

# REPORT

UPON THE

## SANITARY EFFECTS

OF

# FILLING THE COVE BASIN

IN THE

CITY OF PROVIDENCE.

BY EDWIN M. SNOW, M. D.,  
SUPERINTENDENT OF HEALTH.

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HOUSE OF REPRESENTATIVES, JANUARY 21, 1868,—ORDERED TO BE PRINTED.

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PROVIDENCE:  
PROVIDENCE PRESS COMPANY, PRINTERS TO THE STATE.  
1868.

OFFICE OF THE SUPERINTENDENT OF HEALTH, }  
PROVIDENCE, Dec. 30, 1867. }

HON. AMOS C. BARSTOW,

*Chairman of the Joint Committee on the Cove Lands :*

DEAR SIR :—I herewith transmit the "opinion" which you ask for, in accordance with the Resolution of the General Assembly, passed at the May Session, 1867, in relation to the "Effects of filling up the Cove Basin upon the public health of the city of Providence."

I have added a few reasons, aside from sanitary considerations, why the Cove Basin should not be filled up, which I trust may meet the views of your committee.

Respectfully,

EDWIN M. SNOW, *Supt. of Health.*

# REPORT.

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THE EFFECTS OF FILLING UP THE COVE BASIN, UPON THE PUBLIC HEALTH  
OF THE CITY OF PROVIDENCE.

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In the consideration of this question it is important to understand precisely what effect, if any, the present condition of the Cove Basin has upon the public health in Providence.

During the last twelve years it has been my special business to watch the progress of disease in the city of Providence; to ascertain the causes of any sickness that may exist in the city; and to use measures, so far as possible, to prevent sickness, and to remove the causes of it.

During this period, my attention has constantly been given to the Cove Basin, and I have frequently, and at all seasons, had occasion to examine its condition. I have also, from time to time, examined the records of mortality, to ascertain if any disease, which might be caused by the Cove, was prevailing in any locality. I have also, from time to time, made out extended and minute tables showing the mortality from various zymotic diseases in various sections of the city, and also showing the proportions of such mortality to the population. It is not necessary, in this connection, to give the figures; but it is sufficient to give the result, which is this:—

That the proof, to my mind, is positive beyond all possible doubt, that the Cove Basin, in its past and present condition, has had, and



has now, no injurious effect whatever upon the public health of the city. I have been wholly unable to find the slightest reason for believing that any epidemic disease, or any single case of any disease, has been caused by the Cove.

This result is so different from the popular opinion in relation to the subject, that it may be well to consider, briefly, what is the actual condition of the Cove Basin.

It is common to hear the Cove spoken of as containing the concentration of all filth, and as giving off continually, in all directions, the most offensive odors which, in the imagination of the people, are filled with deadly poison to the public health.

It is true that for some years past, the Cove Basin has been very much neglected by the city authorities, and it has become common to see old boots and shoes, tubs, buckets, barrels, baskets, tin-ware and crockery-ware scattered in every direction in it. Not unfrequently dead cats and dogs are seen; the whole making a spectacle offensive to the sight, and sometimes to the smell. But these things are no necessary part of the Cove Basin, and so far as relates to the public health, there is hardly the shadow of a foundation, except in the imagination, for the common public opinion in relation to it. Those who live near the Cove only occasionally perceive any offensive odors from it. I have again and again, at all seasons, examined the Cove when complaints have been made in relation to it. In many cases I have found that the offensive odor came from dead cats or dogs, or other animals which did not belong in the Cove, and which should have been removed. In a very few instances I have found that an offensive odor arose from the outlets of the sewers into the Cove; but as these sewers are flooded at every tide, this can happen only very rarely. These same sewers are far more frequently offensive, and to an infinitely greater degree, in the central portions of the city than in the Cove.

Aside from these two causes, it is extremely rare that any offensive odor can be perceived arising from the Cove Basin. But when the imagination is allowed to over-rule reason and common sense, it is not difficult to believe the most absurd fictions. We have a curious illustration of this in connection with this subject.

It is a common saying, and is fully believed by numbers of our citizens, that myriads of mosquitoes are bred in the Cove Basin, and are a great nuisance to the neighborhood. It must require a truly credulous imagination to believe that a pond in which the water is

constantly changing and constantly in motion, and through which the salt water flows freely twice every day, can breed mosquitoes. The truth is, there are no more mosquitoes in that neighborhood than in other portions of the city. But there are about the Cove, myriads of a kind of fly, very much resembling mosquitoes, but without the power of stinging. These are often so numerous as to cover the sides of buildings and blacken the walls of rooms at some distance from the Cove; but they are not mosquitoes, and they do not come from the Cove, but probably from the sand-banks in that vicinity.

But to return to the subject of the influence which the condition of the Cove Basin has upon the public health. As already stated, facts prove that the public health is not injured by it; but there are reasons, obvious to those familiar with the subject, why no injury results from it, and why none could result if the condition of the Cove was much worse than it is.

In the first place, the Cove is a tide-water basin, into which the sea water flows freely, covering its entire surface, twice in every twenty-four hours. Of course its condition must be totally different from that of a similar basin in which the water is always fresh. There can be no stagnant water in the Cove, and no malarious poison, such as is generated by stagnant fresh water, can arise from it.

Again, the free circulation of air which the large, unobstructed space of the Cove permits, is sufficient to prevent any injurious effects from the condition of the Cove Basin, even if it were much more offensive than it is at present. The westerly and northerly winds which flow freely through this unobstructed space, and from it through the streets leading to it, not only prevent all possible injury from nuisances which might exist in the Cove, but also reach, through this opening, the streets, houses, courts and yards of a considerable portion of the city, and are of immense value in preserving the public health. It is not only a "breathing place," such as other cities are seeking to obtain at great expense; but it is vastly better for this purpose than most cities can possess, because its space is unobstructed by trees or buildings, and because it opens a free passage for the winds, through the centre of the city, between the ocean and the country.

It is difficult to demonstrate the importance of this free circulation of air in the preservation of health, though most people are willing to acknowledge it. It is well known that some of the worst epidemics are peculiarly fatal when there is a general stagnation of the atmos-



phere, and there can be little doubt that if a constant and brisk movement of the air could be kept up where the worst nuisances exist in our cities, these nuisances would be almost powerless for evil.

The conclusion to which I am forced in relation to this subject is, that not only is there no injury to the public health from the present condition of the Cove Basin; but that even if serious and offensive nuisances existed there, the free circulation of air which now exists would prevent any possible injury from them.

Let us now consider what would be the effects of filling up the Cove, upon the public health of the City of Providence.

Of course, in relation to future events, there are no facts to guide us, and no possibility of positive proof. We can only give opinions, and the reasons for them. But sometimes, and I think in this case, the opinions and the reasons for them seem to be so much in accordance with truth and common sense, that they have with us, and ought to have, all the weight and influence of positive demonstrations.

The filling up of the Cove Basin involves:—

1. The construction of comparatively narrow channels for the passage of the two rivers that now flow through it.

2. It involves the removal and deposit of vast quantities of dirt and filth.

3. It involves the conversion of a broad, open sheet of water, into a level plain of land.

4. It involves the planting of trees and the obstruction of the free circulation of air that now exists.

5. There is too much reason for believing that if the water is converted into land, it will, at no distant period, be covered with buildings.

The effects of this upon the public health will be—

1. Newly-made ground is of itself frequently a source of disease, especially when an epidemic is present.

2. The circulation of air which is now so free, will be effectually obstructed not only in the space occupied by the Cove, but also in all the streets leading from it, which include a considerable portion of the city. The injurious effects of this obstruction to the motion of the air would be incalculable. I have no doubt that it would, (to a greater or less extent depending upon the amount of the obstruction,) cause a positive and perceptible increase in the amount of sickness and of mortality in the city, and a perceptible and permanent reduction in the public health of the city, from its present standard.

3. If the Cove Basin is filled up, the channels that are left for the passage of the rivers, will immediately become *fresh water* canals. The tide will rise and fall in them, but the salt water will flow into them only until it meets and dams up the fresh water. As there will be no large basin of water above from which the water may rush out with every falling tide, these fresh water canals will usually have very little, if any, current, and consequently they will speedily fill up. In a very short time the fresh water mud and filth would be exposed at low water, making a nuisance really offensive, and actually dangerous to the public health, which it is not at present.

It is well known that stagnant fresh water, and filth deposited in fresh water, are far more dangerous to health than the same filth in salt water. I have no doubt that, at the present moment, the fresh water canal, between the Cove and Mill street, is far more dangerous to the public health than the Cove itself, and it is probably an actual cause of sickness.

4. If the Cove Basin is filled up, instead of being, as at present, a comparatively cool and comfortable locality, and a source of comfort to a large portion of the city, it will be converted into a level plain, upon which the sun's rays will be concentrated in warm weather, and the free circulation of the air being cut off, it will become a most uncomfortable, and unhealthy locality.

Reviewing what I have written thus far, it has been my object to show :—

*First.* That the Cove Basin, in its present condition, is not detrimental, in any respect, to the public health of the City of Providence.

*Second.* To show that the Cove Basin of itself is not the offensive nuisance which many persons believe it to be.

*Third.* To show that if the Cove Basin were vastly more filthy than it is at present, the free circulation of air through it, and the ever-changing salt water tide in it, would prevent any injury to the public health.

*Fourth.* To show that if the Cove Basin is filled up, it will immediately become a serious injury to the public health; an injury which, from the nature of the case, can never be removed.

Looking solely at the question of the public health, it might be proper for me to close here; but there are two or three additional objections to filling the Cove Basin, which I would beg permission to name :—



1. When the Cove is filled up there will be no tide-water basin left above the harbor, as at present. Now, the accumulated water rushes out of the Cove with every falling tide, and produces a great effect in keeping the channel clear, from the bridges to Fox Point. It may be proper to note that this natural effect of the tide-water basin has already been greatly modified and lessened by the dam at the outlet of the Cove (which should never have been made); by the numerous posts driven to support the bridges; by the permanent mooring of old hulks below the bridges; and by changes in the harbor line between the bridges and Fox Point. But we cannot consider these questions at this time.

If the Cove Basin is filled, the whole harbor, from the Cove to Fox Point, will be converted into a sluggish canal. The tide will rise and fall in it; but there will be no strong current, except when there are heavy freshets from above, or southerly gales from below. The deposit of mud will be rapid, and will soon fill up the channel, from Weybosset Bridge to Fox Point.

The absolute necessity of tide-water basins above harbors for their preservation, has been demonstrated in other places,\* and we have in our own harbor an excellent illustration of their value. The large tide-water basin extending from India Bridge to Pawtucket, has always kept the channel open below India Bridge, and deep enough for the largest vessels; and it will probably always continue to do so, as the tide-water basin is too large for the cupidity of man to fill up.

It is extremely desirable that, on this point, the Committee of the General Assembly should obtain the opinion of a United States engineer, as contemplated in the Resolution passed at the May Session, 1867. It seems to me impossible for the General Assembly to act intelligently without full information upon this point.

2. It is only a few months since, (February, 1867,) that we had a startling demonstration of the value of the Cove Basin, and of the absolute necessity of keeping it open with all its present capacity.

A heavy rain at that time, caused a large freshet of water to flow into the harbor from the rivers above, and especially from the Woonasquatucket river. The present passage of the rivers to the harbor was insufficient to carry off the water as fast as it accumulated. The Cove Basin, with its immense capacity, was filled, and the back-water

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\* See Reports to the City Council of Boston, and to the Legislature of Massachusetts, upon the filling of the Back Bay lands, and its effects upon Boston Harbor.



flooded the valley for a mile and a half, or more, above the Cove; carrying off bridges, flooding cellars, and manufacturing establishments, and causing the destruction of a great amount of property in the city and in Olneyville.

Owing to a partial obstruction at the outlet of the Cove, by ice, the water did not flow off as freely as it would otherwise have done; but the large capacity of the Cove Basin, and of the tide-water basin which still remains unfilled above the Cove, was sufficient to contain an immense amount of water, and thereby relieve, to a great extent, the valley above. It is certain that if the Cove Basin, at that time, had been filled up, as is now proposed by some persons, the channel would have been entirely insufficient to contain the water; it would have risen several feet higher at Olneyville than it did; it would have covered the Cove lands; and would have rushed in mighty torrents through Dorrance street and other streets of the city, between Market Square and Aborn street, causing immense damage.

3. A similar illustration of the importance of keeping the Cove Basin open, often comes to us in an opposite direction. It is well known that, several times every year, we have southerly and south-easterly gales, which raise the tide-water to the level of the wharves on South Water and West Water streets. But at these times, the water rushes under the bridges into the Cove, the capacity of which is sufficient to keep the water down, so that, generally, very little damage is caused by these gales. But if the Cove Basin is filled up, this partial relief will be cut off, and we may expect that, several times every year, the tide will fill the cellars on South Water and West Water streets, and will rush through the streets of the Fourth and Fifth Wards of the city causing great damage. This danger arises, perhaps chiefly, from the shape of the harbor which grows narrower from Fox Point to Weybosset bridge. The result of this is, that in Southerly gales, the water in the broad expanse below Fox Point is driven into a space constantly contracting in width, and thus accumulates much more than it would if the harbor was of the same width between the two points.

4. A fourth and last reason for keeping the Cove Basin open, with its present capacity, I will merely mention; but I cannot dwell upon it.

If the Cove Basin is kept open, and kept covered with water, it is the greatest ornament the city possesses. It surpasses in beauty the public squares of all other cities in this country; it attracts the notice and commands the admiration of strangers more than anything else in

the city; and I know of persons of good taste from other places, who would consider the destruction or contraction of the Cove Basin in Providence, as a great public loss.

The conclusions, in relation to the whole subject, to which I am forced, and of which I have not the least doubt, are briefly as follows:—

1. The filling up of the Cove Basin, as proposed, would prove a great, immediate, and permanent injury to the public health of the City of Providence.
2. It would prove the complete destruction, for purposes of navigation, of the harbor, from Weybosset Bridge to Fox Point.
3. It would put the property, in a considerable portion of the city, into imminent and constant danger from freshets and from southerly gales.
4. It would destroy one of the greatest and the most attractive ornaments that the city contains.

Such would be the certain effects of filling up the Cove Basin, as is proposed, while the contraction of its limits, to any extent whatever, would produce precisely similar results, and to an extent in exact proportion to the extent of the contraction.

I sincerely trust, then, that the Cove will not be filled up;—that its present limits will not be contracted; and that thus, a great calamity to the health, to the prosperity, and to the beauty of our city may be avoided.

EDWIN M. SNOW, M. D.,

*Superintendent of Health.*

PROVIDENCE, December 24, 1867.





