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Cullen's colorimetric method for the determination of the pH of blood plasma.

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In experiments on hemorrhage, Cullen's¹ colorimetric method for the determination of the pH of plasma was found unreliable even for comparative studies. The correction of 0.35 for dogs' plasma, necessary to convert the colorimetric readings of pH at 20°, to the electrometric pH at 38°, varied especially after hemorrhage, from 0.42 to 0.19.

Hastings and Sendroy² stated that Cullen's correction disappears if the colorimetric determinations are made at 38° instead of 20°. In a single experiment where this procedure was also used, the corrections became less, but did not disappear, and the variations noted above persisted.

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Comparison of the pH of serum and plasma.

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While the experiments reported above were being carried out, Hirsch¹ stated that serum is more acid than plasma. In a later paper², however he reported data throwing doubt on the accuracy of his previous conclusion. In order to determine whether there was any difference between the pH of serum and of plasma of dog's blood, electrometric and colorimetric pH determinations were done on both, Cullen's³ colorimetric method was used. We

¹ Cullen, Glenn E., *J. Biol. Chem.*, 1922, lii, 501.

² Hastings, A. Baird, and Sendroy, Jr., Julius, *J. Biol. Chem.*, 1924, lxi, 695.

¹ Hirsch, E. F., *J. Biol. Chem.*, 1924, lxi, 795.

² Hirsch, E. F., *J. Biol. Chem.*, 1925, lxiii, 55.

³ Cullen, Glenn E., *J. Biol. Chem.*, 1922, lii, 501.

found no difference between the serum and plasma pH, electrometrically determined. The correction in Cullen's method, however, is slightly greater for serum than for plasma as stated by Cullen.

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The skin response of rabbits to non-hemolytic streptococci.

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A study of the skin reactions in rabbits which were induced by intra-dermal injection of non-hemolytic streptococci demonstrated an unusual phenomenon. Following the injection of these microorganisms a local reaction took place which reached its maximum within 24 to 36 hours. The lesion then diminished until the eighth day, when an exacerbation occurred which at times approached the original lesion in intensity. This persisted for about 2 days and disappeared slowly. The late lesion is referred to as the "secondary reaction."

This reaction was first encountered while studying a green streptococcus isolated from a rheumatic subcutaneous fibroid nodule; with it definite secondary reactions were induced in 50 per cent of normal adult rabbits and doubtful reactions in an additional 13 per cent. On further extending the strains of green streptococci studied, the reaction was found to be incited by 5 out of 10 strains from nodules, blood or heart of rheumatic fever patients; by 1 out of 4 strains from the blood of subacute bacterial endocarditis patients; by 1 strain from the urine of a nephritic patient and by 1 anomalous strain isolated from a rheumatic nodule. It never followed the injection of green streptococci from normal throats, nor of hemolytic streptococci, staphylococci, *micrococcus catarrhalis*, *B. coli*, and *B. influenza*.

The material used for intra-cutaneous injection consisted of the centrifuged sediment from 5 cc. of an 18-hour growth of the