

# The Canadian Engineer

*A weekly paper for Canadian civil engineers and contractors*

## FILTRATION PLANT AT AYLMER, P.Q.

Crushed Marble Mixed With Silica Sand as Filtering Medium in Gravity Type Mechanical Plant  
—Paper Read Last Month Before Ottawa Branch of The Canadian Society of Civil Engineers

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*Verse 19—And the men of the city said unto Elisha, Behold, I pray thee, the situation of this city is pleasant, as my lord seeth: but the water is naught, and the ground barren.*

*20—And he said, Bring me a new cruse, and put salt therein. And they brought it to him.*

*21—And he went forth unto the spring of the waters, and cast the salt in there, and said, Thus saith the LORD, I have healed these waters; there shall not be from thence any more death or barren land.*

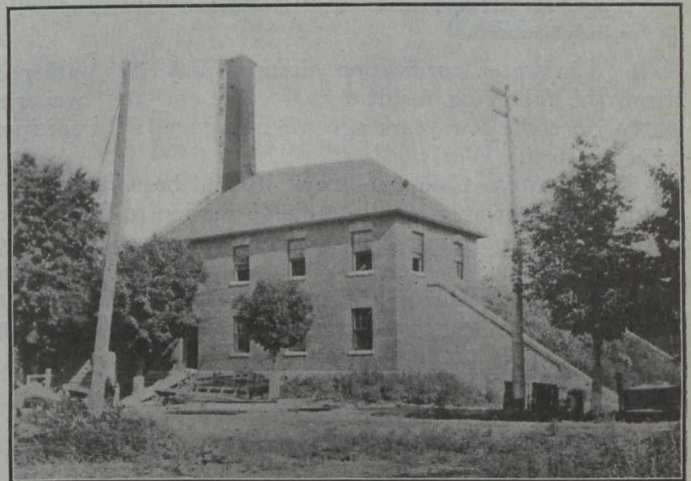
*22—So the waters were healed unto this day, according to the saying of Elisha which he spake.—(II Kings—chap. 2)*

**I**N this brief description, the whole philosophy of the science and art of water purification is vividly portrayed or suggested. As to the means of purification employed, it has been suggested that there may be here a reference to the ability of certain salts to coagulate water and thus effect clarification. In any event it is known that this valuable coagulation property of aluminium and other salts has for centuries been made use of by the Chinese. It has also been stated that in very early times the purification of the Nile water in Egypt was accomplished by adding alum to the water, with subsequent filtration through small household filters.

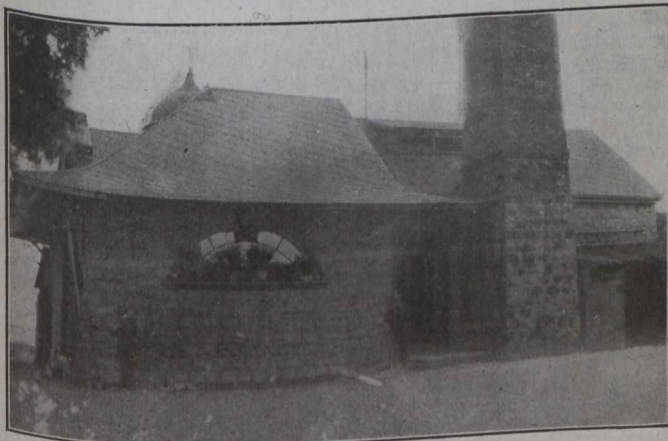
In modern times this method of water purification, filtration preceded by coagulation, was probably not

purifying municipal water supplies. This method, variously termed rapid sand, mechanical or American filtration, originated in the United States and has there been perfected in its various mechanical details.

As exemplified in the Aylmer filtration plant, modern mechanical filters, and more particularly those of the gravity type, now compare most favorably with the slow sand, English or European filters for the purification and



New Filter Building, Aylmer, P.Q.



Old Pumping Station, Aylmer, P.Q.

especially for the clarification of most waters encountered on this continent. The slow sand method was successfully practised across the Atlantic over half a century before the superiority of the rapid sand process (requiring about one-fiftieth of the area and at about one-half the constructional cost) in filtering waters high in turbidity and color was recognized. Slow sand filtration has had many strong adherents, but it is significant that several large cities are adopting the feature of coagulation in their slow sand filter plants. When the city of Toronto wished recently to increase the capacity of its purification works, there was added to the existing slow sand filters, mechanical filters of the "Ransome Drifting Sand" type. In a paper recently read before the New England Water Works Association, Geo. A. Johnson, consulting engineer, of New York City, stated that in Canada twice as many people were supplied with water from rapid sand as from slow sand filters.

The popularity of the rapid sand filter has grown as the prejudice against the chemical treatment of water has been dispelled by favorable reports after careful scientific investigation and by the absence of ill effects upon communities using water purified by such treatment. For

practised until after Isiah S. Hyatt obtained in 1884 a patent in the United States for such a process. It was soon found that the use of a coagulant in conjunction with the mechanical or rapid sand filter, which latter was designed originally only as a roughing filter in the manufacture of paper, provided an efficient and rapid means of