the layman, the chemical action of alum salts in effecting coagulation in turbid waters has been popularly compared to the action of the white of an egg on coffee; the grounds are settled and the consumer gets clear coffee, no grounds and no egg. How far imagination based on prejudice



will go in water purification matters, may be gathered from the following incident that came to the writer's attention some few years ago when engaged in municipal practice in the West:

In a western Canadian town it had been decided to chlorinate the water supply, the chlorination to commence on a Monday morning. By Monday noon complaints were being telephoned in, objection being taken to the taste, smell and appearance of the treated water. As a matter of fact, due to some unexpected delay, the chlorinating

plant did not operate till the next day. Could such an occurrence be classified under "Psychological Aspects of Water Purification"?

Judged philosophically, the Aylmer filtration plant might be regarded as a mere aggregation of mechanical devices; but many of these devices are patented, and all are the result of much experiment and experience. The object of this paper is to describe briefly some of the features of the Aylmer plant of general interest to engineers.

Aylmer, where the source of public water supply is the Ottawa River, was required to install a water purification plant by order of the Quebec Superior Board of Health under section No. 3911A of the Quebec Public Health Act, as amended in 1915. This section requires a municipality to install purification works, if after due investi-

gation the board so orders. Plans and specifications for the proposed works were prepared by Jas. O. Meadows, sanitary engineer, of Montreal, and the contract was awarded in September, 1916, to R. T. Smith & Co., of Montreal, with the New York Continental Jewell Filtration Co. as sub-contractors for the filter equipment and pumping machinery. The plans and specifications and the awarding of the contract were similar to others which have been previously awarded in Quebec Province and throughout the Dominion, with the exception of one clause in the guarantee required from the contractor. This clause required that the contractor specify the period of time for a continuous run of the filter without the passage of aluminum hydrate or suspended matter. The presence or absence of hydrate is to be determined by an examination

of the filtered effluent, and the hydrate is not to be visible to the naked eye after the sample has stood for twentyfour hours.

Ottawa River water at Aylmer receives pollution due to the discharge of municipal and private sewers located at various points above the municipal intake, and also from the Aylmer sewer outlet itself, though it is located below the water intake. This latter pollution is due to the fact that the sewage is sometimes carried up-stream by winds which create a flow in that direction stronger than the natural velocity of the current. Ottawa River water is soft and though highly colored is, generally speaking, low in turbidity. The water in many respects is nearly ideal for all domestic and manufacturing purposes, and if it were not for the fact that pollution enters the river at various points, it would be a

safe water for drinking purposes. Because of the comparatively high color content of the Ottawa River water, mechanical or rapid sand filtration is the most efficient method of purification for this supply, and was one of the reasons for the adoption of this type of filtration for the town of Aylmer.

The purification plant is located east of the pumping station and is connected to the pumping station by means of a spacious passageway, in which is located the low-lift pumping units.

The filter plant consists of several distinct features, viz., coagulating basin, filters, clear-water basin, pipe gallery, chemical storage space, and operating room. The coagulating basin, clear-water basin and filter units



BEAVER BOARD CRUIN

Section on Line A-A of Plan

are all constructed of reinforced concrete. The mixture used for the concrete was one of cement, two of sand and four of broken stone. The mixing and placing of the concrete was carefully done, great care being required to make the several basins water-tight. This was accomplished without the use of any waterproofing material. The building over the filters is of brick, the 15-in. wall being laid up with a 2-in. air space. The roof is supported on wooden trusses, the outside covered with asbestos shingles and the inside sealed with "Beaver Board."