expects to use that plant for at least 50,000 square yards per year. The maintenance and cost of operation for large plants are too great, and the result is usually a failure. There are numerous small mixers on the market to-day which are satisfactory for cities who wish to do their own repair work, amounting to only a few thousand yards per year. The initial and operating costs are small, and when not in use they require practically no expense. The maintenance and depreciation are also very low.

There are many other causes for municipal paving plant failures which require long explanations, but it is at least encouraging to note that the cities owning municipal paving plants are waking up to the fact that sometimes failures can be turned into success, and are putting their municipal plants under proper conditions to do the work for which they were intended.

CLASSIFICATION OF ONTARIO ROADS.

The roads of Ontario may, for a consideration of construction, be broadly divided into three classes, states Mr. W. A. McLean, in the annual report on highway improvement, one grade merging into another, however, at the arbitrary dividing line. It is estimated that in the organized counties of old Ontario there are 50,000 miles of road, and a classification would be approximately as follows:--

1. Trunk roads connecting the large towns

and cities 5% or 2,500 miles

2. County or leading market roads.....12% or 6,000 miles

In the foregoing classification, the roads described as trunk roads are, with the exception of a few connecting links, among the most important of the county roads, and are heavily travelled for local market purposes, but they carry as well an increasing amount of through inter-urban traffic. The heavy and complex nature of this traffic requires, as a rule, construction of the most durable type varying from a concrete, brick, or other durable pavement to first-class macadam. The classes one and two, including trunk roads and leading market roads, thus include two divisions of what what would be the main county roads of the province. These comprise 17 per cent. or 8,500 miles in all, which if properly selected and constructed should carry 80 per cent. of the traffic of the province.

The main township roads comprise principally the concession roads on which numerous farms front and which converge into and create the traffic of trunk or county roads. The more important of these should be metalled with gravel or broken stone, if available. Secondary township roads include the little travelled connecting roads which should be graded and given such further treatment as circumstances may permit. The first need for the roads classified as township roads is thorough grading, draining and bridging, and systematic maintenance with the log drag.

Gradients adopted, amount of camber or crown, width and depth of metal, foundation if any, drainage, binding material, and other details, should, as suggested, be largely dictated by the degree of traffic. A good road attracts and Creates traffic so that the construction of any one road is very likely to raise it from one class to a higher grade, a matter which should not be lost sight of in planning improvement. Methods of construction should be as simple and direct as proper results will permit. There should, for true economy, be a well adjusted average between maximum service and minimum cost.

NEW YORK CITY A VAST BRICK MARKET.

It is difficult to realize the enormous quantities of brick used annually in greater New York. During 1912 the consumption was more than 1,000,000,000. The principal source of this vast quantity is the Hudson River region, which extends along both sides of the river from New York to Cohoes and embraces ten counties, nine in New York and one in New Jersey. Other sources of supply are the Raritan River region of New Jersey and the Connecticut region.

The year 1912 was one of unusual interest in the Hudson region. It opened with an increasing demand and the price of common brick was \$7 per thousand compared with \$4.25 in 1911. For several years the use of cement or concrete in construction appeared to be displacing brick to some extent, but owing to the strong "back to brick" movement the year 1912 saw in the New York market a change favoring brick as the best building material for many purposes. Influences that have contributed to this change are the failure of some concrete buildings, the advertising campaign carried on by the brickmakers and the improved quality of the Hudson River brick. The average price was the highest since 1906.

The marketed product of 1912 was larger than that of 1911 and would probably have been still greater but for the scarcity of labor, especially at Haverstraw, and the strike among the brickmakers in the Newburg district. The strike was of short duration, but the scarcity of labor drawn away by large construction enterprises, such as the Catskill aqueduct, railroad extensions and subway operations, was a serious drawback to the Hudson River brickmakers in 1912. This condition was so serious that the operators resorted to night work and rainy-day work in loading barges and imported laborers from the South.

An important development during the year was a large increase in the use of Raritan River brick in New York city, which has for some years been drawing on the Raritan River region. In 1912 the demand for this brick was very much greater than ever before.

On the whole, the year may be regarded as one of prosperity. The demand was good, prices were high, the mild weather toward the end of the year permitted shipments to its close, and while the marketed product was not the largest recorded, it was considerably larger than that of 1911.

The statistics gathered by Jefferson Middleton, of the United States Geological Survey, show that the number of brick marketed in the Hudson River region in 1912 was 1,019,259,000, valued at \$5,850,770, or \$5.74 per thousand, compared with 926,072,000 brick in 1911, valued at \$4,717,633, or \$5.09 per thousand. This was an increase in 1912 of 93,187,000 brick and of \$1,133,137 in value. The number of operating firms reporting in 1912 was 126.

During ten months ending May 1st Canada exported 3,250,272 tons of bituminous coal to the United States and imported in return 19,353,252 tons of anthracite and 22,-356,868 tons of bituminous, according to the latest monthly summary of the United States Bureau of Foreign and Domestic Commerce.