matters with it, and leaving the water clear. A solution of the specific gravity 1.6 in the proportion of one part to 20,000, clarifies the muddiest of river waters without hardening them or leaving in them any excess of the precipitant. The Mississippi water at New Orleans can be thus clarified by a rest of eight hours in the reservoir at an expense of one cent for every thousand gallons. Mr. Gardner's object at the present time is to procure a cheaper solution.

In the efforts to attain to a prompt and efficient method of purifying water by sedimentation or filtration, with or without the use of precipitants, it is of the utmost importance that the object of the purification be kept steadily in view lest we fall into the error of supposing that the end has been accomplished when a clear water has been obtained. The agents of a patent filter place in the show windows of some prominent store two companion glass jars, one filled with an opaque and discolored turbidity overlying a stratum of heavy sediment, and labelled "Water taken this morning from the public mains;" the other sparkling like a consolidation of dew-drops, and labelled "The public water after passing through so-and-so's filter." A glance at these gratifies the passer-by, by seeming to instil into his mind so much sanitary knowledge. They sow seeds of reflection which develop and multiply with bacterial fecundity, so that in a few minutes they have done the work of an octavo pamphlet on "Potable water: its impurities and the methods by which they are removed." But the sparkle of the filtered water, although honest in itself, hides a fallacy which undermines the whole of the suggested argument. It must be remembered that clear waters are not necessarily wholesome waters. Their sparkle is no proof of their purity. From the laundresses' point of view, or the paper-makers', the result is satisfactory; but the object of the filtration of a water-supply for domestic or public service is its wholsomeness when used for drinking, and its transparency gives no testimony on this subject.

During sedimentation the heavier and grosser particles of mineral matter readily subside, and carry down with them much of the flocculent organic matter which would otherwise continue in suspension for many days. The effect of sedimentation at St. Louis, Mo., has been mentioned but it will perhaps be better appreciated when stated in other words. The lake supply of Cleveland, Ohio, which is usually of excellent quality, is occasionally turbid, particularly during the spring months. When in this condition of turbidity the twenty million gallons, which are distributed daily contain ten and half tons of suspended matters, and the odd half ton consists of decomposing organic substances. Who will say that the city of Cleveland would not be benefited if it did not have that daily distribution of half a ton of semi-putrefaction? But sedimentation does more than free the water from suspended matters. During the so many hours or days of its continuance the processes of nature are at work transforming the semi-putrefied matters into ammonia and nitric acid, both of which are harmless in the quantities present. The purifying influences of sedimentation may be easily determined by chemical analysis, and in many cases it is so marked as to render the process of infinite value in the absence of a better method.

Most surface waters, which are turbid from particles of mineral matter, contain the germs of nitrification, and the process of purification takes place in them during storage; but if these germs be absent, months may pass with but little improvement in the character of the stored water. Hence, cisterns which do not contain these bacteria have usually a less pure water, as judged by the ammonia and albuminoid ammonia which it yields, than those which do contain them. Where wooden tanks, as at New Orleans and other Southern towns are used for storage, it is a common occurence for the analyst to find water of poor quality in new or recently cleaned cisterns, while water of a much better quality is discovered in those that have not been cleaned for a year or two, and have a fermenting sediment a foot or more in depth covering their floor. The nitrifying agencies accum-