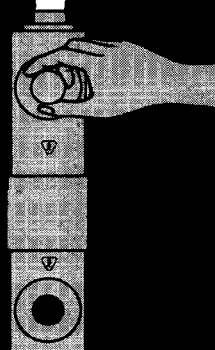
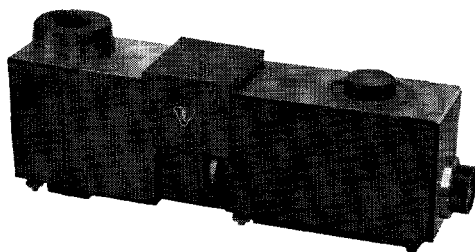


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## REPORT

The standard methods for blood analysis usually involve the development of a color, the intensity of which is determined in a colorimeter or spectrophotometer. Although these methods are fairly sensitive, they all require a number of reagents and, more important, a number of clinical standards. The storage of standards and the shelf-life of these materials becomes a problem. In addition, many of the clinical analyses require samples of blood ranging up to 5 ml. It would be desirable to develop clinical methods which do not require any standards, which can be run on 100 microliters or less of sample, and which will give the answer in concentration units directly.

The advantages of a method of this type are obvious. The chance for technician error would be reduced to a minimum for the only important measurement that would have to be made would be of the sample volume. All standards could be dispensed with. Finally, working with such small volumes, the field of pediatric work would be open.

A method such as is described is available. Cotlove (14) devised the coulometric determination of blood chloride by titration with generated silver ion. The blood sample was placed in a buffer solution and two generator electrodes were immersed in the solution. The anode was a silver wire. At the anode, silver ion was generated at a constant current. The product of the current and the generation time gives coulombs which are related to the equivalents of silver generated, and to the equivalents of chloride in the sample, by Faraday's law. Two indicator electrodes immersed in the sample solution signalled the end point amperometrically. The amperometric signal automatically stopped the generation of the titrant and also the timer. In this apparatus, marketed either by the American Instrument Co. or the Buchler Instrument Co., the currents were chosen such that the division of the coulombs by 96,500 was automatically carried out so that the timer read directly in microequivalents of chloride in the sample.