Excavating the Sewer Trench.

The line of the trench being given by centre stakes, the sides of the excavation are indicated by measuring the proper distance on each side of the stakes and stretching sash-cord or clothes line there and marking the ground along this line by means of a pick. The laborers are then placed at regular intervals along the trench, varying from six to twenty feet, in single line in most cases. It may be well to define in some way, as by a mark in the ground or stake at one side of the trench, equal lengths of trench, one man being required to work within the limits of each length. Where possible it is desirable that this length be that which can be completed in a half or whole day.

If there is any paving material on the street it should be thrown on one side of the trench, and the remaining excavated material upon the other side, the material on each side being kept back a foot or two from the edge of the trench to allow a pathway for foremen and inspector and for lowering material, but still more to prevent excavated material from falling back into the trench. Thus one side of the street is left to travel, the pile of paving material acting as a guard to the trench on that side. If so much soil is to be thrown out, or the street is so narrow that it cannot be all placed upon one side of the trench, it may be placed upon both sides, the paving material being kept separate, say along the outside edge of one bank.

The first earth cast out should be thrown to what will be the outside edge of the bank, since it cannot be thrown there where the trench is deeper without double handling. The gutters should be kept open and free from any excavated material. Down to a depth of nine to twelve feet the earth can be cast to the surface, although after five or six feet is reached it will be necessary to keep additional men on the surface to throw back on to the pile, the material so cast out. When the depth exceeds nine to twelve feet it will be necessary to handle the material twice before it reaches the surface, by placing a platform or staging about six or seven feet below the surface, on to which the earth is thrown by two to four men, and from which it is thrown to the surface by one man. These platforms are usually made by resting plank upon the braces or rangers of the sheathing. Except in rock cuts there are almost no conditions under which a trench ten feet or more in depth should be left unbraced. The platform may consist of short pieces of plank placed crosswise of the trench, their ends resting on the rangers, or of long plank lengthwise of the trench resting upon the braces. The latter cannot well be used if the trench is less than five feet wide, but it is the better form for wide trenches.

Where it is allowed, as it is in many cities, and the trench is over ten feet deep, it is often economical, except in hard rock, dry sand, or quicksand, to make the excavation in alternate tunnels and open trenching, the sections of each being eight to twenty feet long. The tunnel is usually made about five feet high. The amount of material to be removed and of bracing to be put in is thus reduced. But tunneling should never be allowed under streets, except in rock, unless the tunnel is afterwards opened and back filled as open trench, being used only to save bracing; since it is practically impossible to so compact the back-filling in a tunnel as to prevent future settlement, which may not occur, however, until months or years later, when the contractor has been relieved of all responsibility.

There is a tendency, if a right handed laborer always faces one way while picking, for the trench to work to his left as it descends. He should be taught to avoid this by keeping his left side to the side of the trench at which he is picking, so that both sides shall make the same angle, if any, with the vertical.

It pays to keep the picks sharpened and good shovels in the men's hands. For this purpose there should be twenty-five to one-hundred per cent. more picks than laborers, to allow opportunity for sharpening them. For digging the round pointed shovel is best, but staging men and mortar mixers should use square pointed shovels. There should be a few extra shovels constantly on hand, including a few long-handled ones, but these latter should not be used for trenching except in deep trenches where the shovelling is very easy.

In soil where caving is frequent and sheathing is not used the trench should be refilled as soon as possible, since the longer it stands the greater the probability of caving. Soils, such as clay, or other heavy ground, having some cohesion will usually give warning of caving by cracking a few feet back from the edge of the trench, and should be braced as soon as such sign appears. Gravelly soils or dry sand usually give no warning, and are particularly dangerous on this account and because they may bury and suffocate the men; while clay, coming in lumps, although it may bury and even crush them, will permit them to breathe until they can be rescued. Trenches in gravelly and sandy soil should always be sheathed.

A Town Forest.

Brunswick, Maine, a town of about 7,000 inhabitants, is thought to be the first municipality in the United States to undertake forest planting on a large scale, on what is practically the old world institution of a town forest. The town owns a tract of about 1,000 acres and at a recent meeting of the council $100 was appropriated to improve this land by planting it in white pine. Town forests are common in Europe, and often furnish a large part of the municipal revenue.

Rural Mail Delivery.

Rural mail delivery, to which reference is now being made in the public press, signifies that, as in the cities, a postman daily passes over a definite route delivering letters, newspapers, or other mail matter arriving at the post-office, instead of requiring every farmer to himself go to the post office. There are many advantages, and but one disadvantage—the cost. But even the cost is not so great as might be anticipated. For example, one instance may be cited, in which the annual cost for a route, is $400, the salary paid the postman. The latter, however, provides his own horse and buggy, the route is about twenty-five miles long, there are 150 farmers served, so that the annual cost for each averages only $2.67.

The advantages, we have said, are numerous. It is plainly an economy of time, one man doing the work of many in going to and from the post-office. It is a great advantage to the farmers to get their papers regularly through harvest time and other busy seasons, and in stormy weather. It enables the farmers to subscribe, much more satisfactorily, for a daily newspaper, instead of a weekly. It enables the farmer to keep in better touch with the market reports when he has produce to sell. It overcomes in a great measure, the isolation of farm life, for although the farmer does not talk to the outside world, nevertheless the outside world, through the medium of the daily papers, can talk to him. It is, too, a great advantage in mailing letters.

The one great adjunct to a rural mail delivery is good roads. No country section can be served within a reasonable cost, unless the postman can travel over a long section, say twenty-five miles, daily, with a single horse vehicle, and this cannot be done unless the roads are reasonably good. At the present season, there are few districts in the province of Ontario where this could not be done. But our roads are, too commonly, dry weather roads alone. Rural mail delivery will not be practicable to any extent, until our roads as a whole, are much improved. Good roads which would serve this, and all the other good purposes that good roads serve, do not mean broken stone roads built at extravagant prices. They do mean roads, built by statute labor, if nothing better is available; but built by whatever means, must be skillfully applied, and when this is done rural mail delivery will be possible. For the most of townships are, in one way or the other, spending enough in labor and money to make good roads, if only the application of this energy were directed by the best principles of road-making.

Mr. W. W. Ireland, of Niagara-on-the-Lake, has been appointed Public School Inspector for the County of Lincoln, to succeed Mr. J. B. Grey.