[Reprinted from the Boston Medical and Surgical Journal, Vol. clxxxiii, No. 14, pp. 401-403, September 30, 1920.]

A PLEA FOR THE EARLY DIAGNOSIS OF EPILEPSY.*

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Genuine epilepsy is a progressive disease. It often begins with symptoms that while noticeable, yet are so brief-lasting in character that they are not recognized at their true value, for they are the index of the presence of one of the most appalling diseases that afflict humanity. The chronic epileptic is always in proximate danger of injury, or accidental death, and therefore the source of incessant anxiety to relatives.

The beginning of epilepsy is frequently associated with vertigos, sudden pallors, fainting spells, and "absences" (brief lapses of consciousness in which the child stares for an instant. In an incipient epilepsy, one or more of these symptoms may be present for a year or more, and, with periods of irritability, may be the only abnormal manifestations noticed in the child. Suddenly a convulsion occurs, to be repeated at intervals. So plain then is the diagnosis of epilepsy that "He who

* Address made to the nurses of the Boston public schools, at their meeting, Sept. 3, 1919.

runs may read'': the incipient stage of the disease has ceased, the chronic stage is entered upon. The progress of the disease continues, for a majority of epileptics become dements. The brain in the beginning is but slightly or not at all touched, but as the disease progresses into dementia, the brain degeneration becomes marked. The hoplessness of curing advanced epilepsy with the brain damaged as in dementia, is based on this involvement. I do not say that treatment in chronic epilepsy before the stage of dementia is hopeless. Much can be done and is done by medication and diet to enable many chronic epileptics to live useful lives. Science undoubtedly in the future will teach more about the faulty metabolism that plays so large a part in the production of the periodical attacks of convulsions characteristic of the chronic stage of the disease. It is not too much to expect that the metabolic toxins of the disease in time will be identified and a neutralizer for them found. This means that a brilliant place in epileptology awaits the research worker in metabolism, whose work, when done, will make the treatment of chronic epilepsy truly scientific, and not the groping thing it is.

For incipient epilepsy, science offers much more than hope, since research work has uncovered facts that indicate the essential cause of the disease to be an over-irritability, a hypertonia of the sympathetic nerve fibres, that

treated early can be overcome by drug action. Research work before published* has shown that genuine epilepsy is marked by disease of the sympathetic nerve fibres. The diseased condition of these fibres is manifested by the abnormal sympathetic reflexes and chronic vasoconstriction spots found in epileptics. These diseased sympathetic manifestations in living epileptics are explainable by the diseased condition of the sympathetics and ganglia found by Echeverria in epileptics after death. The objective signs that have been discovered in epileptics, the abnormal sympathetic reactions and chronic vasoconstriction spots, phenomena that can be seen, measured, and photographed, are too important to be further ignored, since they serve in the diagnosis of the disease.

In incipient epilepsy there has been found, as before stated, a hypertonia of sympathetic nerve fibres. By hypertonia is meant a true over-irritability of the fibres, shown by the sympathetic reflexes being more intense and appearing quicker than in the normal individual. The hypertonia that is manifested by the intensity in color of the vasoconstriction reflex (the white streak on the skin which follows stroking with the vasomotor tester) there is no measure for. Appreciation of the degree of color intensity comes from observation and

* Boston Medical and Surgical Journal, Vol. clxxviii, Nos. 23, 24, 25, and 26.

practice in making the tests. But the hypertonia that manifests itself by the abnormal quickness with which the reaction appears, is readily measured with the aid of a stop-watch.

The hypertonia found in incipient epilepsy prompted the query, could the hypertonia present in these cases be overcome by drug action, and if so, with what result? The drug required to overcome an overactivity of sympathetic fibres should be, evidently, a sympathetic paralysant. The only such drug I learned of in my readings is ergotoxin phosphate, found, by Elliot, the English physiologist, to be a sympathetic paralysant in animals. I imported a small quantity of this drug, made a very dilute solution of it in water, and injected a few drops of the solution into my arm. The reflex vasoconstriction reactions produced near the site of injection came slower than before the injection. Control injection of plain water was negative. I therefore concluded that ergotoxin phosphate is a sympathetic paralysant in man. At this period I had been familiar with a drug reported by Dr. R. E. Waterhouse to be curative in some cases of epilepsy—the drug oenanthe crocata. I injected a weak solution of this drug into my arm and found it slowed the sympathetic reaction in a similar manner to ergotoxin phosphate. The conclusion followed that oenanthe is a sympathetic paralysant. The oenanthe preparation being a tincture, and as alcohol is a nerve irritant, I asked Prof. John

Uri Lloyd if a preparation of the drug without alcohol could be prepared. He kindly prepared and supplied me with colloidal oenanthe, alcohol free, and this preparation I have used in the treatment of epilepsy. In incipient epilepsy it has proved curative.

Just as the stream near its source can be controlled, while further on, from various causes, it has become the impetuous torrent that defies all the powers of man—so epilepsy in its incipiency, when the current of nerve action is but slightly awry, happily yields to treatment which restores the current to its normal bounds, while later in the progress of the disease the pathologic stream of nerve force increases so that man is powerless against it. For, since Aesculapius, physicians have witnessed the manifestations of this force in convulsions, without being able to stay them.

Facts carefully observed showing the presence of hypertonia of sympathetic fibres in incipient epilepsy and the disappearance of this hypertonia together with the associated symptoms of vertigo, irritable spells, dizzy headaches, and fainting spells following the use of oenanthe (which experiment shows to be a sympathetic paralysant) are the reasons for this plea for the early diagnosis of epilepsy. For when the disease is allowed to progress we have not alone diseased sympathetic fibres, but a secondary hyperirritability of cortical cells (hence the convulsions) and in place of con-

tending with the stream at its beginning, we are confronted with a very torrent of pathologic nerve energy that to science is as yet unmastered.

Having discussed somewhat the work upon which this plea for the early diagnosis of epilepsy is based, a brief consideration of the means taken to render it effective will be in order. The Clinic for Nervous and Epileptic Children was established at the Forsyth Dental Infirmary, at the request of Dr. Devine, our esteemed Director of Medical Inspection of the Boston Public Schools. This location for the Clinic was sought because it was thought its location where other duties brought you, would lessen the work attached to the investigation of the epilepsy cases in the schools. These cases, as you know, are to be brought to the Clinic (Saturdays, 9 to 10 o'clock) so that they can be diagnosed for the medical inspection records. In regard to the discovery of the cases of incipient epilepsy now in the schools unrecognized, it is you (whose duties bring you in contact with the children, parents, and teachers) who have the greatest opportunity for service. Bear ever in mind, therefore (and let parents and teachers know the fact), that incipient epilepsy manifests itself by vertigo (dizziness), pallor, fainting spells, and brief lapses of consciousness. Children with any of these symptoms ought to be examined for the objective signs of epilepsy. If these are found

present, careful treatment with colloidal oenanthe is indicated.

In conclusion, I desire to thank Dr. Devine for the privilege of addressing you on the subject of epilepsy. I am confident that with your coöperation and that of the school teachers, we school physicians will make progress in the work that has been undertaken—the tabulation of the cases of epilepsy in the schools.