HINTS

TOWARDS PROMOTING

THE

HEALTH AND CLEANLINESS

OF THE

CITY OF NEW-YORK.

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1802.

TO THE MAYOR, ALDERMEN,

AND

COMMON COUNCIL OF THE CITY OF NEW-YORK;

THE following Hints for promoting the Health and Cleanliness of the City, are respectfully submitted to their consideration,

By their very humble servant,

And well-wisher,

THE AUTHOR.

Long-Island, 1802.

HINTS, &c.

AS a stranger in the city of New-York, I have been led to inquire into the causes and circumstances of the Yellow Fever, which has now become so frequent in its appearance, as to induce the belief that it is permanently fixed. This, certainly, is a very unhappy opinion, as it tends to prevent those exertions to remedy the evil which, possibly, might prove efficient.

It is also a matter of dispute whether, on the contrary, it is not annually introduced from foreign countries or other parts of the United States. Whatever the cause, the real truth is, that the city is not sufficiently cleansed, and that it therefore is not to be wondered at, *when once introduced*, the fever should, even without an annual importation, continue to make its appearance every year, during the hot months, and rage with more or less violence, until again rendered inactive by the cold.

People also differ on the subject of the remedies. Some place most confidence on the rigid execution of quarantine, which, in New-York, in certain months, is enforced on vessels and their crews; but very little regard is paid to the examination of persons coming to the city by land. Others think that cleanliness is of most consequence, and two laws of the Corporation, the one "*for regulating the paving, and preventing obstructions*," and the other "*for preventing nuisances*," are generally considered as efficacious in this line as any additional rules can make them.

I beg leave, however, in return for many civilities received in this city and other parts of the State, to point out some

further improvements which, if they do not completely eradicate the disorder, as I sincerely believe they will if zealously executed, must, no doubt, greatly alleviate it.

In treating the several subjects necessary to attain either of these objects, I shall seldom have occasion to touch on those regulations which are already pointed out by the laws, many of which are of sufficient importance to merit more attention in practice than they at present meet with; which omission is, I find, occasioned by the idea that, except in the unhealthy season, remissness may be indulged without hazard. But this opinion also is as erroneous as the former. A habit of cleanliness, like every other, is the more to be depended upon the more regularly it is practised; and ill-health, occasioned by uncleanliness at any season, may, and assuredly does, lay a broad foundation for disease, in those months when sickness is most active. May not the time arrive, when, by clearing the lands in the back countries and other unknown causes, the winters may be so far ameliorated, that the cold will no longer produce the effect of impeding the disorder? We know that formerly the Tyber was annually frozen over, and we are certain that it never is the case at present.

In those countries where the plague is most known personal uncleanliness is so excessive that the most fatal disorders arise from that circumstance alone. In some, the natives never change the clothes which they wear next to the skin; but in a great measure trust their health to frequent bathings. In others, though attentive to this particular, the inhabitants are indifferent to that which delicacy has ever considered as the most degrading to our nature. The people of the United States, in general, are not to be reproached with the first of these causes, but such undoubtedly is the case among some of the poorer people, especially the emigrants. In the second, they are not, perhaps, so indifferent as they are in some countries which boast of greater refinement; but the heat during the months of July and August renders every precaution more

necessary in this climate than in those, where, though the cold is less intense in winter, the heat also in summer is less in extremes: such negligence in more moderate climates thereby proves an inferior evil in point of health, though by no means so in point of moral delicacy.

The great means of cleanliness, if properly applied, is WATER; and the most certain means of giving to water its natural effect, is, after the application, to get rid of it as soon as possible; and, through that medium, to convey away also those impurities, which otherwise, by floating in the air, would probably be inhaled by the lungs, and so enter into the system, and appear in a variety of shapes to baffle the skill of the physician. Impurities, no doubt, may be removed or rendered inactive by other methods, which become the more necessary where water cannot conveniently be brought to act alone. To this end, lime has been found the most effective, both used dry and mixed with water. The particles, which otherwise would cause disease, like arsenic when incorporated with lead, are rendered inactive when mixed with lime.

There probably is in no country a city where water can be procured and again conveyed away with more ease than in New-York. The point of land on which it is built, with a rapid river of salt water on each side, is in no instance very wide, and it has a ridge running through the middle, from which the descent is amply sufficient to drain all that is superfluous. Even the remoter parts of the city are so situated, that the one river or the other can be made to receive all the drains. No person will doubt this opinion, when it is understood that engineers have found, from experience, a descent of three inches in one mile sufficient to give activity to pure water; but a drain for foul water should never, if possible, be less than two feet in a mile, which is a trifle compared to what can be obtained from the Broadway.

I have divided the observations, herein submitted, into the following heads:

1. Common sewers.
2. Kennels in the streets.
3. Drains above ground from houses.
4. Drains below ground from houses.
5. Vaults.
6. Docks.
7. Lodging houses.
8. Burying grounds.
9. Cleansing the streets.
10. Watering the streets.
11. Paving the streets.

1. COMMON SEWERS.

Were it possible instantly to convey the whole filth of a city to a place from whence no danger could arise, there would be no use for sewers; but the various liquids used in houses are so impregnated with offensive substances, that it is proper to remove them from the open air as soon as possible. The practice therefore in well regulated cities is to have a common sewer to run through the middle of every street, and with these the drains from the houses and the kennels are communicated. The Romans are said to have made them so large that a cart and horses could be driven through them. In London the modern sewers are circular, and built of a double row of bricks, set on edge, checking each other. They are of a diameter to admit a person to walk in a stooping position. They are often, on account of the distance from whence they run, and the nature of the ground, sunk at the outlet to the depth of fifteen or twenty feet; but this would seldom be necessary in New-York. The bricks ought to be formed in a mould made for the purpose, that the bevel may suit the circumference. They should be of the most perfect manufacture, and the mortar formed of the best materials. The circular shape of a drain or sewer has two very powerful effects. It is stronger than any other; for, if

well supported at the sides, it can never be over-loaded, and it is not liable to choak up, because the channel narrows and extends in proportion to the quantity of water running in it: if there is any sediment in the sewer, be there ever so little current, it must wear a channel in the middle of it, and of course, the sides of the mud will cave in and be carried off: but where it is built flat and broad, that cannot often happen, as nothing but a torrent can keep it free. The distance from the Broadway to either river is so short and steep, that, I will venture to say, a *circular drain* would never choak up. In the city of Philadelphia the streets are very flat, and are four times the length of those at New-York, having at present but one river to empty into; on this account the drains sometimes overflow the streets.

2. KENNELS IN THE STREETS.

The kennels are those drains on each side the carriage way, next the foot-pavement, which are above ground, and ought to serve no other purpose than to carry off the rain-water which falls on the pavement of the streets, and such other water as may be used for washing them. But as the water which runs in them must, of necessity, be often impregnated with offensive substances, there should be gratings at short distances to admit the water into the drains running at right angles into the sewers. The gratings should be neither too large nor too small —if the former, the substances passing through being too gross, will tend to choak the sewers; and if the latter, the water will be prevented in its passage, and thereby overflow the streets, unless removed by the neighbouring inhabitants, which is an attention not generally to be depended on. These kennels should never be made to cross a street; but where many ways meet, there ought to be as many gratings; for they must always be foul, and, besides, cause a disagreeable jolt to carriages.

3. DRAINS ABOVE GROUND FROM HOUSES.

The drains when above ground, ought only to convey the rain-water from the tops of the houses into the kennels; and even when applied to this purpose alone, they would be much better if conducted *under* the foot-pavement; for in this case the spouts would not annoy foot-passengers, by spattering on their feet. A narrow crevice of an inch over, to run the breadth of the pavement, may be left open to clear away any obstructions.

4. DRAINS BELOW GROUND FROM HOUSES.

It is on several accounts necessary that these should be well constructed; but principally because they will generally be sunk so deep that the expense of opening the ground will be considerable, and the inconvenience to the public very great, as they must of necessity be as numerous as the houses. They should communicate with the sink of the house at one end, and with the common sewer at the other. There should be an iron grating in an accessible situation to stop any gross matter from flowing into the body of the drain; and just in front of the grating there ought to be a cess-pool, of about eighteen inches square, and two feet deep, below the upper surface of the drain, to receive into it any heavy substances which may have escaped from the sink; to which last there ought also to be a grating. With this drain there may be a communicating branch from the vault, to carry off the water; but it should be fixed three feet from the bottom, and care should be taken to empty the privy before the night soil can arrive at that height. See figure 1.

5. VAULTS.

The vaults of privies ought to be constructed of the best materials; and the bricks, if bricks are made use of, should be

sufficiently hard and well made to resist the passage of the soil as well at bottom as the sides; the walls should be covered with the best terrace work, and by that means made perfectly tight. But a composition of boiled tar and charcoal, finely pulverized, will be found, for durability, superior to any other covering. The vaults, if there is room to extend them sideways, need not sink more than six feet below the surface of the ground. It is of importance to arch them completely over, except where the seats are placed, in order to confine the effluvia from the building. There should be two air funnels in opposite places to admit and let out the air. When vaults are emptied, the soil should be mixed up, and afterwards covered, with coal-ashes or lime, which will almost entirely prevent the effluvia. This should be done by persons who understand the business, who have covered carts, and other necessary conveniences provided, and are licensed for the purpose. The soil should be conveyed out of the city to a distant and retired spot. The detestable and injurious practice of throwing night-soil into the docks, and the use of tubs, unknown any where except in New-York, should be abolished under much more severe penalties than exist at present. See section 5.

It is a very false prejudice to suppose that the springs will be injured by sinking vaults. Every good bricklayer knows, or ought to know, how to make them secure; and, *if any difficulty should in this respect arise*, the master workmen in this branch of trade should be put under license, and be sworn to execute such works as may be thought worthy of legal regulation. It is not uncommon for the laws to dictate to a man how he shall build his house. Great evils require extraordinary remedies, and it must be recollected that we are devising means to rid the community of a distemper little less infectious than the plague. A vault, well built, will not become peculiarly offensive, even though, as in London, it is not emptied more than once in eight or ten years.

6. DOCKS.

There is nothing in the city of New-York so offensive as the docks, which emit effluvia sufficient, one would think, to cause sickness in every season of the year. The remedies here recommended, may be expensive at first; but if properly executed, I sincerely believe they will prove not only greatly efficacious but profitable, besides being highly ornamental. It will, at the same time, provide for the conveniency of shipping, and prevent the dangerous consequences of the ice, which, in winter, if the ships lay at the end of the wharves, would injure their bottoms. The docks, as they are at present constructed, impede the current as well as the ice, and all the dirt which is either thrown in, or otherwise lodged, remains in the ship until removed at a great expense by hand, and then occasions an excessive stench.

The docks should be extended to one even front from the Battery up the East and up the North rivers, according to the plan proposed by the Corporation, with a face of stone, leaving a quay of sufficient width, in front of the stores, for the passage of carriages. This should be not only sufficient for the present commerce of the city, but provide for a future increase. The wharves, which may be built from the quays, should project into the rivers equally from one end to the other, and should be formed by arches, the piers of which should be on one line, and at the bottom and above the common tides have the form of a lozenge. By this means the tides will not be impeded, as would be the case if they presented a square front, but will have their full power, be it more or less, in carrying off the dirt; at the same time, the cakes of ice which run there will be but small, as they must necessarily, in a great degree, be broken and obstructed by the piers, and be thereby turned off into the stream beyond the wharves. The stones of which the quays and wharves are built should be very heavy, not less than a ton each, wherever the water is liable to reach; and every

two adjoining stones should be clamped together, and the irons fixed in the stone with lead. If these piers are continued to be built of logs, the filth will still settle between them.—The next thing is to prevent, as much as possible, the filth from lodging in the slips. In order to this, the common sewers should be carried over the arches to the ends of the wharves, and thereby fall as far in the stream as possible. See figure 2.

Another very essential regulation is to forbid people on board vessels laying at the wharves, to throw any thing whatever, except liquids, into the slips, but be obliged to reserve their dirt for the city carts, which should go round and ring a bell as a notice of their coming for the shipping, as they by law are enjoined to do for the houses.

7. LODGING HOUSES.

Here, probably, is deposited the seat of the disorder.

For more than twenty years the town of Manchester, in England, had been greatly afflicted with a contagious fever, which seemed to baffle the utmost skill of the faculty; at length, a few years ago, an inquiry was set on foot, and a report, made by Dr. Ferriar, on the subject, showed that it existed, almost solely, in those lodging houses where the poorest people resided; that many of the lodgings were in cellars, which had no ventilation, were seldom cleaned, and were very crowded: that it often happened, that people coming fresh out of the country, were at night put into beds from whence others who had died of the fever had been buried the same day. The remedies which were recommended were carried into execution, and proved efficacious. I shall here follow the same, with some additions, and have a sincere belief the like good consequences will ensue in New-York, if rigidly attended to; for I believe no doubt remains in the mind of every unprejudiced person, that the yellow fever is more likely to lie concealed in such places than in others.

The first thing to be done is to oblige every person letting lodgings to take out a license. It will be best to make the rule general, in order to avoid invidious distinctions.

The next is to appoint a visiting committee *for this especial purpose*, who shall report all delinquents of the regulations, and note such occasional observations as may occur. This requires only an extension of the 16th section of the present law.

This committee should see the following rules put in execution:

1. There should be but a certain limited number of beds in any room, and every bed should be allowed such a space as will tend to keep the air from becoming unwholesome by too quick a respiration.

2. The rooms should have their floors well washed and scrubbed with soap or ley once a week; the walls and cielings white-washed twice a year.

3. There should be no lodging rooms in cellars.

4. There should be some efficacious prevention of tubs in privies, by obliging every householder to have such a vault on his premises as is deemed to be of the best construction. A matter of such essential consequence ought not to be left to the judgment or caprice of any individual. See section 16.

5. The floors should be sound and tight, that if liquids are spilled, dirt and wet together may not be collected underneath, and occasion ill smells.

6. Every means of ventilation ought, at least, to be recommended, and, if necessary, should be enforced. When two rooms are contiguous, it is convenient to have a window between them, in order that a thorough draught may be had in hot weather; but it should be an object of police to promote the making of sashes to let down at top, as well as lift up at bottom, for all heated air has a tendency to rise, and is least pure at the top of the room. Ventilated at top, it is sure to be as pure at bottom as circumstances will admit; but although every person is sensible of this property in nature, how very few sashes, ex-

cept in the dwellings of rich people, are so constructed, and this on account of the expense of the lines, pullies, weights, and carpenter's work; all which are unnecessary, for two springs to each sash (one on each side) if well made, will be found to be simple, cheap, equally useful, and much more neat, as they are placed completely out of sight. The stiffness of the spring should be proportioned to the weight of the sash. See figure 3.

8. BURYING GROUNDS.

If properly attended to, the rules established for the burial of the dead in the 14th section of the law, will probably answer every object required; but should further precautions be at any time necessary, the adoption of the practice of burying in lime, very prevalent in some parts of Europe, will effectually guard against ill consequences from death by means of any disorder whatever. There may be some prejudice against such a practice among a people not accustomed to it; but in case of a very extraordinary mortality, such a measure may become absolutely necessary.

9. CLEANING THE STREETS.

The streets can never be well cleaned if left to be executed by the individuals of the public, as ordered by the sections of the law Nos. 1, 2 & 3.—Housekeepers will generally have it done by their servants, who will neglect it from idleness or indifference. All that can be expected from them is to sweep and wash the foot-way, and in this even some attention should be paid by their employers, or it will be but half performed. I am convinced that in many places near the wharves it is never done. Taken as a general rule, it will be found that the zeal which depends on individual exertion, when unattended by pecuniary advantages, is short-lived and feeble. The surest way

is to pay for the doing of it—it will be but a trifle for each inhabitant, and then, instead of being an advocate for neglect, the housekeeper will become an inspector to complain of the omission.

10. WATERING THE STREETS.

Another reason why the streets are not well cleaned, is the dust, which is occasioned by sweeping them in those months when cleaning is most required. In hot weather windows must be opened, and if so the furniture and goods will be injured, and much trouble be given to every inhabitant of the premises, as well as to all the neighbours. Some people go out of town and leave the business entirely to others, without any attention whatever from themselves. A few indeed, more particular than their neighbours, may use the watering-pot to lay the dust, but that practice is not universal, or at least sufficiently so to be in any essential degree depended on.

A better method is to have water-cocks in every street, and at a certain hour to set them running. The scavengers, with scoops, should sprinkle the carriage-way, and the carts take it up immediately. It is important that the number of the watermen, the sweepers, the carts, and their attendants, should be proportioned to each other, which experience only can regulate; otherwise the water will be exhaled before the sweepers come, and the dirt be spread again by the carriages before the carts arrive, or else they will wait for each other. So many water-cocks set running at a particular hour, will infallibly keep the sewers clear, and have the further advantage of being always in order in case of fire.

11. PAVING THE STREETS.

The inconveniences and evils attendant on bad pavements are numerous. Wanting frequent repairs, they become more

expensive than those which are well executed. The additional wear of carriages can more easily be imagined than calculated. They never can be well swept, for the broom cannot always reach to the dirt, at least it will take longer time, and therefore is an inducement for neglect. The holes are receptacles for offensive articles, and even a hard rain, instead of contributing to cleanliness, has a contrary effect, by fermenting those substances, which in a dry state would, in some measure, continue inactive, and in a great degree harmless.

Paving streets should never after the first time be executed by the individual inhabitants of a city, but by persons appointed and paid by the Corporation. This method would not be so expensive as that directed by the 7th clause of the act.

Cobble-stones, at best, make but an indifferent pavement. In the city of London they bring squared granite from Scotland, and find it turn out much the cheapest method. This article abounds in the Eastern States.

Before I conclude, I beg leave to recommend one general practice, which will save much trouble and produce a greater perfection in all public works undertaken in this city and state. It is to procure every information on the subject from older countries. There is no man or society of men possessing so much intuitive knowledge as to be placed above the necessity of advice. By despising other people's experience we are often led into a situation past remedy; and when we may wish, in future, to render a work complete, we probably shall find that to obtain some radical principle which has formerly been by neglect omitted, we must throw down the whole fabric in order to get at the defect. Many additional lights may be thrown on all the subjects here only touched upon, particularly the articles of common sewers and vaults, the former of which in London is placed under a particular set of commissioners, and is in that great city become a subterraneous topography astonishingly complicated—a complicacy easily avoided in New-York. In London improvements for ages have gra-

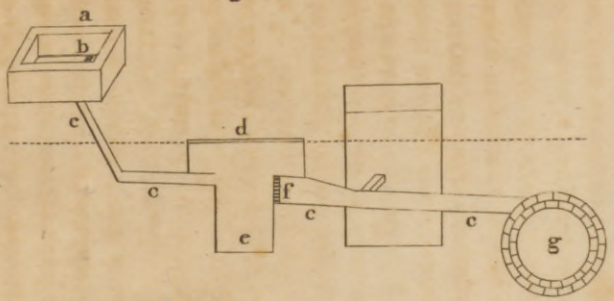
dually been making without regard to the direction of the sewers; sometimes they run across the streets, sometimes oblique, and often under the houses; but in New-York the direction of the streets is usually the best course for the sewers.

A work like this must take time, and will require patience and perseverance; but the propriety of it must appear so evident that it ought to be begun as soon as the necessary information can be obtained.

In regard to the rest, that is, the regulation of lodging houses especially, and indeed some of the others, they may be made to take place in the course of the present season, and the remainder within a year or two.

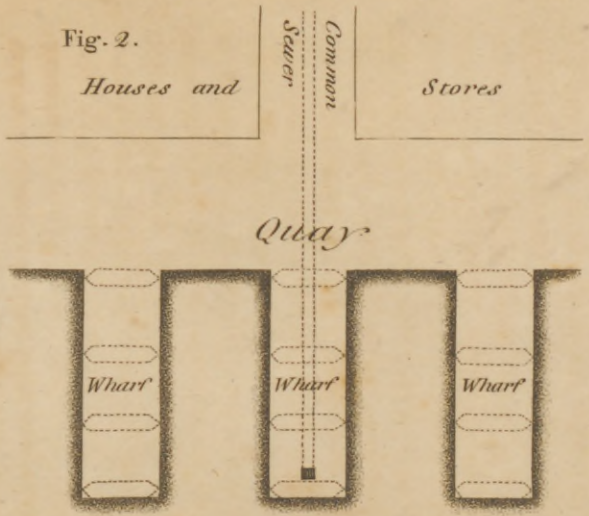
But every subject contained in these few pages is of such importance in point of *health*, *convenience*, *beauty* and *profit*, that an office, subject to the controul of the Corporation, should be appointed to carry the whole system into effect, and then New-York would, in truth, be the first city on the continent of America, and in time vie with some of the most splendid in Europe.

Fig. 1.



a. *The Sink.*
b. *The grating to the Sink.*
cccc. *The House drain.*
d. *A passage from the surface of the yard to the Cess-pool, placed before the grating of the drain; made big enough to admit a person to go down to clear it out and repair the grating. This passage should be built of brick, and covered with a trap-door, laid flush with the pavement of the yard.*
e. *The Cess-pool.*
f. *The grating to the drain.*
g. *The Common sewer.*

Fig. 2.



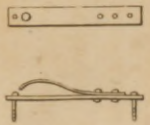


Fig. 3.