

Sewage Disposal and Waste Disposal in Portland.

REES, S. E.

The above problem is in reality two definite and separate subjects of consideration. They must be studied as separate problems because the present sewage system is part of the City of Portland property, while waste disposal is as yet scattered between private and public organizations. Both of these problems have been studied by the Portland City Club. They have however concentrated most of their efforts on the garbage problem, leaving the sewage to the City engineer, as it should be left.

The problem of garbage disposal is at present the most pressing of the two. The method of collection now employed in Portland is known as a form of scavenger system, which may be described as collection by licensed individual contractors. Under this system licenses are granted by application, and the individual who wishes to make application for a license must have the signature of three citizens of the city, and these are passed upon by the superintendent of the garbage disposal plant. The procedure is purely a matter of form, and affords no actual control of the number of collectors operating, their character, equipment, routes; charges etc. The report of the City Club shows that while the Superintendent has the power to refuse to approve an application, he has never done so. A fee is charged, of five dollars, for a license covering three months for one vehicle of any description.

At present there are eighty-two licensed collectors delivering waste to the incinerator and a number of so called hog feeders, who collect swill from hotels and restaurants only.

It can be seen then, that once granted a license, the scavenger becomes a free lance who may operate in any part of the city and charge

such rates as he is able to collect. There is much overlapping of routes in the more thickly populated parts of the city and a lack of any collection at all, in other places. No information is available as to the separate and individual routes of these garbage collectors, thus making it impossible to estimate the amount of duplication of collectors in various parts of the city. For example in the apartment house districts there are at least five collectors whose routes overlap.

The charges for this collection is of great interest to the general public and is important in view of a some day municipal owned garbage collection system. This must be determined by a rather back handed method as the cost to the individual house holder is not known. The collection costs from fifty cents to one dollar per month for weekly collections. The sale of equipment and routes average \$3,000.00 to \$4,000.00 dollars. The total equipment in the city is estimated as worth probably above \$200,000.00 dollars. The best indication of the income of these men must be the selling price of their businesses. So, a route rated at \$3,500.00 dollars should bring in a monthly income of \$350.00. In addition, their income is boosted an unknown amount by removal of accumulated debris, cleaning up unsalable materials after removal of buildings and sale of metal scraps, bottles, paper etc. No estimate is made as to the amount of this, but it is, according to Mr. Le Fever of the Portland City Club a rather considerable item. Thus it can be seen that the business is no mean one for men suited to that occupation, making their income higher than that of many trained men.

The present method of garbage disposal in Portland is a combination of hog feeding, dumping, and incinerating of municipal waste.

Hog feeding is carried on by licensed collectors contracting

with hotels and restaurants for table refuse which is available as food supply for hogs. This is entirely out of control of the sanitary forces of the city and is of importance to the public health bureau. But there is no inspector or control of the wagons after they have paid their fee except that they must be outside of the city limits or of the restricted districts by seven A.M. No control of the feeding ranches outside of the city seems possible but these can be controlled indirectly by refusing a license to a collector who delivers to a ranch not approved by the city. The managers of some of the larger hotels express their belief that the collections are usually made in an unsanitary manner but made no statements as to arrangements with the collectors. Conditions indicate that there should be a suitable control of both collectors and ranches.

The dumping of garbage is becoming a larger and larger problem to the city. The principal dump is at present north of Guilds Lake by the Incinerator. The dump is unfenced and is at times a hunting place for scavengers and a favorite play ground for small boys. At present much rubbish and a considerable quantity of garbage is being dumped here because of lack of incinerator capacity. This dump is very strongly condemned by the Portland City Club as unsightly, foul smelling and a breeding ground for flies and cockroaches. They recommend that the fill be concentrated as closely as possible and the portions up to grade be covered with dirt and seeded.

The other dumping ground is the Marquam Gulch in South Portland. This is being taken care of as fast as possible and while at it is very foul smelling the amount of dirt to cover the garbage will be sufficient to prevent it from becoming a public nuisance.

The final method of garbage disposal is by the municipally owned incinerator of the City of Portland. This is located on the west side near Guilds Lake. Combustible material including all garbage is hauled to the incinerator. The daily capacity of the present plant is 150 tons. At present 170 tons are received by the superintendent. Of the 170 tons there is about 120 tons of wet garbage, half of which if properly segregated could be used as hog feed.

The amount of waste is increasing at the present time and the proper segregation should be made so that the incinerator may not be overcrowded. Plans are being completed at the city engineer's office for the construction of a new incinerator of 200 tons daily capacity

The incinerator plant itself, according to report, is efficient when viewed as a sanitary disposal plant but not as to size.

The possibility of steam production thru the burning of this waste has been figured on by the Portland City Club. By the construction of a condensing plant the possible revenue would be about \$ 5,340.00 dollars per year. With a 200 ton plant it would be capable of furnishing steam sufficient to heat a building the size the Pittock Block or Morgan Building or two buildings the size of the Corbett Building.

The direct comparison of advantages of the contract collection and the municipal plan of disposal of garbage is here quoted from the report of Portland City Club Bulletin Vol. 111 #9 November 24 1922. Page 3

Comparison of Methods.

By The Municipality = By Contract

Advantages

Disadvantages

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| <p>1. Sanitation, not profit is the primary consideration and supervision is more readily effected .</p> <p>2. Greater flexibility of service is secured to meet the ever changing conditions of season weather, population ,etc.</p> <p>3. The work is directly under the control of public officials, whose chief object is to render good service to the public at the home and on the street, at reasonable cost, thus eliminating the not unnatural tendency among some of the contractors to do within the terms of the contract as little as practicable and with least expenditure of money by themselves.</p> <p>4. Direct responsibility to the public produces quicker results</p> | <p>1. Profit not sanitation is the predominating influence. The contractor 's criterion is least sanitation permissible at least cost of collection.</p> <p>2. Operations are less elastic and contract profits may be reduced by unforeseen circumstances</p> <p>3. Response to unforeseen occurrences is less rapid. Breach of contract may produce unsanitary service.</p> <p>4. As no record of details are usually kept it is difficult</p> |
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- for the city to make estimates
- of cost and efficiency of
- service.

5. It is less expensive, generally -5. The uncertainties in
 because the equipment is -ascertaining the approximate
 permanent, no fund is necessary -amount of refuse to be collected
 to meet emergencies and no profit-are great.
 is included. --

- 6. Lack of concern of public
 -- welfare invites failure to
 - give full service.
- 7. Lack of direct responsibility
 - to the public causes hindrance
 - to expeditious action.
- 8. Uncertainty of contract
 - renewal causes an excessive
 -- charge for use of equipment.
- 9. Frequent difficulties are
 - apparent in letting a contract
 - for a long term, partly in view
 - of strikes panic or war.
- 10. In view of the foregoing
 - the contract system, especially
 - for large cities, is frequently
 - more costly.

Municipal Collection

Contract Collection

Disadvantages

Advantages

1. Business principles are often sacrificed to political machinery, when it demands unnecessary changes in appointments, methods, etc.

-1. The application of business principles are more readily affected.

2. The operation of refuse collection may fall into the hands of incompetent and untrained officials.

2. The elimination of politics from the operation removes some chances for unsatisfactory changes in the working force.

-3. A simplification of the work of the municipality is advantageous, chiefly in smaller cities.

-4. A definite sum of money is fixed in advance for the work.

-5. Borrowing funds for construction and purchase of supplies is obviated as the contractor must raise the capital.

The Portland City Club then recommends the adoption of the municipal method of collection of garbage, the increase of the incinerator capacity and the hiring of a competent city sanitary engineer to work out the best method of attack of these questions.

The question of sewage disposal is essential to the welfare of a community in relation to disease prevention. Portland has, up to the present, been very fortunate in its location, being able to make easy disposal of its sewage. Its close location to the Willamette and Columbia rivers which possess sufficient current to carry away sewage conveyed into these waters by the city sewers. These rivers, up to the present time have never been taxed sufficient to cause the production of noxious conditions. As the city continues to grow however, additional facilities or special methods will be required for effective disposal of excrement to avoid nuisance and perhaps safeguard public health.

At the present time trunk sewers have been constructed leading to either the Willamette or Columbia rivers to serve 58% of the property within the city limits, at a total cost of, including the lateral sewers, of \$9,582,208.13.

The Portland system of sewage is known as the combined system. In which the refuse from the houses and storm waters are carried by the same system. From the sanitary standpoint this is a satisfactory system. This system is the older of the two systems and is effective in case the flow is carried by gravity and sufficient pipe is laid to be able to handle both house and storm refuse. Where pumping is necessary the separate system of sewage disposal is necessary.

The sewage system consists of house sewers or house drains that convey the sewage to street sewers or lateral sewers. These unite in what is termed district sewers and the latter unite in one or more trunk sewers of large size.

In Portland the Sewage is disposed of by a process which Rosneau calls " Sewage disposal by dilution." The minimum amount of water required to dilute sewage in streams is usually considered to be from 2.5 to 4 cubic feet per second for sewage of one thousand people. There are no available figures as to the amount of water available for Portland sewage system.

The trunk sewers in the main west side district of Portland empty into the Willamette river every block. The question brought up before the City Club was whether this was too much for the river to carry. It was suggested by Dr. Burget of this college that the city make a survey of the river water and banks of the river at the end of every sewer in both high and low water. He suggested that a nitrogen estimation and a bacteriological examination be made at these points. To carry this out a man would be needed to put his whole time on the work. It would require about a years time. No such survey has as yet been made so no estimation can be given of the condition found in the river,

The City Club of Portland in a pamphlet on Public Health methods and their application to Portland (Feb 1922) give data as follows on the present sewage system. They noted that the lateral sewers are needed to complete the present system. At present about 30% of the property served by trunk sewers is not directly connected due to absence of lateral feeders. This the reason why a large number of residence districts already served by trunk sewers are still connected with cesspools and similar forms of unsanitary facilities which are inadequate under modern conditions. Until lateral sewers are constructed to connect with the trunk sewers

the use of cesspools cannot be obviated. The city ordinances are adequate for regulating the construction of cesspools. They must carry down to a stratum which is sufficiently pervious to permit passage of liquid portions of the sewage. They must be encased with cement, brick, or similar durable material and must be covered with a thick slab of cement or similar covering. At least a foot of earth or similar solid filter must be placed on top to prevent the escape of noxious fumes.

Section 127, of the housing code, by its wording legalizes privy vaults, by stating that " whenever a connection with a sewer is possible" etc "all privy vaults" etc "shall be removed" etc. This leaves the interpretation of "possible" open to question, and hence weakens the entire provision or entangles the health officer in arguments which are apt to be decided by political expedient.

The 42% of the area, still without trunk sewer facilities, consists of the Peninsula and St Johns districts, sloping toward the Columbia river, West of Delaware avenue; the Lents district in the southeasterly portion of the city, east of 60th Street, S.E., and south of Powel Valley Road, and a few small scattered districts near the city boundary.

Plans have been prepared for the construction of sewers in the St Johns and Lents District. These will probably be completed in the next year.

Sewers constructed in the past ten years have been built along sound engineering lines, and should meet all demands placed upon them for several generations.

Three important features of sewer construction which

should have special attention are the following:

1. The substituting of larger and more modern sewers in the streets running east and west, in the West side business district.
2. The construction of lateral sewers in districts already connected or served by trunk sewers.
3. The construction of intercepting sewers, along both the east and west banks of the Willamette River, extending clear out to the Columbia River, to divert sewage from the upper harbor, the section of dense population and concentrated discharge.

The sewers constructed many years ago, in the streets running east and west thru the West Side business districts, are entirely inadequate to meet requirements, and are, in many cases defective in construction. Their inadequacy was brought to the minds of the public during the period of high water in the Willamette River two years ago.

Another consideration which must be taken into consideration is the fact that during high water in the Columbia River there is no current in the Willamette River due to the backing up of the water. The river then becomes contaminated and sanitary conditions are far from satisfactory.

Sewage cannot be dumped in to the Willamette River later than 1930 if the city continues to grow at its present rate.

The question is summarized very well by the pamphlet of the public health bureau before mentioned.

"Summary".

"Up to the present time, the quantity of sewage has not taxed the capacity of the Willamette and Columbia Rivers to carry it away.

"Trunk sewers which may serve 58% of the property in the city have been constructed; 30% of this property is not connected with trunk sewers due to absence of lateral feeders. Use of cesspools and other devices cannot be obviated until lateral sewers are constructed."

"Needs of the near future are; larger and more modern sewers in the West Side business district: lateral sewers in districts already served by trunk sewers, and intercepting sewers to the Columbia River along both banks of the Willamette, to divert sewage from the upper harbor."

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Verbal Reference

Mr Ehle of City Engineer Office.

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