the normal level in 20–40 minutes. A rabbit in which fever was induced by puncture of the corpus striatum gave a very rapid fall (average 1.1° C. in 20 minutes) of temperature on three different days as a result of 7 per cent. acacia injections.

In rabbits, therefore, acacia injections induce a mild temperature depression in health but a marked antipyretic effect in fever.

Four dogs responded to 4 c.c. per kilo of 20 per cent. acacia injected intravenously by increases in body temperature varying from 0.9 to 1.8 °C. In one of these, however, a preliminary depression of one half degree was observed. The normal temperature was regained within from 3 to 8 hours after injection.

Two dogs were given coli fever (method of Barbour and Howard) and the usual increase in blood solids was noted. Following an intravenous injection of 4 c.c. per kilo of 20 per cent. acacia in each dog reductions of 0.4 and 0.7° C. respectively were noted within 20 minutes, with a corresponding diminution in the total solids of the blood. This was followed however by a renewed temperature rise in both cases.

Intravenous acacia injections therefore raise the temperature of normal dogs but in fever dogs exert a brief though marked antipyretic action, accompanied by increased blood volume. The latter phenomenon is obviously parallel to the antipyretic effect of intravenous injections of 50 per cent. dextrose.

115 (1575)

Studies on salt action. III: The effect of hydrogen ion concentration upon salt action.

By I. S. FALK (by invitation).

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Our recent studies of the effect of electrolytes upon the viability of bacteria have indicated the important influence of even slight variations in hydrogen ion concentration upon such phenomena. Working with *Bact. coli* we find that hydrogen ion concentrations above pH = 6.0 or below pH = 7.0 give a much more rapid death rate than occurs when the pH is maintained within these limits. Our experiments suggest that a very careful

control of hydrogen ion concentration is absolutely essential before valid conclusions can be drawn as to the influence of electrolytes, alone or in combination.

Furthermore, it is essential to follow with care the changes which go on in a suspension of living and dead cells as well as to determine the initial conditions which are provided. We find that a bacterial suspension in 5 isotonic NaCl solution quickly reverts to a pH of about 7.2 whether its initial hydrogen ion concentration be above or below this value. A similar change takes place in a balanced solution of 5 isotonic NaCl + isotonic $CaCl_2$ but at a much slower rate as indicated by the table below.

HYDROGEN ION CONCENTRATION OF SUSPENSIONS OF *Bact. coli* IN THE PRESENCE OF ELECTROLYTES.

Initial.	5 Isotonic NaCl.			Initial.	5 Isotonic NaCl + Isotonic $CaCl_2$.		
	4½ Hrs.	9 Hrs.	30 Hrs.		4½ Hrs.	9 Hrs.	24 Hrs.
4.0	7.0	7.0	7.2	4.0	4.8	4.8	5.8
5.0	7.3	7.2	7.2	5.0	6.5	6.5	7.2
6.0	7.5	7.2	7.2	6.0	7.2	7.2	7.1
7.0	7.2	7.0	7.4	7.0	7.2	7.2	7.5
8.0	7.2	7.2	7.2	8.0	8.0	8.0	8.0

116 (1576)

Discrepancies in blood oxygen analyses by the methods of Van Slyke and Henderson-Smith.[1]

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Loosely bound oxygen is liberated from the hemoglobin in blood by the addition of potassium ferricyanide. In the Van Slyke method,[2] all the gases are exhausted by means of a Toricellian vacuum from a laked blood-ferricyanide mixture and measured directly. In the Henderson-Smith method,[3] the oxygen is evolved

[1] This work was initiated in the Laboratory of Intermediary Metabolism, Chemical Warfare Service, Yale Station, under Lt.-Col. F. P. Underhill.

[2] Van Slyke, D. D., *Jour. Biol. Chem.*, 1918, XXXIII, 127.

[3] Henderson, Y., and Smith, A. H., *Jour. Biol. Chem.*, 1918, XXXIII, 39.