

## MUNICIPAL DEPARTMENT

### THE OILED ROADS OF CALIFORNIA.

Oiled roads are no longer a novelty in many parts of California. When, in 1892, experimenting was begun to improve the public highways of Santa Clara county, Cal., by sprinkling them with oil, there were many strenuous objections directed to the State Bureau of Public Highways by the residents of that county who believed such a course would render the roads impassable to those not wishing to be bespattered with oil. After the first application of the oil, the roads were in a disagreeable condition for a few days, but after the oil had been properly worked in and the roads rolled, which hardened the surface, travel was rendered easy and dustless.

The oil is applied with a sprinkler wagon with tank attached, similar to the ordinary water sprinkler. From one hundred to four hundred barrels a mile were necessary for the first application, but in subsequent applications this number was greatly decreased. The oil is heated by steam to a temperature of 300 degrees, which causes a three per cent. expansion. The oil costs ninety cents per barrel and upward, according to the distance it has to be hauled from the railway.

After the first application of the oil the roads can be sprinkled and kept in condition at about one-half the cost required to sprinkle them with water. Previous to 1892, Santa Clara county had been paying \$89.00 per mile a season, exclusive of the cost of water, wagons, repairs, etc., for sprinkling the roads with water; since that time the roads have been kept in excellent condition with the use of oil for less than fifty dollars per mile a season.

In the valleys of California the roads are naturally very dusty, the dust being light and usually four or five inches deep, hence the discovery of the usefulness of oil in allaying this dust and in keeping the roads hard has proven of great value to the people of that state. There is an abundant quantity of oil throughout the

### CONCRETE FOR SEWERS.

The city of Chicago has at last recognized the merits of concrete for sewer construction and an ordinance passed by the Common Council last month provided for the building of about fifteen miles of concrete sewers of large diameter in the southern part of the city. Eight or ten years ago the city appointed a commission to investigate the availability of concrete for sewer work, and this committee visited Reading, Pa., where concrete had been used successfully for a number of years, at a great saving over the cost of brick.

The internal diameter of the new sewer is ten and a half feet at its mouth, the size gradually decreasing to three feet. The

immense region that is drained by this new sewerage system is very low and swampy, only a little of the territory rising more than a few feet above the level of Lake Michigan. A noted civil engineer has estimated that to raise this region to the level of the down-town district of Chicago it would be necessary to dredge about one-third of the lake, to get enough material to level things off. Almost the entire length of this fifteen miles of sewers will lie below the level of the lake. At the mouth the bottom of the main sewer will be seventeen and three-tenths feet below Chicago city "datum," a theoretical level, or the low water record of 1847, which is used in all surveys in the city. The lake often stands several feet above this level. A pumping station with three Corliss engines will be equipped, operating centrifugal pumps, to elevate the sewerage into the Calumet river.

The entire sewer will be of cylindrical form. At its largest diameter the concrete walls will be ten inches thick, and the thickness will gradually taper with the size down to five inches in the smaller outlying sections. All the conduits around the pumping station will be of concrete, and there will be 157 concrete catch-basins, besides concrete manholes.

The city engineers estimate that the ten and one-half-foot section will cost \$20 per lineal foot; the nine-foot section \$14; the eight-foot section \$12.50; the seven-foot section \$10 and other sections grading down in cost to \$4 per foot for the three-foot sections. The entire cost of the sewers and the pumping station is estimated at \$740,000.—Concrete.

### PURE WATER BY CHEMICAL MEANS.

From numerous and extensive experiments made by Professor Paterno and reported in Tribune, Rome, it appears that by adding to impure water, even that containing pathogenic microbes, an extremely small quantity of chloride of silver, there is accomplished the complete disinfection of the water. For this purpose two milligrams or at most two and one-half milligrams of the chloride are sufficient absolutely to sterilize a liter of water and to eliminate every danger of infection. The process is so simple that one

cannot expect any improvement upon it in the future; it may be used by anyone and in every condition of life, the sterilization being complete after a few minutes—ten at the most—and no apparatus being necessary beyond a small vial with a solution of chloride of silver.

The water keeps its flavor and all of its properties without modification, only undergoing a slight whitening which disappears after a few hours of repose.

Fraser, Hamilton & Company, planing mill, Ottawa, Ont., have dissolved.

On December 1st Mr. Samuel Baker assumed the duties of city clerk of London, Ont.

### JOHN GALT, C.E. & M.E.

MEM. CAN. SOC. C.E. AND C.E.A., ETC.

### CONSULTING ENGINEER and EXPERT

National Trust Building  
20 King Street East Toronto

Specialties—Water Supply and Sewerage.



### THE Matthew's Fire Hydrant

Is the recognized Standard Hydrant, and is the easiest Hydrant to keep in order.

Our Hydrants are thoroughly tested before shipment, and are of substantial proportions and weight.

Have your Engineer specify "The Matthew's" and get our tender.

THE KERR  
ENGINE CO.,  
LIMITED  
Walkerville - Ont.

## McGREGOR & McINTYRE, LIMITED

67 to 91 Pearl Street, Toronto, Ont.

### STRUCTURAL IRON WORKS

Fire Escapes, Library Racks, Sidewalk Door, Jail Cells, Iron Stairs, Railings, Etc., Etc.

SOLE AGENTS FOR DUPLEX HANGERS

WRITE FOR ESTIMATES.

## BLAST . . . FURNACE SLAG . . . A MOLTEN ROCK . . .

Cement Sidewalks, Road Foundation and Concrete Work

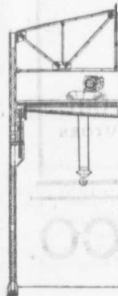
STRONG AS STONE

CHEAP AS GRAVEL

## Doolittle & Wilcox, Hamilton, Ont.

Toronto Agents: Sand & Dredging Limited, John Street Dock.

## STEEL TRUSS



## Railway

## CAN

## District Off

THOS. J. DRU

Special Castings  
Flange Pipe  
Branches  
Hydrants  
Valves

Wo

HEAD OFFICE

JAMES. THO

## THE C

Manua

Flk

Special C

Waterwor