

Construction of Town Streets.

The construction of town streets is a matter distinct in many particulars from the building of country roads, and it is beyond the province of this article to more than draw attention to a few of the leading requirements. In making broken stone roadways on the residential streets of towns, the width to be paved is one of the first considerations. As a usual thing, on unimproved streets, the sidewalk is close to the fence and the remaining portion between the walk is used as a driveway. This leaves an unnecessarily wide amount of pavement, from 22 to 26 feet is ample to accommodate traffic, is cheaper to construct and keep in repair, and present a better appearance. On business streets, of course, it is necessary to pave the entire street allowance, either with sidewalks or for vehicles. There should be a line of cedar (or flagstone) curbing to define the roadway and protect the boulevard.

Perfect drainage, cleanness of material, rolling, and perfect crowning are imperative in making town streets. Methods have to be modified slightly, however, to suit the different circumstances, as for example, in the matter of drainage. Deep open drains are more objectionable in towns than in the country, and they should invariably be replaced with tile under-drains. The angle between the curb and the surface of the roadway will afford a sufficient gutter for surface drainage. Outlets must be as frequent as possible. Surface and tile drains may empty into sewers if such exist.

A street should be brought to a regular and uniform grade, before sidewalks are laid, and before the roadway is paved. In order to do this properly, the entire construction of the street should be undertaken at one time. Low lots adjoining should be brought up to the grade of the street with any surplus earth. In preparing the roadway to receive the gravel or other metal, an excavation below the grade of the street should be made, of sufficient depth to receive it.

A heavy roller is indispensable in doing perfect work. With it, the earth sub-grade must first be consolidated, then the gravel or stone placed on the roadway in layers, not exceeding four inches in thickness, and each layer thoroughly compacted.

The road metal (gravel or crushed stone) should be screened to remove sand and earthy matter. Special attention should be given to coursing the metal into various sizes, placing the stone of largest diameter in the bottom layers. The depth of gravel or stone to be placed on a street, depends on the amount of traffic. Lightly travelled residential streets will be sufficiently strong with five inches at the curb, and eight in the centre, this may vary up to nine at the curb and twelve at the centre for very heavily travelled streets. Streets in the business

portion of a town should have a surface covering of ten or twelve inches of stone over the entire width. All the above depths, are the measurements after consolidation with a roller.

Street Rails and Pavements.

The expense of maintaining pavements adjacent to rails, except the grooved form, is so great a burden that in cities where the pavements are maintained on streets with tracks, the few dollars annual expense for removing by a small brush or scraper at intervals, accumulations in the groove, amount to nothing compared with the hundreds of dollars necessary to maintain pavements of granite, asphalt, brick, macadam or any other material adjacent to the objectionable forms of rails known as T, center-bearing, or side-bearing rails.

City engineers are all familiar with the fact that a large part of the maintenance of pavements upon streets with tracks is due to the presence of those tracks. In narrow streets the tracks cause often one-half the expenses of maintenance. Mayors and boards of aldermen are steadily recognizing this fact, and, as opportunity occurs, they arrange that the expense must be borne by the street railway companies. In too many instances street railways pay but a tithe of the expense they should bear.

Good things at first come high, but their maintenance is not expensive. Cheap tracks, or wood, and poor forms of rails, cause great expense in a few years. As soon as the newspapers and public in our towns discover that they are paying a large part of the bill each year in connection with street pavements, which should be paid by the railway companies, they will find it caused by the poor forms and settings of the rails now in use. The engineers will then be sustained by the legislative bodies of our cities, in their demands for a properly designed grooved rail, correctly set, also certain other provisions easily discovered upon investigation of street railway companies and their workings.—[Municipal Engineer.

Statute Labor as a Joke.

If a section of the people persist in looking on their statute labor as a joke, if the present waste and injustice continues, and the roads are permitted to remain in an unsatisfactory condition, a hindrance to individual and national progress, if, after a fair trial, it is found that the statute labor law cannot be operated on business principles, it will be the inevitable result that ratepayers will demand its abolition and the substitution of a law that will be less easy to evade. This has been the result in numerous townships, and if the old system is to exist its friends must make a radical change in the present methods of administration, and prove its worth.

Drainage.

The drainage of a road is quite as important as the gravelling, but the best way to obtain this must be one adapted to the nature and elevation of the soil, and the direction and extent of natural water-courses, etc. It is imperative, however, that provision shall be made wherever the soil is in a low or wet location; or is of retentive nature, that it shall be drained both on the surface and below it. Sandy or gravelly soils very frequently do not need sub-drainage while clay always requires it. Unless there is natural sub-drainage, artificial under-drainage must be resorted to.

Considerable has been done in making open drains by the roadsides in most townships, but a great many of these need deepening and cleaning to provide better sub-drainage. A much better practice, however, than having deep open drains, is to use tile placed below frost line. These should, wherever practicable, be placed beneath the present open drains on each side of the road. No matter how good the material placed on the surface of a roadway, unless the natural soil beneath is kept dry, the metal is forced down and the mud comes to the surface. When roads in this country are gravelled, they are frequently termed "macadam." The important feature of the road built by Macadam, was the drainage, not the surface covering.

Tile and open drains must be kept free with a good fall to an unobstructed outlet. It is useless to drain water from the roadway and then keep it standing in drains until it soaks into and softens the natural soil under the gravel. At all seasons of the year, particularly spring and fall, when obstruction of snow and ice are likely to occur, the outlets should receive special attention.

Tires.

People tax themselves in time, labor and money for constructing roads, and then purchase narrow tired wagons to destroy them. If tires of from four to six inches were used on lumber wagons, a very great change would be quickly noticed in the condition of the roads. The difference between a narrow tire and a wide tire on a road, is about the same as the difference between a pick and a pounder. The one tears up, and the other consolidates. When wide tires come into general use, a great part of the question of good roads will be solved, as the wear of the road is nearly as important an item to consider, as its construction. With wide tires, the cost of keeping roads gravelled would be reduced one half.

It is objected to broad tires that they are heavy to draw over a rutted or stony road. It is, however, the narrow tires, which are so largely responsible for the ruts, and for working the stones loose, instead of which, wide tires would keep the roadbed smooth and compress stones into it.