of nature might suspend the supply in the present aqueduct for a longer time than usual, we should say that the city would not be safe without another aqueduct as remote from the present as in the nature of circumstances would be expedient. It is not possible to calculate with any certainty when this great work will be completed, but I presume within three years. We shall then probably have a population of 800,000 people; in the course of twenty or thirty years that will be doubled, and you may go on calculating the increase of the city in its business, in its manufactures in metals, in other productions, in the extension of its commerce, and its connection with foreign nations, to an almost unlimited period, until the mind almost starts to look at it. If we should have a population of four, five, or even six millions, that would not exceed the expectations of those who decided between the Bronx river, the Rye Pond and Croton river in 1832. I have invited every member of that Corporation to be present at this scene of exultation.

Here Mr. VAN SCHAIK read a letter from Henry Meigs regretting his inability to be present, and referring to the new reservoir in terms of enthusiasm. Mr. Meigs was President of the Board of Aldermen in 1832. Mr. Van Schaick said he had also invited Alderman James B. Murray, James R. Whiting, Assistant Alderman Peter S. Taus, Alderman Backs and Alderman Monroe, some of whom were present and others had sent letters.

GOVERNOR ISAAC P. TOWNSEND presented a letter from Mayor Tiemann, who was unable to attend. It was read by Mr. Van Schaick amid much applause.

Mr. LUTHER R. MARSH was then called upon to respond on behalf of the contractors, which he did in a neat, eloquent, poetical, flowery and witty speech, concluding by presenting to Mr. Van Schaick a shovel, on behalf of the contractors, which bore the following inscription:—

Presented by the Contractors of the New Reservoir to MYNDEBT VAN SCHAIK, President of the Croton Aqueduct Department, New York, April 17, 1858.

Mr. MARSH hoped the President would show them that he knew how to use the shovel, and without any ceremony Mr. Van Schaick jumped down and soon filled a wheelbarrow with fresh earth. Mr. A. W. Craven, the Engineer of the Croton Board, had the honor of wheeling the soil away, and simultaneously the workmen on the Central Park, as if by design, let off a dozen blasts with the precision of a military salute, in honor of the commencement of the important work.

The company then adjourned to the office of the reservoir, near by, where the contractors had provided some timely refreshment for the inner man, to which the most ample justice was done. Here Alderman J. B. Murray, of the Common Council of 1852, made his appearance, and was called upon to make some remarks, which he did, briefly. He entertained them with some interesting reminiscences of the Common Council of '52, and of the reasons which operated to secure the choice of the Croton river. He was followed by Justice Brownell, who gave some recollections of the old Fly Market and other New York scenes of his childhood, after which the company separated. The reservoir will be built east of the old reservoir in the Central Park, in the form of a natural lake. The well known reputation of the contractors is a sufficient guaranty for the prompt and faithful performance of the contract.

Coroner's Inquest.

Also, a report, with a resolution, accepting the proposals of E. J. Etting & Brother, for furnishing the best quality refined soft pig lead and iron pipes and branches; John Collins, for the first quality gasfitting; Stileman, Ellis & Co., for iron castings, stop cocks and fire plugs; and David S. Sayer, for brass castings for the City Water Works. Adopted.

The prices are as follows:—Soft pig lead 7 1/2 cents per pound; gasketing 9 1/2; best iron castings 2 1/2 cents; iron pipes and branches, 3 inches, 24 cents, 4 inches, 35, 6 inches, 56, 8 inches 75, 10 inches, 95, 12 inches, \$112 1/2, 16 inches \$192, 18 inches at \$218 per foot, and branches at \$44 per ton of 2240 pounds; brass castings, first quality, 2 1/2 cents per pound; stop cocks and fire plugs, best quality and fit, 3 inches, \$17, 4 inches, \$20, 6 inches, \$30, 8 inches, \$39, 10 inches, \$51, 12 inches, \$60, 16 inches, \$110 each, and fire plugs at \$12 each.

Common Council informed Select Council.

HYDRANT—John Parham, of Philadelphia, Pa., and S. P. Parham, of Trenton, N. J.: We claim the peculiarly combined arrangement for a fire plug or street hydrant, consisting of the case or cylinder, A, of the plug or hydrant, which has its valve seat, B, on a level with the bottom of the waste passage, N, so that the whole of the waste water may discharge, and its main or supply pipe, P, a short distance above the lower end of the cylinder, so that the valve, F, may be let down below out of the way of the free passage of the water, and the hollow revolving but not rising and falling female nut, J, K, which is made to operate the screw rod of the supply valve, so as to force it down into the reception chamber, O, below the supply pipe, B, and the waste valve, M, n, which is coupled loosely and peculiarly to the main valve rod, a, and fast to a spring, e, so as to be held closed when the main valve is opened, and opened, when it is shut, all substantially as and for the purpose set forth.

[The object of this invention is to prevent the water being obstructed by the valve and foreign substances which the water may contain when the valve is open and the water is passing up through the main pipe into the plug cylinder. The invention is also designed to facilitate the moving or operating the valve and frost rods. It forms a very good hydrant, one that will not freeze, and is easily operated.]