OILING OF CITY STREETS.

In our issue of May 20th an article appeared which dealt with the prevention of dust on road surfaces by the application of oil. The article described the ways of shipping and applying the oil, made some cautionary observations against misuse and careless application, and pointed out its value, when correctly applied, as a dust layer. The following information is of a similar nature, but dealing more with city streets than roads. It is abstracted from a bulletin of instructions issued by Prof. T. R. Agg, University of Iowa, in connection with the technical service bureau of that State, the object of the instructions being to correct some misconceptions of the proper method of applying the oil.

The oils commonly offered for street work are obtained from petroleum, but oils from some other sources are available at somewhat higher prices than is paid for petroleum products. The petroleum oils are supposed to contain asphalt, but whether any particular sample does or does not depends upon the source of the oil and what is meant by the term asphalt. As a matter of fact, few of the road oils do contain asphalt if we use the term in the strict sense, but it is not important what we call the black sticky portion of a road oil. If the oil contains good "body" and possesses some stickiness, while being fluid enough to penetrate the road slightly it will serve to lay the dust. For ordinary conditions the oils containing from 40 per cent. to 50 per cent. of so-called asphalt are best. In general, the oils are fluid and greasy and have little binding value so that they cannot be expected to give a dense, closely knit surface. Some of the oils, however, do contain a sticky constituent which has some binding value and probably adds to the stability of the roads.

If the street be very sandy or is of gravel or crushed stone macadam, there can be no question as to the advisability of using an oil that is sticky and free from the greasy characteristics of the ordinary petroleum oil; nevertheless, fair results can be obtained with many of the petroleum oils if they are handled properly.

Preparation of the Street.—If a street is to be oiled for the first time, preparations should be started some weeks before the oil is actually applied. The effect of the oiling is to render the earth partially impervious to moisture and if the surface of the road be uneven when treated or becomes uneven afterward, the depressions will become basins for holding water. Traffic will gradually work the soil and the water thus retained into mud, to the serious detriment of the street. If the street be smooth and well crowned, the water will run to the gutters so quickly that only in long continued wet weather will the street be softened to any great extent and therefore traffic will not make any considerable amount of mud on the surface.

The principal object in oiling a street is to prevent dust; therefore there should be no dust on the street when the oil is applied. If dust has formed, it must be removed, which costs something. It would be better to treat the surface before the dust has formed, if possible.

For the best results the street oiling should be planned ahead and the preparation of the street be carried out in the early summer so that the oiling can be done before a layer of dust forms on the street.

Grading.—Good results with oil cannot be expected on a flat and poorly drained street. Early in the summer the street should be carefully rounded up with even slope from the middle to the gutter. The gutter or ditch should be deep enough to readily carry the water and to permit a slope of about an inch to the foot from the middle of the street to the gutter. Generally, the bottom of the gutter should be about 18 inches below the middle of the street where the width of the street is not over 35 feet between gutters. This is about right on a residence street. On a business street having a width of 50 feet, the bottom of the gutter should be at least two feet below the middle of the street.

After the street has been shaped with a grader, it will undergo a period of settling, during which some depressions and uneven places will appear. These should be filled with earth and the entire roadway be kept dragged until it finally becomes hard and smooth and free from depressions.

It is very important to secure a firm, smooth surface for the oil and the small expense incurred will be more than made up by the increased effectiveness of the oil treatment.

When the street has been brought to this stage it is ready for oiling and usually the best time is during the latter part of May and during June. If the oiling is delayed until a layer of dust has formed on the street, it is best to scrape off most of it before oiling.

The decision to oil a street may sometimes be reached after the summer is well along and the streets have become hard and dry. In that event, it is not advisable to do any extensive earth work because at this time of year newly placed earth will not compact readily and if oiled before well packed, the results are unsatisfactory. Such a condition is not ideal and only poor results can be expected.

Applying Oil.—After the street has been prepared as described, the oil should be applied, the quantity being one-third gallon to one-half gallon per square yard of surface. If the street has never been oiled before or if more than a season has elapsed since a previous oiling, the quantity used should be about one-half gallon per square yard, but if the street is being oiled regularly each season, about one-third gallon per square yard is sufficient after the first year. If the oil is being applied on a busy street in the business district, then it is necessary to oil every year, using about one-half gallon per square yard of surface for each oiling. In many towns the business streets are oiled twice a year.

An ordinary street sprinkler may be used for distributing the oil and after a few trials the operator can get his spray adjusted so as to deliver about the proper amount of oil and spread it evenly. Care must be taken to secure a nice even distribution of the oil and to avoid forming pools or covering sidewalks and crossings. Many of the disagreeable features of street oiling can be avoided if care be taken to keep sidewalks and crossings clean. The crossings may be covered with dust or sand before the oil is spread so as to keep them clean. After the street has been under traffic the crossings may be cleaned and from that time no trouble will be experienced.

If a street sprinkler be not available for delivering the oil, a thresher or any similar tank can be used by attaching a pipe at the back for distributing the oil. The best pipe distributor consists of an 8-foot length of two-inch pipe made up with a tee at the middle and caps at the end. Along this pipe, tee included, should be drilled two rows of one-eighth inch holes one inch centre to centre in the rows. This pipe is connected at the rear of the tank so that it will hang about one foot from the ground, and parallel to it, the connection to the tank being made with two-inch pipe in which there is an ordinary blow-off cock or gate valve. A little better distribution will be secured if a "spatter" board is suspended just