

**REPORT OF COMMITTEE ON DISPOSAL
OF WASTE AND GARBAGE: PRESENTED
AT THE NINETEENTH
ANNUAL MEETING OF THE AMERICAN
PUBLIC HEALTH ASSOCIATION, KANSAS
CITY, OCTOBER 20-23, 1891**

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Report of Committee on disposal of waste and garbage: Presented at the Nineteenth Annual Meeting of the American Public Health Association, Kansas City, October 20-23, 1891 by Various

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VARIOUS

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REPORT OF COMMITTEE

ON

DISPOSAL OF WASTE AND GARBAGE,

PRESENTED AT THE NINETEENTH ANNUAL MEETING OF THE
AMERICAN PUBLIC HEALTH ASSOCIATION, KANSAS
CITY, OCTOBER 20-23, 1891.

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REPORT OF COMMITTEE ON DISPOSAL OF WASTE AND GARBAGE.

SUMMARY.

1. *Résumé of Work Being Done.* Professor Delos Fall, Chairman of Committee, Albion, Mich.
2. *Appendix (a). Proposed Forms of Ordinances.* (Received too late for publication.)
3. *Appendix (b). Collection and Transportation of Garbage and Refuse in Cities.* Edward Clark, M. D., Buffalo, N. Y.
4. *Appendix (c). Collection and Transportation of Garbage.* Col. W. F. Morse, New York.
5. *Appendix (d). Tabulated Reports of Health Officers.*

METHODS OF DISPOSAL.

6. *Appendix (e). The Merz or Vienna System described.* Edward Clark, M. D., Buffalo, N. Y.
7. *Appendix (f). The Rider Garbage Furnace described.* Crosby Gray, Pittsburgh, Pa.
8. *Appendix (g). The Eagle System described.* Col. W. F. Morse, New York City.
9. *Appendix (d). Crematories used in England described.* Rudolph Hering, C. E., New York City.

RÉSUMÉ OF WORK BEING DONE.

The Committee on the Disposal of Waste and Garbage was constituted at the Memphis meeting, 1887, and, under the chairmanship of Dr. S. S. Kilvington, of Minneapolis, made two valuable reports, which are published as parts of the proceedings of this Association at its meetings held in Milwaukee and Brooklyn. These reports form an important part of the present discussion, and should be referred to for a complete study of the question.

The present committee has held two meetings before coming to this annual session of the Association, one at Pittsburgh, Pa., at which time the Rider Garbage Furnace was visited and studied, and at which meeting the general plan of the conduct of the work was outlined and adopted. The second meeting was at St. Louis, Mo., where the new plant of the Merz Extractor and Construction Company was studied and a part of this report was prepared. The work has been organized and divided among the different members of the committee for special study. Some members of the committee have done their work; others have not.

In making the present report, there will, no doubt, be the repetition of some familiar and oft expressed facts; and still, in this question, as in

others, iteration and reiteration may be needful in bringing about a reform already too long delayed. The dangers are real; the victims due to neglect of this important question fall on every hand. Heaps of garbage continue to be disease-breeders, furnishing the proper conditions for the rapid growth and development of any disease germs which may lodge therein.

The processes of putrefaction and decay are better known to-day than formerly: these do not consist of mere oxidation, but in large part are due to the action of the bacteria of putrefaction and fermentation. Where these ordinary bacteria thrive, pathogenic germs may, and hence it follows that garbage accumulations are a constant menace to the public health. Forgetful of the well known biological law, that all living beings, including man, produce excretions which are poisonous to themselves, he still goes on accumulating masses of such excrementitious matters, until the earth, water, and the very air is charged with death-producing elements, afflicting not alone himself, but his family, the neighborhood, the entire community, or even the large city,—sometimes, by the carelessness of a single person, spreading disease broadcast over the whole land.

The problem is not different in kind, but only in degree, whether man is closely huddled together in the densest populated portions of a great city, or dwells apart from his fellows in the small village or country place. Serious harm may come to him in either case, if only some one is careless in regard to the proper care and disposal of his waste and garbage.

The excreta from a single person in Plymouth, Pa., contaminates the water-supply, and a city of eight thousand inhabitants is thrown into sorrow and distress;—1,153 persons, a large proportion of these being from the adult population, were sick, 114 of these died, and an expense incurred amounting in the aggregate to over \$97,000. A method was adopted by which wastes from an iron mine in Negaunee, Mich., could be easily disposed of, a method which at this distance and in this presence seems monstrous, that of allowing these wastes to flow into the lake from which the city derives its water-supply, and the city is plunged into an epidemic of typhoid fever, long continued, death producing, and a reputation gained by the city which does not advertise it most favorably, at least not as a health resort. Forty thousand people in the United States die every year from typhoid fever. For every person who dies with this disease at least ten are sick; so there are sick in the United States every year from this one disease, on the average, 400,000 people. For every person that is sick, the time and attention of at least one other person is demanded, either as nurse or otherwise; then 800,000 in the United States each year are either suffering from, or attending those who are suffering from, this disease. You may go further in the computation. The average duration of this disease is about twenty-eight days, or in the aggregate 22,400,000 days. If money considerations could ever be placed alongside the value of human life, an easy estimate, at say one dollar a day for each of these, would show the financial aspect of the case to be something very serious

indeed. This from one disease. Add to this the large number of other filth diseases with their attendant sickness and death, and the problem before us for study at this time stands out in all its gigantic proportions.

THE GROUND COVERED BY THE REPORT.

The present report is one merely of progress, many points which have been raised not having as yet been discussed in any adequate manner. Progress has been made, and valuable material gathered, all of which will be handed over to the committee that shall be appointed at this meeting to continue with the work.

We are endeavoring to study over the entire ground,—from the case as it presents itself in the smaller town, to that of the metropolis; from the stand-point of the householder, merchant, and manufacturer, as well as from that of the municipal corporations in whose hands the successful accomplishment of the work finally rests; from the stand-point of those towns and cities which have a well established water-supply system with its accompanying sewers, to those unprovided with these appliances, and which are still depending upon private wells for their water-supply.

We have desired that those who are personally and pecuniarily interested in methods of final disposal should have a hearing, and an opportunity to establish their claims to the best solution of the problem; and at the same time we have desired that the people should be thoroughly protected as against the expenditure of public money invested in schemes which will inevitably result in failure to accomplish the desired end.

The report emphasizes the following features of the subject:

1. As primary to all other considerations, there should be the education and enlightenment of the people with reference to the dangers arising from the neglect of this question.

The committee, in their investigations, have become deeply impressed with the wide-spread indifference which still prevails regarding this subject, and they call on true sanitarians everywhere to use all their influence in moulding a healthy public sentiment which shall speedily work reform in this direction.

The people must be taught that the public health is not a thing to be tampered with. Reckless individuals must not be permitted to jeopardize their own and their fellow-citizens' lives by carelessness in the midst of disease-producing conditions. The committee urge the holding of frequent sanitary conventions, carried on by the state and local boards of health, in which careful instruction shall be given regarding the house and its surroundings, the relation of filth to disease, of the well to the privy vault, of the house to the cesspool, etc., and of all these to contagious and communicable diseases. In large cities the public press ought to be teachers along these lines.

We do not go so far as Thomas Carlyle, who declared that every sick man was a rascal, but we do assert that there would not be as many

deaths from communicable diseases if there were not some rascality or ignorance somewhere; and this rascality and ignorance rest with the whole people,—a people who will spend thousands of dollars to maintain a standing army to protect us against foes with whom we ought to be at peace, and a pittance of twenty-five or fifty dollars per year as salary of a health officer to protect us against this army of disease germs; a people who will spend hundreds of thousands of dollars to protect the lives of fishes, and a hundred dollars to protect the lives of men, women, and children; a people who will spend thousands of dollars to maintain a fire department to protect our property, and will give the "sanitary fire department" a hundred dollars to protect the lives of the citizens of the state. This phase of the subject is emphasized in a paper by Dr. Edward Clark of this committee, which paper forms a part of this report.

2. The mayor and common council of the cities, the presidents and trustees of villages, local boards of health and health officers, prosecuting attorneys and the police, all have important relations to this question. These responsibilities they should feel and know, because of their intelligent study of the subject in all its bearings. Two courses are open to these parties: Either, they must inform themselves, and by their intimate knowledge of the subject be able to legislate for themselves, or they must place the whole management of these and kindred subjects in the hands of a well paid, enthusiastic, educated health officer, who shall have full control, with proper ordinances to enforce his views, with full and sufficient penalties for the violation of the law, and with the moral and financial backing of the officers of the law, without which his work will fail. In the opinion of the committee, the health officer, acting as the executive of a small but thoroughly informed and progressive health board, is the proper person who should have this power placed in his hands, and he should be held strictly responsible for thorough and effective work in this direction. Mayors and aldermen, as a rule, will not inform themselves properly. They are too busy in the administration of the financial matters pertaining to the city which they serve—matters which seem to them to overshadow mere considerations of public health. In all communities may be found from three to five public-spirited, well informed, intelligent sanitarians, who will be willing to devote time and labor in the capacity of a board of health. It goes without saying, that these men should be sought out and appointed from their peculiar fitness for the tasks they are to perform, and not from any considerations of party affiliations, or political beliefs.

3. The committee have thought that it would be helpful to those dealing practically with this subject, if some forms of ordinances should be suggested, which in a general way should serve as a model for cities which have not already formulated and adopted such rules and regulations. These proposed ordinances, bearing simply upon one phase of the subject, may be found in the appendix to this report. It follows as a matter of course, that in many respects these regulations would necessarily be modi-

fied to suit the particular needs of the particular communities adopting them. Suggestions for ordinances bearing on the collection and disposal of garbage, other than night-soil, will be found in Dr. Clark's paper on the collection and transportation of waste and garbage, which is also to be found in the appendix to this report.

By way of comment on this part of the report, the committee desire to say that, in their opinion, this body, the American Public Health Association, should raise its voice emphatically against the perpetuation of the old-fashioned, deep privy vault system, and the traditional earth-storage system. If it is necessary that a privy-vault be used, it should never be of greater depth than two feet, and should frequently be cleaned. Other than these should be completely abolished, not alone in those cities which by their sewer systems may conduct human excreta into the same, and so remove them from immediate power to produce mischief, but this reform should be carried into all villages and farming communities. The evils arising from the lack of attention to this are not confined to large and densely populated cities, although in such places the evil is greatest: the small village and hamlet, the country residence even, may give rise to serious epidemics due to lack of care in this direction. It is not too much to hope that one of the early results reached through the influence of sanitarians shall be that this plague spot, this relic of barbarism, shall be utterly wiped off the face of the earth. It certainly requires no argument to prove the objectionable features of the ground-storage system. In a city fifty years or more old and containing a population closely packed together, each four rods by six or eight, it may be, has its dwelling-house, and, accompanying it, a privy vault, cesspool, barn, and well, the former of these accompaniments reeking with their filth and odorous from decomposing excrementitious matters. The deep privy vault is a barbarous thing even in the country, with six or eight families or from twenty-five to forty persons to the square mile of territory: how much more objectionable when two or three thousand people occupy less than this amount of space, all depositing the waste of their bodies in the soil, often in close proximity to the well. An eminent sanitarian says that vaults and cesspools are accountable for nineteen twentieths of all cases of typhoid fever; and adds as his opinion, that "if the dry-earth system were adopted, typhoid fever, cholera, and other filth diseases would speedily disappear."

"Forty-two deaths from infantile diarrhoea in June. These deaths occurred in forty houses. It appears that all have privy vaults save two, and many of these houses were supplied with water from wells in close proximity to the cesspools and privy vaults."¹ Comment is unnecessary: "he who runs may read."

We may study to advantage some of the model by-laws of local government boards of cities in England which pertain to cesspools. One of these requires that cesspools must be at least fifty feet away from the dwelling. It must have no communication whatever with the drain from

¹ Annals of Hygiene.

the house (the attestations of makers and advocates of patent sewer-traps to the contrary notwithstanding), its walls and floors must be constructed of good brick-work in cement, thoroughly cemented inside, and with a backing of well packed clay of at least nine inches. Around and beneath the brick-work, the top of the cesspool must be arched over, and means of ventilation provided. Constructed in accordance with these principles, they are far superior to the practice of emptying liquid and semi-solid waste matters into the earth, quickly to make their way through the soil and into the well. It is, however, bad practice to store such material for any length of time in any receptacle, there to putrefy and generate noxious gases. They should be emptied frequently.

4. The fourth point which the committee desire to enforce is that by which correct methods are arrived at concerning the collection and preservation of garbage by householders, hotel keepers, etc., and the transportation of the same to the place of final disposal. Much of the annoyance complained of by the people, many of the nuisances, have arisen from the careless and imperfect manner in which garbage has been allowed to accumulate about the premises, the unsightly, foul-smelling receptacles used, and the open carts and wagons dropping their refuse along the way, and presenting to the eye that which is offensive in the extreme. These questions are discussed by Dr. Clark, and also by Colonel W. F. Morse.

5. As fundamental to the discussion of the practical handling of garbage, the committee found it necessary to have a common understanding in regard to the classification of material which should be regarded as garbage, and to which our study should be confined. An enumeration of these materials would include ashes, street sweepings, kitchen refuse from hotels and private houses, manufacturers' refuse, fruits, vegetables, etc., from groceries; manure, dead animals, night-soil, tin cans, bottles, etc. These wastes may be classified into (1) inorganic and (2) organic. Of the inorganic wastes may be mentioned ashes, street sweepings, certain forms of manufacturing refuse, tin cans, bottles, etc. The organic wastes include the vegetable wastes from private houses, hotels, and groceries, certain forms of manufacturers' refuse, the ordure of animals, the excretions of man, and dead animals.

As ordinarily used, and therefore as used in this discussion, the term garbage includes simply vegetable wastes, such as refuse from groceries, the kitchen, etc.; the term animal waste includes the ordure of animals, and the solid excretions from man; wastes from manufacturing establishments, and all inorganic wastes, may be included under the term refuse.

WHAT IS BEING DONE.

The committee have endeavored to obtain fresh and reliable information in regard to methods now in operation in the larger cities. To this end the following circular was sent to one hundred of the largest cities in the Union: