one town to the water supply of another, and some remedy must be sought to guard against this evil.

It might not be out of place to here remark that some twenty years ago I entertained the thought that if all water supplies for domestic and dairy use, and any other use in connection with food or drink, were free from typhoid fever organisms that typhoid fever would soon be stricken from the list of diseases, and that water in some form or condition was responsible for our continued typhoid rates, and that with pure or purified water, universally used for dietetic purposes and in connection with articles of diet ingested even uncooked, we might hope for practically the elimination of typhoid.

It may be recalled that Prof. Dr. Von Pettenkofer leaned strongly to this theory, based largely no doubt upon his experience with the disease in Munich, after the introduction of a new public water supply from springs in the Mangfall Valley.

Various methods of sewage disposal have been tried and some permanently adopted.

Screening the coarser floating particles from sewage is a part of every system of disposal. Grit chambers to remove by limited sedimentation the heavier solids held in mechanical suspension is also a part of every system, where combined sewers are in use. But after these two steps have been taken, the further treatment takes a wide range from simple and limited sedimentation, to the most refined methods of filtration adapted to the treatment of sewage.

The treatment of sewage will depend upon the disposition of the final effluent. If the effluent is to be discharged into a rapid flowing stream of large relative volume, the degree of purification need not be so high as it should be when the dilution and opportunity for oxidation of the decomposable matters in the sewage will be less. If the sewage outfall is into a stream not drawn upon for public water supply, nor used for watering stock, and where nuisance only is to be considered, the Purification need be only sufficient to avoid putrescibility. But if the stream is used below the point of sewage outfall for public water supply, or for watering stock, and the effluent must be no worse, and possibly better than the water naturally flowing in such stream, then the most advanced and comprehensive methods of purification will be necessary to meet the present sanitary requirements.

In the case of a public water supply, the standards of quality whether the water be naturally wholesome, or made so by filtration, will be about the same everywhere, so that the analytical conditions which determine wholesome water are not difficult to establish, and will not vary materially the world over. But standards for sewage effluents are not so easily established. Thus sewage discharged into New York harbor where the fresh and salt water dilution will be very large and the water nowhere used for domestic purposes, nor for the watering of stock, may be much inferior to the sewage effluent which can safely be discharged into Lake Erie at Cleveland, or of the sewage effluent which can safely be discharged into the Ohio River at Pittsburgh.

Each place may require a standard of sewage effluent different from the other places, and as a consequence the systems of sewage purification will take a wide range of design and efficiency, depending upon the place and condition of final discharge.

In Europe almost every known method of sewage disposal has been tried. Some of these methods have survived the experimental stage and have become standards under proper conditions, others have been tried

and finally abandoned. At Glasgow, for example, the sewage is simply screened, the grit intercepted, a few hours of continuous sedimentation allowed, when the effluent is run into the Clyde, on the ebbtide, and the sludge pumped from the sedimentation tanks and carried out to deep water in the sea, in sludge boats constructed for the purpose. Some of the heavier sludge, however, is loaded on railway trains and then used for filling lowlands along the river below Glasgow, and some of it is pressed in order to extract part of the water, and is then dried and sold as a fertilizer. The fertilizing value of the average sewage sludge is low, and the thought once entertained by Victor Hugo and others of less romantic mind, that the elements of a complete fertilizer were to be found in domestic sewage has long since been disproved. Sewage has been successfully applied to certain kinds of crops, but it has no broad application as a general fertilizer, and when so used the crop must be adapted to the sewage. Of course, something else must be grown on the land besides "alfalfa" and "cabbage" if we are to live, and to the great crops of corn and wheat upon which the farming life of the nation depends, it is doubtful if a raw sewage can be of material benefit.

The disposal of sewage should be conducted upon strictly sanitary lines, and if processes can be worked out which will enable some portion of the sewage to yield a profit, these must have in view the sanitary end as the first object.

In this state the proper treatment and disposal of sewage is generally required to prevent pollution of our streams, and to avoid nuisance. Some of our streams, like the Cuyahoga River at Cleveland, and Millcreek in and north of Cincinnati, are now so vile from untreated sewage effluents that at times it seems that it only requires a match to set fire to them. But these conditions will soon be remedied in both places, and we may expect to see the waters of these streams flow into Lake Erie and the Ohio River respectively, as clear and sanitary as the natural waters of the Lake and River, and perhaps safer for ordinary uses.

It is a theory in one part of Germany to-day, that after the sludge has been precipitated by a few hours' sedimentation from raw sewage, that the effluent can be safely discharged into a relatively small stream, provided the stream has a good current, and no places occur in it where the unsedimented solids in the sewage can strand. That is to say, the sewage must be kept moving until it reaches a body of water large enough to furnish proper dilution. The dilution in the small streams may be low provided the current is maintained, and to this end brooks have been improved and artificial channels created, for the carriage of the sewage effluents at constant safe velocities.

The Imhoff septic tank has come into vogue in the Emscher district of Westphalia, as an adjunct of this system. In this district all the smaller streams and constructed channels flow into the Emscher River, and the river finally empties into the Rhine, where the volume of flow is relatively large.

If we pursued our plans for sewage disposal as persistently and cheerfully as do our neighbors in Europe, much better results would probably be accomplished, and less complaint would be heard from those to whom the sewage effluent of our cities is a nuisance and sometimes a menace to the public health.

The collection and proper disposal of garbage and other city wastes is another branch of sanitation that