

because of her dense population, has advanced to the second stage where she demands both sewage purification and water filtration. America ought not to take the second step before the first. She will not do so if she follows the advice of her trained sanitarians instead of the amateurs who seize upon the striking topics of the hour and do not consider the subject in a broad, conservative way.

As an illustration of the effect of popular sanitary writings, an instance may be mentioned that once came to the speaker's notice.

A wealthy man, owning a large estate, went to an expert for advice as to the question of sewage disposal. He had been reading the "House Beautiful," or something like that, and had learned that sewage must be treated by two processes, one the **aerobic**, and the other the **anaerobic**. He could pronounce these words glibly, and knew what they meant. He also knew that a septic tank and a contact bed would give the two processes an opportunity to work; and being a man of action as well as thought, he had constructed such a plant near his house. The result was that the family had to move out for a time until the caretaker, a common-sense farmer, who did not understand the difference between a septic tank and a cesspool, succeeded in conveying the tank effluent into some tile drains hastily laid. This change resulted in an entire elimination of the nuisance, as there was an unlimited acreage available. Yet the enthusiastic reader of the "House Beautiful" still felt so much anxiety because the sewage was not being purified **aerobically and anaerobically** that he was willing to pay for expert advice in order to see how these desirable processes could be secured. He was told that his farmer was entitled to the fee as he had already solved the problem.

But deeper than all this is the popular demand for decency. The watchword of the day is **cleanliness**. Cleaner houses, cleaner streets, cleaner food, cleaner politics, and cleaner lives are things that the world is striving for. Since the day when the bacteriologist proved that dirt is dangerous, there has been a wonderful response to the sanitarian's call for cleanliness, and it has had wonderful results, as the vital statistics show. It is not surprising, therefore, that cleanliness for the sake of health should be followed by cleanliness for its own sake. With this demand for decency the speaker is in hearty sympathy. But the science of sanitation is a new science, and it is easy for false theories to take root and for sound theories to become overworked. Amid the brilliant researches that are being made there is needed the saving grace of common-sense.

This country is growing rapidly, and the cities are growing faster than the rural districts. Manufacturing is increasing, and the factories are naturally locating along the water-courses. The waters of our rivers are, therefore, becoming foul to an increasing extent, doing great damage, and in some cases irretrievable injury. This is a serious matter; for if, by increasing our capital in the form of factories and mills, we decrease it in the form of natural resources, then we are not as a nation growing rich as rapidly as we think. Already some streams in America are as greatly polluted as many in England, as, for instance, the Passaic River in New Jersey, about which so much is just now being said.

To restore these polluted streams to their pristine purity will be impracticable, if not impossible; but they can be prevented from becoming a nuisance to sight and smell, and a menace to health by a rigorous policy of exclusion or purification of sewage and trade wastes, and the speaker believes that this ought to be done before, rather than after, the streams have become overcharged with pollution.

During the past few weeks a notable event has occurred in England. The Royal Commission on Sewage Disposal, after several years' study of the whole matter, has submitted its report and formulated its findings, placing its official approval on some of the modern methods of purification and cautioning against some of their weaknesses. As a sane, common-sense document this report is worthy of great commendation, and its influence ought to be widespread in the

sanitary world. Much criticised in the past for not immediately accepting each new theory as soon as propounded, the scientific conservatism of this commission will give its report added weight in years to come.

One thing is conspicuous throughout this report of the Royal Commission—viz., that the whole question of sewage disposal is treated from the standpoint of nuisance. It is recognized that disposal works are to be operated to avoid offensive conditions, not to protect water supplies. The degree of purification is to be adjusted to the stream into which the effluent is discharged. Disposal by dilution is tacitly recognized as a sensible and legitimate form of treatment. Nature's methods of purification are to be availed of so far as they are capable of acting.

To quote from the report:—"We are satisfied that rivers generally, those traversing agricultural as well as those draining manufacturing or urban areas, are necessarily exposed to other pollutions besides sewage, and it appears to us, therefore, that any authority taking water from such rivers for the purpose of water supply must be held to be aware of the risks to which the water is exposed, and that it should be regarded as part of the duty of that authority, systematically and thoroughly, to purify the water before distributing it to their customers.

"Apart from the question of drinking waters, we find no evidence to show that the mere presence of organisms of a noxious character in a river constitutes a danger to public health or destroys the amenities of the river. Generally speaking, therefore, we do not consider that in the present state of knowledge we should be justified in recommending that it should be the duty of a local authority to treat its sewage so that it should be bacteriologically pure."

The speaker believes that this is as it should be. Sewage purification plants should be built where they are needed to prevent nuisance; where the streams are small and the volume of sewage great their efficiency should be high; where the danger of nuisance is slight the efficiency of the plant need not be high; where the dilution is sufficient no other process than screening need be used. But septic tanks, sprinkling filters and contact beds should not be depended upon to protect water supplies, functions for which they are naturally not fitted. The influences that bring about the self-purification of streams may be utilized to mitigate the nuisances of sewage pollution, but are not to be depended upon to protect water supplies to be used for drinking.

In this discussion one point has not been mentioned, and that is the responsibility that one community owes to another. Is it right that an up-stream community, by polluting a river, should put a down-stream community to the expense of filtering its water supply? On the other hand, has the down-stream community a right to insist that the up-stream community shall change its sewage into drinking water? These are very important questions, involving various common law rights, which our jurists should lose no time in making clear. That there are conflicting interests no one can deny. There are many equities that will have to be adjusted, and these will vary under different conditions, but if the principle is recognized that filtration plants are best adapted to protect water supply, and that sewage purification plants are best adapted to prevent general nuisances, it will be found easier to adjust these equities; and if our State Departments of Health and our sanitary laws can be made to conform to this principle there will be a great saving of expense and a more rapid improvement in the public health.

WINNIPEG.—The city solicitor has been instructed to prepare a by-law granting a franchise to W. E. Skinner for a steam heating and distributing plant. According to the proposed by-law the concern will pay nothing for the franchise for the first three years, but will pay 2½ per cent. on the gross receipts after that time. A bond of \$125,000 will be put up guaranteeing the city against damage to the streets in the installation of the plant.