

the character of a sample from the results of its analysis, I propose to indicate here the essential features of the operations collectively known as *Water Analysis*.—

Naturally the first tests made are those which require only the direct use of the senses : taste, smell and sight.

1. *Taste*.—It is only in rare instances that this character is sufficiently definite to be of any value. When the taste of a sample is so markedly unusual as to attract attention, as, for instance, to its saltiness or its sulphur flavour, or its sharpness or pungency, as is the case of some mineral springs, it may be safely asserted that such a water, however useful medicinally, is unsuited to ordinary household purposes.

2. *Smell*.—It is rare that a natural water exhibits any smell at the ordinary temperature. Certain spring waters contain sulphurous gases in solution and these have a more or less nauseating smell, at times intense enough to remind one of rotten eggs. Many samples, however, which are quite odourless when cold, become distinctively *bad smelling* when heated. A pint or so of the water may be placed in a glass stoppered bottle and the whole heated to about 100° F., when, if the stopper be withdrawn and the bottle immediately applied to the nose, peaty waters will often betray themselves by a characteristic smell, and water from surface wells to which sewage has access will frequently be found to have quite a stinking odour.

3. *Colour*.—It is perfectly wonderful how many different tints of colour are exhibited by natural water from different sources; indeed it would scarcely be overstating the case to say that no two water samples have the same tint. True it may not always be possible, even with the refinements of science, to distinguish with absolute exactitude the nice differences that occur, yet, when we employ a colour comparer of the model exhibited, and look through a column of water 24 inches deep, it becomes possible to distinguish very slight differences indeed. The first of these tubes contains distilled water, and seems quite colourless; the second contains ordinary Ottawa river water and looks quite brown by comparison. In the third tube I have a sample of Ottawa water which has been treated with 10 grains of common alum to the gallon, and you will note that although not as colourless as distilled water, it