NOTES

A Convenient Form of Gas Combustion Pipet.—The following type of gas combustion pipet has been found convenient and possesses several advantages. There is absolutely no danger of leakage, the time necessary for a combustion is materially shortened, and the pipet is adaptable to various volumes of gas over a wide range. The apparatus is illustrated in the accompanying diagram. The main portion of the pipet consists of a piece of straight tubing of from 1 to 2 cm. diameter, and a length of 50 to 75 cm. A platinum wire having a diameter of about 0.15 mm. is sealed in at each end and runs axially through the tube. As in the ordinary form of pipet, the upper end is connected to a capillary tube and the lower end to a mercury reservoir. To prevent excessive heating due to the narrowness of the tube, the whole length is surrounded by an oil jacket having a diameter about 1 cm. greater than that of the tube.

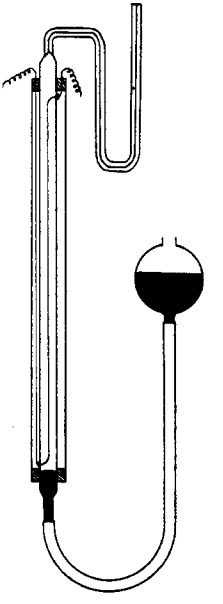

Fig. 1.

The pipet is extremely robust and no possibility of leakage exists. If desired it can also be used as an explosion pipet. On account of the axial situation of the filament the time necessary for a combustion is shortened to about two minutes. One great advantage of this form of pipet is its adaptability to different volumes of gas. For very small samples only a short length of the filament is exposed above the surface of the mercury. If the apparatus is used with 110 volts and an external resistance, the raising or lowering of the mercury level has practically no effect on the temperature of the wire. A similar type of pipet with a total volume of about 6 cc. has been found convenient with a "semi-micro" apparatus of the Ambler[1] type.

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The Temperature Coefficient of the Dielectric Constant of Water.—For the theoretical calculation of activity coefficients of strong electrolytes the dielectric constant of the medium, and not the less certain dD/dT, comes into question. The D of the pure solvent has in general been used, the justification of which is shown by Debye and Pauling.[1] Of

[1] H. R. Ambler, *Analyst*, **54**, 517 (1929).

[1] Debye and Pauling, THIS JOURNAL, **47**, 2129 (1925).