that the brick and cement formed a solid mass, making the pavement monolithic in character. The result was a perfectly smooth, unbroken surface. From one end of the street to the other, there has been no chipping of brick, or disintegration of the cement filler or binder. A closer inspection of this mile of eighteen-year-old pavement made late in August did not disclose a single defect. The traffic over this pavement has had no perceptible effect upon it, the pavement

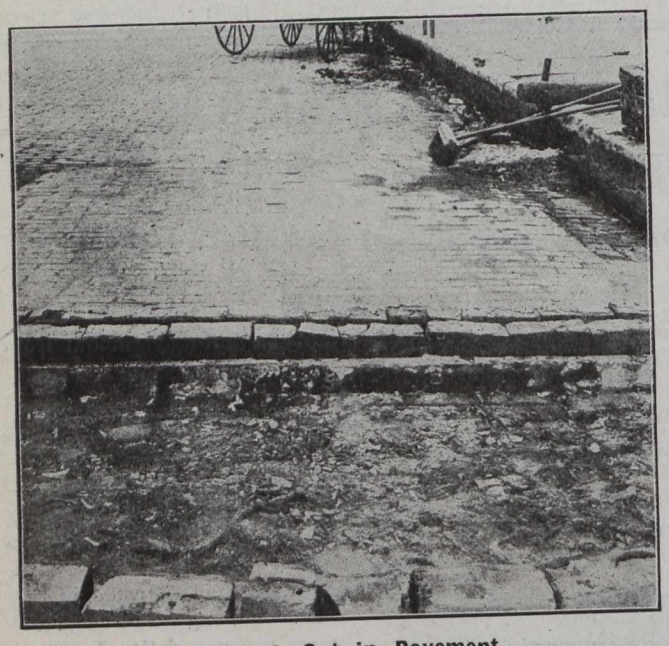

Fig. 2.—A Cut in Pavement.

Showing the imperfect application of the cement filler, to which is due the uneven wearing quality of the pavement.

showing scarcely any wear at all. If left undisturbed this pavement will be just as good at the end of another eighteen years, without a dollar of expense for up-keep.

The section of the poor pavement taken up disclosed the secret of its failure, if a pavement can be called a failure which, after eighteen years of use, is, though rough, still doing service, with no expense incurred for repairs. As a fact, it is a failure only by comparison with the perfect pavement. The same grade of brick was used in each pavement, and the traffic is much the same on each street. Why the difference? The answer is easy. It is in the careless construction of one, and the careful construction of the other.

In the good pavement, the cement filler was properly applied. In the poor pavement, not half of the brick were imbedded in the cement. Some of the brick had cement on one end, and not on the other; some of the brick had cement on the upper portion and little, or none, on the lower, and vice versâ. In some small portions of the removed pavement the cement was properly applied. In such portions the pavement remained smooth; where there was little or no cement, the pavement was the roughest. To my mind, this investigation solves the mystery of good and poor brick pavements. Scientists are at work on the problem and in time a full report of the finding will be made public. I feel quite confident that the report will justify the opinion I have expressed.

They have learned how to build brick roadways in Ohio. Every detail of construction is looked after carefully, no feature of the work is slighted, and as a result the roads are so perfect that it takes an expert to detect any minor faults or defects even. They have over four hundred miles of brick roads in Cuyahoga county alone, and those who use them regularly and appreciate their excellence and economy, demand brick pavements and brick pavements only.

Ohio is not alone in appreciation of good brick roads. They are being built in other States. New York, for instance, has made a fine start. There are about one hundred miles of these brick roads in the vicinity of Buffalo, and the State Highway Department is building about one hundred additional miles this year at other points, and when the efficiency and economy of these roads have been demonstrated by actual use, the taxpayers of the Empire State will become veritable Oliver Twists in their demand for more of the same sort. It is estimated that $50,000,000 have been expended in New York State alone on temporary roadways. Think of the many miles of permanent brick roads this sum would build. There is a vast difference between a roadway that must be looked after and repaired constantly, and these brick roadways which cost nothing at all if once properly constructed.

The proper construction of a brick paved roadway is a simple matter. In general, the requirements are the same as maintain in the building of any good road.

1. Proper drainage.
2. The careful compaction of the roadbed to a grade corresponding with that of a finished street.
3. A concrete foundation in the colder climates, and on soils of slow drainage.
4. A sand bed, two inches in depth evenly compressed, intervening and immediately underneath the brick.
5. Laying the brick best edge up, with lugs lying in in the same direction.
6. Rolling the brick to an even surface.
7. Application of the cement filler in proportion of one to one.
8. Protecting the filler from too rapid setting.

A properly constructed vitrified brick roadway is the ideal highway. Its merits summarized are:

It is easily built.
It is economical as to first cost.
It costs nothing for maintenance.
It is most satisfactory in use.
It is the most sanitary pavement known.

Fig. 3.—Glenwood Road.

Six and one half miles out from Buffalo N. Y. Wire-cut-lug brick being used

It affords the least traction resistance.
It is not a slippery pavement even when wet.
It is adaptable to all climates and all conditions of soil.
It is not an experiment, but a demonstrated fact.
It may be seen and inspected, hundreds of miles of it, in actual use, successfully withstanding excessive traffic.

Its affirmative merits are many and, when the truth is told, there is not one single objection that can be urged