

pass which may or may not be injurious to the human system. It is natural, therefore, that the question has been asked. Is it possible to destroy all the bacteria in the water by adding something in the water which will destroy the bacteria without injuring the water as far as its drinking properties are concerned? Experiments have been carried out for many years of applying different chemical forms of chlorine, both electrically and directly obtained to water; as well as attempting to impregnate water by intensified forms of oxygen, such as ozone, with the idea of disinfecting the water and rendering inert all properties of micro-organic character. While laboratory experiments have shown that it is possible to sterilise a water, absolute sterilisation has never been reached in practice. In dealing with large quantities of water, the difficulty has never been overcome, of reaching every particle of the water with the disinfectant. Further, in the case of water containing matters in suspension, it has been found impossible, in practice, to penetrate these matters so as to obtain absolute disinfection.

Disinfection or sterilisation may be feasible as an adjunct or accessory to filtration: but, as a method of purifying water, by itself, it is absolutely useless. For instance, if we could obtain a water entirely free from all suspended matter, and containing only organic matter in solution along with the presence of bacteria, there sterilisation might be effective. But no such water is ever placed before us to deal with, unless it has been first treated by efficient filtration. We, therefore, find that in all cases of so called sterilisation processes, filtration of the water is insisted upon as a primary necessity. We have a case illustrative of this point in Canada at the present time at Lindsay, Ont. At Lindsay there has been recently installed an ozone sterilising plant. The water is first treated by filtration, and then charged with the ozone gas. The filtration is only of a rough and ready character as it is expected that the ozone will do the real work. According to a recent analysis of the treated water, however, we find that the filters remove 67 per cent. of the bacteria, and that the ozone only removes a further 57 per cent. of bacteria from this partially clarified water. The total percentage removal of bacteria from the original water by the combined processes being only 87 per cent., or 8 per cent. below the standard required for mechanical filters.

In the above case, if the filtration had been of an efficient character to remove the whole of, or practically the whole of the suspended matter, the result might have been satisfactory, but too much was asked of ozone, and too little of filtration.

The fact of the matter is, that up to the present, no data exist which will allow of a pronouncement in favor of sterilisation as opposed to filtration. On the other hand, sterilisation may be a useful and efficient addition to filtration in certain cases, where the original organic impurities are so high as to leave an undrinkable water with a bacterial removal of even over 99 per cent.

It must be remembered, that, one of the chief reasons for filtering water will always be the removal of sediment which causes turbidity and choked mains. All the methods of sterilisation yet put forth, do not affect turbidity or matter in suspension, unless aided by filtration. It must be filtration first, and the best that can be done by filtration; then, if necessary, when all is filtered out that it is possible to filter, sterilisation may follow as a method of dealing with matter in solution or so minute that any filter cannot take cognisance of it.

Municipal Progress in Saskatchewan

The Legislature of Saskatchewan, at its recent session, devoted a good deal of time and attention to municipal matters, very wisely realizing the great value of laying the foundations of municipal government on the wisest basis in a new Province, where municipalities are spring up like mushrooms. One of the changes was to alter the title of the "Municipal Commissioner" to the "Minister of Municipal Affairs", and call the department, the "Department of Municipal Affairs". This change has also been carried out in the other departments, and the "Commissioners" become "Ministers". This is a wise step, for it seemed useless, and was certainly confusing, to have a different nomenclature to that in use in the other Provincial Governments; and involved explanations when speaking of "Ministers" and "Commissioners" to show that in some cases they were synonymous; while the growing fashion of having cities governed by Commissioners, made it even more obscure.

Deputy Minister Bayne has kindly furnished the following information about the more important changes which affect the "Department of Municipal Affairs".

The Financial Year has been made to correspond with the calendar year, in all the five classes of municipal organizations, cities, towns, villages, rural municipalities, and local improvement districts (for each of which there are separate Acts). Greater uniformity in these different bodies has been obtained, and the annual returns, interim statements, etc., are made similar.

Seventy-four new Rural Municipalities were organized during the past year; the elections for Reeve and six Councillors was held 13th December, and the first regular meeting will be held on 3rd January, at which a Secretary-Treasurer will be appointed.

One hundred and sixty small Local Improvement Districts were also organized on the same date, and the Department appointed, and sent notices and instructions to, nearly a thousand returning officers. In these Districts elections will also be held at the same date as the Rural Municipalities; and as their area and divisions are the same as the latter, they can easily be promoted into the higher form. At the same time three hundred and fifty-nine small Local Improvement Districts were disorganized.

The Legislature was very generous to the Rural Municipalities, for they voted \$60,000, and the Premier, in speaking in the House, stated that it was not the intention of the Government to withdraw their work or assistance from them.

It is worth noting, that there is no provision for granting any sums of money whatever to the small Local Improvement Districts, or to those communities that decide to hold back, and do not adopt the more advanced form of local self-government.

Legislation is to be passed permitting any municipality which takes power from the Hydro-Electric Commission to delay the payment of the sinking fund until the power business is paying its way, so that the only cost of this nature will be for the interest. This is a great concession, and will aid many municipalities where there is doubt as to the practical issue of taking power.

"The essential principle of property being to assure to all persons what they have produced by their labor and accumulated by their abstinence, this principle cannot apply to what is not the product of labor, the raw material of the earth."—John Stewart Mill.