

a mile of each of the pavements named over what it would be if sheet asphalt were substituted, would be as follows:

Wood block pavement (new) .....	\$ 26.40
Asphalt block pavement (average condition) ..	79.20
Brick pavement .....	105.60
Wood block pavement (old) .....	132.60
Medina block pavement .....	158.40
Granite block pavement .....	211.20
Belgian block pavement .....	264.00
Cobblestone pavement .....	1,584.00

In speaking of the pavements of London, Mr. May says:—

"The four types of carriage-way pavings that are in general use are asphalt, wood, granite and other stone sets, and macadam. The order in which they are placed is, to all intents and purposes, the degree in which they lend themselves for cleansing, and, although the difference between the first three is not very great, there is no doubt that from a cleansing point of view, asphalt supercedes all others.

The following figures will give some idea of the relative cost per yard of cleansing the four kinds of road surfaces: Asphalt, 12 cents; wood, 76 cents; granite, 83 cents; macadam, \$3.

"The above figures represent the cost per annum for the scavenging of one square yard of such roadway under equal conditions.

"It has been found that for every eight loads of slop removed from macadam roads, two loads are removed from granite sets, one and a half loads from wood paving, and half a load from asphalt."

If street cleaning had been more generally under the control of highway engineering organizations it is probable that we would be in possession of more definite data relating to this fixed charge in connection with the maintenance of our pavements.

**Day Labor vs. Contract System.**—There is one point in connection with street cleaning work that is generally agreed upon, both in this country and abroad, namely, the work involves so much detail, for which there are no definite units, that it can be more economically and better done by labor employed directly by the municipality than by the contract system. Philadelphia is the only one of the twenty-five largest municipalities in this country where the contract system is employed, and in this municipality the excessive inspection charge for the supervision of the work, aside from the fact that the work could be carried on more efficiently by day labor, is sufficient argument for municipal operation.

**Uniforming Employees.**—It also appears to be generally accepted that the street cleaning forces should be in uniform, and this is the case in the twenty-five largest municipalities in this country. In this respect it is singular that about nineteen years ago, when Col. Waring put the New York street cleaning force in uniform and established a more or less military organization, he was ridiculed by all the local newspapers and a number of others throughout the country. The wisdom of the step taken by Col. Waring, however, is generally appreciated to-day, as it is necessary to have a more or less military organization in connection with work of this character, and the uniforming of the force not only makes the men more conspicuous and permits the public to act as self-constituted inspectors, but raises the standard of the work and has the moral effect of increasing the efficiency through the pride the men take in the work.

**Sources of Street Dirt.**—Before going into the methods of street cleaning, it will be advisable to con-

sider the origin and volume of street dirt, which is derived from a number of different sources, the principal ones of which may be summarized under the following headings:—

1. The excrement of animals.
2. Material lost by passing vehicles.
3. Dirt swept from sidewalks and thrown from buildings into the street.
4. Dirt from unpaved streets and alleys.
5. Falling leaves.
6. Building construction.
7. Soot and dust from the air.
8. Material originating from the wear of pavements.
9. Dirt due to scavengers picking over refuse placed on the street for collection.

To give an idea of the volume of street dirt collected, the Commissioner of Street Cleaning of New York in his report for 1912 states: "In the collection of the waste for this year we have handled 2,755,897 tons of ashes and street sweepings, 210,652 tons of rubbish, and 340,815 tons of garbage, a total of 3,307,364 tons. This accumulation, if placed in City Hall Park, would completely cover that area (8 acres) with a heap whose top would reach to a height 85 feet above the top of the new Municipal Building (or about 650 feet)."

**Preventive Street Cleaning.**—In considering some of the principal sources of street dirt, such as material lost by passing vehicles, dirt swept from sidewalks and thrown from buildings into the street, dirt from building construction, it is very evident that our streets could be made very much more sightly and the work of street cleaning carried on at a much less cost, if we had the proper kind of co-operation from the public, as the three principal causes of street dirt just mentioned could be entirely eliminated. This brings up one of the most important problems in connection with street cleaning, which is termed "Preventive Street Cleaning," and deals with the educational and publicity work being carried on to educate the people to use the same degree of care in connection with the streets that they do in their homes.

When Col. Waring was Street Commissioner of New York City he formed leagues of school children to teach their parents the importance of refraining from throwing refuse upon the pavements. At the time this was a novel way to reach the people in connection with preventive street cleaning work, but it is generally accepted to-day as one of the best means of carrying on work of this kind, and in Philadelphia a woman is employed in the Street Cleaning Department just for the purpose of securing this kind of co-operation from the school children, Boy Scouts, and civic organizations. The results from the educational campaign that is now being carried on in the different cities throughout the country will be more in evidence when the children of to-day have grown up, as street cleaning work, conducted on a scientific basis, is comparatively new, and a number of the older people do not show the interest that the growing citizens do in this or other branches of municipal work.

It is purely an educational campaign, but, like everything else, must be backed up by the law, and will often require a few arrests for offences, such as leaky wagons, throwing paper and store sweepings into the street, etc., to drive home the importance of living up to the laws and ordinances regulating these matters. A good example of the kind of co-operation we want in this respect occurred in Philadelphia recently, when one of the owners of a large manufacturing establishment requested the