must not be neglected. Because we cannot readily trace disease to city dumps, there is no reason why these eyesores should remain as blots on the landscape. All these dumps are more or less a nuisance, and in decency should be abated. It may cost something to collect and properly dispose of wastes and rubbish, but very little that is desirable is obtained without cost, and no expense that we indulge in will yield so large a return in the beautifying of our small streams in the unimproved outskirts of our cities as the complete abolition of our waste and rubbish dumps. No one wants a garbage or waste dump on or near his premises, but he is not so particular about someone else's premises, and that which is unsightly and an offence to his finer sensibilities will likely be a nuisance and offence to others who from locality are compelled to endure it.

In cities of less than 100,000 population it is thought that garbage and other wastes and rubbish are best disposed of by combustion in high temperature destructor furnaces, if sanitation is the object in view.

In large cities, however, the garbage can be separately collected and reduced to inoffensive and saleable products with reasonable profit and the other wastes and rubbish from domestic, commercial and municipal sources can be collected, sorted and some material of value obtained from them before the useless matters are destroyed. The picking over of garbage wastes and rubbish to obtain revenue is a doubtful procedure. Great risk is run by the "pickers" in handling cast-off clothing, bed linen and some other household articles. The picking of inorganic matter may be attended with no great risk, but all material which by chance can transmit disease should not be picked and preserved, but be promptly put through the combustion furnace and rendered harmless.

In some cities the garbage is collected and delivered to the reduction works at cost, the reduction being performed under contract by private parties, while in others the reduction as well as collection is conducted by the municipality. The net profit from the handling of the garbage in Cleveland, for the year 1909, was \$85,715, and by the adoption of the same energetic and efficient methods in some of our other cities corresponding results can be expected.

Garbage when reduced will yield grease and fertilizer, but the value of the fertilizer will be low. The grease is a valuable product and this together with the articles of value "picked" from the garbage constitute the source of profit.

Small cities cannot successfully conduct garbage reduction works owing to the lack of sufficient raw materials to work upon from day to day, and in these, with sanitation as the object, the garbage and all other wastes and rubbish should be reduced to clinker, ash and gases, in high temperature "destructor" furnaces. "Picking" the garbage and wastes may furnish some material that is saleable but after this has been done, the remainder of the material should be quickly destroyed.

In suburbs of cities and in villages the rubbish and wastes from the household can often be destroyed on the premises, and when this is done the burden on the municipality will be correspondingly lessened. Organic wastes and rubbish of whatever kind should not be alowed to accumulate, and the same desire for cleanliness of person and clothing which we are all supposed to have should apply to the household, the factory and the store.

How often are we shocked at sight of dump heaps and rubbish piles along our trunk line railways in the outskirts of cities; useless in themselves, eyesores, nuisances and sometimes the cause of ill health?

The City of Cincinnati collects and reduces its garbage, but ashes, street sweepings, domestic, commercial and building wastes and rubbish are collected as daily tributes to our waste heaps or so-called "city dumps." Things that cannot be used should be destroyed, and not left to encumber the premises or the landscape, to offend good taste and obscure the face of nature.

No one should be offended by an order to clean up his premises and keep it clean, to collect and reduce, pick over or destroy what he cannot use, with the best means at his disposal, and when the individual has done all that can reasonably be expected of him then the municipality must do the rest.

PERMEABILITY OF CONCRETE.

Results of great importance to contractors, engineers and farmers who have to do with concrete construction are being obtained in a series of tests to determine the rate and the amount of flow of water through concrete. The College of Engineering of the University of Wisconsin is making these tests with the object of finding a simpler means of making concrete watertight. A large cement company in the middle west is co-operating with the college by offering the facilities of its plant.

Already some interesting results have been gotten in the effect of the length of time of mixing in a machine mixer of the batch type; the effect of the percentage of mixing upon the imperviousness of the concrete; the effect of having sand in dry condition before mixing; and the effect of having the sand wet.

The experimenters have found that good results are obtained if the concrete remains in the mixer from two to three minutes when dry materials are employed. For cases where the sand and gravel or stone are damp a considerably longer time is required. Therefore the use of wet sand should be avoided if possible. The experiments showed that mixtures consisting of I part of cement, 11/2 parts of Janesville sand of the Torpedo grade, and 3 parts of Janesville gravel, when mixed to a wet consistency, are impervious to water when subjected to a pressure of 40 pounds per square inch. Mixtures as lean as I part of cement to 6 parts of gravel (a graded mixture) have been made impervious at high pressures by using care in proportioning the amount of water and in mixing the batch. The specimens used in making these tests are cylindrical in form and so made that the faces of the cylinders, which are 131/2 inches in diameter, are exposed to the predetermined water pressure. The thickness of the concrete through which the water must pass can be varied from 4 to 18 inches. Ample provision is made for cleaning both faces of the cylinder before placing it upon the testing apparatus. The apparatus itself is so arranged that very accurate tests can be made.

The importance of these experiments will be more sufficiently appreciated when it is understood that a large proportion of the trouble arising from poor concrete is due to the use of defective sand or gravel.

The department is also studying the effect of varying the percentages of cement and water, the gradation of the sand and gravel (by this is meant the size of the rocks and the fineness of the sand), the proportioning of the mixture, the thoroughness of mixing, and the effects of different conditions on the hardening of the specimens.