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Original Communications.

ON WATER ANALYSIS.

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[Read before the Canada Medical Association.]

I am frequently asked by both medical men and laymen to give some ready methods by which the fitness or unfitness of water for domestic purposes may be ascertained. In answering the question several difficulties present themselves. The cost of apparatus for a complete examination of water is a serious matter; few persons have the time or the inclination to carry out detailed chemical analyses, and lastly a conclusion as to the purity or impurity of water must be based upon a collation of all the evidence that can be obtained, rather than from the results of one or two tests. The vital importance of the subject, and the lively interest which is being awakened in regard to it, have led me to attempt the description of water analysis, which will be sufficient for ordinary purposes, and at the same time fall within the means and opportunities of every medical practitioner. Two years ago I imported from Savory & Moore, of London, one of Parke's Cabinets for water analysis. It cost me, inclusive of duty, about one hundred and fifty dollars, and nearly one-half the contents were destroyed by breakage. As few would feel disposed to go to that expense, I have endeavoured to meet the difficulty by preparing a small, cheap, and at the same time efficient case of chemicals and apparatus, which should not cost more than

twelve or fourteen dollars. The case is eighteen inches long, five inches wide, and nine inches high. Inside it contains the following chemicals in three ounce bottles.

Standard Solution of Nitrate of Silver.
Sol. of Yellow Chromate of Potash.
Solution of Soap.
Solution of Nitrate of Barium.
Two shaking bottles for soap test.
Nessler's Solution.
Dilute Sulphuric Acid.
Solution of Iodide of Potassium and Starch.
*Oxalate of Ammonium.
Standard Solution of Ammonium Chloride.
Standard Solution of Permanganate of Potassium.

The apparatus consists of—

1 Flask with ring for boiling.
2 India rubber caps with two necks.
1 retort stand.
1 Burette with clasp.
India rubber tubing.
Spirit Lamp.
5 test tubes.
Glass rod.
Glass measure 50 C.C.

IN THE EXAMINATION OF WATER, the coarser physical characters, such as colour, smell, taste, and transparency, should first be noted. The colour is best observed by pouring the water into a tall glass vessel and looking down upon it. Perfectly pure water has a bluish tint and the bottom of the vessel is clearly seen through several feet of water, while some waters are so turbid as to obscure the bottom when only a few inches are looked through. A green color as a rule indicates vegetable impurity, a yellow or brown color, (excepting in peat water) animal impurity. Smell is best observed by warming, boiling, or