

removing dirt, ice, and snow from the streets. The work is done by a branch of the Department of Public Works and is under engineering supervision.

In New York there is a street cleaning department having charge of the street cleaning, removal of snow, collection and disposal of ashes, garbage and rubbish, in the Boroughs of Manhattan, Bronx and Brooklyn. In each of these Boroughs there is a separate department having charge of the construction and maintenance of highways. In the Boroughs of Richmond and Queens the street cleaning, collection and disposal of ashes, garbage and rubbish come under the jurisdiction of the Department of Public Works, as does the construction and maintenance of highways.

In Chicago, the Bureau of Streets embraces street cleaning, collection of ashes, garbage and refuse, the removal of snow, and also street repairs, but not the construction of pavements.

The St. Louis Street Department embraces the construction and maintenance of streets, street cleaning, collection and disposal of ashes, garbage and refuse, and the removal of snow.

In Washington, the street department has jurisdiction over the construction and maintenance of streets, street cleaning, collection of ashes, garbage and refuse, and the removal of snow.

In Philadelphia, the Bureau of Highways has control over the construction and maintenance of streets, street cleaning, collection and disposal of ashes, garbage and refuse, and the removal of snow.

The above mentioned departments also have jurisdiction over other matters which are aside from the subject of this paper and will not be taken up, the object being, first, to point out the necessity for placing street cleaning work, including the removal of ashes, garbage and refuse, etc., under engineering supervision, and second, to combine this work with the general highway work. Of the cities mentioned the New York street cleaning organization—although second only from a point of efficiency to that of Washington—is founded on the wrong principle, inasmuch as it has not been an engineering department and is under separate control from the departments having jurisdiction over the construction and the maintenance of highways. The ideal organization for New York City would be somewhat along the following lines:—

The Bureau of Highways to have jurisdiction over the construction and maintenance of highways and street cleaning for the whole city. This would result in more uniform methods and more efficiency and economy in carrying on the work than exists under separate organizations, each working independently of the others. Of course, each Borough should have a voice in the management, probably through an Engineering Commission, somewhat on the order of the Board of Estimate, but the methods of carrying on both of these branches of highway work should be uniform in all of the Boroughs. New York has been selected to show the absence of engineering supervision in street cleaning and co-operation in both of these important branches of municipal work, simply because it is more in the public eye than any other city, and the generally accepted theory that one central body should control, so far as is possible, any one particular line of work, such as highways and street cleaning, has not been put into effect, even in this progressive municipality.

Cost of Cleaning Different Types of Pavements.—

We cannot divorce the construction from the maintenance and care of the pavements, as the fundamental principles that should govern the selection and design of

a pavement must necessarily take into consideration, amongst other things, the cost of the maintenance and its desirability from a sanitary point of view; and obviously in this connection the character and cost of street cleaning is a most important factor, as the welfare of the community must be considered, for dirty pavements are not only a great annoyance, but they spread disease, and no stone should be left unturned to combat this evil.

Aside from the financial, which is the first and most important consideration in any undertaking, the two basic principles that should govern the selection of a pavement are the traffic and sanitary requirements. Under these headings the gradient, first cost, cost of maintenance, noiselessness, social and local conditions, street cleaning, etc., may be grouped. In determining upon the proper pavement for the vast majority of streets in our municipalities, we should assume that the public health of the community demands that the pavements be kept clean. Therefore, the cost of cleaning during the life of the pavement is one of the primary considerations, and where the traffic conditions, aside from reasons due to gradient, might call for a stone block pavement, the cost of cleaning during its probable life might make it not only desirable but more economical to substitute an asphalt pavement on account of the lesser cost of cleaning. There is practically no definite data on this subject, but the following quotations from the report of a committee appointed in 1907 by the Mayor of New York City to investigate street cleaning methods, and from the Superintendents' Handbook on Cleansing, by Arthur May, Superintendent of Cleansing in the Metropolitan Borough of Finsbury, London, give a very good idea of the possibilities and value of collating reliable data along these lines for use in computing the cost of the maintenance and care of the pavements.

The following is quoted from the report of the New York Commission:—

“There is a very marked difference between the quantity of dust left upon the pavements of various kinds. Thus, if we call the average volume and weight collected from the sheet asphalt pavements 100, the relative quantities from other kinds of pavements were:—

	Volume.	Weight.
From sheet asphalt	100	100
From block asphalt	130	182
From wood block *	332	145
From granite block	1,081	912

After careful consideration of all the facts available, we estimate the average relative cost of cleaning, equally well, the various kinds of pavements in use in the city under similar conditions of repair as follows:—

Sheet asphalt pavement	100
Wood block pavement (new)	105
Asphalt block pavement.....	115
Brick pavement	120
Wood block pavement (old)	125
Medina block pavement	130
Granite block pavement	140
Belgian block pavement	150
Cobblestone pavement	3,000

On the assumption of 100 cleanings per year, it may be shown that the annual cost of cleaning equally well

* It should be said that the wood block pavement on which the examination was made is one of the oldest of its kind in the city, and its surface, being uneven, caught and held an uneven quantity of dust. Wood block pavement, when comparatively new, should compare favorably with asphalt block pavement in its freedom from dust-retaining qualities.