

characterized by its granites and allied siliceous rocks, with a soil which has resulted from their weathering and destruction by glacial and other agencies. The peaty character of large areas of this gathering ground is evidenced in the brownish colour of the water of the river; a colour which is due not to the presence of dissolved salts, but to the products of decay of vegetable matter. The results of many analyses of the Ottawa River shew it to contain less than *one* part of solid matter for *ten thousand* parts of water, or less than seven grains per gallon in solution. At certain periods of the year it, however, contains solid matter suspended in the water, causing a turbidity which you must often have remarked. This is particularly characteristic of the river in spring, when the swelling of the smaller streams which feed it and the fine particles of clay and sand washed down from fields and roads, sufficiently account for its muddy appearance, while its current is rapid enough to prevent the settling of this mud to the bottom. In respect to suspended solid matter, however, the Ottawa River compares very favourably with many others—I might say with any other river of its size. The sources of the Ottawa are situated for the most part in a rocky region where there is comparatively little soil to be washed into its waters by spring freshets. It is quite otherwise with such rivers as the Red River at Winnipeg, which gets its name from the highly coloured ferruginous clay, which it carries in suspension; or with the Missouri and Mississippi, whose waters, joining at St. Louis, sometimes contain the enormous amount of 1,225 grains of solid matter (or nearly three ounces) per gallon. Yet it is from this water that St. Louis takes its supply; and it will not surprise you to learn that four settling basins of large size have to be provided, so that while one is being drawn from another is being filled, and the other two are settling for use in their turn. Either by subsidence, as at St. Louis, or by simply constructed filter beds, such suspended matter may be got rid of. Of the principles involved in the construction of filter beds, I shall speak later.

From what has been said it will appear that absolutely pure water is not to be sought for in nature. In order to prepare it we must resort to the process of distillation; and one method of carrying out this process is illustrated by the apparatus before you. The water