

NOTE

A Simplified Method of Differential Potentiometric Titration.—The excellent differential method of MacInnes and Jones¹ requires the use of a glass device of a certain complexity for temporarily withholding from reaction a small portion of the titrated solution while at the same time electrolytic contact is maintained between this portion and the remainder. The construction of this apparatus becomes unnecessary if the following modification is used. The electrodes may be two identical wires, one (A) enclosed in a dropper or syringe of the form shown in the figure, the other (B) wound around the stem of the dropper. B may be thrust through the rim of the bulb to hold it in place.

Simply by squeezing the bulb a small part of the liquid is withdrawn and caused to surround the inner electrode, while electrolytic contact is maintained through the capillary tip. After the measurement, repeated squeezing of the bulb causes rapid mixing of the entire liquid. The method has been tested by students both in neutralization and oxidation reactions with entirely satisfactory results, the curves of $\Delta E/\Delta V$ against the percentage titration showing extremely sharp maxima when the reaction was of suitable type. The double maxima reported by MacInnes and Jones have also been observed. The apparatus may, of course, be used with a galvanometer and high resistance instead of a potentiometer and is extremely cheap and easy to prepare. Even an ordinary medicine dropper, with the inner electrode wire thrust directly through the rubber bulb, is quite satisfactory for temporary use.

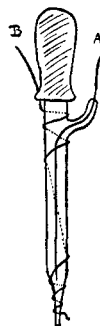


Fig. 1.—Double electrode for differential potentiometric titration.

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¹ MacInnes and Jones, *THIS JOURNAL*, **48**, 2831-2836 (1926).