

Road Works.

DRAINAGE.

Perfect drainage, first, of the foundation of the roadbed; secondly, of the road surface, are the points in road making on which too much stress cannot be laid.

The first is accomplished by under-drainage, tile drains being laid at a depth of three or more feet below the surface on each side of the roadbed at the foot of the grade and parallel to it. Care should be taken to fit and settle the tile in the trench so that, when refilling with earth, they will not be displaced. As a rule $2\frac{1}{2}$ inches to 4 inches tile will be sufficient. The joints should be close and the grade a true line. Loose joints and an uneven grade allow silt to pass into the tile and remain there, destroying the drain.

Surface drainage is accomplished by open drains on each side of the grade, having sufficient capacity to drain not only the roadbed but the land adjoining. With open drains and with tile drains make and maintain a free outlet to the nearest water-course. A drain without an outlet is useless. In constructing a good road, a dry foundation is the matter of first importance.

CROWNING THE ROAD.

The graded portion of the road should be wide enough to accommodate the travel upon it, and not greater, the grade being uniform, not heaped in the centre. The crown should be well above the overflow of storm-water and should have a grade sufficient to shed water readily to the open ditches on either side. Do not round it up so as to make the grade steep and dangerous, under the mistaken impression that better drainage will thereby be secured. Nor should it be so low as to allow water to stand on it in depressions. Under ordinary circumstances one inch or one inch and a half to the foot is a proper grade; that is, a roadbed twenty-six feet wide should be from thirteen to twenty inches higher at the centre than at the side.

QUALITY OF GRAVEL.

The gravel should preferably be sharp, clean and of uniform size. Pit gravel usually contains too much earthy matter and where the latter is in excess, the gravel as a roadmaking material is useless. Lake gravel is apt to be rounded, water-worn and lacking in the necessary earthy matter to make a solid and compact surface but is generally a better road metal than pit gravel. A coating of pit gravel with a surfacing of creek gravel is a good combination. All large stones should be removed as they will work to the surface and will then roll loosely or form rough protuberances.

PLACING THE GRAVEL.

The gravel should be spread evenly over the surface of sub-grade to a depth of six or eight inches and to the required width, then rolled with a heavy roller.

Rolling should be performed in showery weather as it is impossible to consolidate dry earth or gravel. The heavier the roller the better will be the results, but if a heavy roller cannot be obtained, a light roller is better than none. The roller should be passed over the surface until the gravel or earth is so compact as not to be displaced and rutted by the wheels of a wagon passing over it with an ordinary load. The surface must be maintained smooth and hard to shed water and resist wear. Every municipality should have a roller, but whether one can be obtained or not the gravel should not be left in a heap just as it falls from the wagon. Spread it evenly.

REPAIRS.

Gravel roads already constructed will need repair. By the use of road machinery, scrape the surface and cut off the corners which will have formed at the foot of the grade by the washing down of dusty material from the crown of the road. Loosen the surface, particularly that part of the travelled portion and where the road is rutted, with picks, or if possible with road machinery, then apply a coating of gravel and roll thoroughly. It is of more importance, however, to see that the drains are not obstructed in their course and that their outlets are free and open.

Cumulative Voting.

Of all the systems of electoral reform, the cumulative vote is that which is the best known and has been most often adopted. It has been used in the municipalities of Pennsylvania, in the school boards of England, and in the House of Representatives in Illinois. It has been practiced in the elections in the Cape of Good Hope, after an experience of more than thirty years. In Illinois the state has been so divided that from each senatorial district three members of the House of Representatives are elected. The voters may cast for each of the three candidates three votes, or they may divide their suffrages so as to give three votes for any one candidate, or two for one, one for another, or one and a half to each of two candidates. The result has been that in every district in the state the minority party, whether Republican or Democratic, has at least one representative in the legislature. Under this system the party having a majority can always elect two out of the three, and if the minority have more than one quarter of the votes they can elect one member. This system of cumulative voting has been in use in that state ever since 1872. There has been abundant opportunity for ascertaining its merits and defects. Mr. M. N. Forney, the secretary of the New York Proportional Representation Association, undertook an elaborate investigation of the effects of this system, sending to every part of the state inquiries as to its practical operation. The replies showed that the system secured representation to minorities of more than one

quarter, that there was little difficulty in its practical operation, that it lessened the evils of the gerrymander, and led the people to take more interest in public affairs. It made a change of representation easier to accomplish, and by giving a more just representation to both parties in each district it lessened party bitterness.

The cumulative system permits proportional representation, but it does not secure it. Moreover, it occasionally happens that when a very popular man is nominated, an undue proportion of votes are concentrated upon him and the remaining candidates are elected by a minority. The difficulty is that a voter cannot tell when he is casting more votes than is needed for his favorite. The cumulative vote is a system of proportional representation. The cumulative system allows minorities their proper representation if they calculate their chances correctly.

The Fountains of Patriotism.

"Civics," which is the philosophy of civil government and politics, is something which ought to be largely taught to the Canadian people. Side by side with financial economy, it should be made familiar to Canadian youth, so that when they come to be men, charged with public duties at least of voting, if not holding office, they may have some intelligent conception of the principles of their governmental system upon which the finances of the country depend.

The lack of proper knowledge of these important matters may entail a vast amount of distress upon the people. The whole science of civil government does not stop with public economics. There are matters such as patriotism, and the benefits due to the people from their governmental system, and the duties which the people owe to the government. These form an important part of civics, and they are being now taught in the schools of the country, where a few years ago such themes were little heard.

In recent publications on the origin and nature of patriotism there is a strong tendency to teach that it is a grand, heroic sentiment that grows out of the contemplation of nationality and the power and greatness of a country. This is all very fine; but it is not human. Men rise to the love of country through the love of home. The citizen reaches that quality after having first had his affections and interests aroused by the circumstances of the family. The country commences with the home, and the state begins with the family.

A man may entertain a just pride that he is a citizen of a great and powerful country; but if he have no home and family, there is but a slender foundation to his patriotism. A man who declares that the world is his home, and mankind his brothers, is organized on too vast a scale to accomplish anything useful in the small affairs of county, city or state.