

and 0.16; and in August last gave 0.125 albuminoid nitrogen per million. We must not forget that these are English standards and on that account are questionably applicable to American rivers, which flow for very great distances over forest and marshy regions where contamination by sewage—in the ordinary acceptance of this term—cannot occur. We must, I think, concur in the wisdom of Prof. Mallet's decision that "local standards of purity should be adopted, based on sufficiently thorough examination of the water-supply in its usual condition. Unfortunately no systematic and continuous examination of our city supply has yet been undertaken, and it is impossible for me to state, except in a very imperfect way, what the normal composition of the Ottawa water is. It must, of course, be expected to vary for different months; but we should have a series of analyses made at weekly intervals for a number of years: and from the averages so obtained it would be a simple matter to determine the mean character of the water for any period. When we consider that water is a universal food substance that it enters into the preparation of every article of food; that from the nature of its production and storage, it is peculiarly liable to contamination in various ways, and that the most fatal diseases have been fully proven to have become epidemic, through its agency, we shall, I think, agree that a constant and careful examination of the supply of a city like ours is but a reasonable and necessary precaution.

9. When organic matter containing nitrogen has been exposed for a sufficiently long time to the ameliorating influences that are always at work in nature, the nitrogen takes the form of nitric acid, and when this is once formed and enters into combination with bases as nitrates, the condition of the nitrogen is fairly stable, and the nitrates so formed may exist as such for an indefinite length of time. Complex organic substances like albumen are thus changed into simple inorganic substances, perfectly harmless, and only interesting to the analyst as serving to measure the previous sewage contamination of the supply. For where much sewage has found entrance to a well-water, for example, although little or none may be now present as sewage, the tell-tale nitrates serve to prove past contamination. I need scarcely say that such wells as those quoted below are undoubtedly infected by sewage:—