

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

every case, and the authorities have decided to allow either bluestone toppings or sand to be used for the outfall sewer, whichever is the cheaper. Comparing the strength and cheapness of the various concretes, the following give very good results: 1 of cement, 4 of bluestone toppings, 1 of bluestone screenings, and 1 of bluestone; also 1 of cement, 3 of bluestone toppings, 2 of screenings and 2 of bluestone; also 1 of cement, 3 of bluestone toppings, 2 of screenings, and 3 of bluestone. Of these the latter is recommended for the sewers. The general results are thus summarized: (1) Neat Portland cement is stronger both in tensile and crushing strength than any mixture, (2) that Portland cement mixed with bluestone toppings to form a mortar is always stronger if sand be substituted for toppings; (3) that mortar composed of 1 of Portland cement and 1 of bluestone toppings is reduced in strength by the addition of 2 parts of screenings which increases the strength of the poorer mortars, and that the maximum strength is obtained by the addition of one part of screenings to mortars of ratios 1 to 2 to 1 to 5, (4) that in Portland cement concrete the best result with any mortar is given when combined with one part of screenings and 1 part of stone; that the increase of screenings has a tendency to weaken the concrete if more than 1 or 2 parts be used; that with mortars poorer than 1 to 2, 2 or 3 parts can be added without materially reducing the strength."

CURBING OF ROADS NOT ESSENTIAL.

All residential streets can readily dispense with stone or plank curbing by a little care in forming the gutters; that is to say, let the lawns and the gutter meet each other at the foot of their respective inclines. The handsomest style for a street improvement is in form like the seats of an amphitheatre; by this we mean that the dwelling should be at least two feet above the general level of the road bed—four feet would be much handsomer—while the sidewalk proper should occupy the inside six feet, leaving for lawn purposes, ten or more feet in width, thus curbing the emerald lawn to skirt the road and fringe the gutters. An extended experience of the writer has demonstrated the fact that the gutter and lawn unite with great solidity after a twelve-month.

When it is remembered that good stone curbing is cheap at seventy-five cents per lineal foot laid, the subject matter of which we write touches the property owner in his most vulnerable part, the pocket, because \$37.50 will be saved on every 50 foot lot.—*Clay Record.*

THE BEST ROAD STONE.

Comparative experiments, made with a view to ascertain the kind of stone best adapted for roads, show the specific gravity of a rock is really no indication whatever of its fitness for such a purpose, slate, for example weighing 175 pounds per cubic foot, and pure mica, weighing about 183 pounds, being entirely unserviceable. It is thought by some that trap rock has no superior for this use, after this coming felsite, and next in order is granite, though in regard to the latter there is to be considered the difference in quality that exists, the kind containing hornblende being preferable to that with mica; the latter sort is soft, rendering it much inferior to the former.—*Poughkeepsie News Press.*

THOROLD CEMENT

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RESIDENT ENGINEER'S OFFICE,
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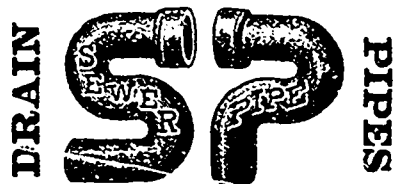
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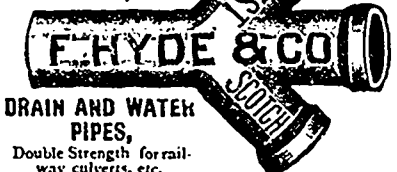
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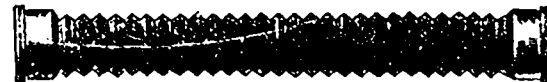
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