Water Works.

A few weeks since, J. Ball, Esq., of Jersey City, a gentlemen eminent in his profession, that of Hydraulics and Mechanics, and the representative of one of the most responsible and successful companies we have in this country, for establishing Water Works for supplying cities and towns, was induced by one of our citizens to visit Columbus, and to make a survey and critical examination, preparatory to a report in detail, as to the practicability, and the true cost of such works as would afford a bountiful supply of water to the entire city for all purposes, leaving, of course, the source and quality to be determined by a more critical examination. It will nevertheless be observed that, this gentleman in his report, has directed public attention for a supply to the falls of the Whetstone, a few miles north of the city, and from that point or data, the estimate is made.

It is due to Mr. B., to state, that not so much on his judgment was the point mentioned in his report chosen—although in his mind it is highly estimated—as upon the concurrent testimony, relative to supply, for eighteen years past, of the entire neighborhood. The piping proposed, the capacity of which, in view of future supply is—and rightly so—a matter of great importance. In this estimate we have to say that sixty thousand population are provided for.

It is also proper to say that among the items suggested for this estimate, two fountains, each half the diameter of the one mentioned for the public square, were included, one each side of the west avenue or entrance to the Capitol.

The following is the report which, upon revision, will be presented to the City Council for consideration:

GENTLEMEN — The undersigned hereby submit for your consideration the following plan for the supply of your city with water.

In the construction of such works, regard should be had not only to the present population, but to the future increase and prospective consumption of the element. The first consideration should be an abundant supply, and also that the water should be introduced into the distribution entirely free from substances that render it turbid and impure; while another important object is to obtain a strong, permanent, and effective head, to render it efficient and available for the extinguishment of fires, for fountains, &c.

This plan is based upon the presumption that the Whetstone river will furnish an adequate supply, as to quantity, and that all the desirable attributes of a good work will be obtained, by executing this design in a faithful and workmanlike manner. Other sources of supply may be developed by a careful examination, yet we think that they must present very strong inducements, either in the reduction of the cost or in the purity and softness of the water, in order to render it an object to forego the simple and desirable features of this arrangement.

It is a common thing in the first construction of such works — through a desire to economize, or ignorance of the practical working of the same (which is soon developed)—that the distribution is at fault, by using pipes of too small diameter to give proper efficiency over the city for fires. Hence, in most public works of this kind, a necessity soon arises for the laying additional mains to bring a sufficient free flow of water for the purposes desired, in doing which a very great expense is incurred beyond the proper cost. But worse than that, the connection of the additional mains to the general distribution, cannot but derange their symmetrical proportions. These difficulties are carefully avoided in our plan.

We give below a short description of the items embraced in the construction and execution of the whole work.

First. We provide by the purchase of the water power on the Whetstone river, and ten acres of land, including the grist and saw mills, on which we construct the dam and erect a brick building of ample size for the accommodation of a wheel and pump, that will discharge two million two hundred thousand gallons of water in twenty-four hours into a reservoir hereafter described, while the water in the river is sufficient for driving the wheel; and also a steam engine, of plain, strong workmanship, that will perform the same service in twelve hours.

Second. We purchase ten or twelve acres of land located about two thousand feet east of North Columbus, on which to construct a reservoir. We should form it of earth embankment, with the bottom and sides rendered impermeable in the usual way by puddling; while to render the water pure, we should divide the reservoir into two compartments. The area of water would be eight acres, and would contain at twelve feet depth, over thirty-one million gallons. To clean the water more effectually by settling and filtration, we should construct the reservoir in a square form, dividing it east and west, and construct a filter at the east end of the division, through which the water would pass into the second compartment for distribution. Both the settling and distributing divisions woul be provided with means to draw the water from them for cleansing, for which purpose they would be governed by stop-cocks or gates.

Third. It would require thirty-three hundred feet of pipe, of eighteen inches in diameter, to render the working of the pump easy, as a rising main, from the pump into the north west corner of the reservoir. The lift of water, as ascertained by your engineer, Mr. FISHER, would be about one hundred and twenty feet.

Fourth. It would require about twenty thousand and seven hundred feet of pipe, of twenty inches diameter, to be laid from the reservoir to the intersection of Broad and High streets in the city, and from Broad street to Friend, an eighteen inch pipe, to the south line of your city. At the intersection of State street with High, you will have an effective head of over one hundred feet and an average of more than thirty feet over the average of the Croton in New York.

Fifth. It would require of lateral pipes as follows: (See your map.) It is proper here to remark that your engineer, being acquainted with your localities, marked for us the general out bounds of your population on the streets, from which, by the scale on your map, we have arrived at the length of pipe in our estimate. When the work is completed the chain corrects all discrepancies, and an adjustment of the total amount is at once arrived at. We have apportioned to the streets north and south to Front, Third, Fourth, Fifth, Sixth, Seventh, and Washington avenue, a six inch pipe. Also, east and west to North, Spring, Long, Gay, Broad, State, Town, Rich, Friend, Mound, and South streets, a six inch pipe; except Broad, from High to Fifth: State, from High to Fourth; Town, from High to Fifth; Rich from High to Seventh, and Friend from High to Seventh street, which should be an eight inch pipe Your narrow streets, or alleys, will be well supplied by a four inch pipe, and are important as a source of revenue, the per centage of profits being greater in proportion to the cost than the larger streets. With the pipe, we have estimated the expense of branches at all street crossings, which forms the whole institution into a systematic net work, thereby giving a perfect flow and circulation to the water throughout the city, and renders every connection with the main pipe tributary to all others. We also include all branches for the fire hydrants.

Sixth. It will require some thirty miles of trench, of a width proper for the size of the pipe to be laid in it, and of depth so as to bring the top of the pipe four feet below the surface of the street. Also the bank filling, so as to leave the streets in good repair.

Seventh. We estimate for one hundred fire hydrants, of Ayres' patent. We believe them to be the most useful and serviceable used.

Eighth. It will require two hundred stop-cocks, from the size of four inches up to twenty, to be boxed, and with cast iron covers on the level of the street, to divide the town into districts, so that a section only shall be closed at one time for future extensions or repairs.

Ninth. We propose to build a fountain of eighty feet diameter in the State House Square, to be designed in a neat style, and constructed of cut stone — to correspond in material and workmanship, with the State House, (or to be located where you shall designate,) and furnish the same with appropriate center designs.

Tenth. All freights and cartages. (The freight is a large item.)

We think from the above short, condensed description, that you will be able to form a correct conclusion in the matter we present before you.

The amount of distribution comprises the whole of your city. In Cleveland, less than one half of the streets were supplied under the first contract, and in Buffalo less than two fifths. We would like to have you become acquainted, through their reports, with the cost, and all the circumstances attending them.

By far the greatest proportion of the cost of such a work, is in the machinery, reservoir and mains, from which very little revenue can be derived; while if the works are constructed with a proper regard to the distribution of the water to the people, and the money economically expended, the investment will be a profitable one, aside from the great public benefits derived from it.

The whole amount of pipe indicated above, of the various sizes, is one hundred and fifty-eight thousand eight hundred feet, (158,800) or thirty miles and a fraction, as follows, viz:

Of 20 inch pipe	.....	20,700 feet.
Of 18 " "	.....	5,490 "
Of 12 " "	.....	1,600 "
Of 8 " "	.....	10,300 "
Of 6 " "	.....	60,800 "
Of 4 " "	.....	60,000 "

We propose to furnish all the materials and labor, and execute the whole in a prompt and workmanlike manner, for the sum of two hundred and seventy-five thousand dollars, and guarantee the whole for the term of two years from the introduction of the water.

We would invite the appointment of a responsible commission of your citizens to visit with us a large number of works of our construction, and ascertain the character of our work, and our reliability as designers and constructors. We will also propose that if a further examination with reference to a source of supply should be deemed expedient, we should be happy to join you in such examination, and estimate upon the work as the arrangement should be changed.