## Water for Bacteriological Analysis.

21

and rapid enough in its working to enable me to obtain a large number of individual samples.

My first attempt was made with the assistance of Dr. R. We prepared a set of wide-mouthed bottles, F. Ruttan. fitted with perforated corks in which two open glass tubes were fitted. To one of the tubes a long rubber tube was attached, the end being guarded by a stop-cock. The bottles, with their glass tubes attached, were sterilized by dry heat and the rubber tubing was steamed separately for several hours. After sinking the bottle to the required depth by attaching a weight, upon opening the stopcock the water displaced the air in the bottle. The method seemed to give accurate results, and in each case a bit of the tubing reserved for the control test of washing it out with sterilized water yielded no bacteria colonies. The sterilization seemed to be perfect, but the method was abandoned as it was found too troublesome to sterilize a separate length of tubing for each sample that was to be taken.

I had obtained by this time some collecting bottles from Messrs. Eimer & Amend of New York. These were made of very heavy glass and held about a pint, the stoppers consisting of a rubber ring fitted round to a glass rod which lay within the bottle, and was so arranged that the stopper could be pulled up against the lower part of the neck from within by means of a wire attached to the glass rod.

In using this bottle one line was attached to the neck of the bottle and one to the wire fastened to the rod shaped stopper. The bottles were lowered by this second line, thus holding the stopper tightly against the neck of the bottles and so preventing the water from entering, until, at the desired depth the strain was taken off the stopper by pulling in the line attached to the neck of the bottle allowing it to fill, the stopper being heavy enough to fall from its own weight. This was open to the obvious objection that the neck of the bottle above the rod shaped stopper filled with water from the surface, most of which was afterwards naturally washed into the bottle. Besides

he as ria ter, for r of heir ipes

' the W88 eath ained feet hole used e hole tained ve 30. ere is ts of a at one d have water unsuitby one winter, ectively from an

able for no menalogues; ely with es. o form of mination