

The difference in effectiveness of these 2 baths was not, in our experiments, due to dextrose or concentration of magnesium chloride. Sollman⁴ has recently suggested that there exists an optimum concentration of buffer substances in perfusion baths and that this concentration varies with the size of bath and its effective aeration.

Under the conditions described a segment of rabbit's or cat's small intestine perfused in Locke's solution has a shorter period of inactivity, less early irregular activity, more gradual and less complete loss of tonus, a greater amplitude of contraction, the ability for more rapid recovery from adrenalin and greater duration of activity than a segment perfused in Tyrode's solution.

4530

Reciprocal Activity of the Muscle Coats of Guinea Pig Intestine.

A. J. HOCKETT. (Introduced by C. H. Thienes.)

From the Department of Pharmacology, University of Oregon Medical School, Portland, Oregon.

Some years ago, Gayda¹ reported a coordinated reciprocal activity of the muscle coats of guinea pig intestine, but his work received little notice. More recently, Hanzlik and Butt² have shown a similar mechanism in the crop of the pigeon. Using Gayda's modification of the Trendelenberg method,³ and a further modification to prevent pressure changes in the lumen of the gut, I have been able to confirm the above workers, in that 19 of 26 segments exhibited the reciprocal activity of the 2 main muscle coats; *i. e.*, contraction of the longitudinal muscle was accompanied by relaxation of the circular muscle, and vice versa. Four of the remaining 7 segments developed reciprocal activity after treatment with atropine and nicotine. The effects were the same for duodenum, jejunum, and ileum and occurred in segments from each of 7 animals. Furthermore, the reciprocal activity of the muscle coats of the small intestine was evident during the action of epinephrine, pilocarpine and barium chlo-

⁴ Sollman, T., von Oettingen, W. F., and Ishikawa, Y., *Am. J. Physiol.*, 1928, lxxxv, 118.

¹ Gayda, T., *Arch. f. d. ges. Physiol.*, 1913, cli, 407.

² Hanzlik, P. J., and Butt, E. M., *Am. J. Physiol.*, 1928, lxxxv, 271.

³ Trendelenberg, P., *Arch. exp. Path. Pharm.*, 1917, lxxxi, 55.

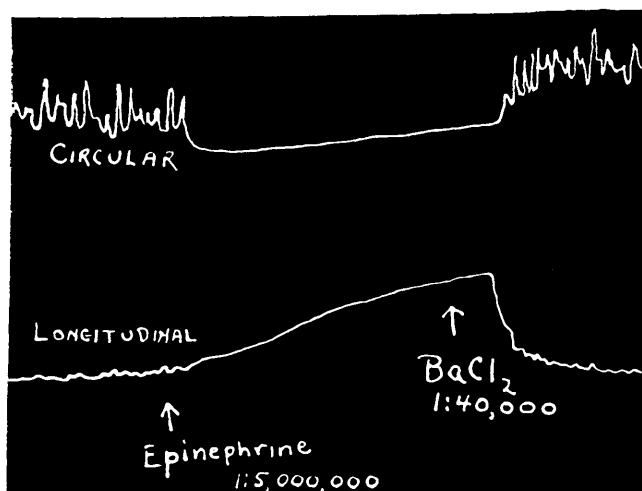


FIG. 1.

Reciprocal response of the muscle coats of the intestine to epinephrine and barium.

ride. For example, epinephrine relaxed the circular muscle and increased the tone of the longitudinal muscle; barium chloride and pilocarpine produced relaxation of the longitudinal muscle and contraction of the circular. The action of epinephrine and of barium chloride is shown in Fig. 1.

4531

A Study of the Blood of the Mother and New Born.

H. RAY ALLUMBAUGH. (Introduced by Dr. G. E. Burget.)

*From the Department of Physiology, University of Oregon Medical School,
Portland, Oregon.*

Reports on the red cell count and hemoglobin content of the blood of the new born are at considerable variance. Williamson¹ gives the hemoglobin as 23.25 gm. per hundred cc., while others have placed the figure as low as 15.6 gm.² Red cell counts vary almost as widely with different investigators. This may be explained by the fact that many different methods of hemoglobin estimations

¹ Williamson, *Arch. Int. Med.*, 1916, xviii, 505.

² Haden and Neff, *Am. J. Dis. Child.*, 1924, xxviii, 458.