

"Sewers cannot be ventilated efficiently through house-drains," &c. With all due deference to such a high authority, he appears not to clearly demonstrate this fact; his objections are, the outlet of the house-drains into the sewers would be sealed when the sewers were gorged with water. It is fair to suppose that he alluded in this case to a system of small-pipe sewers, with the inverts of their tributaries on the same level as the sewers into which they discharged, as this is the system which he recommended in his Sanitary Engineering.

Very few cities are sewered on the small pipe system, and experience makes its supposed advantages very questionable. In this city eighty-six per cent. of the sewers are of brick, and the junctions of the house drains are mostly at the springing of the arch, and above the ebb of the sewage. Waring is strongly in favour of the soil-pipe as a means of ventilating the sewer; he states, "with a free ventilation through the soil-pipe at every house, there is an immense preponderance of area in favour of the vertical escapes, and these are so placed that they become sufficiently heated to create a strong upward draught." He further states, speaking of house drains, "If the drain has no ingress for air at its lower end, the ventilation of the soil-pipe itself will be much less complete; the pent-up gases from the decomposition of the contained organic matter may escape, but there will be little of the needed circulation of air in the pipe." It is also advocated in the Report of the Brooklyn Board of Health for 1875-6.

4th. Ventilation by perforated man-hole covers. This is now advocated by all Sanitary Engineers, and is extensively used. The use of them in this city was first sanctioned by Alderman Stephens about eight years ago when he became Chairman of the Road Committee; they are used upon all the new sewers and are of great benefit during the summer months. It would appear that we are in advance of Chicago in this matter, as in their Report of the Public Works, 1878, under the head of Sewer Ventilation, they state, "Steps were taken early in the year to secure ventilation of sewers through grated man-hole covers, and a small appropriation was made for this purpose by the City Council." The objections against these covers are, that when the roadway is not in good order the perforations become closed with mud.

5th. Untrapped street gullies. These were for many years the only means of ventilating the sewers of this city during the winter months. An increasing number of them are trapped each year, which renders those that remain open still more offensive, as they have to do double duty; the trapping of street gullies should only succeed systematic ventilation of sewers. Mr. Macquisten, the late City Surveyor, strongly objected to the trapping of the street gullies until other means of ventilating the sewers was provided. In the previously alluded to Report of Chicago, 1878, a return to ventilation through the street gullies is proposed.

6th. Ventilation by short columns connected with the crown of the sewer; these have been used of considerable diameter and fitted with charcoal filters; they have been extensively tried in London, Liverpool and Croydon, but considerable difficulty was found in keeping them dry and free from dirt; this, in addition to the obstruction offered to free ventilation, has caused these filters to be almost generally abandoned in the columns, man-holes, gullies and ventilating pipes.

Tall shafts for ventilating have been erected in Antwerp, Paris, London, and other cities, but it is universally admitted that the benefit derived from such structures is not in proportion to their cost. "All shafts or chimneys of every description when used for the ventilation of sewers, must be looked upon as having little or no power in themselves to produce ventilation, but must be considered as simple extensions of the sewer for facilitating the discharge of noxious matter at some convenient point where it will be harmless."

7th. Ventilation by tile-pipes, built in the interior walls, adjoining smoke flues, and connected with the sewer.

This is the place specially recommended by the Berlin Sewerage Committee, who have lately made exhaustive experiments on the subject of sewer ventilation; they repeated the old experiments of fans, furnaces, lamp-posts, &c.

Having briefly reviewed the most approved forms of ventilation, it now remains to decide which are best adapted to our requirements and means, for although cost is only a question of detail in a matter of this kind, it assumes proportions which materially affect the decision on the subject.

The choice appears to be between perforated man-hole covers, soil-pipes, and the pipes to be built in the interior walls of the building.

The perforated man-hole covers are very beneficial during the summer months, but during the winter they are unavoidably covered with ice or snow, and can only in this city perform in part the duty required from them, but if used in conjunction with the soil-pipe the sewers would be found to be effectually ventilated at a trifling cost.

In conclusion, I may state the subject of ventilation of sewers has been thoroughly discussed by the Conference on the Health and Sewage of Towns, held on May 9 and 10, 1876, at London; see the Society of Arts Report, in which the Council heard the evidence of all the Sanitarians, Engineers and Doctors, who unanimously decided that ventilation was essential; and in order to enforce it they petitioned Parliament for an Act.

Montreal, 23rd Sept., 1879.

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THE INTERNATIONAL PARK AT NIAGARA FALLS.

Niagara! the most appropriate of names—euphonious to the ear in English, still more so in Indian—Ne-ah-gah-rah (the spirit of the water)—whence came it? The guide-books tell us of one Father Hennepin as the first recorded visitor; but he could not have been godfather, or the world would have been afflicted, perchance, with some saintly attachment, such as St. Jean Baptiste or St. Cunegonde. Much more probable was it that the old Chief Hiawatha, returning from the war-path with his lovely bride Minne-ha-ha (laughing water), first saw the grand sight and became its sponsors. Surely there must have been Poets amongst the Red men in those days. What a contrast with the white man's common-place nomenclature,—Horse Shoe, Goat Island, Table Rock, Devil's Hole, &c.! Enough to make even Longfellow's long hair stand on end.

But even here, the truism of the inevitable proximity of the sublime and ridiculous appears,—man spoiling by defacing what God has made so beautiful; and the enraptured tourist no sooner gets his first glimpse of the gorgeous scene than the discordant twang of a runner dispels the charm by inviting him to a square meal for 25 cents; or to buy Table Rock ornaments from Derbyshire, and Indian curiosities fresh from Celtic hands. Ah me!—is there no spot left in this utilitarian grasping age, for a few moments quiet contemplation of what Providence has so beneficently intended should be contemplated? To what higher, better purpose can such a glorious heritage be put than a resting place, amidst the world's bustle, where one can revel in Nature's grandest and most sublime picture, and forget the tinsel of life's struggle?

The name of Niagara is probably more widely known than any spot on earth. The Pyramids are the wondrous results of man's objectless and decaying perseverance, and cost years of cruelty to erect. Niagara, a mere atom of God's creating fiat; He spake, and it was done, and will continue till all things are destroyed by the breath of the Coming One.

Is it seemly or right that such a gift, held jointly by the two most favoured nations of the world, should not find suitable appreciation, and be preserved, in some measure, as an oasis from man's selfish greed?

The appropriation of the Yosemite Valley Park was a happy conception, and worthy of the nation which so promptly adopted it; and now the same spirit is rife for a like graceful act at Niagara, which will rebuke its desecration, and make it the world's property.

The idea came from Lord Dufferin, after witnessing the vandalism so long rampant, as to make a visit to the Falls one rather of effort than of pleasure. How to remedy the evil has long been the question, and the object of the writer will be accomplished if the genius of our kindred peoples can be aroused to the importance of the matter, and to remove the difficulties which each year's delay aggravates.

Immediately on the suggestion of Lord Dufferin being made public, the Legislature of the State of New York responded, and appointed three Commissioners to examine the subject and report. They have had several meetings, and have called to their aid Mr. Olmsted, the highest authority in such matters. The Cabinet of Ontario were invited to meet the N. Y. Commissioners in June last, but were unable to attend. A further conference is to be held in a few days, and no doubt suitable measures will be adopted to bring the subject before the respective Legislatures at their fall sessions.

The general opinion prevailing at the Falls is to appropriate, on the American side—Goat Island, Prospect Park, with the intervening river front, and possibly the present Suspension Bridge, to remove the unsightly buildings, and throw the whole open to the public at a merely nominal charge, to prevent abuses, and to provide for the comfort of visitors.

On the Canada side, it is proposed to take the land under the hill from opposite the Clifton House to Table Rock, embracing about 30 acres, capable of easy drainage and embellishment, remove the present buildings, with the exception of the Museum and Table Rock House—which will be required for public uses—and wipe out the nauseating toll-gate, which has so persistently braved public execration, and done violence to every sense of propriety, in adding the pittance of *seven* days of the week, to the hoard of the wealthiest Prelate in America. Probably as the necessity of the movement develops itself, the Clark Hill islands—which have lately, through the enterprise of Mr. Macklem, been bridged, thus opening to the public a most attractive drive along the rapids—will be included in the boundaries, and complete the most perfect park that the world can produce,—a park with *the* Niagara Falls in its centre.

I claim favour for the movement on several grounds.

1st. On national grounds, because the Falls in themselves cannot, and ought not to be utilised, but kept for the admiration of the world at large, under the ægis of governmental control.

2nd. On remedial grounds, because of great and growing abuses, which are yearly becoming more firmly riveted and difficult to deal with.

3rd. On economic grounds, without which the others would too likely fail, and on this point I propose to enlarge.

During a late protracted visit to the Falls, I was led to examine the subject and eliminate every phase of opinion bearing on it.