

## NOTE.

*An Adjustable Automatic Burette.*—While working at the Minnesota Experiment Station in 1906 on a large number of nitrogen determinations, it was found that the method of measuring the acid and alkali was slow, inaccurate, and not at all neat. The need of something of an automatic nature was felt, but nothing could be found in any of the catalogues of apparatus.

Work was started on a device which would be automatic and also adjustable. The first ones which were made according to drawings failed in the second requirement. However, the idea was not abandoned, and early this year a new form of float was conceived. This solved the difficulty effectually.

Two of the burettes have been at work in this laboratory for some time. One measures 20 cc. of concentrated sulphuric acid and the other 50 cc. of concentrated sodium hydroxide. They have made some 700 measurements very successfully. The percentage of error is so small as to be disregarded.

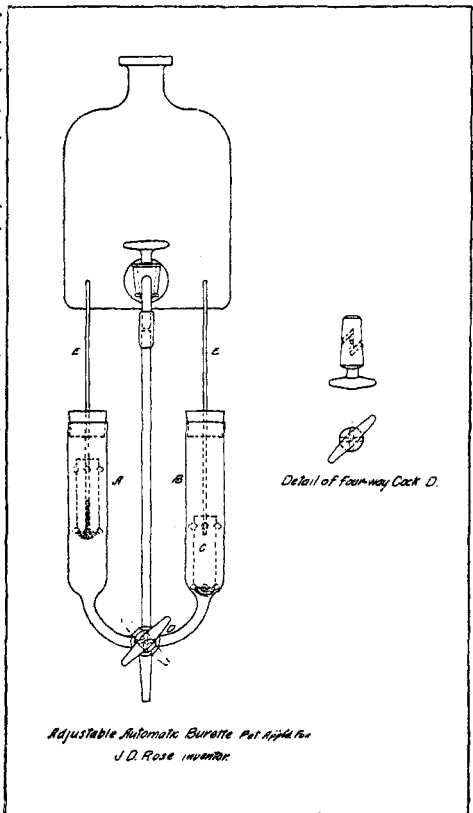
Since devising the above apparatus, there have come to my notice descriptions of two automatic pipettes. One devised by H. S. Bailey was described and illustrated in THIS JOURNAL.<sup>1</sup> However, it is not adjustable and allows of greater error in measurement. The other is by Professor G. E. Patrick and fully

described in Bulletin 19, Iowa Agricultural Experiment Station, November, 1892. This one is adjustable, but to only a limited extent.

Believing that the burette herein described does not possess the faults above mentioned, I herewith submit it with the hope that it may find general use in laboratories, creameries, and, perhaps, in some manufacturing establishments.

By referring to the figure, it is seen that the construction is very simple.

<sup>1</sup> 30, 1508 (1908).



Two tubes are connected at their lower extremities by a four-way stopcock, *D*, to the supply tube above and the delivery tube below. This stopcock is bored in such a way that the exit of a hole is  $90^\circ$  from the entrance.  $90^\circ$  further around is the entrance of the other hole, which, in turn, is the same distance from its exit. In this way each passage can be made to communicate with either side, *A* or *B*, of the burette by merely turning the stopcock one-quarter turn to the right or left. The position of the hole or passages permits of the filling of one side and the emptying of the other simultaneously, so that while one charge is being delivered another is being measured.

Control of the liquid is secured by means of open floats, *C*, containing a small quantity of mercury, which act as a seal on the bottom of the glass tube, *E*. These tubes, *E*, allow the passage of air to and from the burette. They are adjustable up and down and permit of the calibration of the burette to such quantities as may be desired within the limits of the burette.

The liquid is taken out of the supply bottle by means of a siphon or a tubulature at the bottom. In either case a stopcock is interposed between the supply and the burette merely as a means of safety.

The apparatus is by no means flimsy and can be made for a reasonable price, within the reach of any laboratory. It is the intention, also, to adapt the apparatus for industrial work where it is required to mix definite volumes of liquids repeatedly.

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## REVIEW.

### RECENT WORK IN BIOLOGICAL CHEMISTRY.

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Four years ago, in THIS JOURNAL, P. A. Levene began his résumé of biochemical literature with the statement that work in biochemistry had enormously increased. This is true to a very much greater degree to-day, as is evidenced by the establishment since Levene wrote of three new journals: viz., *Zeitschrift für Biochemie*, *The Biochemical Journal*, and the *Journal of Biological Chemistry*, though one of the old journals (*Hofmeister's Beiträge*) has been merged with the first of the three. It will therefore be utterly impossible in the space at my disposal to consider more than a fraction of the important publications which have appeared since Levene's review. One of the notable factors in this enormous increase in biochemical work is the tendency of organic chemists again to take for the subject matter of their research substances occurring in living things, as was the custom more than a generation ago before the great expansion of synthetic organic chemistry. Therefore the last years are characterized by the determination of the constitution and sometimes by the synthesis of bodies already known rather than the