

mentation now makes possible the presentation of additional data bearing on this observation. In fifteen quantitative determinations in the bullfrog with the cathode ray oscillograph, the delay of the quickest sensory behind the motor potential wave ranges, with but one exception (in which, due probably to damage to the ventral root, the value was 0.02σ), between 0.09 and 0.18σ . Omitting the exception, the average delay is 0.143σ . Six determinations in the green frog range between 0.04 and 0.14σ , with an average of 0.08σ . One determination in the cat showed a delay of 0.08σ (temp. 35° C.).

We have been able to show that the delay is not due to differences in the rate of propagation of the action potential wave in sensory and motor fibers, either in the nerve trunk or in its roots. Indeed, the fastest sensory fibers conduct at least as fast as the fastest of the motor fibers. The delay must, therefore, develop in the dorsal root ganglion, but how, or in what division of the part of the neuron within the ganglion, it is at present impossible to say.

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The determination of the harmlessness of food colors.

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Fatal doses of certified and other food colors, for cold and warm blooded animals, compared with maximal harmless doses based on the rate of growth of young rabbits, showed no definite relation. It was inferred that harmlessness cannot be derived from fatal doses.

The *food color factor of safety* for man is defined as the quotient of the maximal harmless oral daily dose, divided by the maximal possible daily consumption in foods and beverages by man; the abbreviated formula being $F C F S = \frac{M H D}{M C}$. By the maximal harmless oral dose is meant the largest daily dose, which when given by mouth throughout the life of the most susceptible

laboratory mammal, produces no depression of any physiological process, and no injury to any tissue.

Food colors as a whole are to be regarded as harmless when the total possible daily consumption of all food colors, in all foods and beverages, does not exceed the maximal harmless dose.

A determination of the factor of safety of a food color of medium toxicity, based on the preliminary results for the maximal harmless dose for the growth of young rabbits, and the maximal possible consumption of the color by man in soda water, gave the following result:

$$F C F S = \frac{M H D}{M C} = \frac{21000}{25} = 840.$$

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Smooth muscle response in anaphylaxis. I. Effect of mixtures of antigen and sensitized lung tissues.

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Anaphylaxis, according to present conception, is essentially a cellular phenomenon. Of the tissues that are known to participate in anaphylactic shock, that of smooth muscle has received most attention. It has been shown both in the living sensitized animal¹ and also *in vitro* by the Dale experiment² that when certain organs containing smooth muscle are exposed to the antigenic substance to which the animal is sensitized, this smooth muscle responds by contraction. Such smooth muscle contraction is responsible for many anaphylactic symptoms. In guinea pigs, with which these experiments are concerned, anaphylactic death is due primarily to the contraction of the highly developed smooth musculature of the bronchioles with subsequent asphyxia. As this may be entirely a peripheral reaction, as Auer³ has shown,

¹ Manwaring, W. H., Hosepian, R., Enright, J. R., and Porter, Dorothy F., *J. Immun.*, 1925, x, 567.

² Dale, H. H., *J. Pharm. and Therap.*, 1913, iv, 167.

³ Auer, J., *J. Exp. Med.*, 1910, xii, 638.