COLLECTION AND DISPOSAL OF MUNICIPAL WASTES.

In the monthly bulletin of the Ohio State Board of Health Mr. Irvin S. Osborn, consulting expert in charge of garbage disposal for Columbus, Ohio, makes some comment on the above question. He states that the collection and disposal of municipal waste is one of the most serious problems that confronts nearly every municipality. In the smaller communities it receives little attention without serious results, but as the municipality grows it becomes necessary to adopt some definite plan, by means of which the work can be carried on in a systematic manner.

The experience of the majority of cities has been unsatisfactory. An investigation of the methods employed in cities will show that desired results have not been obtained except in a few cases, indicating that the methods employed are radically wrong in regard to the way the work has been handled. Many cities have expended large amounts trying to obtain better results, both as to the sanitary conditions and also as to cost, but have failed, because as a rule they have either acted on the recommendation of manufacturers of equipment, who make impossible guarantees, or they have copied the method used in some other city where the conditions are radically different.

The work has not been taken up as a problem to be solved, but has been considered as a condition to be overcome in the easiest manner. In other words, sufficient study has not been made of the conditions that affect the problems, and the result has been the adoption of methods that were not suited to the conditions as they really existed. These conditions must be known in advance and the work planned in accordance with them. Many municipalities have adopted some plan, only to find that after all they are no better off than they were before, except that they have gained considerable experience at a large cost.

The engineering and municipal publications have published many articles giving results obtained in various cities and detail descriptions of the various plants for the disposition of wastes. The data and descriptions are of great aid from an educational standpoint for officials who are obtaining enlightenment on the subject, but on comparison they will be found of little value in determining what will apply to the local conditions. The articles are oftentimes written by men who are interested in some special method of disposal or for advertising purposes, so that the opinions expressed are oftentimes biased. The reports or data given on the operation of various plants are oftentimes misleading in regard to the cost for conducting the work, since many items are omitted. This also applies to the estimated value of the returns from the sale of by-products of a reduction plant, or the value of the power that can be developed if disposal is made by burning. The problem must be considered from the standpoint of actual values that can be obtained under the conditions to be met, and not on theoretical values based on what would be the results with ideal conditions. To determine what results can be obtained information should be such that the official can show what the actual results would be.

The collection and disposal of municipal waste is an engineering problem, and only when the municipalities take it up as such, will the advance be made and a desirable solution obtained. At the present time there is no branch of municipal service where the need of study and expert advice is as great as in connection with the collection and disposal of municipal waste. Other branches of municipal service have received the study required and definite information concerning them collected from long experience, but it is only during the past few years that this branch of the service is being recognized as important. Modern methods for disposing of municipal wastes involve problems in civil and mechanical engineering which must be solved in a sanitary and economical manner. If the waste is to be burned, the engineer must understand the combustion of the material to be disposed of and the results that can be obtained in the development of power. Experience shows that all furnaces will not dispose of various classes of waste in either a sanitary or economical manner. If garbage is to be utilized or disposed of by the reduction method, the need of engineering advice is still more essential in order to obtain results that will be satisfactory.

The following will outline briefly a few items that must be considered in studying the problem to arrive at a conclusion that will warrant the adoption of any particular method or a combination of the different methods:—

1. The topography of the city studied to determine the type of wagons and location of central stations or disposal plants, to determine what bearing it will have on the collection of the material from the standpoint of economy and efficient service.

2. The character of the population studied in regard to classes and nationalities to determine the quantity and quality of the various classes of waste as produced in different sections of the city.

3. The plan of the city and character of the residences should be studied with reference to the number of houses to be served and the access to the same in making collections.

4. The production of each class of waste should be studied with reference to the average daily quantities. The monthly variation of each class to determine the maximum and minimum quantities to be disposed of. This is one of the most important determinations to be made. Estimates are often made, taking the average for monthly collections from the total yearly amounts without reference to seasonal fluctuation. Garbage during the maximum months will increase more than 100 per cent. over the average collection during the minimum months, and the combustible waste will often decrease 75 per cent. during the same period, with the result that there is not a sufficient material of combustible nature to destroy the garbage without using additional fuel.

5. Records of the quantities of each class of waste should be obtained over as long a period as possible to determine the relative increase and provide for future growth.

6. What service is to be rendered to residences and places of business.

7. Analysis of all classes of waste from a mechanical standpoint, as well as chemical analysis to determine the value of the various classes in respect to calorific value, water, ash, volatile matter, etc., and when utilized determination as to available grease and tankage and value of the same.

8. The past practice should be studied to determine the work that will be required to systematize the future developments.

9. Estimates of the first cost that would be necessary to adopt each method of disposal. Estimated annual cost for operation, maintenance and fixed charges for each method to determine the most economical method that can be adopted. The estimates will vary with local conditions, quantity and quality of the wastes to be handled.

After making a complete study the question is to determine what method is best suited for the conditions to be met from a sanitary standpoint with proper allowance made for the annual charge for maintaining and conducting the work. It is not a theoretical, but a practical problem to be solved, and can only be solved by obtaining the proper knowledge and experience necessary to decide what is suitable. The correct solution cannot be obtained by trying to copy what some other city has or by what is claimed for various methods. It must be studied with all the information possible obtained, and then applied to the problem to be solved in a practical manner from a sanitary and economical standpoint.