and the tube is placed in a boiling water bath for ten minutes. The contents of the tube are then cooled and washed quantitatively into a 10 c.c. volumetric flask. After making up to the mark, the red solution is filtered into the colorimeter chamber and read at once against a standard freshly prepared by the same procedure from 1 c.c. of a solution containing 1 mg. of dextrose per c.c. The standard is usually set at 15 mm.

If less than 2 c.c. of blood is collected, the quantities of N/100 acetic acid and of dialyzed iron must be correspondingly decreased. With 1 c.c. of blood 20 c.c. of the clear filtrate are taken for dextrose determination; with 0.5 c.c. of blood the coagulum must be thoroughly washed and the entire filtrate and washings used for analysis. In the latter case the standard is made one half as strong as usual and set at 30 mm.[1]

The method suggested yields results closely approximating those obtained by the Allihn gravimetric method.

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Electric currents in conductors with distributed capacity considered in relation to the propagation of the nerve impulse.

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Nearly two centuries ago it was surmised that the nervous impulse might be of the nature of an electric current, but in the absence of definite proof the hypothesis was rejected, especially as objections were raised to it which seemed insuperable. It is difficult, if not altogether impossible, to reconcile all experimental results with the consequences of the molecular theory. If, however, we regard the nerve as an electrical conductor with distributed capacity, we are able to account for many of the fundamental experimental phenomena and also to predict the results of new experimental conditions. It has long been known that the speed of electricity on wires is less than the speed in free space

[1] The reading of 10 c.c. of solution at 30 mm. in a Duboscq colorimeter is quite possible if a piece of thick glass tubing 50 mm. long and 16 mm. inside diameter is placed in the colorimeter chamber.

and the formulæ for calculating these velocities are well understood. The rate of propagation of electricity in a conductor similar in form, size and material to a nerve fiber should be, according to these formulæ, of approximately the same order of magnitude as has been measured for the rate of the nervous impulse.

The enormous reduction of velocity (about ten million times) is chiefly attributable to the great ohmic resistance of the conductor coupled with the electrostatic capacity. As a result of measurements on the phrenic nerves of cats and calculations based on data of microscopic sections of nerves, we have been able to construct an artificial "nerve" of glass, paper, tinfoil and graphite, whose total resistance and capacity are of the same order of magnitude as those of the cat's nerve. On applying the break E.M.F. of an induction coil to this artificial nerve and leading off to a string galvanometer in the usual manner we have obtained typical diphasic curves almost identical with those obtained from cat nerves stimulated with the same current. Of greater significance is the fact that we have been able to predict a change in the form of the curves with change in the nature of the applied E.M.F. and to predetermine the character of the change. As an example we may mention that the action current of nerves stimulated by the make or break of a constant current is of totally different form when registered as a curve from the diphasic curves obtained by applying a momentary E.M.F.

It seems at present altogether probable that the phenomena of electrotonus, the effects of lowering of temperature, anesthetics and other well-known phenomena of nerve will be found on investigation to be compatible with the theory that nervous phenomena are essentially electrical in nature.