XXVIII. A SIMPLE AUTOMATIC PIPETTE.

By GEOFFREY ARTHUR HARRISON.

From the Biochemical Laboratory, King's College Hospital.

THE apparatus figured was devised originally for use in repeated estimations of blood sugar. It has been so valuable and could be adapted for so many purposes, that it is presented here in the hope that it will prove of assistance to other workers.

The pipette *P* is calibrated to deliver exactly the required volume in the usual way, any excess of fluid adhering to the exterior being removed by contact with another vessel both before and after delivery. The pipette is fixed into the reservoir *R* by means of an india-rubber cork (Fig. 1 *b*), or where rubber is not permissible it may be fused in (Fig. 1 *a*). *O* is a side tube with glass tap through which the overflow may be run off or returned to stock as desired. The pipette is filled by suction with the solution, a few hundred cc. of which may conveniently be kept in a wide-mouthed, small stoppered bottle.

T is a two-way tap fixed through the upper cork in the reservoir. When open to the left, *S*, fluid is sucked into the pipette, and overflows into the reservoir, *R*. When this has occurred the tap *T* is turned through 90°, thereby shutting off the suction *S* and the air inlet *A*. The end of the pipette is kept just under the surface of the fluid until there is no further overflow. The solution is then removed, when it will be seen that the contents of the pipette remain stationary for a period of time ample to allow of placing the receiving vessel in readiness. At the most there will be a barely perceptible movement of the capillary meniscus at the upper end of the pipette. The contents of the pipette are delivered by turning the tap *T* to air by a further rotation through 90° in the same direction as before.

I have tested various sizes of pipette from 1 to 25 cc., and have found them all equally satisfactory. Three or four pipettes could be fixed into the one reservoir if desired, particularly in dealing with small volumes.

A battery of automatic pipettes may be fitted in series to the one suction pump with the aid of *T*-pieces. It is useful to interpose between the suction pump and the apparatus a filter flask fitted with a capillary by-pass, so that the negative pressure in the automatic pipette never becomes great enough to cause too sudden a rush of fluid.

The following advantages are claimed for this automatic pipette. It is very simple and accurate, even more accurate than an ordinary pipette. There is no mark to watch when filling it. All contact of the solution with rubber or with grease may be avoided. It may be cleaned and dried *in situ* by running through water and then acetone, or by other similar methods.

The apparatus described is virtually a modification of Wright's automatic capillary pipette.