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**The Composition of our Hydrant Water.**

The following report was presented to the Directors of the Water Co. on Wednesday:

STATE LABORATORY,  
TRENTON, Oct. 20, 1855.

Mr. Silliman, Dear Sir:—After many unavoidable delays and interruptions, I have at last been able to complete the water analyses with which I was charged by you some weeks ago, and beg leave in the following brief report to lay before you the results.

The water of the Delaware which was submitted to analysis, was collected from the river on the 11th day of September last, at a spot opposite the pump house of the Water Works, and immediately over the grating through which the water is drawn to supply the reservoir. A specimen was also obtained upon the same day, of the water in the reservoir, for the purpose of comparing the proportion of foreign ingredients in the reservoir water, with that in the river water. The spring water analysed was obtained some days later, from one of the tanks from which the city was formerly supplied, in the rear of the residence of Mr. Closson.

The proportion of solid matter found in the several waters was as follows:

- Grains.
- In one gallon of Delaware water, 3.5346
- In one gallon of the reservoir water, 3.3555
- In one gallon of the spring water, 3.6077

For convenience of comparison, I will here quote the results of Professor B. Silliman, Jr., obtained some years ago with the Croton and Schuylkill waters.\*

- Solid matter found by Prof. Silliman:
- Grains.
- In one gallon of Croton water, 10.93
- In one gallon of Schuylkill water, 5.50

The most remarkable thing about these results is that notwithstanding the quantity of sand, mud, and other sediment which is suspended in the river water, so much as to injure the pumps, and which must be in great measure deposited and separated from the water in the reservoir, the latter, nevertheless, actually contains more solid matter than the river water itself. This can only be accounted for by the favorable conditions presented in the reservoir for the growth of minute animals and plants, whose remains add of course to the weight of the solid residue obtained on evaporation. My pupil, Mr. Howland Bill, has at my request submitted the water in the reservoir, and the deposit formed at the bottom, to a microscopic examination, and reports to me that he finds in the water several varieties of animalcules and lichens or minute plants, and that the sediment especially is almost wholly composed of forests of minute plants through which roam herds of such animals as *Volvox globator*, or "globejelly," *Volvox angus*, or "goose animalcule," and several species of *Bacillaria* and *Navicula*. On the surface of the water he found a slight green scum, which when magnified resolved itself into collections of the *Cercaria mutabilis*, an animal production characteristic of stagnant water. Numerous large green water weeds may also be seen floating in the reservoir.

Recurring to the results given above, it may also be remarked that the river water is really somewhat less charged with foreign ingredients than that of the springs, although the latter is so much more pleasant to persons possessing delicate organs of taste. This probably arises from the fact that the principal mineral ingredient in spring water, as shown by the analysis, is *chloride of sodium* or common salt, while the river water is principally contaminated with carbonates of lime, magnesia, potash, etc., which give water a bitter taste.

The analyses will be found below in a complete form and arranged so as to admit of a comparison between the composition of the river and the springs.

RIVER.		SPRINGS.	
Grains in one gallon of 58.372 grains.			
Whole solid matter found,	3.534581		3.607750
Carbonate of lime,	1.300000		
Carbonate of magnesia,	.892722		
Carbonate of potash,	.172471		
Chloride of sodium,	1.063334		1.021225
Chloride of potassium,	.012190		
Sulphate of lime,	.185847		.009233
Phosphate of lime,	.142338		.144659
Silica,	.497587		.755894
Sesquioxide of iron, with trace of alumina,	.027453		.126778
In combination with the silicic acid,			.277662
Magnesia,			.355620
Potash,			.493059
Soda,			.173518
Oxide of manganese,	trace.		
Carbonic acid,			trace.
Organic matter containing ammonia,	.634852		.558342
Specific gravity,	1.00071		.99972
The specific gravity of the Reservoir water was	1.00064		

On comparison of this analysis of the waters of the Delaware with other analyses of river waters, the fact is rendered apparent that few rivers exist whose waters are so free from impurity. All causes of complaint which have arisen are due to the improper mode of storing the water for use. Open reservoirs, in which the water is kept standing for several days to stagnate in the heat of the sun, are perfect hotbeds for the growth of animal and vegetable life. Finding every necessary requisite to their germination, light, heat, and an unlimited supply of fertilising mineral substances, phosphates, sulphates, carbonates and silicates of lime, potash, ammonia, etc., infinite numbers of minute seeds spring forth into growing plants, which in their turn furnish nourishment to innumerable swarms of living animals engendered from their embryos pre-existent in the water. The breeding of these microscopic creatures, under favorable circumstances, is so rapid that in a very few hours the water will become alive with them. It was to one of these animals, a species of *Cyclops*, that the so-called "fishy" taste and smell of the reservoir water which has at two or three periods been found so annoying, was due.

I have here a simple plan to suggest, which has occurred to me in considering this matter, and which, if adopted, would undoubtedly prevent all difficulty in all future time. It is to floor over the reservoir. Keep the water stored in the dark. Deprive the organic germs of the light and heat of the sun, which constitute their means of life, and they will cease to germinate. The water being kept in a cool, dark place, will always be cool and pleasant.

I am, Sir, very respectfully,  
HENRY WURTZ,  
N. J. State Chemist, etc.

\*Silliman's Journal, II, 2,221.

**EVENING BULLETIN.**

TUESDAY, JUNE 17, 1856.

**St. Peter's Church.**

The re-painting of the spire of St. Peter's Church, at the corner of Third and Pine streets, and the taking down of the gilt cross with which it was surmounted, for the purpose of having it re-gilt, has excited considerable attention within a few days, and given rise to various discussions concerning the height of the spire, the dimensions of the cross, the weight of the bells, &c., &c. We have collected together a variety of facts relating to these interesting objects and to the church itself, which we are persuaded will possess considerable interest to the majority of our readers.

St. Peter's Church was founded in 1758 as a "Chapel of Ease" to Christ Church, and cost at that time the sum of \$3,310. The ground considered of much value at that early period in the history of the city, and the Penn family, by whom it was donated to the church, made no great sacrifice in the bestowal of the gift. The church, in the early days of the city, was known as "the church on the hill," from the fact that it was in the region of "Society Hill." It was, in fact, considered out of town until after the period of the Revolution. In September, 1761, the church edifice was declared finished, and in that month the clergy met at Christ Church, and, with the wardens and vestry, they proceeded to the Governor's house, where they were joined by his excellency and some of the Council, and the entire party proceeded in high state to the new church, where they were edified by a sermon by Doctor Smith, the Provost of the College, from the text, "I have surely built thee a house to dwell in." The original church was furnished with a cupola, and in the cupola was a bell that had formerly occupied a crotch in a tree in front of Christ Church, in Second street, and which served to call the members of the congregation to worship in primitive days.

The main body of the church of St. Peter's was never materially altered, although the interior was somewhat modernized several years since. In 1841 the brick tower upon which the spire now stands was erected by the church at a cost of about \$10,000. The following year the steeple was finished, and on the 31st of October, 1842, the chime of bells were first rang. This was only by way of trial, however, for the first public, formal ringing of the bells was upon the 3d of November, the Thanksgiving day appointed in the Episcopal calendar. The chime was presented to the church by the late Benjamin Wilcocks, Esq., who had them cast in London at a cost of over \$2,000. They were brought out to this country, free of charge, in the packet ship Thomas P. Cope, and whenever that vessel came into port subsequently a merry chime was rung in compliment to her owners. A solemn peal was rung at last when the

sad intelligence of the destruction of the ship, by fire, reached the city. When the bells of St. Peter's church were first chimed fears were entertained that the steeple was not safe, as the top could plainly be seen to sway to and fro, but it has since stood many a lusty ringing, and buffeted many a gale, and the fears of the spire coming to the ground have long since died away.

The entire height of the spire from the ground to the top of the lightning rod is 210 feet. The gilt cross is nearly eight feet in height.

The following is the weight of the different bells in the chime:

No.	Cwts.	Qrs.	Lbs.
1.....	6	2	3
2.....	6	5	13
3.....	8	3	3
4.....	9	2	9
5.....	10	3	8
6.....	15	1	25

Both the bells in Saint Peter's, and those in the steeple of Christ Church, were cast in the same establishment—the foundry of Thomas Mears, White Chapel, London. The bells for Christ Church were cast in the year 1754, and the centennial anniversary of the first time they were ever rang in Philadelphia was celebrated at the incoming of the present year. Christ Church steeple was commenced in 1751 and finished in 1755. Its height is 196 feet 9 inches from the base to the mitre, and about 200 feet to the top of the lightning rod. When the steeple was painted, in 1838, the vane, balls and mitre, which are all of copper, were taken down to be re-gilted, and at that time the size of each was accurately ascertained. The largest ball measures 7 feet 9 inches in circumference, and is said to contain 60 gallons. The four small balls, which indicate the cardinal points of the compass, are each 1 foot 10 inches in circumference, and are 3 feet 10 inches apart. The mitre is 2 feet 6 inches in height, and 4 feet in circumference. Upon it are thirteen stars, the number of the original States, with the following inscription:—

"The Right Rev. Wm. White, D.D., consecrated Bishop of the Episcopal Church of Pennsylvania, February 4, 1787."

The bells, eight in number, were purchased at a cost of 2560 sterling. The whole weight is 9000 lbs., the largest weighing 2040 lbs. The largest bell was broken a number of years since, and was sent to the ancient foundry at White Chapel, and was recast.

These chimes were brought to this country by Capt. Budden, a well known commander in the merchant marine during a good part of the last century.

This was the second chime introduced into the United States. Christ Church, at Boston, had a chime in 1744.