

on the part of the muscle, owing to the absence of oxygen in sufficient quantity in the blood; for chloroform tends to prevent the oxygenation of the blood (a), and renders it venous in character. In this way the chemical processes on which the generation of contractile force in the muscle depends are retarded. (b) Dr. M. Foster states that "blood is not only useless, but injurious, unless it be duly oxygenated." And again, "if venous blood be driven through a muscle the irritability of the muscle is lost even more rapidly than in the entire absence of blood" (c). This, I think, will be accepted as a satisfactory explanation, in strict accord with physiological facts. The relaxation, however, is not so great but that faradization of the muscle will induce a further degree of contraction; showing that the contractile energy of the muscle, though weakened, is not lost. That the contractile power of the muscle is thus lowered offers a bar to the prolonged or complete administration of chloroform during parturition, for obvious reasons.

The mode in which anæsthetics induce arterial contraction, as explained by Dr. Henry M. Lyman, may be quoted as follows:—"Chloroform acting through the blood upon the nervous apparatus in the walls of the vessels, tends to paralyze the sensory endings of the nervous fibrils. This means a diminution of the normal impulses, which should continually reach the central intraparietal ganglia," in consequence of which "the motor cells no longer experience the inhibitory influence which they should receive from the periphery of their territory, and a liberation of a motor impulse excites muscular contraction, and we have vascular spasm." etc., as the result (d). This, of course, is purely hypothetical. The motor nerve fibrils in the muscular bands are ignored altogether, while a purely imaginary "inhibitory" system is invoked to meet the exigency of the occasion. How much better to hold that the motor nerve fibrils also are more or less paralyzed, and the arterial muscle directly set free to contract; thus dispensing with the inhibitory apparatus altogether.

#### THE NERVE-MUSCLE PREPARATION.

It is impossible here to enter on a critical

- (a) Ringer's Ther., p. 286.  
 (b) Lyman's Anæsthetics, p. 28; Bryant's Surgery, Amer. Ed., p. 318.  
 (c) Phys., pp. 883, 126. (d) Aesthesia, etc., p. 27.

analysis of the experiments on nerve and muscle, which a careful examination will show to be wholly consistent with the views here advocated. When in a nerve-muscle preparation, the muscle is made to contract by applying to the nerve trunk the shock of electricity, the corrosion of a chemical agent as a quick stroke, what is there to show that the effect on the nerve is not to cause a temporary cessation of nerve influence, rather than the production of a stimulus? There is really nothing, and the character of the impulse is merely a matter of inference. Even in what is called the rheoscopic frog, where contraction in one muscle imparts an influence whereby another muscle is made to contract, the molecular or electrical wave may as well be paralyzing as stimulating.

#### THIS THEORY NOT NEW.

In hastening to conclude, let me state that, whether this theory of the antagonism of nerve and muscle be true or false, I am not entitled to the praise—or blame—of originating it. It was broached so long ago as 1832 by Dr. West, an English physician, and is said to have met with some countenance from Sir Charles Bell. Dr. C. B. Radcliffe, F.R.S., in his work on "Epilepsy, Paralysis and Pain" (p. 95), has warmly adopted the views of Dr. West, and offers some strong evidence in support of the proposition, that "there is reason to believe that ordinary muscular contraction is associated with a deprivation of nervous influence, and not with a contrary state of things." I have here endeavored to support the same thesis, but with evidence drawn from other sources.

(To be continued.)

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*Aim.*—This Association has been formed to provide a Reference Medical Library for the use of the profession throughout the Province. All engaged in original investigation or desirous of making contributions to medical literature, must have felt in the past the pressing need that existed for such a collection of books, which as occasion arose they could consult. Valuable libraries are frequently broken up under the hammer of the auctioneer, which should find a fitting resting place upon the shelves of this Institution, and not only confer a benefit upon