scale, which cannot be washed from the tube by simple decantation with water. With 0.01 *N* or even more dilute solutions, the red, adhering mass is easily observed when the liquid contents of the tube are removed.

It must be remembered that continued boiling decomposes the substance, thereby giving rise to phenylisocyanide and other products. For this reason the red substance is best prepared as follows. A concentrated solution of sodium hippurate is prepared and treated at ordinary temperatures with the hypobromite solution. After a few moments the mixture becomes red and after a few hours the precipitation is complete. It is free from the odor of phenylisocyanide and appears as a sticky, blood-red, semi-solid substance. It is insoluble in water but is soluble in most organic solvents. Its alcoholic solution is easily precipitated by the addition of water. Its solution in carbon bisulphide darkens and on evaporating leaves a green-black precipitate.

The substance contains carbon, hydrogen, nitrogen and bromine. Limpricht and Uslar[1] heated hippuric acid to 240°–250° and obtained benzoic acid, benzonitrile and resin. With sodium hydroxide and chlorine, Stecker[2] and Gössmann[3] obtained benzoylglycollic acid. The red substance obtained is not analogous to any of these. Its composition and the action of sodium hypobromite on benzamide, *p*-phenylenediamine and other nitrogen and hydroxyl aromatic compounds is being investigated.

WILLIAM M. DEHN.

SEATTLE, WASH., June 25, 1908.

An Automatic Siphon Pipette.—Some sixteen years ago[4] Prof. G. E. Patrick devised and used at the Iowa Experiment Station, "An Automatic Acid Measure" which had several advantages over the usual forms of self-filling pipettes found on the market. It required neither suction nor pressure for its operation, and having duplicate measuring vessels there was no waste of time waiting for the apparatus to refill after each discharge. Recently we have made a modified form of the Patrick pipette, and as it has met with such hearty commendation from all those who have used it, the following sketch and brief description are published in the hope that others may find it a time-saver worthy of adoption.

The accompanying figure is almost self-explanatory: the two bulbs, H_1, H_2, of any desired capacity, are connected alternately, with solution supply and delivery by a rather unusual form of four-way cock, so that while the one is filling the other is emptying. The tube *F* which forms the core of the stopcock must be long enough so that there is no dan-

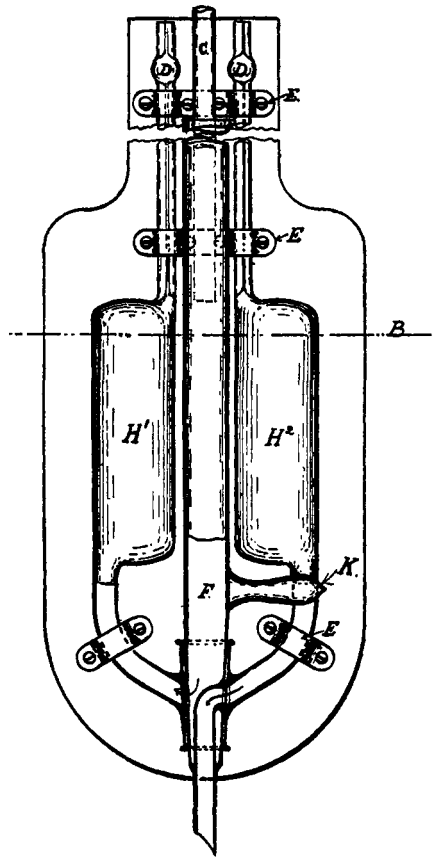
[1] *Ann.*, **88**, 133.

[2] *Ibid.*, **68**, 54.

[3] *Ibid.*, **90**, 181.

[4] *Bull.* **19**, *Iowa Agr. Expt. Sta*, Nov., 1892.

ger of the solution, which C siphons into it from the stock bottle, running over even when the latter is full. The small capillaries with the little safety bulbs D, D should be longer than F as at times drops of the solution from the last charge may collect in them and be forced upward by the outcoming air when H is again filling. C is a simple siphon having the leg in F a little shorter than the one in the solution reservoir, so that it may drain back rather than out to the pipette when lifted up to remove the stock bottle. The entire apparatus is fastened by lead strips E, to a board which is then secured to the shelf, on which stands the solution supply, at such a height that the tops of the bulbs H_1, H_2 are about on a level with the bottom of the reservoir.



The method of operating is obvious: with the little handle K turned to the right, the siphon is started by blowing into one hole of the two-hole rubber stopper which holds C in place in the stock bottle, and bulb H^1 fills until the solution stands up in the capillary level with that in the reservoir; a reversal of the stopcock then allows H^1 to discharge and H^2 to fill simultaneously.

This apparatus is not intended to deliver exact quantities of standard solutions but approximately a constant amount of some such reagent as the sulphuric acid for the Babcock milk test or Kjeldahl nitrogen digestion. The slight difference between the delivery capacity of the pipette when the reservoir is full and when it is empty, due of course to the variation in the height at which the solution stands in the capillaries, is very small. It need not be more than a few tenths of a cubic centimeter, as a capillary of that volume per foot of length is plenty large enough to allow the air to escape.

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Method for Determining Unsaponifiable Matter in Oils and Fats.—Two or 3 grams of the sample are weighed in a flask holding about 100 cc.