

MUNICIPAL DEPARTMENT

CEMENT OR STONE WALKS.

The local board of improvements has passed a resolution that nothing but stone or cement walks shall be built hereafter within the corporate limits of Chicago, unless a majority of the frontage owners petition for plank. The numerous damage suits against the city resulting from personal injuries from defective plank walks reaches nearly one million dollars, and calls for several attorneys to conduct the litigation, while the judgments obtained and the court costs amount to large sums annually. The result of the order will diminish the volume of litigation and insure the safety of citizens from broken limbs and bones.

TRACTION ON ROADS.

The amount of literature devoted to the improvement of common roads which has appeared during the past few years is a sufficient earnest of the importance of the subject to the community at large, as well as of the interest which that community takes in the matter. Again, conventions and other organized operations, together with the persistent and well-directed work of many individuals prominent in the movement, evidence the fact that there is no lack of lay effort, which, fortunately, is bearing excellent fruit. Civil engineers, also, have responded efficiently to the demands for good roads construction, so that probably no better roads could be built with the materials available and under existing conditions than can be found in some portions of the country; but after all that is said (and much more might be said), and even in view of the facts that the enhancement of the value of real estate and the economy of improved facilities in highway transportation have been given due prominence, it is unquestionably true that quantitative data as to the economy of improved roads is yet lamentably scarce. This is a matter so largely civil engineering in character that it naturally would not receive first attention in the broad consideration of the subject by the public; yet it may almost, if not quite, be said to lie at the very foundation of the whole business. At any rate, if the greatest economy of transportation be reached, it will be found that the greatest degree of improvement has been attained.

The securing of quantitative data concerning the economy of improved roads involves the whole question of traction, not only as it touches the determination of the forces required to move given loads on the various classes of road surfaces, such as dirt roads, macadam and asphalt, both on levels and grades, but also as it bears on the improvement of vehicles. The results given by the old

authorities, Morn and Navier, and by others, are well known to be anything but satisfactory when applied to the conditions of to-day, and, while there are some isolated later determinations of more or less value, the field yet lacks complete and systematic working. There is probably no way at the present time in which the cause of good roads can be so strongly fortified or efficiently advanced as by a comprehensive and thorough system of traction tests on all conditions of both improved and unimproved roads, on levels and grades, so conducted as to exhibit clearly and conclusively the effects of improvements and of various conditions of maintenance. There can be no argument so convincing to the average member of the country community, particularly, as a clearly-cut contrast between the small load laboriously hauled over the ordinary unimproved highway and the much larger load (perhaps five or six times as heavy as the former) smoothly transported with less effort over the improved road surface. This is really the kernel of the whole matter on which the development of all the arguments for good roads most largely depends. It is much to be desired that parties who are interested in this question should institute and carry out under competent engineering supervision such an investigation as that which we have outlined above. It would not be an undertaking of great expense, but the results would be of the greatest value in themselves and they would give added value to those of a fragmentary character which have already been made.

By some tests made on the roads of the United States Road Exhibit of the Cotton States and International Exposition at Atlanta, it was shown among other things that a team which readily drew a net load of 6,000 pounds up a 10 per cent. grade on a macadam road with an indicated pull of 1,000 pounds, failed completely to take the same load down a 6 per cent. grade, with an indicated pull of 1,900 pounds; indeed, before the team could be started down this 6 per cent. grade it was necessary to reduce the net load to 1,500 pounds. It was also shown by the tractometer that the pull on an ordinary dirt road was essentially a succession of jerks or blows as destructive to vehicle as they are wearing to the team. Such quantitative results as were obtained were convincing as to the advan-

tages of an improved road surface, and they most pointedly emphasize the need of complete and thorough investigation of these traction matters which affect or are affected by the improved roads.

TYPHOID FEVER AND WATER SUPPLY.

Typhoid fever and dust were referred to at some length in a communication from Drs. Kelsch and Simonin to the Paris Academy of Medicine on October 5, which is abstracted in the British Medical Journal. They report, according to that journal, that in the summer of 1896 there were 18 cases of typhoid fever in a small barracks. The water supply was pure, but it was found that in the autumn of 1895 three cases of typhoid were laid up in the room where the epidemic began nine months later. Those furthest from the beds and the room suffered least. The flooring was taken up, the rooms disinfected, and no more typhoid appeared. A few months later 22 cases occurred in a barracks in another town. The building was small, and the rest of the town free from the disease. This time some dust was collected from the floor of the barracks, and, on examination, Eberth's bacillus and the bacterium coli were discovered in it. About the same month typhoid broke out in two rooms only, in large barracks. The men in the rest of the building remained perfectly exempt from fever. The water supply was absolutely free from specific germs. The dust in the two rooms was subjected to close scrutiny, and the bacterium coli and Eberth's bacillus in every condition were found in abundance. These investigations show that the commonly accepted belief in the spread of typhoid fever by water alone may not be justifiable.

The brick pavements in Washington, D. C., are referred to as follows in the annual report of the Engineer Commissioner, Capt. W. M. Black, Corps of Engineers, U. S. A.: "Further tests are being made of brick pavement on a concrete base, in the hope that the recent improvements made in the quality of the bricks manufactured for street work will show a greater toughness in the material, which will prevent the splintering under traffic which has caused the dissatisfaction in the past. In the absence of any conclusive laboratory test for paving brick, it is deemed best to make the test of actual use, and thus to determine what makes of brick can be depended upon. In the latter work in alleys an elastic asphalt joint on the sides has been used to provide for the expansion of the brick pavements, which has caused trouble elsewhere."

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