

increasing the length of time between changing the filters one hour and ten minutes. This reduction in coagulant of 0.22 of a grain per gallon amounts to 31 pounds per million gallons; with the cost of alum at 13-10 cents per pound f.o.b. Avalon, the saving was 41 cents per million. Deducting from this amount 11 cents for the amount of hypochlorite used, leaves a net saving in the cost of coagulant of 30 cents per million gallons. The actual saving in the operating expenses really amounts to much more, as to this must be added the saving in wash water and the increased amount of water passing through the filter between cleaning.

The average number of bacteria of all samples of filtered water taken during November was 18 per cubic centimeter, while in December, when the bleach was applied with the coagulant, the average was 8 per cubic centimeter.

Tests were also made to determine the effect of hypochlorite of lime upon water of high turbidity. The results from these experiments have shown that as the turbidity increases, the bacterial efficiency of the hypochlorite decreases. This is partly due to the increase in organic, which invariably increase with the turbidity, and partly to the bacteria being mechanically protected by the particles of matter in suspension. With water having a turbidity greater than fifty parts per million, the hypochlorite of lime gave better bacterial results, when part or all of the turbidity was removed before treating with the chemical. This work has also shown that with the raw water at Avalon, increasing the dose of hypochlorite about 0.10 of a grain per gallon, but slightly increased the percentage reduction in the number of bacteria.

The use of hypochlorite of lime at this plant has shown that:

The effluent from both the slow sand and mechanical filters can be made practically sterile, with the total elimination of *B. coli*, reducing the color from 5 to 15 per cent.

To reduce the amount of alum and to increase the length of runs between changing the filters, and at the same time reducing the amount of wash water.

Also that hypochlorite of lime is more efficient when used with alum than when used alone.

That high turbidity in the raw water reduces the bacterial efficiency of the hypochlorite of lime.

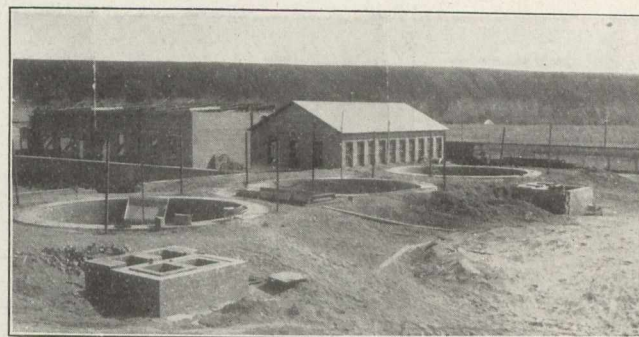
And that the hypochlorite of lime even when used in large quantities causes but a slight reduction in organic matter.

CLAY PRODUCTS INDUSTRY AT MEDICINE HAT, ALTA.

The city of Medicine Hat, some time ago, gave to the Alberta Clay Products Company, their largest gas well, and provided pipe to bring the gas from the well to the company's plant. In addition to the gift of the well, and its equipment, which cost about \$10,000, they presented the company with some thirteen acres of ground, and gave them exemption from taxes.

The main drier is 80 x 256—4 storeys beside the 10 ft. basement. In this building there are 4 elevators. The sewer pipe press room is designed for 2 presses, wet pans and 2 dry pans, and is 80 x 100—4 storeys high. Dry press brick plant is 40 x 80—3 storeys high with 2 dry pans and 4 dry presses. The clay room is 48 x 140 with elevated tracks to accommodate railroad cars with 20-ft. elevation. The engine room is 32 x 50, boiler room 48 x 50, machine shop 30 x 50. The machine shop is equipped with gas engine, gap lathe, engine lathe, iron planer, drill tools and other tools as are necessary to take care of our machinery equipment. The sewer pipe machinery at this date is not installed, but will be furnished by The Taplin Rice Clerkin Company, Akron,

Ohio. The dry press brick machinery, the dry press and one dry pan which is now in operation, was furnished by the Chicago Brick Machinery Company, Chicago, Illinois. This machinery was installed last fall and commenced making brick December 21st, running night and day, making brick



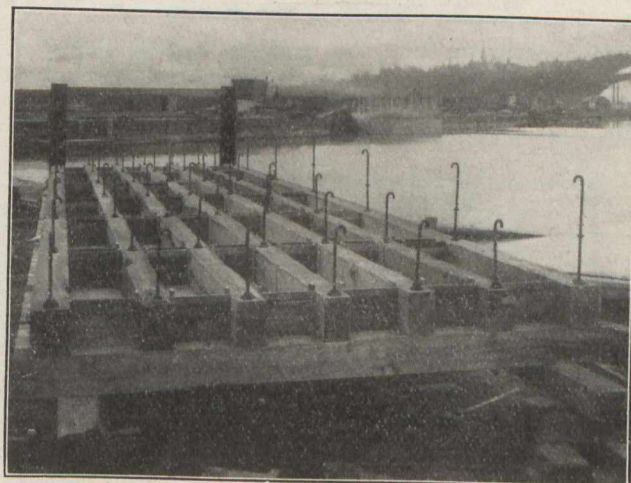
for the market and also to take care of our building requirements. We put out on an average of 2,000 brick per hour. The temporary power is furnished by portable Nichols & Shepard Engine. The engine which will operate our plant is the Murray, 24 x 48, weighing 72,000 lbs., boilers are being furnished by E. Leonard & Son, London, Ontario, being 3 in number and 72 x 18, carrying 150 lb. working pressure for our present accommodations for the brick. There are 2 scove kilns, each being 200 feet long, 24 feet wide on the inside, each kiln holding 1,000,000 brick.

There will be 10 30-ft. kilns and 8 40-ft. kilns inside diameter. 12 of these kilns are up to the floor level. The main drier is ready for the first floor. Engine and boiler room is completed. The machine room is completed and the machinery is installed.

With the operation of this plant, western municipalities will be in a position to secure clay products, which, in the past, they have had to secure from the south and east. It is but natural to expect that the output of this plant will be very large, as just now, quick growth in Western Canada is making a large demand for their materials, both by private individuals and corporations.

PONTON METHOD OF SUBAQUEOUS, CONCRETE CONSTRUCTION.*

On June the 1st, there was sunk at Goderich, Ont., the first section of Tromanhauser's patented concrete dock.



Foundation Form.

The Goderich Elevator and Transit Co., wishing to double the capacity of their elevator (present elevator may be seen in Fig. 2), called in J. H. Tromanhauser, Consulting Engineer, Temple Building, Toronto. After examining the

*See also Canadian Engineer, Vol. 15, page 520.