

a while destroyed by fire; and is quite generally buried upon a dumping-ground or left in privy vaults which are economically covered and replaced by new ones so soon as they are filled. Sewage is carried into river, lake or ocean, as the case be, save in those rare instances, of which the city of Pullman, Illinois, is a type, where it is disposed of upon sewage farms.

Now what of the results? Comment upon the practice of feeding garbage, offal and carrion to animals destined for use as human food, is unnecessary. . . . The protest which should be uttered against the pollution of either river, lake or ocean by the deposit therein of waste materials, must differ only in a degree proportioned to the character of the body of water and the domestic usage to which it is put. The practice is undesirable at the best, and is intolerable, so far as river and lake is concerned, when either is the necessary source of water-supply to communities resident upon its shores. The extent to which this crying abuse is carried is sufficient to call forth alarm and to emphasize the necessity for a radical reform.

In the Mississippi River 8 cities alone deposited during the past year 152,575 tons of garbage, manure and offal, 108,250 tons of night-soil, and 3,765 dead animals. Into the Ohio River, 5 cities dumped 46,700 tons of garbage and offal, 21,157 tons of night-soil and 5,100 dead animals. Into the Missouri River, 4 cities have cast 36,110 tons of garbage, manure and offal, 22,400 tons of night-soil and 31,160 dead animals.

Recall the fact that a large proportion of these animals have been killed because they were suffering from glanders, farcy, hog-cholera, hydrophobia, pleuro-pneumonia, and tuberculosis, multiply these figures by the lowest possible multiple, and add to this great mass of decomposing material some thousands of miles of sewage discharged into these three rivers, and the mind can form some dim conception of the degree of their pollution. No theory of the self-purification of running water will suffice to dwarf the magnitude of this sanitary crime. Happily the United States Corps of Engineers has taken cognizance of this evil, in its recent reports to the Government, and it is to be hoped that the National authorities will, ere long, put a peremptory veto upon its continuance.

Like condemnation should be put upon the practice of earth-burial of waste materials in large masses and in close proximity to our great cities. What shall be said of communities, ranging in population from 100,000 to 1,000,000, which boasts the possession of fifty or a hundred acres of land just inside or outside their corporation limits, upon which they dump or bury, in close'y planted shallow pits, thousands of tons of night-soil, garbage, offal and dead animal? The human cemetery, fraught with peril to the purity of air and soil and water, and destined to endanger life and health as a spreading population hems it in, is innocent in comparison to this.

But even while we view with consternation these crude attempts at the disposal of refuse, we greet with pleasure the evidences that a better time is coming in the sanitary management of these materials. Two methods remain which commend themselves to the student of this important theme, viz.: 1. Rapid decomposition of these waste products, by the speedy withdrawal of the water and gases they contain, with a view to converting them into profitable forms of fertilizer. 2. Rapid and complete combustion of these materials, with a view to their entire destruction.

The first of these methods have the advantages of intended economy. It is eminently proper that animal and vegetable waste matter should if possible, be returned to the soil, of which they constitute the natural and necessary nutriment. Animal manure and stable refuse may be safely conveyed, in their raw form, as it were, to farm and garden lands, provided the latter, in need of fertilization, exists within so short a distance from the limits of the city that the cost of the carriage of so bulky a fertilizer will not put it beyond the reach of the agriculturist. As a rule, however, he demands soiling materials in concentrated form and the process, and the apparatus that will produce these safely and cheaply is the hope of the future. . . .

In the meantime, the crematory, under several patents, has proved itself to be a practical success in many places. The Egal, the Rider, the Patrick and the Mann furnaces are actively in use in several cities. Out of thirty-five health officers who have favored us with a reply to my request for an expression of opinion upon