

toxin by the usual method indicated a degree of adsorption in excess of 94%. The M.L.D. of the original toxin was 0.0035 cc. while that of the adsorbed toxin was less than 0.0037 cc.

Nitrogen determinations (by micro-Kjeldahl) indicated that the nitrogen loss sustained during the process of purification was in excess of 90%.

Tetanospasmin and staphylolysin were similarly adsorbed to and eluted from the magnesium precipitate. Tetanolyisin, however, was destroyed.

Conclusions: (1) Magnesium hydroxide in colloidal suspension adsorbs diphtheria toxin which can be eluted without destruction of the toxin. (2) The adsorption is approximately 94% complete. (3) The nitrogen loss per M.L.D. sustained during the process is in excess of 90%. (4) The method has been used with success in the adsorption of tetanospasmin and staphylolysin but not with tetanolyisin and indicates possibilities for the purification of other bacterial products.

Thanks are due Prof. E. E. Ecker for many helpful suggestions and criticisms.

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Further Observations Concerning the Effect of Posture on the Velocity of Blood Flow in Man.*

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We have previously shown that a much longer time is required for blood to move from an arm vein to a foot vein or the reverse, when an individual is in the standing still position than when he is in the recumbent position.^{1, 2, 3} This observation was in harmony with the work of several observers^{4, 5, 6, 7, 8} who have shown that, in

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¹ Thompson, W. O., Alper, J. M., and Thompson, P. K., *J. Clin. Invest.*, 1928, v, 605.

² Thompson, W. O., Thompson, P. K., and Dailey, M. E., *Proc. Nat. Acad. Sci.*, 1928, xiv, 94.

³ Thompson, W. O., Thompson, P. K., and Dailey, M. E., *J. Clin. Invest.*, 1928, v, 573.

⁴ Piorry, P. A., *Arch. Gén. de Méd.*, 1826, xii, 527.

the standing still position, blood circulates with difficulty and collects in dependent portions of the body owing to the effect of gravity. In view of these findings, it seemed to be a reasonable hypothesis that the slowing of the circulation would take place below, and not at the level of the heart. We have now investigated this question experimentally by measuring the arm-to-arm and foot-to-arm circulation times in the recumbent and in the standing still positions in several normal subjects, using an improvement[‡] of a dye method previously described.¹ Numerous observations on 6 subjects have

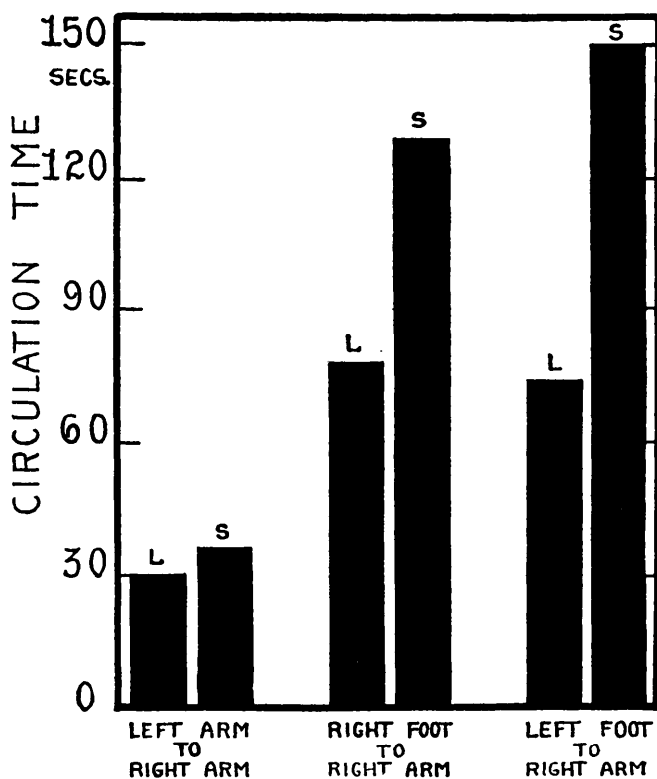


FIG. 1.

A comparison of arm-to-arm and foot-to-arm circulation times in the recumbent (L) and in the standing still (S) positions. Subject, J. G.

¹ Salathé, A., *Trav. du lab. de M. Marey*, 1877, 251.

⁶ Hill, L. J., *J. Physiol.*, 1895, xviii, 15.

⁷ Field, H., Jr., and Bock, A. V., *J. Clin. Invest.*, 1925, ii, 67.

⁸ Turner, A., *Am. J. Physiol.*, 1927, lxxx, 601.

[‡] The chief improvements were, changing the tubes in which blood was collected to determine the presence of dye at more frequent intervals (5 and 10 seconds instead of 15), and using an anticoagulant (isotonic sodium oxalate) which made detection of the dye easier.

shown that as a rule the arm-to-arm circulation time is about the same in both positions of the body; whereas the foot-to-arm circulation time is much longer in the standing still than in the recumbent position. Data on a typical case are recorded in Fig. 1.

Our results are consistent with the theory that in the standing still position, the circulation is slowed only where it is impeded by gravity, *i. e.*, in dependent portions of the body.

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Experimental Herpetic Encephalitis in the Guinea Pig Produced Through the Respiratory Tract.

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In a previous communication¹ we described experimental *herpetic encephalitis* produced by feeding herpes virus to guinea pigs. The brains from such animals, dying after feeding of herpes virus, when injected into rabbits by the intraspinal route produced typical *herpetic encephalitis* and the disease could be passed in series from rabbit to rabbit. Control cultures of the guinea pig brains were without growth. It was noted that the herpes virus was somewhat attenuated following passage through guinea pigs by this method but its virulence rapidly returned by rabbit passage. It was further observed that only about 50% of the guinea pigs so treated with herpes virus died, the others remaining apparently unaffected. The "Beckley" strain of herpes (Flexner) was used in these experiments.

The apparent passage of the herpes virus from the intestine of the guinea pig to the brain, as demonstrated by subsequent passage through rabbits, has led us to consider the possibility of infecting guinea pigs by dropping herpetic brain emulsion into the nostrils of these animals.* In these experiments we have employed the Le Fèvre herpes strain which has been fully described in another publication.²

An emulsion of herpetic (Le Fèvre) rabbit brain was prepared

¹ McKinley, E. B., PROC. SOC. EXP. BIOL. AND MED., 1928, xxvi, 21.

* Somewhat similar and likewise positive results on nasal infection in rabbits by herpes virus have been reported by Levaditi and Harvier, Da Fano, Remlinger and Bailly, and Flexner and Amoss.

² McKinley, E. B., and Holden, M., J. Infec. Dis., 1926, xxxix, 441.