

On ocular movements, with vertigo, produced by pressure on a diseased ear / by J. Hughlings Jackson.

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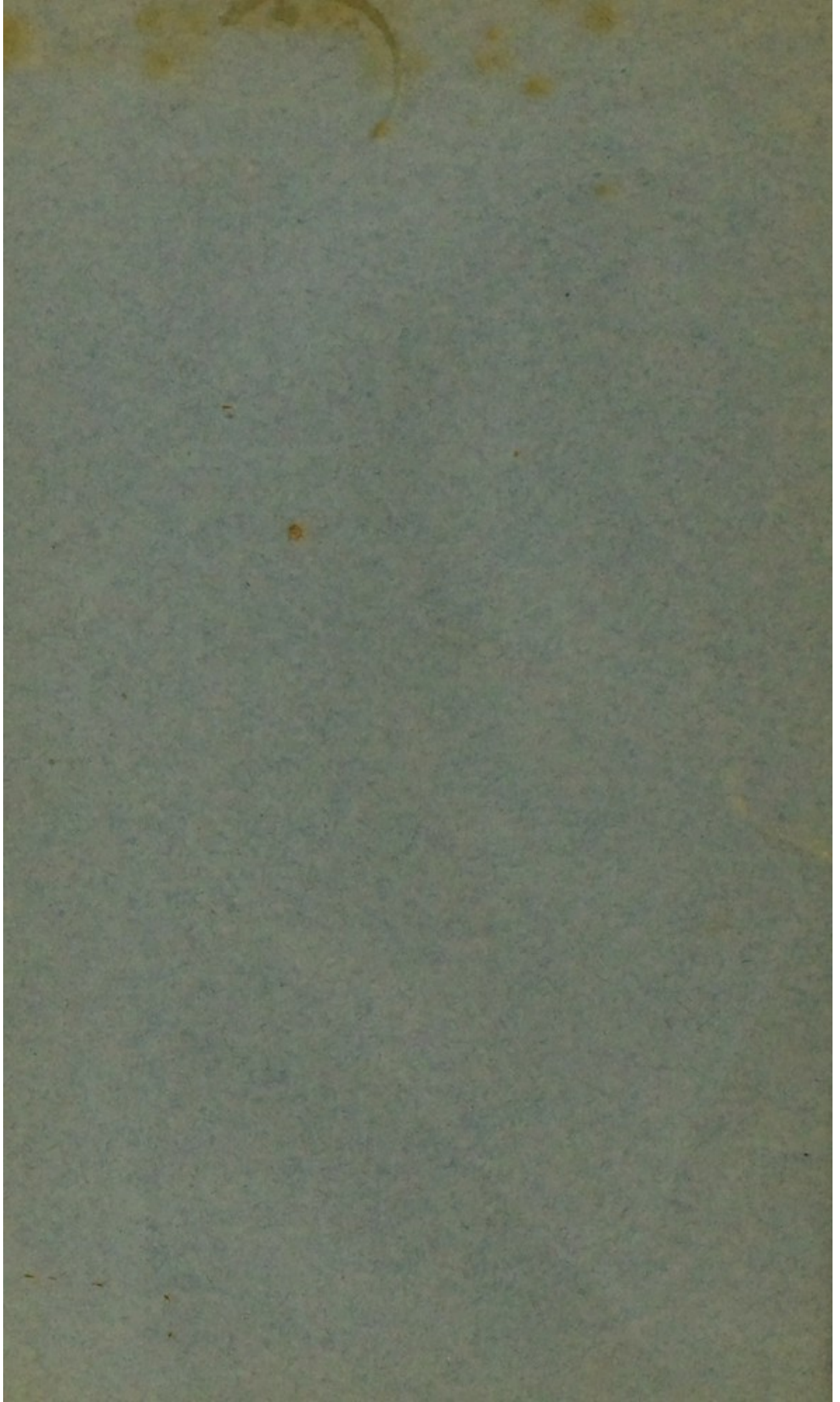
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*On ocular movements, with vertigo, produced by pressure
on a diseased ear.*

By J. HUGHLINGS JACKSON, M.D., F.R.S.

IN the last volume of our 'Transactions' reference is given to some observations I made on a patient during his paroxysm of auditory vertigo; during it the eyes jerked to the right, and at the same time external objects seemed to him to move in that direction. There is in that volume a communication by Donders on the subject of movements of the eyes in relation to apparent movements of objects. In the case I have to relate to-night no paroxysm was seen, but pressure on part of a diseased ear was invariably followed by ocular movements; the patient had at the same time apparent displacement of objects; perhaps we may say that slight paroxysms of auditory vertigo were in this case artificially produced, as they seem to be in some people, by syringing the ear. Schwalbach has recorded an essentially similar case; a summary of his observations by Clarence Blake is reproduced in 'Brain,' for April, 1879. I have to thank Mr. Laidlaw Purves and Mr. Couper for great help in the investigation of the case. I now proceed to detail.

A woman, æt. 49, consulted me November 23rd, 1882, for giddiness and irregular walking; these symptoms had existed for about three months. She had had disease of the right ear since childhood; at no time had she had

noise in it, but had had some in the left ear, which was, except for this, apparently healthy. She had had severe "bilious" attacks, clearly, by her account, paroxysms of auditory vertigo; she had also occasionally very slight and transient paroxysms of giddiness without sickness. There was also a chronic condition, since the so-called bilious attacks she often walked as if drunk, and was therefore ashamed to walk in the street. She would sometimes, when washing the right ear, stumble to the left. I could not ascertain that her general vigour had lessened before her illness began. She had missed one menstrual period.

She told me that pressing on a certain part of the ear (the tragus) made her giddy, and produced a disagreeable feeling in her head, "something coming over the brain." When I pressed on the tragus I saw her eyes move from side to side, and she told me that objects "went" from right to left; she did not see them coming back again. She also felt a falling towards the left side. On stopping the pressure the eyes were again still. I could make them move whenever I liked. The two movements, one to the left, which was the first, and one back, were not so different in rate as in the case, already alluded to, of the man who had a paroxysm of auditory vertigo. In the woman's case, however, the eyes passed more slowly from right to left than they came back—that is, they came back to the right more jerkingly. The apparent movement of objects to the left coincided with the slower movement to the left, not with the jerk to the right. I sent the patient to Mr. Laidlaw Purves, who confirmed my observation as to the ocular movements. He reported also on the state of the ear. The right meatus was full of pus. The membrana tympani could not be seen. The watch could not be heard on the right side. The tuning-fork was heard one third less when placed on the mastoid; pressure on the pus, as well as on the tragus, caused the ocular movements. Mr. Purves reported, later, "There is a swelling on the upper wall of the meatus, caused almost certainly by some osseous affection from

old otorrhœa of childhood. The ear is, however, so sensitive to interference, and the meatus is so closed, that the actual condition is as yet not determinable."

December 4th.—She was better; ocular movements were less easily producible. Mr. Purves gathered from the patient that she now saw the objects coming back, and he thought the jerk back (to the right) was slower. I gathered from her that she did not see the objects coming back. I regret this discrepancy of opinion.

✧ About the beginning of January, 1883, Mr. Couper saw the patient and reported as follows (January 4th): "I find the jerks of the eyes most readily evoked by pressing back the tragus, as though to shut it down on the external auditory meatus, with at the same time an upward pressure against the root of the zygoma. The jerks are always horizontal towards her right, and equal as well as simultaneous in both eyes. Generally the sharp jerk to the right is preceded by a slower preliminary movement to her left. This is always so when her eyes happen to be directed either straight in front, or horizontally to her left. The jerks of largest excursion are preceded by proportionally large movements to the left. Movements of widest excursion are obtained when she fixes a distant object above the level of her head. The jerks are shorter when she looks horizontally in front of her, and shortest of all when the axes converge as she looks down at a near object below the level of her head, and, in this last position, some rotatory movements (*i.e.* jerks of upper edge of vertical meridian plane to her right on an antero-posterior axis) are observed. In no other conditions are rotatory jerks present, and when these are well marked the lateral jerks are proportionately absent. No spasmodic or other abnormal movements of her pupils are detected. Both pupils react fairly well both to light and during accommodation. There is $H_{\frac{1}{8}}$ manifest with normal acuteness. For reading I gave $+\frac{1}{16}$ spherical."

I saw her again to-day, January 11. She felt much better, and now she said that to produce the giddiness and

movement of external objects she had to put the finger in the ear, "the nerve seemed to have gone further in." I produced no movement by pressing as before, nor by pressing as Mr. Couper did; but she, by putting her finger in her ear, produced movements of the kind already described but of very slight excursion, about three millimetres. There was a little apparent displacement of objects. Mr. Purves reported to me that the discharge was almost gone. The remedies used were syringing the ear, and quinine in doses of from two to three grains.

It is needless with regard to this case to do more than mention the now old, but very important, experiments of Flourens, on the semi-circular canals. The case, like that recorded by Schwalbach illustrates very well Cyon's experiments on the semicircular canals of rabbits. A summary of Cyon's researches is given by Ferrier in the second number of 'Brain,' and by Croom Robertson in 'Mind,' October, 1878. The researches of Crum-Brown, Mach, and Goltz, are very important in the interpretation of cases of giddiness with ear disease. The observations and conclusions of Menière are well known. I suppose that in my patient the pressure made on the tragus was transmitted by the chain of bones to the contents of the semicircular canals; probably the contents of one or more of these canals was abnormal also. To reach the ocular muscles there must have been propagation of changes from the canals through some part of the central nervous system, cerebrum or cerebellum, or possibly through both. The case is valuable as giving further evidence, if further evidence be needed, that ear disease is one cause of, or factor in producing, vertigo. If such procedures provoke vertigo in a deaf patient who has quasi-spontaneous attacks of giddiness we may convince him that ear disease is the chief factor in his ailment, and in difficult cases they may make the diagnosis more clear to us. They will, I suppose, give valuable evidence, as to the progress of cases. This case supports the opinion of Dr. James Taylor, of Chester, expressed as regards the parox-

ysms of auditory vertigo in the man whose case I recorded ('Brain,') July, 1879, in so far as that the apparent displacement of objects is concomitant with the slower movement and tends to disprove the opinion I then stated, which was, that the displacement of objects is in the direction of the jerks. In the woman's case the displacement was not in the direction of the jerks to the right, but in that of the slower movements to the left.

I may be permitted to mention some recent important observations. Dr. James, of Boston, has pointed out ('American Journal of Otology') that deaf mutes are much less liable to vertigo on rapid rotation than the healthy: many deaf mutes are not made giddy at all by this means. He thinks from his observations that they have a comparative immunity from sea-sickness. The horrible depression occurring in paroxysms of auditory vertigo is likened by some of the patients to that in sea-sickness. It has occurred to me that disturbances of these canals may be in part to blame for sea-sickness.

(January 11th, 1883.)

P.S.—I saw her last February 27th. She looked well, felt perfectly well, and had gone back to her professional duties.

