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City Club of Portland (Portland, Or.)

"Harmony in Diversity"

PORTLAND CITY CLUB BULLETIN

"Active Citizenship"

VOLUME III | PORTLAND, OREGON, NOVEMBER 24, 1922 | NUMBER 9

FRIDAY, NOVEMBER 24 — *Hotel Benson, 12:10*

SPEAKER

NORMAN K. TULLY

SUBJECT

"Lincoln as an Orator"

An exceedingly interesting address by a forcible speaker.

SPEAKER

A. A. KNOWLTON

Subject

"So-called Garbage Collection and Disposal in Portland"

SATURDAY, DECEMBER 9 — *WOMEN INVITED*

CITY CLUB JAUNT TO LONGVIEW, WASH.

First Trip in History of City Club

Every Member Is Talking About It. Everybody Wants to Go. Why Not?

See details below—hear more about the trip on Friday.

SEE A $16,000,000 PLANT AND A CITY OF 20,000 IN THE MAKING!

Under auspices Port of Portland and Long-Bell Lumber Co.

CLEAR-CUT STUDY MADE ON GARBAGE COLLECTION

GREETED with not a little publicity in the news and editorials of the local press, the City Club survey of Garbage Collection and Disposal in Portland is printed as a supplement to this issue of the *Bulletin*.

The Committee responsible for this latest, outstanding report, consists of Arthur Underhill, chairman, A. A. Knowlton, L. A. Liljeqvist, O. L. LeFever and W. G. Purcell.

The Committee has designated its work as a preliminary survey of the Collection and Disposal of Municipal Wastes, because after making the application of methods to Portland, every member of the Committee felt that the work would not be completed until municipal garbage collection had become a fact in Portland. It is the candid opinion of those who have had an opportunity to study the report that the City Club can render no greater service than by following up the report with a vigorous campaign of public education on the subject of municipal collection of garbage.

CONTINUED ON PAGE 4

LONGVIEW TRIP PROPOSAL GIVEN HEARTY APPROVAL

Details of the City Club Trip to Longview, Washington.

The Plan: City Club trip—women invited—to Longview, Wash., to inspect great industrial project of the Long-Bell Lumber Co.

Time: Saturday afternoon, December 9th, 1922.

Expenses: Fare, $2.60 round-trip—supper extra.

Transportation: By train—special coaches—or automobile to Rainier, Ore. Cross river to Longview on Port of Portland boat. Return same route.

Train Schedule: Leave Union Station, 1:10 P.M., arrive Rainier, 2:50; leave Rainier, 7:25 P.M., arrive Portland, 9:05.

How To Make Reservations Now: Use enclosed card to designate reservations.

While the above details may be

CONTINUED ON PAGE 4

PORTLAND CITY CLUB BULLETIN

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THE CITY CLUB

OF PORTLAND

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"To inform its members and the community in public matters and to arouse them to a realization of the obligations of citizenship."

TULLY TO SPEAK FRIDAY

Because the presentation of Club reports and important announcements required more time than was anticipated last Friday, motion was made from the floor that the speaker of the day, Norman K. Tully, be invited to present his interesting address on "Lincoln as an Orator" at the meeting this week, when full time would be assured. A large number of members turned out especially to hear Mr. Tully.

Progress being made in the cure and prevention of cancer was ably presented by Dr. A. E. Rockey, the occasion being "Cancer Prevention Week." The work of the Public Library in promoting better reading for children was explained by R. L. Sabin, Jr.

In addition to the Club's regular "group" singing last week, Mr. Harold Graham, accompanied by Mrs. Graham, sang two appreciated baritone solos.

Preliminary plans of the City Club's visit, December 9th, to Longview were explained by Major Richard Park, whose committee on Port and Industrial Development will have charge of the trip. The membership expressed a majority vote in favor of Saturday afternoon for the jaunt.

APPLICATIONS FOR MEMBERSHIP

The following applications for membership have been received and will be presented for the approval of the City Club, Friday, December 1.

E. E. Bosworth,
Account, Whitfield, Whitcomb & Co.

G. Bernard Noble,
Asst Professor Political Science, Reed College.

Chas. N. Reynolds,
Executive Secretary, Oregon Medical School.

Homer A. Rogers,
Pres., Mt. Hood Lodge Co.

Carl F. Thomas,
Bridge Engineer, S. P. & S. Ry.

Chalmer Blair,
Asst. Credit Manager, George Lawrence Co.

Dr. A. J. Campbell,
U. S. V. Hospital No. 77.

Jay H. Keller,
Consulting Engineer, 613 Worcester Bldg.

"Harmony in Diversity"

SUPPLEMENT TO
PORTLAND CITY CLUB
BULLETIN

"Active Citizenship"

VOLUME III | PORTLAND, OREGON, NOVEMBER 24, 1922 | NUMBER 9

THE COLLECTION AND DISPOSAL OF MUNICIPAL WASTES

IN PORTLAND, OREGON

A PRELIMINARY STUDY

BY

THE CITY CLUB
OF PORTLAND

TABLE OF CONTENTS

THE COLLECTION AND DISPOSAL OF MUNICIPAL WASTES

IN PORTLAND, OREGON

A PRELIMINARY STUDY

BY

THE CITY CLUB
OF PORTLAND

INTRODUCTION

The problem of garbage disposal in Portland is immediately pressing. The present incineration unit is insufficient, as will be shown, to care for the average daily receipts of the summer months. As a result the City is forced to dispose of a large amount of mixed waste by dumping in a manner so unsightly and unsanitary, that any private concern doing the same thing would be liable to prosecution for maintaining a nuisance.

There is available in Portland an authorized bond issue, for an amount of $200,000.00 passed by the electorate in 1913, sufficient to provide for the construction of a new incinerator of sufficient capacity to care for the present needs of the city and to allow for the normal increase of the next few years, but the city officials very properly feel that before entering upon the construction of such additional units the whole matter of collection and disposal of the city's waste should be given careful consideration. As a part of this study, the City Club was asked to investigate and report upon the problem of collecting and disposing of the municipal waste in Portland.

Committee Studies Questions

This report should be considered as merely preliminary and is necessarily incomplete in many respects, particularly in regard to cost details. This is due chiefly to the limited time available for the investigation and also in part to the fact that under the system of collection now in vogue, data upon which to base reasonably accurate estimates do not exist. The committee has given some study to the general problem of collection and disposal of waste as has been worked out by sanitary engineers, and municipal research bureaus in other cities and an outline of the results of this study constitutes the first part of the present report.

The Committee has also undertaken to familiarize itself with present conditions in Portland and the needs of the immediate future.

The second and third portions of the study summarize present conditions as to collection and disposal, while the fourth section includes a discussion of the general methods with respect to their applicability to local conditions, together with suggestions for future procedure.

In the study for this report, the Committee has received the hearty cooperation of the city authorities. Furthermore, it is important that the public should know that this problem of garbage collection and disposal has been carefully studied by the City Engineer who has devoted much time and labor to the investigation of the methods employed in other cities and especially in the cities of the Pacific Coast where conditions approximate those existing in Portland. Although, the committee finds much to criticise in present conditions, these criticisms do not reflect upon the city authorities. The undesirable conditions noted are the result of rapid increase in the amount of refuse to be handled, together with the continuance of an outgrown method of collection.

I. THE COLLECTION AND DISPOSAL OF MUNICIPAL WASTES

The collection and disposal of waste is one of the sanitary services which the municipality performs for the benefit of its citizens. The complexity and difficulty of performing this service successfully increase rapidly with the size of the city and it may be said that no city of considerable size has found a wholly satisfactory solution of the problem.

COLLECTION METHODS

A reasonably satisfactory system should meet most of the following conditions:

1. Collections should cover all parts of the city with reasonable frequency.

2. The methods of collection and disposal must be sanitary and should be as free as possible from unsightly or otherwise objectionable features. In particular the disposal plant must be free from odors.

3. The total net cost of collection and disposal should be kept as low as possible. This, of course, involves the recovery of all usable materials so far as this can be done at a profit.

Municipal waste may be conveniently classified as:

1. Ashes. 2. Noncombustible rubbish, such as tin cans, metal scraps, bottles, broken glass, etc. 3. Combustible rubbish including paper, straw, packing crates, discarded clothing, tires, building refuse, street sweepings, etc. 4. Garbage which includes organic waste or residues from food products. 5. The carcasses of dead animals.

These various classes of material may be collected together, or may be segregated in various ways depending upon the method of disposal used. It must be remembered that the first step in collection under all systems is the segregation, by the householder, of the garbage into the different classes under which it is to be disposed. For this reason it is important to obtain the intelligent cooperation of householders and to collect the garbage in such a way as to make the required segregation as simple and easy as possible.

The methods of collection in use may be classified as:

1. Collection by licensed individual contractors paid by the householders whom they serve. Under this system, commonly known as the scavenger system, it is difficult, if not altogether inpractical, to maintain a degree of supervision sufficient to insure the adequacy of the collection service. For this reason, most authorities consider the scavenger method unsuited for cities of more than 25,000 population.

2. Collection by contract. In this case the contractors are in the employ of the city. Supervision is possible.

3. Municipal collection. In this case the collectors are city employees directly responsible to the department under which the collections are made. The tendency seems to be toward this method of collection as being, upon the whole, the most satisfactory.

The advantages and disadvantages of each method are stated in one of the best of recent books upon the subject, as follows. ("Collection and Disposal of Municipal Refuse."—Hering & Greely.)

COMPARISON OF METHODS

BY THE MUNICIPALITY

ADVANTAGES

1. Sanitation, not profit, is the primary consideration and supervision is more readily effected.

2. Greater flexibility of service is secured to meet the everchanging conditions of season, weather, population, etc.

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 contractors to do, within the terms of the contract, as little as practicable and with the least expenditure of money by themselves.

4. Direct responsibility to the public produces quicker results.

BY CONTRACT

DISADVANTAGES

1. Profit, not sanitation, is the predominating influence. The contractor's criterion is the least sanitation permissible at the least cost of collection.

2. Operation is less elastic and contract profits may be reduced by unforseen occurrences.

3. Response to unforseen occurrences is less rapid. Breach of contract may produce unsanitary service.

4. As no records of details are usually kept, it is difficult for the city to make estimates of cost and of the efficiency of service.

5. It is less expensive, generally, because the equipment investment is permanent, no fund is necessary to meet emergencies and no profit is included.

MUNICIPAL COLLECTION

DISADVANTAGES

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

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

5. The uncertainties in ascertaining the approximate amount of refuse to be collected are great.

6. Lack of concern for 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.

CONTRACT COLLECTION

ADVANTAGES

1. The application of business principles is more readily effected.

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 tendency toward municipalization of garbage collection is shown by the report of sanitary engineers employed to make an investigation for the City of Chicago. This report included the following recommendations:

"The city should both own and operate all the equipment and works necessary for a complete system of collection, transportation, and disposal of all classes of city wastes."—Hering & Greely, page 154.

In Philadelphia, where the contract system has been in use, the conclusion reached on the basis of a recent study is to the effect: "that the contract system is disadvantageous and that in the future the collection should be made by municipal forces."—Hering & Greely, page 156.

DISPOSAL METHODS

The methods of garbage disposal in use are:

1. Burying in trenches or by plowing under. 2. Disposal by sanitary fill. 3. Hog feeding. 4. Reduction. 5. Incineration.

(1) DISPOSAL BY BURYING

Disposal of garbage by burying or plowing under, like that of dumping at sea formerly practised by some coast cities, is rapidly becoming obsolete, except for small cities or as a temporary expedient, and is wholly impracticable for a city the size of Portland.

(2) DISPOSAL BY SANITARY FILL

Practically all cities use this method for the disposal of ashes and for varying proportions of other forms of waste. Seattle disposes of all its waste in this way, except that sold for hog feeding.

If the dumping grounds are properly selected and cared for the method is economical and satisfactory. On the other hand, dumps which are not properly cared for are unsightly, unsanitary and are likely to become breeding grounds for flies and other insect pests, as well as a home for hordes of rats. If combustible materials form a considerable portion of the fill, fires are almost certain to start and this results in objectionable odors which may spread over a large area. Municipalities, in general, make insufficient provision for the care of dumps.

Requirements for Dumping Ground

Some requirements for the upkeep of dumping ground are stated by Hering & Greely (page 256) as follows:

(a) The dump should be filled so as to limit the length of the dumping edge as much as

practicable. The exposed edges are the most objectionable parts.

(b) A sufficient quantity of ashes, street dirt, building excavation, or borrowed earth should be secured to level the dump properly.

(c) Completed portions of the dump should be seeded and parked.

(d) No scavenging should be allowed at the dump at any time except by city employees.

(e) Portable rubbish burners should be kept at the dump to burn large, bulky portions of rubbish not suitable for filling.

(f) A water pipe should be laid to each dump to supply water for putting out fires and preventing dust.

(g) A sufficient supply of kersoene, cresol solution and other fly germicide should be kept on hand to kill fly maggots before developing into flies. In addition fly traps should be kept on the dumps.

(h) Only such garbage as cannot be readily kept separated from other refuse should be allowed to be dumped.

1. The used portion of each dump should be inclosed with a light movable fence to facilitate control and prevent paper and dust from blowing away.

(j) The dump should be in charge of a uniformed foreman with authority to enforce regulations.

3. Hog Feeding

A considerable proportion of the garbage may be utilized as hog feed either by sale to private parties, sale to contractors, or by use on a municipal farm. This method is widely used and appears to be gaining in favor. It is almost universal in small towns and has long been successfully employed in cities of 75,000 or less. More recently, it has been extended to larger cities.

It is obvious that problems of sanitation and of maintaining the hogs in good condition increase rapidly with the quantity of garbage to be disposed of and the consequent increase in the size of the feeding plant.

Seattle, Denver and Newark are among the large cities employing this method.

Feed Value May Be Easily Lost

Baltimore, with a population of over 700,000, entered into a contract to deliver garbage to a feeder, but failed to make collections in such a manner as to deliver the materials in a fresh condition. This illustrates one of the most serious difficulties encountered. Collections from hotels and restaurants can be made daily and the edible wastes segregated so that a high feeding value is obtained. In order that garbage from residence districts may be utilized for feeding, collections must be made at least twice weekly and cooperation of the householders secured in order that a proper segregation of edible materials may be made. Even under the best of conditions the garbage from residence districts is less valuable for feeding than that from hotels and restaurants.

The pork from garbage fed hogs is as healthful and as satisfactory in every way as that from grain fed animals, according to experts, but the risk to the feeder of the loss of his hogs through cholera and other infectious diseases is somewhat greater.

The garbage may best be supplied to the feeders at a price per ton based upon the price of pork. Thus, under the Baltimore contract the city was to receive three and one half times the price per pound (live weight) for each ton of garbage. In other words, with hogs at 12c per pound, the garbage would bring a return of 42c per ton. In other cities the price has been as high as eight times the price of live hogs.

In order that proper sanitary conditions at the feeding ranches may be enforced the city health authorities should have authority, under the contract, to prescribe the location of the ranch, the construction of quarters and the methods of feeding. Frequent inspections should be made.

New Process Being Used

A new process in garbage disposal has been recently developed by dehydrating the wet garbage for later feeding purposes. The usable wastes are simply ground, pressed and evaporated and then mixed with various other ingredients consisting of grain, meat and fish. This preoaration makes a valuable feed, both sanitary and easy to handle. Not only hogs but many other animals can be fed, thereby creating a wider range for the use of garbage. A successful plant is operating in Toledo, Ohio, and the method will undoubtedly come into more general usage.

4. Reduction Plants

Garbage and dead animals may be treated in a reduction plant. In this process the organic matter is converted into grease and tankage, the latter being of value as fertilizer. The process consists of cooking, followed by pressing to separate the greater part of the fluid. Grease is recovered by skimming the fluid in settling tanks after which the remaining water is discharged into the sewer. Grease remaining in the

pressed material is recovered by the use of naptha or other similar solvents.

The process is necessarily complicated and requires an installation which is expensive both in first cost and in cost of maintenance. It also requires a large amount of skilled labor and expert technical supervision. For these reasons municipal reduction plants have not been sufficiently successful to justify their installation unless in exceptional cases and in the largest cities. The present cost of installation is very high and it is doubtful if contracts requiring a new plant could be negotiated on favorable terms. In any case the odors and nuisances likely to be produced by the plant require it to be located at a considerable distance from the city.

5. Incineration

Combustible rubbish, including varying amounts of garbage, may be burned in an incinerator.

This is the most modern method of refuse disposal. The first plant in the United States was installed in 1885 and the method did not come into extensive use until after 1900. The advantages and disadvantages of incineration are summed up as follows by Hering & Greely:

Advantages of Incineration

(a) Incineration permits of the single-can house treatment, with so-called mixed collections. It takes a slight burden off the householder in removing the necessity for keeping the different parts of garbage carefully separated and permits of an easy and generally clean collection.

(b) The cost of collection can be reduced because good incinerators can be built in the interior parts of a city. They can frequently be established near the centers of largest production of refuse, thus reducing the cost of hauling.

(c) The possibility of having several plants in a city reduces the risk of interrupting the disposal of garbage in case one of the plants is destroyed by fire or otherwise.

(d) The process is thoroughly sanitary, and destroys all organic matter and germ life.

(e) A revenue is available from the products of incineration, namely from steam and clinker in localities where coal is used as a fuel. It is possible that some revenue could be secured by the sale of dust and fine ashes as fertilizer.

It should be noted that in Portland, steam would be the only available by-product.

Disadvantages of Incineration

(a) Dust is produced within the building during operation, which, however, is not a disadvantage to the general public.

(b) There is a chance for the escape of inconsumed, offensive fumes from the chimney top. This can be substantially obviated by proper operation.

(c) With a mixed collection, the necessity of hauling all kinds of refuse to the incinerators instead of hauling some parts, such as ashes, to a nearby dump, increases the labor of collection.

In general it appears that incineration offers an economical and hygienic method of waste disposal, free from offensive odors and other objectionable features.

It may, of course, be combined with other methods of disposal, such as dumping of ashes and feeding of a portion of the garbage to hogs. Such a combination has the advantage of increasing the available heat value of the refuse burned and of decreasing the size of the incinerator plant needed.

II. GARBAGE COLLECTION IN THE CITY OF PORTLAND

The method of collection of municipal waste at present employed in Portland is a form of the scavenger system which may be described as collection by licensed individual contractors. Under this system licenses are granted upon the recommendation of the superintendent of the garbage disposal plant.

Application for new licenses must be signed by three citizens. The procedure is purely formal and affords no actual control of the number of collectors operating, their character, equipment, routes, charges, etc. The superintendent states that while he might refuse to approve an application, he has never done so. The fee for such license is five dollars 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.

Scavengers Are Free Agents

Once granted a license, the scavenger becomes a free lance who may operate in any part of the city and may charge such rates as the traffic will bear. Since there is no control of routing there is much overlapping in the more thickly populated parts of the city and a lack of any

collection at all in other sections. Lack of any information as to routes makes it impossible to estimate with accuracy the extent of such duplication. In some cases it is known from casual observation that as many as three, four, and even five collectors operate over the same ground.

The usual charges by the collectors are from fifty cents to one dollar per month for weekly collections. Although it would appear that the unlimited number of licenses would tend to make the business highly competitive and hence tend to regulate prices, this is largely offset by the existence of a strong union, including about fifty percent of the collectors.

The equipment of collectors is nearly all motorized and includes trucks of all sorts and sizes. The total value of such equipment is undoubtedly above two hundred thousand dollars. This capital investment is larger than would be necessary if it were not for the extensive overlapping of routes.

The sale of equipment and routes is a well recognized business. The average price varies from $3000 to $3500, or even $4000, depending upon the value of the equipment and the number of patrons on the route.

Cost To Householder Not Known

No information is available as to the aggregate cost to householders under this system of collection. No reports are made to the city and such information as the superintendent possesses is obtained by indirect questioning and piecing together of casual remarks. Perhaps the best indication of the income from any route is in its selling price. It appears that this is normally about ten times the monthly collection from patrons. Thus a route which sells for $3500 may be estimated to afford a monthly income of $350.

In addition to their returns from regular routes and collections all collectors receive a considerable income from what may be described as casual collections, which include the removal of accumulated debris, cleaning up unsalable materials left after removal of buildings, etc. It is stated that in many cases such occasional business is sufficient to pay all expenses of operation.

Reclaimed Materials Sold

A further source of income lies in the sale of reclaimable materials such as metal scraps, bottles, paper, etc. No information is available as to the value of such materials in Portland.

It is evident that there is an unfortunate lack of information as to the details of collection which makes any clear estimate of its efficiency and cost impossible. It appears, however, that the returns are sufficient to attract to the business more capital than is probably necessary and at the same time afford a profitable return upon this excess capital.

Whether the number of men employed is sufficient, excessive or too few for proper service, cannot be determined. If no other action is taken at the present time the city would do well to obtain such reports as may serve as a basis for future action. This would undoubtedly meet with opposition from the collectors but could be enforced and would require the services of one or two additional employees or inspectors. The cost of such services might be covered by additional license fees.

Collections Are Classified

While this lack of information is deplorable and a serious handicap to immediate future action, it is encouraging to note that such information is very extensive and complete for Seattle and some other coast cities, where conditions are somewhat similar to those in Portland.

As gathered in Portland, wastes may be classified as follows:

1. Swill from hotels and restaurants in the business districts which is generally sold to hog-feeders.

2. Paper from office buildings and department stores, sold to a paper reclamation company and collected by that company.

3. Household refuse, classified as ashes and rubbish, including garbage.

4. Street sweepings, collected by the city and delivered to the incinerator, including from one to two tons of refuse collected daily from the public market.

5. Miscellaneous rubbish, including debris from buildings, street construction, etc., previously described.

III. PRESENT METHOD OF GARBAGE DISPOSAL IN PORTLAND

A combination of hog feeding, dumping and incineration is the present method by which Portland disposes of its municipal wastes.

(a) Hog Feeding

Special licensed collectors contract with the larger hotels and restaurants for the removal of such portions of table and kitchen refuse as are of value for hog feed and haul the garbage thus obtained outside the city to feeding ranches which are wholly beyond the control of the sanitary forces of the city. In fact, there seems to be no inspection or control of any sort over these collectors once they have paid their license fee, except for the regulation that their wagons must be out of the restricted district before seven A. M. The Committee has not visited any of these ranches and knows nothing of their number, location or sanitary conditions and the officials in charge of garbage collection seem to have little more information than the Committee. While no direct city control of the hog ranches seems possible, indirect control might be obtained by the simple expedient of refusing to license a collector delivering to any ranch not approved by health authorities.

Collectors pay the hotels and restaurants a considerable amount for their garbage when the price of pork is high, as it has been for some years past. Because of this source of revenue, hotel managers have formed, in the past, one of the strongest centers of opposition to proposals for municipal collection. It is worthy of note that in Seattle it is held that all such refuse is the property of the city, and is collected and sold to hog feeders under the control of the city as a part of the general public health activities.

Hotels Favor Municipal Collection

Since the war the price of garbage has fallen considerably. The proprietress of one small hotel states that during the war she received forty dollars per month for the swill from her kitchen, but that at present she pays ten dollars per month for its removal. The managers of some of the large hotels express the belief that the collections are usually made in an unsanitary manner but made no statement as to the arrangements with the collectors, other than that there is no profit in disposing of the swill.

The hotel men now express the opinion that any method of collection which would improve sanitary conditions would be welcomed, thus it is clear that opposition to municipal collection from this quarter has been removed.

Conditions indicate that the city should institute a suitable control of both the collection of garbage for hog-feeding and of conditions at the hog ranches. It is likely that this would prove to be the first step toward a contract system. The problem of how to obtain the greatest possible utilization of food wastes should receive careful study before the city commits itself to any particular plan. It is not necessary, however, that the present uncontroled situation continue while such an investigation is being made.

(b) Dumping of Garbage

The principal dump in use by the City is north of the incinerator where Guild's Lake is being filled. About twenty acres are in use or are available, of which five acres are owned by the city. The dump is unfenced and is at times a hunting ground for scavengers and small boys. At the present time much rubbish and a considerable quantity of garbage are being dumped because of a lack of incinerator capacity. This creates a noxious condition which is a disgrace to the city.

Inflammable rubbish is burned in the open and as it is often mixed with garbage, offensive odors are created. The decaying garbage is not covered and the water of the lake into which the base of the dump extends is foul beyond description.

Dump Conditions Deplorable

The whole place swarms with flies in the summer and is alive with cockroaches. It should have a kerosene bath to be repeated at frequent intervals. It should be understood that these are conditions arising from the insufficient capacity of the incinerator and for which the city authorities are responsible only in so far as they may have failed to exercise the proper amount of foresight and efficiency in providing for the increase in the quantity of refuse to be treated.

In condemning most strongly the conditions existing at this dump, the committee does not intend to express or imply any criticism of the city authorities or of the plant superintendent, but wishes only to emphasize the pressing nature of the garbage disposal problem now existing.

Aside from the emergency features of the dump which have been described there are certain less important conditions which should be noted. It is true that the location of the dump is on an edge of the city little frequented by the general public, thus excusing to some extent the wide expanse of ashes, debris and tin cans.

Nevertheless, the committee believes that the fill should be concentrated as closely as possible and that those portions which are up to grade should be covered with soil and seeded.

One serious difficulty in the way of lessening the present unsightliness of the dump lies in the fact that during the rainy season it becomes almost impossible for trucks to traverse the dump. This necessitates the retention of portions already partly filled as a winter dump. Plank roads skirting the edge of the dump, might solve this problem.

Marquam Gulch Unsightly

The only other dump which has been visited by members of the committee is in the Marquam Gulch, South Portland. This is an ideal location for the purpose and should be used as far as possible to lessen the expense of hauling refuse from that section of the city. Up to the present time, however, it has apparently been used without receiving any care whatsoever. Piles of refuse, dumped from the bridge, have not even been leveled off,to say nothing of covering them. In whatever direction one looks, tin cans of every size and age may be seen. There are also the typical piles of summer garbage—melon rinds, old fruit, corn husks and cobs and potato peelings.

Your committee saw a number of children playing in this gulch, the attraction being parts of automobiles, wash boilers, old wheels and old mattresses to fall upon—enticing, perhaps, to the imaginative youth, but extremely dangerous to his health, because of the flies and vermin which infest the dumps.

Neighborhood Is Aroused

Of course, this neglected dump is a source of foul odors which permeate the whole neighborhood. This is a thickly populated section of the city and such unsanitary and unpleasant conditions as are found at the dump ought not to be allowed to continue. For several years the residents have tried to have conditions improved without success. If this gulch is to be used as a dump that portion should be enclosed and given suitable care. As it now exists, the nearby homes are not safe from migrating rats, bed-bugs and cockroaches from the dumps.

Just now the city is cooperating with the Government in a war on rats. While the members of this committee have no information as to the prevalence of these pests at the dumps, it is evident that conditions are ideal for them. All possible measures should be taken to prevent these localities from becoming breeding grounds for rats.

(c) INCINERATION PLANT

The municipally owned incinerator for the City of Portland is located on the West Side, near Guild's Lake, in North Portland and to the north and east of the Montgomery-Ward and American Can Co. plants. It is a two story brick building, 80 by 90 feet in dimensions, and was constructed in 1910 at a cost of $99,900.00.

Combustible material, including all garbage except that collected by the hog feeders, is hauled by the licensed scavengers to the incinerator. Although the daily capacity of the incinerator is only 150 tons, at present (August 1922) 170 tons of material per day are received. Of the 170 tons received, the superintendent estimates that 120 tons are wet garbage, half of which, if properly segregated, could be used for hog feed.

The amount of waste to be incinerated is rapidly increasing due both to the increased population and to the increased collection area, which follows hard-surfaced roads. It is estimated that the paving program now being carried out in the southeastern part of the city (Foster Road, etc.), will increase the quantity of waste hauled to the incinerator by from five to ten tons daily within the next year.

The city engineer's office is at the present time calling for bids for the construction of a new incinerator to give a total capacity of not less than two hundred tons daily.

Plant Is Efficient

The incinerator plant itself, although of an early type, is efficient when viewed merely as a disposal plant and its operation is sanitary and without objectionable features. Refuse is delivered to the second floor by the trucks which enter by an inclined driveway. The refuse is discharged directly into the furnaces, which are of the Fred P. Smith type, constructed in two banks of four units each. The refuse falls directly upon the grates and the combustible material present is sufficient to burn the garbage without additional fuel. Tin cans present in the waste are useful since they prevent too close packing of the charge. After discharging their loads the trucks are washed with cold water. Hot water

was formerly used but was abandoned because of danger to the workmen.

The residue left after burning, composed mostly of oxidized tin cans, is spread on the dump. The quantity of ashes being hauled to the city dumps, outside that derived from the incinerator, is large and increasing rapidly. On the ash dump it is now necessary to employ two or three men continually where five years ago one man on part time was sufficient. This is partly due to the increased amount of collection and to the increased use of coal for heating. When not collected by licensed scavengers, ashes, bottles, cans, etc., are likely to be dumped on vacant lots and along the highways. This is one of the worst features of the lack of city-wide collection. It is worth noting that the scavengers' union assists materially in the prevention of promiscuous dumping.

Grounds Are Improved

The grounds to the west and south of the incinerator plant, formerly a part of the original dump, have been developed into a small park or garden which would be a credit to any neighborhood and shows the possibility of developing filled-in land.

The type of furnace in this incinerator is not adapted for the generation of steam, hence there are no by-products. The problem at present before the city concerns the best methods by which an increase in incinerator capacity could be provided.

The additional capacity required may be obtained by:

1. Repairing and remodeling the present plant with necessary additions.

2. Replacing the present furnaces with those of a more modern type having a capacity of at least 200 tons daily.

3. Constructing a new plant in some location which will reduce the expense of hauling waste.

The possibilities of revenue to be obtained from steam generated in a plant properly designed for that purpose are shown in the following estimate.

IV. STEAM AS A POSSIBLE BY-PRODUCT FROM GARBAGE INCINERATION

ASSUMPTIONS

Proposed size of incinerator to be installed	200 tons
Average refuse burned per day throughout the year	150 tons
Average steam evaporation per lb. of garbage burned	.5 lb.

STEAM PRODUCTION

Total possible steam evaporation per day	150,000 lbs.
Total possible steam evaporation per year	54,750,000 lbs.

STEAM CONVERTED TO ELECTRICAL ENERGY

Water rate (lbs. of steam required per H. P. condensing plant)	17
Water rate (lbs. of steam required per H. P. non-Condensing plant)	24
Possible K. W. H. per day (condensing plant)	6,500
Possible K. W. H. per day (non-Condensing plant)	4,700

STEAM USED FOR HEATING PURPOSES

Steam for heating purposes could be used in varying amounts, according to prevailing temperatures, for nine months per year.

During the summer months when the tonnage of garbage received would be highest the steam generated could not be utilized.

A 200 ton plant would be capable of furnishing satisfactory steam service for approximately 2,300,000 cu. ft. of building space. Comparatively this would heat a building the size of the Pittock Block or Morgan Building, or two buildings the size of the Corbett building. The yearly steam consumption would be approximately 9,000,000 lbs. The revenue from this source at 50c per 1,000 lbs., would be $4,500 per year.

STEAM USED FOR INDUSTRIAL PURPOSES

A plant having a capacity of 200 tons per 16 hour day could furnish steam for a 550 H. P. engine run condensing or a 390 H. P. run non-condensing.

If it were desirable to convert this power into electrical energy the 550 H. P. engine would drive an electric generator having a capacity of 380 K. W. The 390 H. P. engine would drive an electric generator having a capacity of 260 K. W.

POSSIBLE REVENUE FROM CONDENSING PLANT

Average K.W.H., per day (60% load factor	3,600	
Assume value of current per K. W. H.	$ .01	
Value of current per day	$ 36.00	
Value of current per year		$13,140.00
Investment	$40,000.00	
Carrying charges at 12%	4,800.00	
Operation and Maintenance	3,000.00	7,800.00
Net revenue per year		$ 5,340.00

POSSIBLE REVENUE FROM NON-CONDENSING PLANT

Average K. W. H. per day (60% load factor)	2,500	
Assume value of current per K. W. H.	$ .01	
Value of current per day	$ 25.00	
Value of current per year		$ 9,125.00
Investment	$25,000.00	
Carrying charges at 12%	3,000.00	
Operation and maintenance	2,000.00	5,000.00
Net revenue per year		$ 4,125.00

The above figures are based on an evaporation of .5 lbs., of steam per lb., of garbage. The evaporation factor will depend upon the nature of the garbage burned. If all garbage is mixed as received and put through the incinerator without separation it is doubtful if sufficient steam could be generated to justify the expense of the boiler. On the other hand, if ashes are dumped separately and a large portion of less inflammable refuse is used for hog feeding it is possible that sufficient inflammable matter will be present to produce an evaporation factor above .5.

SUMMARY

I. COLLECTION OF REFUSE

The three recognized methods in use for the collection of municipal wastes are: by licensed scavengers, by contract collection and by municipal collection.

Municipal Collection

A consideration of the experience of other cities leads to the conclusion that municipal collection is the most efficient method for cities of Portland's class.

Licensed Scavengers

The method of licensed scavengers now in use in Portland is inadequate and unsatisfactory and will be always more or less unsanitary, because of the almost total lack of supervision and because of the fact that scavengers operate for profit and have no interest in sanitation. These conditions have resulted in the expensive duplication of routes in some parts of the city and the total lack of service in others. The worst results are, however, the unsanitary conditions and methods of operation which exist unchecked.

A number of cities insist that householders wrap their garbage in paper before it is collected. This practise not only absorbs the moisture, but does away with the odor and sight of wet garbage as it is hauled through the streets. Portland has the same regulation, but is not strictly enforced due to the lack of supervision of scavengers.

Although, the experience of other cities indicates that a really adequate supervision is impossible under the scavenger system, some improvements might be made. Whatever system is ultimately adopted, city authorities should promptly assume control of the collectors.

Ample legal authority for this exists under the general police powers and the necessary funds could be obtained by a slight increase in the license fee.

Contract Collections

As between contract collection and municipal collection, the evidence favors the latter.

The working out in detail of a suitable system and the selection of suitable equipment are problems which should enlist the services of a competent and experienced sanitary engineer.

II. DISPOSAL OF REFUSE

Incineration

Greater incinerator capacity must be provided before the summer of 1923. The present incinerator is of an early type but is thoroughly sanitary and reasonably economical in operation. It is, however, possible that the most economical procedure would be to replace the present furnaces with those of a more recent type which would produce steam as a by-product.

This is purely a problem of engineering economics. It is, moreover, a problem to which the City Engineer has given much attention.

Dumps

The conditions at the garbage dumps in the city are far from satisfactory. Both at the incinerator dump and at the Marquam Gulch dump, the Committee found unsanitary and otherwise objectionable conditions which should be remedied. In particular the Marquam Gulch dump should be leveled and covered with earth as rapidly as possible and steps taken to prevent promiscuous, unauthorized dumping in this region. Vigorous steps should be taken to combat insect pests at all dumps.

Hog Feeding

It is stated by hotel men that the collection of garbage by hog-feeders is generally unsanitary and there is no assurance that the hog ranches themselves, are conducted in a sanitary manner. The city authorities should at once impose upon these collectors such an inspection and supervision as will insure sanitary practices.

The whole problem as to the technical details of collection of wastes should be given careful attention at the earliest possible date. For this study the city should employ a competent sanitary engineer, since the work to be done is of a highly specialized nature.

Respectfully submitted,

Committee On Municipal Wastes

Arthur Underhill, *chairman*
A. A. Knowlton
L. A. Liljeqvist
O. L. Le Fever
W. G. Purcell

MILK SUPPLY STUDIED

Another City Club study in the making is a survey of Portland's milk supply by a sub-committee of the Public Health Bureau. A progress report was given at a meeting of the Bureau held in the City Club Office last Thursday night. The committee is making a special study of the extent of pasteurization in Portland, as compared with other cities and expects to devote a major portion of the report to a consideration of the value of pasteurization as a safe-guard for the city's milk supply. The report promises to be one of the most interesting of the Club's many studies.

The question of school dental clinics was also discussed and sub-committee work was tentatively outlined. The subject of child health centers is also interesting the Club's Health Bureau.

City Club members wishing to tie up with this group may do so by request to the Office.

Billboards and Highways

City Club members can do a service to the commonwealth in helping to preserve one of the State's great assets—scenery—by discouraging the placing of advertising matter along our country roads. A part of the Act of February 2, 1915, of the Oregon Legislature reads:

"Section 2. It shall be unlawful for any person, firm or corporation to paste, paint, brand or in any manner whotsoever place or attach to any building, fence, gate, bridge, tree, rock, board, structure, or anything whatever within the limits of any State Highway, or on the property of another within view of such highway without such owner's written consent, any written, printed, painted or other advertisement, bill, notice, sign, picture, card or poster, except within the limits of any city, town or village through which said highway may run."

The above item was sent to the *Bulletin* by the City Club Scenic Preservation Committee.

The first series of the inter-club volley ball tournament closed last week with the City Club tied for fifth place in the percentage column. The Club is playing in its first volley ball season and is progressing rapidly. In the last series the team won from the Lions and Kiwanis and gave Rotary a hard battle. The players are showing better teamwork with each contest and confidently expect to climb up the percentage column in the next series.

CLUB COUNCIL MEETS

One of the best attended meetings of the Presidents' Council held this year took place at the Chamber of Commerce last week. The next meeting of the Council will be held December 13th, to which are invited all past president members of the Council. Election of officers will take place then.

Matters referred to member clubs of the Council for action follow:

Motion was passed by the Council recommending that member clubs petition Governor-elect Pierce not to make any change in the management of the State Training School for Boys.

The City Club Board of Governors referred the question to the Boys Committee.

The American Association of Engineers introduced a resolution at the Council meeting asking the County Commission to give every reasonable encouragement to local qualified professional talent and business interests in the design and construction of the Ross Island and Burnside bridges recently authorized.

In order not to embarrass the City Club Planning Committee in its work relative to bridges, the Board laid the resolution on the table.

An invitation was presented to the Council by Major J. F. Drake, of the Oregon National Guard, for the members of the civic organizations represented in the Council to attend a musical entertainment to be given by the Guard in January.

The Board voted to appoint a committee to be known as the Federal Relations Committee to handle this and other matters which may come up in the future.

C. A. Hood, a Portland citizen, presented to the Council the idea that every man and woman in Portland who has not seen the Columbia Highway, should be given an opportunity to do so through the concerted action of civic organizations.

The proposal was referred to the City Club Committee on Scenic Preservation.

"Reflections of a Financier," by Otto H. Kahn, is a new book presented to the City Club Library with the author's autograph.

Read the City Club survey of the Community Chest.

Take the City Club report on Garbage Collection and Disposal home with you. It will be of interest to others.

CITY CLUB TRIP

CONTINUED FROM PAGE 1

changed in some respects they are as complete as the Committee on Arrangements can bring them to-date and will remain essentially the same.

ON TO LONGVIEW!

That is the tocsin being sounded for the City Club by the Port and Industrial Committee of the Club, Major Richard Park, chairman.

The scheme of making an excursion to inspect the really gigantic preparations started by the Long-Bell interests for a lumber plant at Longview, Wash., formerly Kelso, was presented to the Club last Friday by Major Park and received the vociferous approval of a large majority of members, who voted Saturday afternoon, December 9th, as the most desirable time. It was also decided to invite women and guests.

The trip, first proposed by the Port of Portland, presents a great opportunity for the membership of the City Club and their guests to meet socially and at the same time inspect the "ground floor" plans for the making of a $16,000,000 lumber plant and a city of 20,000 inhabitants.

Details of the trip are announced above. Imprint them in your memory and plan to make the trip—bring as many guests as you wish. There's room for all. For those who go by train, the round-trip fare is $2.60.

The Committee considered two different routes for the trip. It would be possible to go directly to Longview by train leaving the Union Station at 1:00 and departing from Longview at 8:18. The fare is $1.15 more than the Rainier route. There is an advantage in going by way of Rainier, also, in that there is a fine paved highway for those wishing to go in machines. The Port of Portland has promised a boat to take the party across the river at Rainier, which will also permit the inspection of the dredging operations and dike work now under way, thus obviating the necessity of tramping around in the sand or mud.

Supper, a banquet in reality, will be served at the Long-Bell mess for a nominal charge. Entertainment and speeches will take place there and the return made in time to catch the 7:25 train at Rainier. The return to Portland will be made as early as nine o'clock.

Some of the reasons why every City Club member should take the trip:

See the biggest dredging job on the Pacific Coast.

A million dollar hotel is under construction.

See what it means to plan for a city of 20,000 inhabitants.

Hear the engineers explain the work being done.

You will want to go anyway because it will be the first City Club social meeting of the Fall Season.

ON TO LONGVIEW!

AN OPPORTUNITY

Secretary of Commerce, Herbert Hoover, speaking before the 13th annual meeting of the American Child Hygiene Association, of which he is the retiring president, announced two important events in the history of voluntary efforts to advance child health.

The first, he said, is the practical completion of a consolidation of the two national voluntary societies devoted to child health; the Hygiene Association and the Child Health Organization of America.

Secondly, Mr. Hoover announced a gift of $250,000 a year for five years, to the new institution from the Commonwealth Fund to finance demonstration progress in American cities. It is proposed to choose a city in the far West, one in the middle West and one in the South and in each city to undertake a complete demonstration in every avenue of protection of child health.

It would be immensely to Portland's advantage if that city were chosen to represent the far west in this demonstration. Because of Portland's leadership in matters relating to good health and because also of the work undertaken by the University of Oregon School of Social Work, in training public health nurses, and the work of the Medical School, Infant Welfare Society, Mill's Open Air School, Shriner's Hospital, Oregon Tuberculosis Association's demonstrations and other endeavors, Portland should have the opportunity to undertake the demonstration work planned by the American Child Hygiene Association.

GARBAGE REPORT

CONTINUED FROM PAGE 1

The report outlines and compares the various methods of garbage collection and disposal now in use throughout the country and follows with a study of the situation in Portland.

The survey will be presented at the meeting on Friday. Read the supplement and come to the meeting prepared to discuss its recommendations.