tube containing blood is kept stoppered and on ice, as will be seen from the following:

	Serum	Oxalated Blood
Immediately	7.75	7.55
After 2½ hours	7.75	7.55
After 19 hours	7.75	7.55
After 24 hours	7.75	7.55

If, however, blood is drawn directly into a sac immersed in a tube of salt solution and the reading compared with that from the blood drawn and determined in the usual manner, slight variations are encountered (see Experiment 1).

By thoroughly shaking the blood or serum in the air, its alkalinity is increased. Therefore, shaking should, in general, be avoided, unless it is desired to determine the pH at a zero CO_2 tension. Such studies have been carried on by Dr. D. W. Wilson.

The influence of the temperature on the readings has been determined, and the results appear in the accompanying tabulation.

TABLE 4.—Variations in Hydrogen Ion Concentration Due to Changes in Temperature

	A		B	
Temperature	Serum	Whole Blood (Oxal.)	Serum	Whole Blood (Oxal.)
20 C.	7.75	7.55	7.75	7.45
30 C.	7.85	7.5	7.8	7.4
37 C.	7.9	7.65	7.9	7.45

This effect of temperature has been recognized by previous workers. It is evident that in order to obtain comparable results, temperature control is necessary. Our measurements have been made between 20 and 24 C.

The dialysate of the blood or serum is slightly more acid than the original material, if one can judge from experiments carried out with dilute sodium bicarbonate solutions containing carbon dioxid, and phosphates of approximately the pH and concentration of blood. That the variation is a constant one under the conditions of the method is shown by the close agreement of duplicate determinations, which has been referred to previously in this paper.

By a coincidence, the results obtained from the dialysate from the whole blood and from serum correspond very closely to those obtained directly by the electrical method when the latter measurement is made at 18 C. and at a carbon dioxid tension of 40 mm. Hg.

This agreement in results is probably due to the antagonistic character of the two main sources of error involved in the method of dialysis, namely, loss of carbon dioxid tending to give higher, that is, more alkaline readings, and disproportionate dialysis of acid and basic constituents yielding lower, that is, more acid readings. For clinical pur-