ONE HUNDRED CONSECUTIVE CASES OF EPILEPSY; THEIR REFRACTION AND THEIR TREATMENT BY GLASSES.¹

BY H. WORK DODD, F.R.C.S.

*Ophthalmic Surgeon, West End Hospital for Nervous Diseases, Assistant
Surgeon Royal Westminster Ophthalmic and Royal Free Hospitals.*

FOR some years past there has been a question constantly put forward as to a relationship between epilepsy and errors of refraction, which up to the present time has not been satisfactorily met.

With a view of collecting some certain information on the subject, I, last year, began examining the eyes of all the cases of epilepsy that I could obtain at the West End Hospital for Nervous Diseases and Paralysis, and treating them as far as possible with correcting lenses. I have the honour of submitting to you the results of this work in one hundred consecutive cases of epilepsy.

In order to remove all possible doubt as to diagnosis, each case has first been seen by the physician in attendance, and subsequently, at my request, passed on to me as being one of true epilepsy.

With regard to the examination of the eyes, I may state that in seventy-four cases sulphate of atropine drops (grs. iv. and grs. ii. ss. ad. ʒi.) were employed; in twenty-three cases hydrobromate of homatropine drops (grs. vi. ad. ʒj.) were used, and in three cases only the process was carried

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through without a mydriatic. Of these three cases, one was a woman of sixty-seven years of age, with Hm. 1 D., and taking + 4.50 D. for near work; the second, a man with myopia, R.E.—8 D., L.E.—2 D., and the third was a patient, who strenuously objected to the drops, showing Hm. .50 D.

In working out the refractions, exceeding care has been taken to ensure accuracy in the results.

The first table contains the classification of the refractions of the one hundred cases. In this—

(a) The total refraction under the mydriatic has been taken.

(b) Hypermetropia of .75 D. has been reckoned as emmetropia.

(c) Astigmatism of .25 D. has not been included.

In the one hundred cases I have found the results shown in Table A.

Here the simple hypermetropia and the total astigmatism are equal in amount, each having forty-two cases.

Wishing to compare these results with the refractions obtaining in apparently normal eyes, I could find nothing more suitable for that purpose than my own paper, published in the last volume of the *Transactions of the Ophthalmological Society of Great Britain*. From the cases contained in this I have worked out the following percentages on the same lines, as I have done in the epileptic cases (see Table B).

The comparison between the two classes is shown there.

The marked differences exist in the amounts of the simple hypermetropia, and of the astigmatism. Of simple hypermetropia there are twenty-eight cases per cent. *less* in the epileptic than in the apparently normal class.

Of astigmatism of all kinds, there are twenty-six cases per cent. *more* in the epileptic division than in the normal one, this difference being in great part made up by the increase in epileptics of compound hypermetropic astigmatism, viz., eighteen cases more than the normal percentage. If the difference of twenty-six cases per cent. of total astigmatism in the epileptic be added to the forty-two cases per cent. of the simple hypermetropia of the normal class, the

result comes to within two cases per cent. of the normal amount of simple hypermetropia, viz., 68. It would almost appear as if the increase of astigmatism in epileptics were taken from the normal amount of hypermetropia.

I beg now to refer to the large table (C); on it will be found each case arranged transversely under its various headings, viz.:

(1) No. of case; (2) age; (3) sex; (4) family history as to fits; (5) age when fits began; (6) frequency &c., of fits; (7) duration of fits; (8) time when fits occur; (9) aura; (10) cephalalgia; (11) vertigo; (12) pupils; (13) fundus examination, &c.; (14) vision and refraction before mydriasis; (15) mydriatic used; (16) vision and refraction after mydriasis; (17) glasses ordered, &c.; (18) length of time glasses worn; (19) condition, &c., while wearing glasses.

Of one hundred consecutive cases of epileptics examined, twenty-five did not need glasses; seventy-five were ordered to wear them, and of these there were twenty-three who either did not wear them or failed to report themselves later, and could not be found. Of the remaining fifty-two patients there are—

(a) Thirteen who have had no fits since wearing the glasses, during periods varying from one year down to four months. These are Nos. 5, 11, 24, 25, 33, 52, 57, 58, 66, 78, 87, 90, 91.

(b) Three who have remained *in statu quo*, Nos. 3, 46, 72.

(c) Thirty-six whose condition has improved since using the glasses—in the majority of these the improvement is in a marked degree. The refractions of the thirteen cases who have had no fits, are shown in the large tables. With the exception of the one case of mixed astigmatism the errors are not great; the proportion of simple hypermetropia to the total astigmatism still stands about as in the larger scale, the compound hypermetropic astigmatism representing the greatest part as before.

It is not necessary for me to weary you with a long account of these cases. I will however read a few of them as examples; others may easily be found in the tables.

Brief histories of some patients who have been free from fits since wearing glasses.

Case I., No. 5, Sept., 1892.—A man aged 24 years, a porter by occupation. There is no family history as to fits. His fits began at the age of 21 years, and they have continued up to this month. He has about seven or eight in a month, and very rarely goes a month without an attack. He has often had several fits in rapid sequence. They always occur during the day—never at night. He has no aura. He complains of bad frontal headache and also of occipital pains; the latter are rare. Vertigo is not marked, but he has it occasionally. He has been taking bromide of potassium for a long while.

Oct., 1893.—He has had no fits since wearing his glasses, which were at first ordered for near work only. In July, his headaches still continuing, he was told to carry his spectacles always, and he is now absolutely free from cephalic pain. His general health is much better.

Case II., No. 11, Sept., 1892.—A woman aged 20 years, a housemaid. Her mother has had fits since she was 9 years old up to the present date, Sept., 1892. A brother, aged 22 years, has had fits since 6 months. Her fits began at 19 years of age. She has now about one a month, but has had them more frequently. They generally occur at night. She has no aura, though on one occasion she saw "mixed colours" just before a fit. She suffers from vertical headache "dreadfully" and frequently; she also has attacks of vertigo nearly every afternoon. She has been taking bromide of potassium for a long time.

July, 1893.—She has sensations but no fits.

Sept., 1893.—She has slight sensations but no fits.

Case III., No. 24, Nov., 1892.—A woman aged 30 years, a servant. There is no family history as to fits. Her fits began at 20 years of age. She has them at variable periods and very often. They occur usually in the morning, but also occasionally at night. She has no aura. She suffers frequently from headache, which is frontal and vertical in situation, also from numerous attacks of vertigo. She has been taking bromide of potassium for a long time.

June, 1893.—She has had no fits and has lost vertigo. The headache is rare and lessened in severity.

Sept., 1893.—No fits—no headaches to speak of—rarely some vertigo.

Case IV., No. 25, Nov., 1892.—A youth aged 16 years, a tailor. There is no family history of fits. The fits began in childhood. He now has them about three times a week, usually at night. He has no aura. He suffers from frequent headaches which he calls "awful"; they begin with severe frontal pains, and then extends all over his head. Vertigo is common and usually occurs in the daytime. He has been taking bromide of potassium for a long time.

May, 1893.—No fits since glasses.

Sept., 1893.—No fits, no headaches and no vertigo.

Oct., 1893.—The same.

Brief histories of some cases of marked improvement.

Case I., No. 2, Sept., 1892.—A woman aged 46 years, a dress-maker. Her eldest brother had fits between the ages of 14 and 21 years. Her fits began at about 18 years of age. She has one fit at variable periods; now they are much more frequent. She has occasionally gone a few months without an attack. She has them always at night. Her warnings are a "feeling of unsteadiness" in frontal and occipital regions of head. Her headaches are very severe and frequent, chiefly frontal, but also occasionally occipital, and her vertigo is so intense that she reels in her walk sometimes. She has taken bromide of potassium for a long time.

March, 1893.—Has had two fits since glasses; ordered an additional pair for presbyopia.

June, 1893.—No fits, no cephalalgia of importance.

July, 1893.—No fits, slight cephalalgia.

Sept., 1893.—One very slight fit in August. Is much better in general health.

Case II., No. 28, Nov., 1892.—A girl aged 15 years. There is no family history as to fits. The fits began at 14 years of age. She has now about one attack a week—often two in rapid sequence. They occur at night towards the early morning. She has no aura. Vertical headache is very frequent and she occasionally has occipital pains. She is never giddy. She has been taking bromide of potassium for a long time. She went from Nov., 1892, quite without fits to Sept. 13, 1893, when she had one attack, being at this time extremely worried and nervous about obtaining a situation.

Case III., No. 16, October, 1892.—A girl aged 14 years. Her father is believed to have had fits in early youth. Her fits began at 9 years of age, when she had one fit. She was then free from

attacks until the beginning of her fourteenth year, when they appeared again. She is now having six or seven fits during the day, and they occur about every hour during the night. She has no aura, and she suffers from very severe and frequent headaches, which are frontal and vertical in position; she has no marked vertigo; she has been taking bromide of potassium for some time. Her mother objected to her reading because she thought the fits were brought on through it.

August, 1893.—No fits since glasses; no cephalalgia; is much better.

September 4, 1893.—Has had two fits during the night; she is near her menstrual period.

September 15.—She has had a few fits at night.

Case IV., No. 20, Oct., 1892.—A man aged 20 years, a carpenter. His mother has about one fit a month. His fits began at 16 years of age. He has now about one a week; they occur in the daytime, never at night. He has no aura; he is free from cephalalgia, except just after a fit when it is frontal, but this is nothing marked. There is never any vertigo. He has been taking bromide of potassium for a long time.

May, 1893.—No fits since glasses.

Sept., 1893.—One very slight fit.

In all the cases the physician has, I believe, continued his usual treatment for some time after the glasses had been ordered.

Case II. of this second series is a type of several that I have met with. The proper correction of the error of refraction by glasses evidently arrests their fits, and they do well until some other irritation comes to play. In this case the patient has no fits from the time she begins to carry glasses, from November, 1892, to September, 1893, she then has one fit as a result of nervous excitement produced by a difficulty in obtaining a certain situation. Another patient also has practically the same history, and brings on his fit by foolishly diving from a height into cold water. Another one is free for months and then is nearly run over by a hansom cab, when she immediately has six fits. Another goes many months and has a return of her fits just at her menstrual period. In a great number some such occasion appears to cause a return of the fits, but in no such case have the fits resumed their previous severe character or frequency.

It seems to result that, given a certain condition of instability of the nervous system—

(a) Errors of refraction may excite epilepsy.

(b) The correction of the errors of refraction will—in combination with other treatment—in many cases cure or relieve the epileptic condition. In this hundred cases forty-nine patients have been cured or relieved.

(c) In some cases, when the refraction error has been corrected the epilepsy will continue, generally in a modified form, in consequence of other irritation, even though the error of refraction may have been the exciting cause of the fits in the first instance, as shown in the cases that I have pointed out.

I am strongly of the opinion that in every case of epilepsy—in addition to general treatment and the investigation of other organs—the eyes should be carefully examined under a mydriatic, with a view to correcting any error of refraction that may exist by proper spectacles.

A few other points occur which I wish to notice, viz. :—

1. That in twenty-three cases only could I obtain any family history as to fits.

2. The marked severity and frequency of frontal headache, I found about sixty-five per cent. suffered from this ; vertical headache came next in number but never appeared so severe as the frontal form.

3. That in about sixty-seven cases the pupils were more or less dilated, and in a large proportion of these, their reaction was lazy ; in about six cases the pupils were more or less contracted, and the remaining twenty-seven patients appeared to be normal in every way.

4. That in five cases I found lens opacities of apparently congenital origin.

5. That pulsating veins and physiological cups were very frequently observed.

could not be induced to talk or manifest the least interest in what was going on around him. A pinch or prick of the skin was unnoticed. My first impression was that it might be a case of stuporous insanity or of melancholia attonitia. But upon learning the history of the case and observing its subsequent developments, I became convinced that the phenomena manifested were those of hysteria.

History.—Charles Gibson, mulatto, aged 14. Up to the beginning of his present trouble he was regarded as an unusually bright and intelligent boy, but full of mischief and animal spirits. In 1889 he went to Washington, where he lived with a relative for three years, until September, 1892, when he returned to Pittsburg. Two years before his return here he met with an accident which marked the beginning of the disease from which he now suffers. He was engaged in a dispute with a companion, who, becoming angry, struck him on the head with a heavy iron rod, inflicting two wounds over the posterior part of the left parietal region, as witnessed by two scars close together, one-half and three-quarter inches long respectively. The boy, who was rendered unconscious by the blow, was carried to a place of retirement, where he recovered consciousness and was attended by a physician who sewed up and dressed the wounds. It was not thought at the time that a fracture had been produced. The lad apparently made a good recovery without sequelæ. But a few weeks after the injury he was taken with a spell of "mutism," preceded, however, for a few days by symptoms of giddiness. These spells occurred regularly once a month until a few weeks before I saw him, since which time they have occurred about every two weeks. The spells were characterised by complete apathy, and always lasted exactly eight days—never a longer or shorter period. During the attacks the boy could not be induced to talk or move, or in any way notice his surroundings. He passed his urine and fæces in bed. He would take no food, but drank some water during the attacks. Towards the end of the attacks the tongue and lips became dry, the teeth covered with sordes, and the breath very foul. The skin was cold, clammy, and the bodily weight evidently diminished. He states that he could remember much that was said to him while he was "under the spell." The beginning of the interval was always characterised by a returning desire for food, which, in a few days, amounted to a voracious appetite. For a few days he would eat an amount of food which would suffice for two able-bodied men.

During the intervals the boy was full of spirits, exceedingly bright and intelligent, up to all sorts of tricks and mischief. His cousin states he is "full of the devil."

Present State.—On November 30, 1892, I carefully examined the lad during one of his intervals, while he was at his best. I found him to be an unusually bright, intelligent boy, with excellent manners (such as might have put many white boys to shame). A search for morbid sensory and motor phenomena was entirely fruitless. An examination of the head revealed the presence of the scars already referred to. They were not painful. No depression in the skull could be discovered.

December 3, I hypnotized him by the suggestive method, as employed by Professor Bernheim, of Nancy, with the greatest ease. I suggested that the medicine I was giving him (a placebo) would be of great benefit to him.

December 5, hypnotized him in the presence of Drs. Koenig, Stewart, Barham, and McKennan. Arms were placed in a number of awkward and unusual positions when it was suggested that they would remain in those positions until removed by me. The arms always were left, until I moved them, in the positions I placed them, and often remained so for a length of time, impossible to be persevered in by any voluntary efforts. I suggested that he should fight, pray, cry, &c., all of which suggestions were obeyed by characteristic movements and attitudes of the hands and arms. Any part of the body was readily rendered anæsthetic by suggestions, so that pin pricks or other painful stimuli were unnoticed. These suggestions were repeated at several subsequent sittings. I then suggested that he would not have his next spell until after Christmas (the next attack was due a few days before Christmas). I did this, reasoning that it would be easier to effect by suggestion, a postponement of the attack than to entirely prevent its supervention. If I was able to effect a postponement of attack, then, I reasoned, this demonstration of power would, at a subsequent time, lend greater weight to a suggestion that the attacks should never return.

December 20, hypnotized; suggestion of December 5 renewed. (The next day I left the city, and remained absent until December 28).

December 23. It was noticed that he was restless, uneasy and wanted to be very industrious at work about the house (always, according to his cousin, a sure sign of an approaching attack).

24th. Loud, noisy, incoherent, calling people by wrong names.

25th. Apathetic ; knew no one except his cousin.

26th and 27th. The same.

28th. I saw him. He was in a semi-stuporous condition, but knew me and called me by name. I administered an emetic of ipecac., which produced free emesis and seemed to waken him up somewhat.

30th. He called at my office, and, except that he was a little taciturn, seemed to be in his normal condition.

The duration of this attack was about five days ; the shortest he had ever had. According to his cousin, it was less severe than any previous one, the lethargy being much less pronounced. The noisy prodroms were entirely new features. On the whole, the cousin pronounced the attack as very different from any he had previously had. As usual, he ate voraciously after this attack.

I again hypnotized him and suggested that he would never have another attack. I passed a very mild galvanic current through his head, from forehead to occiput, principally for its psychical effect. I usually repeated this at his subsequent visits.

January 9, 1893. Hypnotized and told he would never get another attack.

January 21. Called at office with cousin, in a semi-stupid condition. Hypnotized ; suggested that he would be well on Monday (23rd).

January 23. Called at office with cousin, decidedly more stupid than at last visit. Movements sluggish ; face expressionless ; refuses to talk. Rather strong faradic current passed through back and shoulders, causing him to show lively discontent, as evidenced by movements and outcries. He had eaten nothing for two days—nor had he had a movement of the bowels during this period. I sent for a biscuit, which I forced him to eat under threat of applying the strong current to his back. I also administered a drop of croton oil.

January 24. Oil acted, producing several copious stools. Still very lethargic. Called at my office. Breath very offensive ; sordes on teeth and lips. I forced him to eat a sandwich.

26th. Called at office alone ; bright and talkative to-day ; ate and drank freely.

It will be noted that this attack lasted five days. It was much less profound than usual. The boy, instead of remaining in bed throughout it, was, by my orders, kept up, and was compelled to eat twice, although the sum total of the food ingested was trifling.

On the whole both the attacks here described were shorter and less severe and characteristic than usual. The suggestion made before the first of these two attacks was a failure in that the attack came on before Christmas, when it was suggested that it would not come on till after Christmas. Yet its appearance was actually postponed a few days, and when it did come it was quite atypical, of shorter duration and less severe than usual. The suggestions made after the first of these attacks, that he would never have another spell, was largely a failure too; yet it resulted in making the attack which did come of three days less than the usual duration and by far the mildest he had ever had.

In both these attacks I noticed a lowered state of vital tone as shown in many ways. The skin was cold and clammy; there were sordes on tongue, lips and teeth; the breath was very offensive; there was an appreciable diminution in bodily weight; the pulse was slow and sluggish; the excretion of urine and fæces was markedly diminished.

I was greatly disappointed in not being able to continue my treatment and observations in the case, but I was prevented from doing so by a curious circumstance, which throws some light on the character of my little patient.

Soon after recovering from the second of the attacks described, he called at the police head-quarters in Pittsburg and told a pitiable story, relating that he had been lost in the city by his mother, who had travelled on to Washington. He told his tale so well that his story was readily credited, and he was furnished by the police department with a ticket to Washington. He then went home, secretly packed up a few effects and at once proceeded to Washington, and has since made his home with a relative in that city. The authorities at the police head-quarters were greatly astonished when they learned they had been duped, as they stated that the boy's earnestness of manner and the entire plausibility of his story had been such as to disarm suspicion in any one.

I suspect that the lad was moved to resort to this piece of stratagem through fear of further coercive measures in treatment. Moreover, he had heard some talk of an operation being performed on his head, and I have reason to believe that he dreaded this radical procedure would be executed.

The scars on the head were not painful. No hysterogenetic zones were discoverable. Yet the attacks of lethargy in themselves; the absence of all objective symptoms; the mannerisms and *morale* of the boy, together with his extreme susceptibility to

hypnotism; and lastly (and of great significance) the marked modification in character and duration of the two attacks brought about by hypnotic suggestion, indicated that the attacks were hysterical. Moreover, the masterly treatise on "Hysteria," by Gilles de la Tourette, reviewed in a recent number of *BRAIN*, seem to conclusively show that these sleep phenomena belong to the manifestations of hysteria. This view is confirmed by Prof. Hitzig's opinion, and to it I would add the feeble weight of my own approval.

With these meagre and unsatisfactory report and remarks I will conclude what I have to say, leaving you, gentlemen, to make any further conclusions or deductions, or to take issue with those I have made.