In December, 1891, after a service of nearly sixteen months, about one-quarter inch was found to be worn away. The section is in front of the "Big Four" freight depot, and is subject to very heavy traffic. J. W. Cole, in a paper before the American Society of Engineers, considers that this pavement meets the requirements of good street pavements in that it is substantial for heavy traffic, affords a good firm foothold for the horse, and is practically noiseless.

## LEGAL DECISIONS AFFECTING MUNICIPALITIES.

MUNICIPALITY-WHARI PROPERTY .-The power of a municipal corporation to aquire land for the purpose of erecting wharfs thereon and to charge wharfage is not a necessary incident of its charter, but must, like all its other powers, be derived directly from the legislature to be exercised within the limits and upon the conditions of its grant, according to the decision of the Kentucky Court of Appeals in the case of Roberts et al. vs. City of Louisville.

GAS AND WATER PIPES DECLARED TO BE IMMOVABLES. - Judge Tait rendered a most elaborate and very important judgment at Sherbrooke, a few days ago, in the case of the Sherbrooke Gas and Water Company and the Corporation of the City of Sherbrooke. Tms was an appeal from a decision of the municipal council homologating the valuation roll, in which the valuations placed on two parcels of land belonging to appellants were increased from \$6,000 and \$8,000 to \$36,000 and \$78,000 respectively. The increase represents the value put on the gas and water mains and pipes running through the streets of the city. The pretension of the appellants was that these pipes were not placed upon the lots and did not form part thereof, but were placed throughout the streets by special permission of the Legislature, formed no part of the real estate of the city and were not taxable property. The learned judge after quoting the leading authors and a number of precedents, here as well as in France and the United States, came to the conclusion that the pipes must be considered as an immovable, as, apart from the authorities quoted, common sense shows that they are but the limbs of the body and-a part of it. The Court must therefore decide that the respondents had a right to tax the mains and pipes as part of the real estate belonging to appellants, and the petition must be dismissed with costs.

### SANITARY AND UNSANITARY RELA-TIONS OF UNDERGROUND WATERS.

BY W. R. BRYCE, M.D., TORONTO, CANADA.

It is not my intention to deal at any length with this subject, but rather to present some of the principles to be observed in the selection of drinking waters.

Much has been said with regard to the dangers of drinking water from wells; but it has not been until recently that the differentiation has been made as regards wells that are dangerous and those that are healthy.

As a general principle it may be said that practically all really underground waters are sanitarily good; but it must be clearly understood what is meant by underground water. For instance:

- 1. A water lying in a shallow due-out in prairie or bog land, down only to the impervious clay or rock below, cannot fairly be called underground water.
- 2. Neither can a well down even into a true water-bearing stratum of sand or gravel be called an underground water if the water of the upper organic soil layer is allowed to perculate toward the well latterally without really moving down-ward through the underlying beds of clay loam, sand or gravel, which serve to steri-lize the waters in their passage down-
- 3. Neither can a well be called underground if, as is commonly the case, the vell is covered with boards or a wooden framework, thereby allowing the filth washings from the surface of the boards to be carried down through cracks into the water of the well.

Carl Fraenkel and others have carefully examined into the water of pit-wells, and such have by Pflugge been called "hygenic monsters."

Clearly, then, underground waters mean those which have primarily fallen upon the surface, have there been contaminated with soil microbes, but which have, in their passage downward, through percolation to the water-bearing zone situated on some impervious stratum, been purified by the several natural agencies which are

## PUBLICATIONS.

Mr. Chas. Baillairge, City Engineer of Quebec, has kindly favored us with a copy of his report for 1890-91, which shows the sum of \$68,260.58 to have been expended on street repairs and improve-

Mr. H. J. Jennings, who for years held the position of town clerk and treasurer, Division Court clerk, etc., at Penetanguishene, is reported to have left the town for parts unknown.

The town of Toronto Junction will ask for applications for the position of water superintendent, at a salary of \$1,000; two assistants, at \$500 each, and town engineer at a salary of \$1,500, out of which sum must come the salaries of

# ALAN MACDOUGALL,

# GIVIL AND SANITARY ENGINEER.

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R. E. H. BUGKNER,

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Viaducts, Piers, Roofs, Turntables and Girders in Steel and Iron.

Tension members forged without welds. Riveting done by hydraulic or compressed air machines Spicialties Good workmarship and strict adherence to specifications and drawings.

CAPACITY 2,000 TONS PER ANNUM.

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Municipalities usuing delemures, no matter for what urpose, will find a ready purchaser by applying to A. STLMSON, B Toronto Street, Toronto, N.B. Money to loan at lowest rates on first mortgage

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94,000 Meters sold and in use to date.

GOWER & CO. wel also quote for FILTERS, STAND PIPES, CAST PIPES, SPECIALS, HVDRANTS, VALVES, and all Waterworks and Municipal Supplies

## THE EXAMINATIONS

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# ROYAL INSTITUTE OF BRITISH

NOTICE IS HEREBY GIVEN that after the close of the year 1893 all gentlemen who desire to qualify for candidature as ASSO-CIATE of the Royal Institute of Bratish Architects (except in special cases submitted to and approved by the Council) will be required to enter for the PRELIMINARY Examination, and having passed it, work up through the INTERMEDIATE to the FINAL Examina-INTERMEDIATE to the FINAL Examination, which in 1894 will take the place of the
present "Examination in Architecture." The
only Examinations to which young Architects
who are in practice and who desire to become
Architects without passing the Progressive Examinations can enter, take place twice in the year
1892 and twice in the year 1893. Those therefore
who may not be prepared to enter for the
"EXAMINATION IN ARCHITECTURE"
before the close of 1893, should take immediate
steps to secure registration as Probationers, which
they can do by passing the Preliminary Examination or obtaining the GRANT OF EXEMPTION THEREFROM.

ASHTON WEBB, Hon. Secretary. WILLIAM H. WHITE, Secretary.

The Royal Institute of British Architects, 9 Conduit Street, Hanover Square, London W., 25th January, 1892.

# CANADIAN

Architectural Ironwork a specialty. Pleased to furnish estimates.

St. George's Patent Sectional

# CAST IRON STREET GULLEY.

THE undersigned begs to call the attention of town councils or those in-terested in the construction of sewerage. to the above mentioned patents, and will be pleased to send circulars and give any information required to those desiring such. The sectional sewer makes a CHEAPER and at the same time a more durable and efficient sewer than the or be nary brick. The cast non street gulley, of which there are 5,000 m use in M n real, Toronto, Ottawa, Quebec, Peterboro, Owen Sound, Sarma, St. Henri, St. Cuncgonde, and other places, is such a great improvement and saving on brick that corporations who have tried them never put in bricks again.

# LEWIS SKAIFE.

Engineer and Contractor.

New York Life Building, - MONTKEAL. AGENT.

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