Briggs[5] has recently demonstrated that the streaming potential can be used as a rapid and extremely accurate method for determining the sign and magnitude of the ζ-potential. This method involves forcing liquid through the pores of a diaphragm and measuring the potential set up across the diaphragm. It seemed probable that a quartz diaphragm coated with protein would act as a protein diaphragm and allow for a rapid and accurate determination of the ζ-potential on the protein. Experiments to test this hypothesis were successful. It was found that the curves of Abramson[4] for quartz-egg albumin could be duplicated, and that the experimental error of the determination was apparently appreciably less when the streaming potential method was used, than when cataphoretic technic was employed. The streaming potential method (as described by Briggs[5]) is far simpler to operate and is less subject to error, inasmuch as it does not involve the determination of the limits of the boundary between the protein sol and the buffer, as in Svedberg's method, and is independent of convection currents and surface streaming which are troublesome factors in ultra-microscopic measurements of cataphoretic mobility. In addition to being more accurate, the streaming potential method is far more rapid. The same quartz-protein membrane may be used to follow the charge in the electrokinetic potential over a given pH range by simply altering the pH of the solution being streamed through the membrane. No streaming potential is set up at the isoelectric point. Accordingly, this method should prove exceedingly useful for determining the isoelectric point of proteins. With care, the method is capable of determining the isoelectric point with as high an accuracy as can be obtained in an electrometric pH measurement.

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Glass Surfaces versus Paraffin Surfaces in Blood-Clotting Phenomena—A Hypothesis.

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It is well known that when blood is drawn through a bare glass cannula or into a glass container, clotting occurs within a very short period of time. On the other hand, if the glass cannula and the con-

[5] Briggs, D. R., *J. Phys. Chem.*, 1928, xxxii, 641.

tainer be coated with paraffin so that the blood does not come in contact with the bare glass, clotting may be delayed for hours, or completely inhibited.

Briggs has shown in the preceding communication that a quartz diaphragm may be coated with protein so as to acquire the properties of a pure protein diaphragm. Undoubtedly this is due to the phenomenon of adsorption, possibly in accordance with the Gibbs principle that substances which decrease surface or interfacial tension tend to be adsorbed.

It occurred to us that possibly blood-clotting was dependent upon the adsorption of some constituent from the serum onto a surface, thereby increasing the effective concentration of this constituent and initiating the clotting phenomenon.

Streaming potential measurements showed that a bare glass capillary had a negative ζ-potential of approximately 30 millivolts,* whereas the same capillary coated with a thin layer of paraffin had essentially a zero ζ-potential against water. The high ζ-potential would favor electrostatic adsorption of positively charged colloids at the interface of glass-blood serum, and there would be no such tendency for a paraffin-blood serum interface. We accordingly postulate that the initial step in blood-clotting involves a surface concentration of some positively charged constituent, the concentration being brought about by selective adsorption.

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Experimental Production of Auricular Fibrillation by Several Stimuli Applied to the Auricle.

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Auricular fibrillation has hitherto been produced experimentally only by faradization of the auricle, and under these conditions the period of fibrillation rarely outlasts the period of stimulation. Moreover, though it is usually possible to cause spontaneous auricular fibrillation in the dog to cease abruptly after the injection of quini-

* The actual streaming potential which was measured between the 2 ends of the glass capillary was in excess of 4.5 volts at 30 cm. Hg hydrostatic pressure. With the same tube coated on the inside with a thin layer of paraffin, the streaming potential was essentially zero.