

The other constituents would then be—calcium sulphate, calcium hydrate and sodium hydrate.

The water was slightly alkaline to test paper, and on standing the supernatant liquid became quite clear, leaving a calcareous deposit at the bottom of the jar. This deposit effervesces strongly on addition of an acid.

Owing to the fact that lime had been added to this water, the composition of its saline matter has been altered from its original condition. The above figures, therefore, do not represent accurately either the actual compounds existing in the water in its natural state or in their true proportions.

In all probability the alkali exists to a large extent as carbonate, and the effect of adding lime to such water would be to produce carbonate of lime and caustic soda, thus rendering the water much more alkaline than before the treatment.

With regard to the elimination of the alkali, whether it exists as hydrate, carbonate or chloride, from the water, it may be pointed out that owing to the great solubility of the salts of the alkali metals, it is impossible to suggest any practical or economic method whereby the alkali may be got rid of by precipitation.

The addition of an acid would not be efficacious in the removal of the alkali.

The only method for rendering the water free from this saline matter and consequently fit and wholesome for use, is, I believe, distillation.

In districts where such alkaline water only is obtainable, a small distillation apparatus might be kept constantly at work. This apparatus, if attached to the ordinary cooking stove in the kitchen, would entail but little extra expense. It might be of the simplest character, consisting of a vessel of tinned or galvanized iron. This vessel would be furnished with a lid, tightly fitting and large enough to allow the vessel to be easily cleaned when necessary. A suitable tube and condenser for the condensation of the steam, could be easily attached to this boiler. The water so obtained, while entirely free from saline matter, would taste rather flat, owing to the fact that it would have parted with its dissolved oxygen during the process.

I am, Sir,

Yours very truly,

FRANK T. SHUTT, M.A., F.C.S.,
Chemist, *Dem. Exp. Farms.*

REPORT No. 3.

REPORT ON THE ANALYSIS OF THE WATER SUPPLY OF THE CITY OF OTTAWA.

OTTAWA, 12th January, 1888.

Prof. WM. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—At your request I have made an analysis of the water supplied to the city of Ottawa by the Waterworks, and have the honour to present you herewith my report thereon.

The samples were taken by Mr. Surtees, the City Engineer, and myself, on the 22nd December, as follows:

A.—From east side of slide channel, between 200 and 300 feet above mouth of aqueduct and about 600 feet from the north branch of the Rochester Creek, taken at a depth of about 5 feet below the surface.