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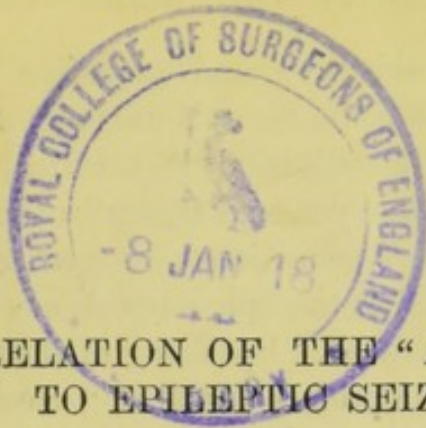
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ON THE RELATION OF THE "AURA" GIDDINESS TO EPILEPTIC SEIZURES.

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THE feeling of giddiness occurring as a "warning" or aura before epileptic seizures has been long known, but as far as I have been able to ascertain I have failed to find, in the writings on the subject, an account of any association or relation between the character of the giddiness and the commencement of the ensuing seizure. I shall endeavour in this paper to show that there is some relation between the direction of the apparent movement of the patient and objects surrounding him and the initial rotation of his head at the commencement of the fit.

I think it probable that this apparent movement and the initial rotation are usually in the same direction, or, in other words, that objects appear to move, and the patient feels himself to turn in the *same* direction as his eyes and head are actually drawn in the commencing tonic spasm.

In Vol. III. of 'BRAIN,' p. 192, Dr. Hughlings-Jackson has contributed a valuable paper "On Right or Left-sided Spasm at the Onset of Epileptic Paroxysms," and in speaking of vertigo *in the sense of there being apparent displacement of objects to one side* as occurring in those paroxysms in the first part of which the convulsion is right-sided, Dr. Hughlings-Jackson does not commit himself to any fixed conclusion on the matter. He writes: "I dare not state it as a fact, but my impression is," &c. He dwells on the difficulty of getting trustworthy information from the patient or his friends as to the side on which the initial spasm began or preponderated at the onset of epileptic paroxysms. He mentions various ways

in which the terms subjective and objective are used by medical men, and states how he himself uses them. Admitting and illustrating that the division is arbitrary, he groups vertigo, colours before the eyes, and noises in the ear as crude developments of objective sensations; he groups smell, taste, and the sensation referred to the epigastrium, as crude developments of subjective sensations. Speaking of the so-called "intellectual aura," or, as he prefers to call it, "dreamy state," he says that, if there be also a crude sensation, it is nearly always one of smell, taste, or it is the epigastric sensation. A crude sensation of taste, is very rare, but movements of chewing or tasting are not uncommon with the "dreamy state," and are, he thinks, indirect consequences of discharge of central gustatory elements. With the "dreamy state" there may be vertigo in the sense of the patient himself seeming to turn to one side, or there may be "alteration" in the distance of objects in front of him; there is rarely, he thinks, along with the 'dreamy state' vertigo in the sense of apparent displacement of external objects to one side.

Dr. Mercier has described a case of epilepsy in the last (October) number of 'BRAIN' in which the patient, who had attacks beginning in the left side, experienced the sensation of vertigo in the form of feeling herself turning from left to right, accompanied by noises in the ears. In this case he finds that the vertigo and other sensations felt by the patient were of the objective order, and yet were associated with spasm commencing in the left side, which, as he states, happens to be the wrong side according to the hypothesis that objective sensations are usually associated with attacks beginning on the right side.

I have lately, in the out-patient department of the National Hospital for Paralysed and Epileptic, been investigating the cases of epileptic patients complaining of giddiness before a fit. The word "giddiness" may be taken to mean the apparent movements of objects round a person, or the feeling of the person himself moving round, or these two combined.

The cases, which I found presented the "aura" of giddiness, are seventeen in number. In none of them does the patient state that he feels as though he went the opposite way

to which the objects seem to him to move. In eight cases they complain of feeling themselves and also external objects rotating round from right to left, and nine feel themselves and objects moving in a similar way from left to right.

I have endeavoured to ascertain whether the direction of the apparent rotation of objects and of the patient himself could be found to have any relation to the side on which the initial spasm of the epileptic seizure took place, or, in other words, to find out, in those cases, where the fit begins by giddiness and the feeling of revolution of the patient and objects in one direction—say to the right,—whether the attack begins with actual rotation of the patient's head to the right or to the left side, and whether the spasm begins in the right or left hand.

I think that great stress is to be put on this point (the initial rotation of the head) as a means of determining the starting-point of the fit, for in ordinary bi-lateral epileptic fits it is often quite impossible to find out from the friends, which side of the body is the more convulsed during the clonic stage, whereas the rotation of the head, which is usually present, can be more easily recognised by the friends, especially if they are requested to observe it.

In the above cases in which the vertigo occurred from left to right, in five the fits have commenced on the right side. Of these one patient, who complains of giddiness with apparent rotation of herself and objects towards the right, was an in-patient in the hospital, so that the nature of the attacks was carefully noted, and it was seen that the fit began with turning of the head and eyes towards the right; she was then convulsed on both sides of the body, and I noted immediately after the fit that the right knee-jerk (patellar tendon reflex) was more marked than the left, and that ankle-clonus was obtained better on the right than on the left (see "Knee-jerk after Epilepsy," 'BRAIN,' April 1882), thus showing that the right side of the body was more affected than the left. In another case with a similar warning of giddiness (this patient after another fit has said that she alone seemed to move to the right, and not objects), the friends state that the head turns to the right, the right arm is drawn up, and the patient is convulsed on the right

side more than on the left. Another patient states that she feels that her mouth is drawn to the right, and that she experiences apparent rotation of herself and objects towards the right; she is also convulsed more on the right side.

I may here say that I have not any record of, what I may call, right-sided vertigo, accompanied by "subjective" sensations, but this is a point on which I cannot speak with any certainty without further data.

In all the cases where giddiness occurred with apparent movement of the patient and his surroundings from right to left, the fits have begun on the left side of the body, and in most cases the head has turned to the left in the initial tonic spasm. One patient volunteers the statement that he feels the left corner of his mouth to twitch, and, according to his friends, at the beginning of the fit his head turns to the left and his left arm is drawn up. Another patient has repeatedly told me that she and the room seem to go round to the left; this is preceded by a sensation of sickness, shooting from the epigastrium to the head. Sometimes, however, she alone feels herself to go round, and not the objects around her, and describes herself to be "so lost" as not to be able to see any objects moving. Her fits begin with rotation of the head to the left. In addition to the left-sided vertigo, another patient feels "funny" and giddy, and as she turns to the left she has the sensation of seeing balls of red, yellow and green in the order mentioned. Her fits commence by the head turning to the left and drawing up of the left arm. This patient, moreover, is very spiteful *before* the fits. Again, a patient had the first fit after a blow on the right occiput; he has now tenderness to percussion on that spot, and sometimes experiences pain there for some days before a fit. He has giddiness with apparent rotation of himself and objects to the left, and his fits begin on the left side. Another patient feels "lost" and faint with the double feeling of left-sided vertigo with actual rotation of head to the left.

Altogether there are twelve patients in which the apparent rotation of themselves and objects is in the same direction as the initial clonic spasm, seven of these being to the left and five to the right. Besides these there are four patients, who

differ from the foregoing in the relation of the direction of the apparent rotation to the initial spasm. These four feel the rotation of themselves and objects to the right; one is described by his friends as being convulsed "all to the left;" another has his head drawn to the left and "struggles round to the left side;" a third case has the sensation of objects and herself turning to the right, and her friends state that the head turns to the left, that the left arm is drawn up more than the right, and the left side is convulsed more than the right. A last case, who is sure that objects and herself seem to go to the right, has left-sided fits, beginning with tingling and drawing up of the left foot, her head turns to the left, and in the fits she is convulsed left more than right. These last two patients are the only ones which entirely oppose the majority of the cases, in that right-sided vertigo is associated with a distinct left-sided spasm, the other three opposing cases not being in any way so certain. I am unable at present to give any explanation why these patients differ from the majority of the cases. One other patient has the sensation of apparent movement of himself and objects from right to left, but I have not yet obtained a definite account of the character of his fits.

In the above cases it is very difficult to be absolutely sure of the facts, when one has to depend so much on the statements of patients and their friends; and as spontaneous statements are worth very much more than answers to questions which are more or less leading, I have avoided as much as possible asking questions which would prompt the patient to give answers in harmony with one's preconceived notions. It is sometimes, however, almost impossible to avoid assisting the patients in their answers; as, for instance, a patient volunteers the information that he feels giddy before a fit, but if he is asked what he means by giddiness, he answers, as though the word giddiness expressed all that could be required or be possible to know, and he is quite unable to explain himself further; on this I usually ask whether he means by giddiness the feeling of faintness or whether he experiences any movement, when perhaps he will jump at the question and say immediately that he swims round or the

room seems to go round; I then point to the window and ask which way it would go in his giddiness, and also make him put himself in the direction in which he would feel himself to be moving.

Sometimes, however, patients, in answer to the question, how they know that a fit is coming on, will say at once, "The room goes round," or "I go round and round," and then the direction can be ascertained without any fear of putting prompting or leading questions.

Notwithstanding the difficulty of proving the correctness of the patient's statements, I think that the large number of seventeen cases, all of which agree in stating, that they and objects appear to move in the same direction—to the right or to the left—must make it highly probable that their statements are true, and that, when patients experience giddiness and the movement of themselves or external objects at the onset of an epileptic fit, they, as a rule, feel to go in a definite direction, and probably objects seem to them to go the same way as they themselves; and further, that in most cases the primary tonic spasm does begin in the corner of the mouth or in the hand and arm on the *same* side towards which the apparent movement of the patient and his surrounding objects takes place. Some of the patients' friends have answered so decidedly my questions, as to which side or part is first affected in the fit, that I cannot but believe that their answers are correct.

I think I ought to mention, that in these cases I have referred to the feeling of giddiness associated with that of movement, either of the patients themselves or of external objects, in a horizontal direction to the right or to the left. I am therefore not referring to those cases, where the patient feels faint or sick, and calls that giddiness, or, on the other hand, to those cases where the patient describes that, as the fit begins, he merely feels his head being drawn round, to one side or the other, but without any giddiness. This feeling is similar to the sensation of the arm and hand being drawn up at the commencement of a fit, and may be unattended with any feeling of giddiness, though of course the two conditions may and do exist together.

In some of my cases the patients express different opinions as to whether the whole of their bodies or only a part seems to move. In some cases of giddiness the head alone feels to turn to one side while the rest of their body does not seem to them to move. I have not as yet been able to get any definite data in these cases, or to find anything to account for the whole body, or the head only, being affected with the apparent movement.

I should state that none of the patients mentioned above have complained of deafness or noises in the ears accompanying the giddiness, and therefore do not come under the class of cases mentioned by Dr. Ormerod in his paper "On Epilepsy in its Relation to Ear Disease," published in the number of this Journal for April 1883.

In connection with the subject of giddiness and movement of the eyes, I would refer to two cases of auditory vertigo, recorded by Dr. Hughlings-Jackson, one of which was published in the number of this Journal for April 1879. In this case the patient's eyes moved during a paroxysm in jerks towards the right side, and he described external objects as seeming to him to move from left to right—in fact, in the same direction as his eyes jerked. A communication from Prof. Donders was read at a meeting of the Ophthalmological Society in 1881 commenting on this case, but as space will not allow me to enumerate his various arguments, I would refer those who are interested in the subject, to vol. ii. p. 213 of the Ophthalm. Soc. Transact.

The other case, which was read by Dr. Hughlings-Jackson at the same Society, in January 1883 (Ophthalm. Soc. Transact. vol. iii. p. 261), was that of a woman who suffered from disease of the right ear, probably set up by infantile otorrhœa, and in whom pressure on the right tragus caused giddiness and a tendency to fall to the left side, and at the same time the eyes moved slowly to the left and came back with a jerk to the right. It was particularly noted that the patient described the apparent movement of external objects from right to left to occur at the moment that the eyes were seen to move slowly to the left, and not when they jerked quickly back again to the right.

Whatever may be the explanation of these two cases, and what bearing they may have on the subject of this paper, I have mentioned them for their great interest, and with the hope that they might support the cases mentioned in this paper. The difficulty is increased by the fact, that in the man the apparent movements of external objects occurred with the rapid jerks of the eyes, and in the woman they occurred with the slower movements of her eyes and not with the rapid jerks. Now in epilepsy one of the most marked motor symptoms at the beginning of a fit is the conjugate rotation of the eyes and head towards one side, and this side—right or left—is the one on which the patient is subsequently in the clonic stage the more convulsed. It is, therefore, rather remarkable, I think, that so many of the cases in this paper—twelve out of seventeen—have felt themselves and the room to go round in the *same* direction as that in which their eyes and head have been seen to turn as the fit began. In fact, these cases seem to agree with Dr. Hughlings-Jackson's first case, concerning which, to use Dr. Jackson's own words, "some of his friends told him that the eyes 'could not' have been moving in the same direction towards which the objects were displaced, and that he must have observed wrongly." I had hoped that the cases I have seen might help to confirm what Dr. Jackson described in his two patients, or perhaps only in the case of the man.

If the statements made by these patients and their friends are true, that in the majority of the cases the apparent movement of the patient and his surroundings is in the same direction as the initial spasm, it is very difficult to explain why this should be so, and I cannot pretend to be able to give an explanation.

I cannot see why there should be any reason to presuppose that objects *ought* to move in the contrary direction to the patient's head and eyes, or why he ought to feel himself going in the opposite direction in which the room seems to go. Our common ideas of giddiness can be produced by prolonged movements of ourselves or of objects before our eyes, and it seems to me that they are different to the feelings of giddiness before epilepsy which are of central origin.

To take two examples of induced giddiness: If one turn

round on one's heel several times from left to right until giddiness is produced, it is said that the room goes in the opposite way, but in reality, as one turns from left to right, the room seems to rush past one from right to left, and when one stops turning, the room still seems to move in the *same* direction, viz. from right to left, while the experimenter feels himself going in the same direction in which he originally turned himself. The feeling of nausea, I find, is much increased if the eyes be kept looking on the ground, the head being bent down, so that the chin touches the sternum and the vertex looks forwards; and if the person then turn himself from left to right, and then on stopping raise his head to the erect position and look at the opposite wall, the phenomenon quoted by Dr. Bradbury ("On Vertigo or Dizziness") from Purkinje is seen, and the movements of the floor are transferred to the wall, which appears to rotate in a direction opposite to those of the hands of a watch; thus seeming to show that the impression of the movement of the floor is reproduced in the same direction on the wall.

On the other hand there is the phenomenon first noticed by Brewster and Addams, referred to in 'BRAIN,' October 1880 ("Optical Illusions of Motion," by Dr. Silvanus Thompson), that when one looked out of a railway-carriage in motion at the ground for some time, and then closed the eyes, undistinguishable forms and patches of light were seen to go before the eyes in the opposite way to which the ground had appeared to be rushing past the eyes.

Addams noticed that when a waterfall was looked at for some time and the eyes were suddenly turned to rocks close by, these appeared to move upwards in a direction opposed to the waterfall. These two latter experiments have been explained by an "unconscious slipping of the inferior and superior recti muscles," but they are more probably due, as Dr. Silvanus Thompson thinks, to a complementary reaction of movement to the eyes, which are tired by a continual movement in one direction.

In the case of turning oneself round on one's heel, the auditory apparatus cannot be excluded from having a share in the giddiness produced, but whether they could counteract

and modify the ocular vertigo, I am unable to say. Unless we can explain these two different results I do not see how we are to presuppose any definite direction in the apparent movement of the patient or his surrounding objects when he feels giddy before an epileptic seizure.

I shall endeavour to pursue the subject further, as I am sure there is a great deal more to be found out in these complicated phenomena.