

sleep from dreams, rolling of the eyeball; twitches in different parts of the body precede the general convulsion, which is unequally distributed, and generally follows a successive course over the body, repeated in the same order in each subsequent convulsion, sometimes affecting only one side, which side is generally semi-paralyzed after the attack ceases. Each convulsion is followed by a state of congestion of the face, and more or less profound unconsciousness. Now what is the signification of these phenomena? Doubtless they are the result of irregular circulation, produced, as in chills, by irritation of the sympathetic and irregular contractions of the vessels until the maximum contraction is reached in the convulsion, which is followed by dilatation of all the vessels and congestion of the nerve centres, which is the cause of the unconsciousness and of the cessation of the spasmodic action. Excessive hemorrhage is productive of convulsions, owing to a deficiency of blood supply; so also fainting fits are frequently accompanied by or pass into convulsive movements. The object here to be attained by nature is, by the temporary spasm of the vessels leading to the nervous system, to paralyze those vessels in order that, while the body which may remain prostrate without a fatal result, those parts which are necessary to life may be more abundantly supplied until the vital fluid is replenished. Further, with a view of testing these ideas, I have observed in the slaughter-house that spasms occurred in the animals only when they were nearly bled out; and I further caused two calves, which I selected as nearly equal as possible, one to be suspended by the legs and the other laid on the floor with its head elevated; they were both bled as nearly equal as possible, and, as I anticipated, the one on the floor was convulsed much sooner and much more than the one suspended—showing that while anæmia favors, congestion of the brain opposes, general convulsive movements. Again, compression of the veins of the neck is said to control a convulsion. However, I have not met with success, through inefficient performance, as it is scarcely practicable in the presence of friends. The exciting stage of anæsthetics appears to be of the nature of a convulsion, and the second stage resembles the congestion subsequent to it. This is probably the action of these drugs on the body and their use in convulsions, by keeping the cerebral vessels in a state of paralysis. If these conceptions of the nature of convulsions are correct, it follows that beside removing the cause, if possible, they may be controlled by such remedies as either

produce tone in the primary part at fault by very *small and repeated* doses of some medicine acting *directly* on that part, or by a large dose of some medicine sufficient to cause paralysis of the whole vascular system. Unfortunately it is difficult to make a correct diagnosis of the cause, or in the present state of our knowledge of *Materia Medica* exactly to adapt a medicine to its use in this manner. Again, we are seldom called until the spasms are developed, consequently we are obliged to adopt those measures which give relief speedily to the urgent symptoms. The latter course is one which we may adopt with almost certain success, and as is seen in a study of the disease, it is not contrary to the efforts of nature herself; hence the use of anodynes and anæsthetics is appropriate in doses sufficiently large to produce paralysis of the cerebral vessels and congestion. Of the use of chloroform, chloral, bromide of potassium, warm baths, bleeding, &c., we are all acquainted. Perhaps nitrate of amyl might be useful, on the same principle. I have no experience, but it appears to produce cerebral congestion very quickly; I think it deserves a trial. Of all remedies I am most in favor of opium; and so much confidence have I in this remedy, which I have used for six years, that I rarely think of anything but my hypodermic syringe when I am called to a case of convulsions. The few unsuccessful cases which I have had, have not shaken my confidence in this remedy. I introduce the hypodermic syringe loaded with three or four doses and slowly inject at intervals of twenty minutes on  $\frac{1}{2}$  hour until the pupils begin to contract. As soon as I find the pupil contracted I go home, confident that the spasms have ceased, at least until the influence of the medicine has passed. I have adopted this treatment in infants two or three months old with perfect success and without any mishap. If infants are more susceptible to opiate<sup>s</sup> they require less, and of course any method of treatment is not responsible for a want of caution. I have observed that if the pupils failed to contract after a reasonable dose of the opiates, the case is unfavorable, and in six cases which occurred to me all died either from recurring convulsions, or of meningitis; and here it may be objected that the opiate is contraindicated in, or might produce inflammation of the brain or meninges; but I am of a different opinion, and that opium is no more contraindicated than any of the above named remedies, except perhaps the warm bath and bleeding, since the others produce the same result as the opium or the fit itself, viz: congestion of the cerebral vessels. I think for certain reasons that cerebral difficulty is already established in these cases where the