**On vertigo or dizziness : its causes, importance as a symptom, and treatment : thesis for the degree of Doctor of Medicine / by J.B. Bradbury.**

ON

# VERTIGO OR DIZZINESS;

## ITS CAUSES, IMPORTANCE AS A SYMPTOM, AND TREATMENT.

Thesis for the Degree of Doctor of Medicine.

BY

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Ἢν ζόφος τὰς ὀψίας σχῇ, καὶ δῖνος ἀμφὶ τὴν κεφαλὴν ἑλίσσηται, καὶ ὦτα βομβέῃ ὅκως ῥεόντων καναχηδὸν ποταμῶν, ἢ οἷον ἄνεμος ἱστίοισι ἐγκυβερνῇ, ἢ αὐλῶν, ἢ καὶ συρίγγων ἐνοπή, ἢ τρισμοῦ ἀμάξης ἰαχή, ὀνομάζομεν σκότωμα τὸ πάθος.

ARETÆUS, περὶ Σκοτωματικῶν.

BY all medical authors, both ancient and modern, vertigo has been regarded rather as a symptom of other affections than as a disease *per se*. Cases are met with, however, both in public and private practice, in which giddiness is so prominent a symptom that patients are frequently unconscious of suffering from any other ailment until they are closely interrogated upon the matter.

Dr Copland states that "on some occasions vertigo is as much a primary affection as headache[1]."

Dr Wilks also asserts that "there is a disease to which the term simple vertigo must be applied, where it constitutes the sole malady from which the patient suffers[2]."

For the last two years I have collected cases in which vertigo has been the chief symptom to strike the patient's attention, and I have been most careful never to put the direct question, "Do you feel giddy?" but in every case the complaint of vertigo has been a voluntary statement on the patient's part.

[1] Copland's *Dictionary*, Art. 'Vertigo.'

[2] Lecture on Epilepsy, *Med. Times and Gazette*, Jan. 23, 1869.

My plan will be to consider, (1) the physiological and pathological states which induce vertigo, shewing that the proximate cause of this affection is in the majority of cases a disordered cerebral circulation; (2) its importance as a symptom, or prognostic value; and (3) to point out that in its treatment we must be guided chiefly by the various causes which induce it.

Vertigo may be defined as an *illusion* of the senses, in which objects, although stationary, appear to move.

Everyone must have experienced in his own person the sense of vertigo, after turning rapidly round on his own axis, as in waltzing; the head feels confused, the balance of the body is lost, or is with difficulty maintained, and external objects appear to whirl round. The Turkish Dervises are said to be able to perform any number of revolutions without feeling giddy. (Darwin's *Zoonomia*, 1795, p. 231.)

If the eyes are closed no vertigo is felt, but there is occasionally a confused feeling in the head.

From the experiments of Purkinje it appears "that the direction which the revolution of the images shall take can be regulated by the position of the body, and particularly of the head, while turning round, and by the position of it afterwards, when the experimenter has ceased to turn round. If the experimenter have kept his head in the ordinary vertical position while moving round, afterwards when he stands still with his head upright, the objects appear to revolve in the horizontal direction. If while turning round he hold his head with the occiput upwards, and then raise it when he stands still, the objects seem to rotate in a vertical plane.

From this remarkable result Purkinje infers that turning of the head and whole body gives to the particles of the brain the same tendencies to particular motions as the particles of a revolving disk receive, and that this disturbance of their state of rest is manifested by the apparent

movements of vertigo." Müller's *Physiology* by Baly, Vol. I. p. 848.

A better explanation, and one which is supported by what takes place in fainting and anæmia, has been given by Todd and Bowman (*Physiological Anatomy*, Vol. I. p. 369). These physiologists attribute the sensation of giddiness to the irregular distribution of blood to various parts of the brain, or to an alteration in the quality of the blood. The giddiness which precedes fainting is due to a temporary deficiency in the supply of blood to the head. If the head of the patient be placed lower than any other part of the body, the fainting fit may be prevented, or even if the horizontal position be adopted the impending syncope will pass off.

Anæmic patients frequently feel giddy on rising from the recumbent to the upright position, owing either to the influence of gravity on the blood contained in the cerebral vessels, or to the heart's action being too feeble to fill the cerebral blood-vessels. [Drs Kellie, Abercrombie, and John Reid, maintained that the quantity of blood in the cerebral vessels is not affected by gravitation, and consequently is uninfluenced by the posture of the person. Drs Burrows and Donders hold views directly opposite to these.]

Giddiness was one of the effects of compressing the carotids in six men, as related by Drs Kussmaul and Tenner. (*On Epileptic Convulsions from Hæmorrhage.* New Sydenham Society, 1859, p. 28.) In all the six men there was pallor of the countenance; first contraction, then dilatation of the pupils; slow, deep and sighing respiration; then there was giddiness, staggering, and unconsciousness; and the patients would have fallen had they not been supported.

A sudden diminution of pressure upon the encephalon by blood circulating through it is thus proved experimentally to be one of the causes of vertigo; the same result

also follows the lessening of the pressure upon the brain by the withdrawal of the sub-arachnoid fluid. Cruveilhier's experiment of allowing the spinal fluid to escape by puncturing the sheath of the dura mater of a dog between the atlas and occipital bone, affords an illustration of the latter; for as soon as the fluid is allowed to accumulate again the giddiness begins to pass off.

Dr Handfield Jones says, that the vertigo felt after rapidly turning round is not owing to any change in the circulation or in the external pressure, but is due to a dynamical derangement of the cerebral structure; and his opinion might at first sight seem to derive support from the fact that every possible provision is made in the cerebral circulation to prevent any undue pressure, or the opposite state, upon the brain tissue.

It has recently been shewn by Professors Robin and His that a series of perivascular lymphatic sheaths enclose spaces around the cerebral vessels, and are seemingly specially adapted to admit of variation in their fluid contents. Although there may be some justification theoretically for the assumption that the fluid of these perivascular canals will increase and decrease inversely with the quantity of blood, yet, as it has still to be shewn that these vessels are in direct communication with reservoirs *without* the cavity of the cranium, we are not entirely justified in concluding that "what the liquor cerebralis does for the brain as a whole, that the perivascular fluid does for each separate portion of the central organs." (Vide *Journal of Anatomy and Physiology*, May 1867, p. 351.)

Dr Bastian writes as follows, and I entirely agree with him: "We believe observation and experiment alike shew that the amount of blood existing within the cranium may be subject to great variation, and that the peculiarities of the cerebral circulation have been much overrated." (Reynolds' *System of Medicine*, Vol. II. p. 423.)

The sensation of vertigo would seem to be connected with vision and a want of adaptation in the muscular apparatus of the eye. A feeling of giddiness is experienced by some persons when walking at a considerable elevation, as on the edge of a cliff. Others even feel the sensation when remaining stationary at a considerable height. Mayo says, "we lean upon our eyesight as upon crutches," and this statement would seem to be borne out by the above cases, in which there were no objects at hand to break the line of vision and support the gaze. The rope-dancer learns to maintain his equilibrium by the sight of distant objects and by the cultivation of his muscular sense (R. Reynolds). The giddiness of sea-sickness can be materially diminished by gazing steadily at a fixed point or line, such as the line of the horizon. Flourens produced vertiginous movements in pigeons by blindfolding one eye.

Giddiness is produced by certain sedatives, such as prussic acid, tobacco, and conium. According to Dr Pereira, an over-medicinal dose of hydrocyanic acid produces the following symptoms: "disordered and laborious respiration (sometimes quick, at others low and deep), pain in the head, *giddiness*, obscured vision, and sleepiness. In some instances faintness is experienced." Dr Pereira was of opinion that these symptoms were due to the hydrocyanic acid producing cerebral anæmia.

Tobacco, in large doses, produces in the human subject, among other symptoms, sudden giddiness (Guy).

Conium, in full medicinal doses, according to the recent experiments of Dr John Harley, occasions confused vision and a sudden feeling of giddiness. These symptoms are attributed, by this physician, to impairment of power in the muscles employed in the adaptation of the eye; for so long as his eyes were fixed on a given object the giddiness disappeared; but the instant his eyes were directed to an-

other object all was haze and confusion, and he felt giddy. (Vide *British Medical Journal*, March 28, 1868.)

Irritation of the auditory nerves is stated by Dr Brown-Séquard to produce vertigo. When cold water is injected into the ear he is of opinion that the cold acts in a reflex manner on the blood-vessels, producing temporary anæmia and a disordered cerebral circulation and nutrition of the brain, resulting in the production of vertigo. (Vide *Physiology of Nervous System*, p. 195.)

M. Flourens discovered that injury of the portion of the auditory nerve proceeding to the "semicircular canals" in pigeons would occasion vertiginous movements. Vide Carpenter's *Comp. Physiol.* 4th ed. p. 691.

The importance of these physiological data will be better appreciated when I come to speak of the pathology of vertigo, and I hope to shew that they furnish the only guide to the rational treatment of some forms of this affection.

## Pathology.

I pass on now to consider the pathological states which induce Vertigo.

Vertigo is in some cases symptomatic of various diseases, in others *essential*, that is, the patient complains of giddiness, and we are unable to find any adequate cause for its production.

Giddiness is frequently associated with the following diseases:

1. Anæmia.
2. Prolonged Lactation.
3. Amenorrhœa.
4. Menorrhagia.
5. Rheumatism and Gout.
6. Plethora and suppression of long accustomed hæmorrhage.

7. Morbus Cordis.
8. Dyspepsia and Intestinal flatulence.
9. Embolism of Cerebral arteries and Atheroma of arteries of the brain.
10. Certain affections of the Ear.
11. Epilepsy (*petit mal*).
12. Adventitious products in the brain.

It is also frequently produced by excessive smoking and drinking, masturbation, certain affections of the vaso-motor nerves, &c., &c.

Most of the exanthemata are ushered in by Vertigo, also cerebro-spinal meningitis, influenza, &c., &c.

During the unusually hot summer of 1868 three cases of sun-stroke were admitted under my care in Addenbrooke's Hospital, in all of which cases giddiness was a very prominent symptom. In the Medical Journals of the same period several other cases are recorded of patients, who, after being exposed to the heat of the sun, were seized with Vertigo, pain in the head, faintness, &c. These symptoms were probably due to congestion of the brain, and disturbance of its circulation, caused by the solar rays falling on the heads of the patients; for in two of my cases rapid improvement followed the application of cold to the head and sinapisms to the nape of the neck and calves of the legs; at the same time the heads of the patients were kept well raised, and support in the form of beef-tea, &c., was also administered.

In Anæmia (or as it is more properly termed Spanæmia) not only is the mass of blood in the body generally diminished in some cases, but there is also a deficiency of red corpuscles in the blood, which renders this fluid unfit to stimulate the brain. The blood-vessels contract in proportion to the diminution of the blood-mass, and con-

sequently the pressure on the brain tissue is altered. "In extreme cases of Anæmia the heart's action also becomes irregular and the whole circulation generally is disturbed." (Aitken.)

Prolonged lactation gives rise to impoverishment of the blood, as is evidenced by the great pallidity of the skin, and hence the Vertigo in this case is capable of being explained in the same manner as in Anæmia.

Again, in Amenorrhœa and Menorrhagia either the quality or quantity of the blood, or both conjointly, are at fault, and give rise to the feeling of swimming in the head, which patients who suffer from these affections complain of.

I will now briefly relate a case of Vertigo arising from each of the causes above cited.

CASE I. *Anæmia. Vertigo. Neuralgia.*

H. F., æt. 22, s., servant, living at Willingham, admitted into Addenbrooke's Hospital, March 5, 1868, when taking temporary duty for Dr Bond.

For 7 or 8 weeks previous to her admission she had lived on "spoon diet," owing to solid food causing her pain after eating. This weakened her very much, and she began to suffer from attacks of Vertigo, each fit lasting for a few minutes. When admitted she was very anæmic; lips and tongue being very pale, bowels very much constipated, and catamenia very scanty, but regular. A very loud systolic bruit was heard at mid-sternum when she was lying down, but when she assumed the upright posture it was scarcely audible. She complained of everything in the room appearing to turn round. She never lost consciousness. During her stay in the hospital she had a severe attack of facial neuralgia. The attacks of giddiness were much benefited by iron and quinine, and the neuralgia by Ung. Veratriæ.

CASE II. *Excessive Suckling. Vertigo.*

M. A. E., æt. 32, m., mother of 2 children, the youngest 6 months old, admitted out-patient March 11, 1868. Has not been well since her last confinement. Complains of weakness, giddiness, and pain in the head. Her baby is a fine hungry girl, and the mother seems to be suffering from the effects of over suckling. Tongue clean; bowels open. Recommended to wean the baby, and take the following mixture:

℞. Tinc. ferri perchloridi m. x.
Spiritûs Chloroformi m. x.
Infusi Quassiæ ad ℥j. M.
ter die sumend. post cibos.

At the end of a month she was no better although continuing the iron, but she acknowledged that she had not weaned the baby. I, however, insisted on her doing this, and when last seen (June 8) the giddiness had left her, and she felt quite well.

CASE III. *Prolonged lactation. Vertigo.*

E. P., æt. 25, m., mother of two children, youngest 13 months old. Consulted me Dec. 16, 1868.

Complains of weakness and giddiness. She is so giddy that "she does not know how to keep in her chair." Has not weaned the baby, although the catamenia have appeared.

I ordered her to wean the baby, and prescribed gr. iss. doses of Sulphate of Quinine three times a day, and she gradually regained her strength and lost the Vertigo.

CASE IV. *Vertigo. Amenorrhœa. Hysteria.*

J. P., widow, æt. 30, admitted out-patient Feb. 12, 1868. For 4 months has had Amenorrhœa, Vertigo, and costive

bowels. Tongue very foul and complexion very sallow. There was a great deal of hysteria in this case. She first took Citrate of Iron, but this did her no good. I next prescribed Tinc. Valerianæ 3j., Inf. Valerianæ ℥j. ter die, but she derived no benefit from this. When taking gr. x. Pil. Asafœtid. she improved, the giddiness quite left her, but the catamenia did not return. I now recommended her to go into the country, and prescribed Mist. ferri co. ℥j. ter die, and the menses returned, and she got quite well.

CASE V. *Menorrhagia. Vertigo.*

M. A. W. æt. 39, m., and has had 11 children, admitted out-patient March 25, 1868.

For 11 months has had Menorrhagia, the catamenia continuing 9 or 10 days at each "period," and recurring every 3 weeks. During the last 5 or 6 months has felt very weak and giddy, the giddiness being always worst on first rising in a morning. Appetite bad, bowels regular. Has suffered from headache ever since she could remember. Pulse 90, feeble.

℞. Tinc. ferri perchloridi m. x.
Spt. Chloroformi m. x.
Inf. Quassiæ ℥j. M. ter die s.

She attended twice at the hospital, but being no better, she ceased to be an out-patient.

The connection between Vertigo and Rheumatism and Gout, uncomplicated with heart or kidney disease, or alterations of the structure of the minute arteries, appears to be this. In both these diseases there is reason to suppose that the blood is contaminated with some foreign substance (lactic acid in rheumatism, uric acid in gout), and this substance spoils some of the normal constituents of the blood, and thus renders it unfit to stimulate the brain. Every practical physician is aware that rheumatic patients

often become very anæmic, owing to the destruction of the red corpuscles. Dr Ramskill attributes the Vertigo occurring in persons "who have suffered from latent or slight and irregular gout" to tissue changes in the minute arteries of the brain.

In all the cases of Vertigo associated with Rheumatism of which I possess notes there has been also disease of the heart; still cases are on record in which no abnormal cardiac sound could be heard.

When the central organ of the circulation is affected, and especially if there be disease of the mitral or tricuspid valves, it is easy to see that the normal circulation through the brain would be interfered with. In cases of mitral obstruction or regurgitation the disease acts backwards, and first the lungs, then the right side of the heart, and ultimately the blood-vessels of the brain, become congested, and the fluid in them impresses the nervous matter too much.

In tricuspid disease also the return of blood from the head is impeded, and vascular fulness is produced.

The occurrence of Vertigo in plethoric subjects and also in persons in whom bleeding from hæmorrhoids or from the nose has been suppressed, is likewise due to hyperæmia of the cerebral vessels.

Of all the remote causes of Vertigo, dyspepsia and intestinal flatulence are the most common. Patients after eating an indigestible meal become suddenly giddy, and suffer from several subsequent attacks of Vertigo. In many cases, however, the Vertigo is connected with disorder of the stomach without there being any positive evidence of such derangement. "Such cases are called stomachal because remedies addressed to the stomach cure, and cure readily and quickly." (Ramskill.)

Dr Ramskill thus explains the *rationale* of the symptoms: "Digestion progresses satisfactorily up to a certain

point, when, owing to some temporary cerebral excitement, perhaps of transacting business or deep thought, the process is suspended, and irritation is conveyed to the blood-vessels of the brain, *viâ* the splanchnic or pneumogastric nerves, and a disorder of circulation and of brain nutrition follows, with a corresponding disorder of function of the particular parts of the brain affected. Like causes produce like effects, and moreover in disorders of the nervous system it seems that a perversion of function once induced is easily re-induced, and by slighter causes."

Reynolds' *System of Medicine*, Art. "Vertigo."

CASE VI. *Vertigo. Gout. Gouty Bronchitis.*

J. R., æt. 60, m., rope-maker, living in Cambridge, admitted O. P. Oct. 23, 1867.

*Previous History.* Enjoyed good health till Feb. 1867, with the exception of an occasional attack of gout. For seven or eight months previous to applying at the hospital he had suffered from pain in the temples, over the eyes, and also at the top of the head. He had also been so giddy as to be unable to walk without taking hold of something to support him. A short time previous to the supervention of the giddiness he had felt gouty pains in his hands and feet. P. C. He is a tall, strong-looking man, and the heart's sounds are normal. Tongue rather coated and bowels costive.

℞. Potassii Bromidi gr. viij.
Aq. Camphoræ ℥iss. M. t. d. s.

This was continued for five days without any apparent benefit.

Oct. 28. ℞. Pot. Iodidi gr. iij. ex aquæ ℥iss. t. d. s.
℞. Ext. Colchici acetici gr. i.
Ext. Rhei.
Pil. Hydrargyri āā. gr. iij. M. ft. pil. ij. omni nocte s.

He persevered with the above with slight benefit till Dec. 16, when he had an attack of bronchitis, probably of a gouty character, for which Dr Bond ordered him the following draught.

℞. Liq. Antim. Tart. m. xx.
Vini Ipecacuanhæ m. xv.
Liq. Amnion. Acet. ʒiii.
Aquæ ad ℥iss. M. ft. haustus, horâ somni s.

Dec. 23. Cough and breathing no better. Giddiness as bad as ever.

Habt. Emp. Lyttæ ($2\frac{1}{2} \times 2\frac{1}{2}$) summo sterno.
Linctus.
Pulv. Ipec. co. gr. x. horâ somni s.

Dec. 30. Feels no better than he did when he first applied at the hospital. I now prescribed for him the following mixture, recommended by Dr Greenhow in cases of Gouty Bronchitis.

℞. Potassii Iodidi gr. iv.
Ammoniæ Sesquicarb. gr. iv.
Vini Colchici m. x.
Tinct. Scillæ.
—— Hyoscyami āā. m. xx.
Mixt. Camphoræ ad ℥iss. M. ter die s.

This removed the Bronchitis, but the Vertigo still remaining he was ordered, on Feb. 3, a blister to the nape of the neck, and he was much benefited by it. I advised him to keep the blister open for a short time, which he did.

On the 9th of March he left off all medicine, but I ordered the following liniment to be rubbed into the back of his neck.

℞. Liquor. Ammoniæ ℥ss.
Lin. Camphoræ ad ℥iii. M.

On the 23rd March the giddiness had almost left him,

pulse 66, regular. He wished, however, to continue the liniment, and I also gave him the following mixture.

℞. Liquoris Strychniæ m. iv.
Acidi hydrochlor. dil. m. x.
Aquæ ad ℥i. M. bis quotidie s.

April 6. Discharged very much benefited.

CASE VII. *Vertigo. Rheumatism. Morbis Cordis. Dyspepsia.*

H. B., æt. 59, painter, admitted O. P. Feb. 12, 1868.

Has always been temperate. Ten or twelve years ago had rheumatism, and heart was then affected, as there are signs of his having been cupped over the cardiac region. Pulse 81. Systolic bruit at heart's apex. Three years ago when going to his work he suddenly felt giddy, and 'thought he should have pitched forward on his head.' He had to be supported by his fellow-workmen. He next felt sick and vomited. (He had had no indigestible meal the previous night or that morning.) Previous to this attack he had suffered much from dyspepsia. Ever since he has had giddiness more or less, and has had also rheumatic pains about him. If he held his head down to lace his boots or turned his head suddenly round he was so giddy as to fall.

℞. Magnesiæ levis gr. x.
Bismuthi Subnitratis gr. v.
M. ft. pulv. i. bis die ex lacte s.

Feb. 17. No improvement.

℞. Potassii Iodidi gr. v.
Spts. Ammon. Aromat. m. xxx.
Inf. Gent. co. ℥i. M. ter die s.

Since he commenced to take this medicine the giddiness has gradually diminished, and he has lost his rheumatism.

March 30. Very much better. Bruit at heart's apex still very audible.

April 13. Has commenced work. Is a little dizzy at times.

Pt. Mist.

April 27. Vertigo much less. Cannot work on account of weakness and shortness of breath. Cardiac bruit very distinct.

℞. Ferri citratis gr. v., ex aquæ ℥iss. t. d. s.

May 11. Has lost the feeling of impending syncope, and the Vertigo has again improved.

May 25. For last nine days has had frontal headache and felt very drowsy. Is less giddy. Always feels a pain at his heart. Has eaten a good deal of salad lately, and has rather deranged his stomach.

℞. Acidi Nitro-hydrochlorici diluti m. xv.
Spts. Chloroformi m. x.
Inf. Gent. co. ℥i. M. bis die (11 et 4) s.

June 8. The acid mixture does not agree so well as the iron. Complains of dizziness across the eyes. Vertigo much the same.

Repr. Mist. ferri cit.
Pil. Rhei c. gr. v. p. r. n.

July 6. Has only had one attack of vertigo during the last month. Thinks he is well enough to be discharged. Since his discharge I have several times met this patient in the streets, and he informs me that the giddiness has quite left him. At the end of twelve months he had had no return of the giddiness, although he still complained of an uneasy feeling over the region of the heart.

Transient giddiness dependent upon disorder of the stomach is of daily occurrence, and it would only be a waste of time for me to cite examples of such cases.

Very severe cases of stomachal vertigo are sometimes met with, however, which simulate cases of organic disease of the brain, and it is very important to form a correct diagnosis in such cases, otherwise the treatment adopted may prove the reverse of beneficial. The method of discriminating between such cases will be discussed presently. (Vide an interesting case of stomachal vertigo recorded by Dr Buzzard, Physician to the Hospital for the Paralyzed and Epileptic, in the *British Medical Journal* for Dec. 19, 1868). At the conclusion of the above case Dr Buzzard makes a few remarks on the connection between imperfect digestion and vertigo, which I cannot do better than relate in his own words. He writes as follows:—"It is among anxious persons, engaged in onerous business, that imperfect assimilation leading to such a symptom (Vertigo) was peculiarly apt to occur, and for this reason the affection was one which it was more common to meet with in private practice than amongst hospital patients. Whilst recognizing the influence of the stomach in causing these attacks, he believed that there was always a faulty condition of the nervous system which conduced to them—a condition he thought closely allied to the epileptic.

* * * * * * * *

As evidence of the probable morbid condition of the nervous system in such cases, he mentions that he had seen patients in whom vertigo of precisely similar character was apt to be produced sometimes by faulty digestion, at others through the medium of one or other of the special senses. Amongst such he instances reading as liable sometimes to produce an attack; the rapid change of accommodation in the eye, caused by drawing distant objects, or gazing at moving bodies of troops. Occasionally too, in persons so predisposed, shooting becomes an almost impracticable pastime, owing to the vertigo induced by the noise of the discharge."

Dr Buzzard states that his patient fancied that tea was liable to bring on an attack of vertigo. A case came under my own observation in which the patient ascribed his attacks of sickness and vertigo to drinking tea.

After what has been said respecting the productions of giddiness by compression of the carotid arteries which interferes with the due supply of arterial blood to the brain, it is easy to explain the production of Vertigo in cases of embolism of the cerebral arteries.

In the *British Medical Journal* for March 28, 1868, Dr Wilks relates a case of Pyæmia, the result of endocarditis, in which sudden giddiness and intense headache occurred, with subsequent right hemiplegia and partial aphasia. After death a plug was found in the left middle cerebral artery, the embolism being probably due to the detachment of particles of fibrine or vegetations from the valves of the heart.

The vertigo of old people is in most cases due to atheroma of the arteries of the brain. I shall not here enter into a discussion as to whether atheroma is a deposit from the blood (Rokitansky), or whether it results from a fatty degeneration of the coats of the arteries; suffice it to say, that as a result of this disease of the arteries, defective nutrition occurs in the brain-tissue surrounding them, and the small arteries also lose their property of contractility, which regulates the flow of the blood through the organ.

I have seen several cases of vertigo in old people, which I attribute to an atheromatous state of the arteries, but I regret to state that I have not kept notes of the cases.

This kind of giddiness is very much benefited by $\frac{1}{12}$gr. doses Hydr. Perchloridi given three times daily.

Trousseau and other French writers on medicine have pointed out the connection between certain affections of the ear and vertigo. A very interesting collection of cases has also been recorded by the late Mr Toynbee, in the

1st volume of the St George's Hospital Reports (1866). In his paper Mr Toynbee cites cases in which vertigo was produced by the following causes:—

(*a*) The presence of cerumen and epidermis upon the outer surface of the drum.

(*β*) A foreign body on the outer surface of the drum, *e.g.* cotton wool or the artificial drum.

(*γ*) A polypus on the outer surface of the same organ.

(*δ*) A forcible drawing inwards of the drum from exhaustion of the tympanic cavity in cases of occluded Eustachian tube.

(*ε*) Syringing the ear with cold water.

Dr Ménière, physician to the Deaf and Dumb Institution of Paris, has pointed out that certain cases in which vertigo, sympathetic vomiting, tinnitus aurium, and hardness of hearing are the chief symptoms, are due to disease of the semicircular canals of the internal ear.

The vertigo in all these cases is capable of being explained on the principle of reflex action, the irritation being conveyed from the auditory nerve to the blood-vessels of the brain, and cerebral anæmia being thereby produced.

Giddiness is not so frequent a premonitory symptom of cerebral hæmorrhage or of apoplexy as is generally supposed. It occurs, however, in some cases subsequently to the commencement of the attack, and its occurrence indicates, according to Trousseau, that the patient requires support or stimulants.

I come next to say a few words respecting the Vertigo which frequently precedes an attack of Epilepsy, and which, indeed, in some cases constitutes, along with temporary loss of consciousness, the only symptoms of Epilepsy; hence the name Epileptic Vertigo.

Several cases of this kind have come under my observation in which the patients consulted me for giddiness alone; but on questioning them more closely they acknowledged that they had lost their recollection, to use their own phrase, for a second or two. In some of these cases of *petit mal*, the exciting cause is no doubt an eccentric one, perhaps most frequently a disordered stomach; but the proximate cause is cerebral anæmia, due to constriction of the minute arteries.

The attacks in most cases come on suddenly and without any warning, the patient has a fit of absence as it were. The attack lasts from 2 to 4 seconds, and the patient can then resume his usual occupation, and he is frequently unconscious of what has occurred. At the commencement of the attack the countenance of the patient is very pale; but the pallor in most cases is soon succeeded by lividity. Epileptic Vertigo is in a great number of cases dependent upon syphilis. At the present time I have a patient at the hospital who suffers from this affection, and in whose case there is a clear syphilitic history.

CASE VIII. *Vertigo. Temporary loss of consciousness.*

A. S., æt. 12, errand boy, residing in Cambridge, admitted out-patient Jan. 27, 1869.

His mother tells me that for 12 months he has had attacks of giddiness, sickness, and loss of consciousness for a second or two. 'When the fit is passing off he becomes purple under the eyes.' Bowels very much confined. Tongue clean. For two months has had aphonia. He is a very nervous boy.

℞. Ol. Ricini ℥ss. Statim s.

℞. Pil. Rhei c. gr. v.

semi hor. ante prand. quotidie.

To live on beef, mutton and milk; to take no cheese or pork.

Feb. 1. Has had no sickness or giddiness.

Pt. Pil. Rhei co.

March 16. Discharged well.

I heard several months afterwards that the boy had had no further attacks.

CASE IX. Ellen George, æt. 34, m., living in Cambridge, admitted out-patient Jan. 27, 1869.

Was confined 8 weeks ago, and has not been well since. Baby not living. Has occasional attacks of giddiness, and temporary loss of consciousness. Bowels costive.

Father died in a lunatic asylum, but there is no family history of epilepsy.

℞. Quiniæ Sulphat. gr. iss.
Magnes. Sulph. ℈j.
M. M. S. ℥j. M. ter quotidie s.

Feb. 1. Since last seen has had three attacks of *petit mal.* Bowels open.

℞. Potassii Bromidi gr. xv.
Aquæ Camphoræ ℥j. M. ter quotidie s.

Feb. 8. Has not been dizzy or had any further loss of consciousness. Bowels regular.

Pt. Pot. Bromid.

She had no further attack, and was discharged at the beginning of March.

CASE X. *Vertigo. Petit mal. Failing memory.*

John P——, æt. 46, m., bricklayer, living at Ely, admitted in-patient under Dr Bond, Jan. 20, 1869.

Never had any illness worth mentioning till the summer (June) 1868, when after being exposed to the rays of the sun, while slating a house, he suddenly felt giddy, faint, pain in the head, and thought he should fall from the roof. After being off work for two or three days, he again

resumed it, although the Vertigo remained for nearly three weeks without intermission. Two months ago after feeling very giddy for some time he had an attack of *petit mal*, which occurred about 6 o'clock in the morning.

He has had another attack since, but he does not remember the precise time of its occurrence; indeed his memory is very defective.

There is no family history of epilepsy. Tongue clean. Pulse 63, feeble. No cardiac bruit. Says he always feels much better when his bowels are open.

℞. Hydrargyri Subchloridi.
Ext. Jalapæ.
—— Coloc. co. āā gr. iij. M. ft. pil. ij. statim s.
Middle diet.

Jan. 22. Pills have acted twice and he feels better.

℞. Inf. Gent. co.
— Sennæ āā ʒvj. M. ft. haustus, mane et meridie s.
Full diet; half-pint of beer.

Jan. 27. Potassii Bromidi gr. x.
Aq. ℥ij. M. ter die s.

Jan. 28. No improvement. Feels very giddy this morning. Complains of sickness. Cannot walk in the ward without taking hold of something to support him.

Vertigo always worse when he moves about.

Jan. 29. Almost every night after going to bed he feels sick, and is obliged to get out of bed to vomit. Vertigo not relieved by vomiting.

Jan. 30. Int. Med. Dr Bond thought the Bromide of Potassium might produce sickness.

To have 3 oz. of Red Wine.

Jan. 31. Is quite as sick as when he takes the medicine. Pt. Mist.

Cataplasma sinapis nuchæ.

This morning he did not know that he was in the hospital.

Feb. 4. Is still very sick. Has been so giddy as to fall on the floor.

Augr. dos. Pot. Bromid. ad gr. xv.
Ext. Coloc. c. gr. v. statim.

Feb. 5. The pain in his head and vertigo are always worse till after he has had his dinner. Food makes him feel better. Worse again towards bed-time. Memory still more impaired.

Feb. 17. Left the hospital much worse. Memory fast failing him.

I saw this patient for the last time on the 20th of March, when I was informed that he had ceased to be sick, but there was no improvement in any other respect. Judging from the persistent vomiting when he was in the hospital one would be led to suppose the existence of some serious cerebral mischief.

Trousseau is of opinion that most cases of so-called apoplectiform cerebral congestion are cases of epileptic vertigo. (Vide Trousseau's *Clinical Lectures.* Edited by Dr Bazire. Vol. I. Lect. 2.)

Vertigo is a frequent and most distressing symptom in some cases of cerebral tumour. A case came under my observation a short time ago in which I diagnosed a tumour of the brain, and in which vertigo came on after the patient had been under treatment for 3 or 4 weeks. The boy had subsequently an undoubted fit of epilepsy, in which he remained unconscious for 5 minutes.

I have not yet had an opportunity of verifying my diagnosis, but the history of the case pointed pretty conclusively to its being one of cerebral tumour.

The following are the notes which I have preserved of the case :—

J. P., æt. 8, residing at Toft in Cambridgeshire, was

admitted into Griffith Ward, under my care, July 14, 1869.

He is a tolerably well nourished boy, with rather large head. Skin dry and scaly. Eyelashes not particularly long. Has not a strumous look. His mother informs me that she has five other children in good health. No history of tubercle or syphilis in the family.

For 4 or 5 months previous to his admission he complained of headache (both frontal and occipital) and sickness, and in March he vomited two round worms. He had been sick on almost every morning on first awaking (between 4 and 5 A.M.), and vomited. After being sick he complained of pain in the left hypochondriac region. He sleeps well at night, but snores a great deal. When he walks he staggers, like a drunken man. Cannot walk with his eyes shut unless supported by some person. His mother informed me that at times he complains of losing his sight. When he can see distinctly, objects appear double. There is no squinting or paralysis. Pupils of natural size. Intellect quite clear.

Complains of his feet and legs feeling very hot. Bowels regular; appetite bad. Tongue moist and coated with a white fur.

Passes little urine, and has at times some difficulty in voiding it. Has wasted very much since his illness commenced.

P. 87, regular, and of moderate force. Heart's sounds normal.

Urine almost neutral to test paper and contains no albumen. To have milk and beef-tea for diet.

July 15. Was not sick this morning.

℞. Santonini gr. ij.
Sacchar. Alb. gr. v. M. ft. pulvis.

One to be taken night and morning until three have been taken.

July 16. Bowels acted twice yesterday. No sickness.

— 19. Has not passed any worms and has not been sick.

℞. Syrupi ferri iodidi m. xv.
Potassii iodidi gr. i.
Aquæ ad ℥ss. M. ter quotidie s.

July 26. Yesterday was visiting day and his mother gave him some money with which he purchased sweet-meats. Sick for the first time since admission.

July 28. No further sickness, and the pain in the left hypochondriac region has disappeared.

To have a mutton-chop for dinner instead of beef-tea.

Aug. 1. Sickness has returned this morning and he complains of headache.

Aug. 2. Sickness and headache have recurred this morning.

Aug. 6. *When walking in the garden to-day he had a severe attack of vertigo, which lasted for a quarter of an hour.*

Aug. 7. No sickness since the 2nd till this morning, when he was sick between 5 and 6 o'clock. He retched, but did not vomit. The 'sister' thinks his head gets larger. Pulse very feeble and slow.

Intr. Mist.

Aug. 27. Sickness comes on occasionally.

Pil. Rhei Co. gr. ii ss.
Ante prandium quotidie.

Left the Hospital.

Sept. 2. *His mother states that on this day he had a fit, in which he was insensible for about* 5 *minutes.*

Sept. 11. He is still very much troubled with sickness and pain in the left hypochondriac region. He is fast losing strength and his gait is more unsteady. Head is

larger. Has still considerable difficulty in voiding his urine. Bowels rather costive. Eyesight much worse.

Pt. Pil. Rhei Co.

The boy subsequently became quite blind.

The vertigo and epilepsy in this and similar cases are probably due to constriction of the minute cerebral arteries and the anæmia thereby induced. The tumour causes irritation, and this acts in a reflex manner upon the vasomotor nerves.

Dr Ramskill in his valuable paper on 'Vertigo' in Reynolds' *System of Medicine*, mentions a variety of vertigo which he calls 'essential.' It usually occurs in persons about 30 years of age, and is probably associated with a dilated right ventricle of the heart. With the exception of the vertigo the patient feels in perfect health.

I have not met with a case of this kind, but one is justified in concluding from the case recorded by Dr Ramskill, that there is some disturbance of the circulation, and that too little blood is sent to the brain; for he states that the area of cardiac dulness was enlarged laterally to the right, and that the sounds were too clearly audible to the right of the sternum.

Such are the facts, physiological and pathological, which, in my opinion, tend to prove that the "proximate cause of vertigo is in the majority of cases a disordered cerebral circulation."

## Prognosis.

Having now discussed the various causes which induce vertigo, I proceed, in the next place, to consider its importance as a symptom or prognostic value. Giddiness is a symptom in so many different diseases, that no true

estimate can be formed of its importance unless it be considered in connection with other symptoms of the disease of which it is but one form of expression. When it occurs in anæmia, prolonged lactation, menorrhagia and amenorrhœa, it portends no unfavourable result, for, as has been shewn in the cases recorded, it generally speedily disappears when the treatment appropriate to these affections is resorted to.

The vertigo associated with rheumatism and gout, unconnected with disease of the heart or kidneys, or with tissue degeneration of the minute arteries, may be very much benefited, but as the diatheses can never be eradicated, there is always a great tendency for the malady to return. Even when the swimming in the head occurs as a result of cardiac disease, the improvement is so great in some cases, as in that of H. B. (Case VII.), that the patient may be perfectly relieved from the affection for a considerable time.

If, however, the blood-vessels have sustained any structural damage, as occurs in most instances of latent and irregular gout, an unfavourable prognosis must be given, for treatment is of little benefit in these cases.

A cautious prognosis also is necessary in all cases where vertigo is due to hyperæmia of the blood-vessels of the brain, especially if the giddiness has come on in persons above 50 years of age, and is associated with a feeling of pins and needles or numbness in the extremities. Apoplexy and paralysis are to be dreaded in these cases.

Stomachal vertigo may in most cases be entirely removed by strict attention to diet, and remedies addressed to the stomach, if the patients can afford to give up work, and relieve themselves of all worry and anxiety for some time. The vertigo is occasionally very obstinate, troubling the patient not only when he moves about, but also when

he is still, and even during sleep. The difficulty is to distinguish between stomachal vertigo and that dependent upon disease of the brain.

Dr Wilks says that he has "observed a very striking difference, in one respect, between the dyspeptic vertigo and that arising from real cerebral disease. In the latter the patient when he feels the sensation coming over him, immediately stops, if walking, or if standing, lies down; whilst in the former the patient feels well whilst walking, or if in the upright position, but immediately he stoops the giddiness comes on." (Lecture on Epilepsy, *Med. Times and Gazette*, Jan. 23, 1869).

This distinction may be applicable in most cases, but is not invariably true, for in some cases of vertigo arising from disordered stomach, the patients informed me that they were worse when moving about.

Cases of dyspeptic giddiness are frequently mistaken for incipient disease of the brain and impending paralysis. A case of this kind came under my notice a short time ago.

"M. F., an auctioneer and farmer, residing in Essex, consulted me respecting a giddiness, and a feeling of weight at the top of his head. He had met with an accident a little time previous to my seeing him, having broken one of his ribs, but had quite recovered from the injury which he sustained. From leading a very active life, riding across country some 30 or 40 miles daily, he had been advised by his medical attendant to take little exercise and live more freely. The consequence was that his stomach became deranged, and when seen by me his tongue was beefy and very much coated; he had a bad appetite, sallow complexion, and suffered very much from flatulence. Bowels acted once daily. Pulse 72, regular, of moderate force. I could detect no visceral disease, and my patient informed me that he had never had gout or

rheumatism. The surgeon who attended this person was afraid that he was threatened with paralysis. I comforted my patient with the assurance that by careful attention to diet, moderate horse exercise, and a stomachic mixture which I prescribed for him, all his symptons would vanish."

Whenever one or more of the blood-vessels of the brain becomes plugged, whether by a vegetation detached from the valves of the heart and carried along in the circulation to the brain, or from any other cause, especially if paralysis follow, a very guarded prognosis must be given.

The vertigo of old people with atheromatous blood-vessels, which prevent the brain from being duly nourished, may be considerably benefited, but in these cases apoplexy or softening of the brain may supervene and carry off the patient. The prognosis is worse if the giddiness has occurred for the first time late in life.

Judging from the cases recorded by Mr Toynbee, the distressing vertigo attending certain affections of the ear, especially where the cause is a mechanical one, as the accumulation of wax or the presence of a polypus upon the outer surface of the drum, may be quite cured. If, however, there be disease of the semicircular canals of the internal ear, the result may be very unfavourable.

Perhaps in no disease more than in epileptic vertigo, is it necessary for the physician to exercise a guarded prognosis. The lesser form of Epilepsy is of much more frequent occurrence than is generally supposed, and as Trousseau has pointed out, cases of so-called apoplectiform cerebral congestion frequently turn out to be cases of epileptic vertigo. After several 'fits of absence', the patient may suddenly have an attack of *haut mal*, or indeed become delirious, and commit strange acts of violence.

In the case of A. S. (Case VIII.), the giddiness has

passed off for the present, but probably if the patient is closely watched, the neurosis will return if he commits any excess in diet, and assume more marked characters.

Physicians who have paid great attention to epilepsy appear to be pretty well agreed that impairment of the intellectual faculties more frequently results from numerous attacks of *petit mal*, than from the less frequent fits of the convulsive form of epilepsy.

Dementia is the form of mental alienation to be most dreaded in these cases, and the rapidity of its supervention appears to be in the direct ratio of the frequency of the attacks.

I need hardly say that where vertigo is a symptom of some adventitious product in the brain, our prognosis must be entirely guided by the nature of that product. In almost every instance we may say with Swift:

> "And that old Vertigo in his head
> Will never leave him till he's dead."

If the tumour be of a syphilitic character, the disease, and along with it the vertigo, may be completely and often speedily removed. This is probably the only kind of cerebral tumour in which a favourable termination can be expected.

## Treatment.

I come now to the third and last part of my subject, viz. the treatment of vertigo, and from what has already been said under the heads of the physiology and pathology of this affection it seems almost axiomatic to assert that in the treatment of vertigo we must be guided principally by the various causes which induce it.

Boerhave has said that "Vertigo est omnium morborum capitis levissimus et facillime curabilis[1]," but this assertion of his must not be accepted without some qualification. Without doubt, the more extended our knowledge of the causes of vertigo becomes, and the more physicians begin to appreciate the true diagnostic worth of this symptom, so much the more likely will Boerhave's statement be to become an approximation to the truth.

In recording the clinical histories illustrative of the different varieties of vertigo, the treatment of each case has been given, so I shall only in this place speak somewhat more in detail of the remedies I recommend in the several forms of giddiness.

I especially wish to point out my reasons for prescribing any particular drug, and to state, as far as our present therapeutic knowledge will allow me, what I conceive to be the *modus operandi* of each remedy.

First, then, why do I give Iron in the vertigo resulting from Anæmia and Chlorosis? Because, some would say, iron exists in the blood in a state of health, and in the diseases mentioned this fluid is deficient in iron. Still there is considerable evidence to show that the iron does not in these cases act as a direct restorer of hæmation to the blood, but that the increase of this ingredient results as a consequence of improved nutrition of the nervous centres.

It has been pointed out by Sandras, Becquerel and others, that deficiency of iron in the blood is not the cause but the effect of chlorosis, which they regard in the light of a neurosis, which has existed for some time before the anæmia and chlorosis manifest themselves. It is also a well-known therapeutic fact that substances which are isomorphous with iron, and which do not exist in a state of health in the blood-corpuscles, such as manganese,

[1] *Prælectiones de Morbis Nervorum*, p. 475.

nickel, &c. will benefit some anæmic and chlorotic patients, even when iron has failed.

These facts go far to prove that the mode of action of iron is somewhat different from that usually entertained.

In the treatment of anæmia and chlorosis too much importance cannot be attributed to the effect of exercise in the open air and to good food.

Should hysteria occur as a complication of chlorotic vertigo, it will be necessary to prescribe some antispasmodic, such as the tincture of valerian, or the compound asafœtida pill, in addition to a chalybeate, as the Mist. Ferri Co. of the Pharmacopœia.

The giddiness resulting from excessive or prolonged lactation is speedily cured if weaning the baby be made a *sine quâ non.* Steel and quinine have frequently been prescribed by me in these cases, where the mothers were anxious to continue suckling the child, but in no instance did improvement take place until the parent could be persuaded no longer to allow a drain upon her system by giving the child the breast. Patients suffering from excessive lactation occasionally complain of insomnia, often being days without sleep. Under these circumstances it is advisable to procure sleep by means of opium or morphia. Good living should be recommended, meat two or three times daily, if the stomach can digest it, as well as eggs and milk. Of all stimulants stout is, in my opinion, the best in these cases.

The obvious treatment of the vertigo, which occurs in females suffering from menorrhagia, is first to check the hæmorrhage, and then to remove the causes which have induced the menorrhagia, if these can be discovered. If the bowels are at all costive (which they frequently are), I generally prescribe a mixture containing sulphate of magnesia and sulphuric acid, together with pills containing

gallic acid to be given in the intervals between the mixture, or at bed time. Gallic acid can readily be made into pills with glycerine; thirty grains of gallic acid and m. iv. of glycerine will make six pills; and this mode of administering the acid is in my opinion preferable to any other. Preparations of iron frequently, as far as my experience goes, increase the discharge instead of lessening it. In the case recorded (Case II.) the patient received no benefit from the tincture of the perchloride, and I have come to the conclusion that it is better to withhold all ferruginous drugs until the discharge has abated; when that has taken place they may be prescribed with benefit.

Another remedy of great service in menorrhagia is ergot of rye. Dr Bond was the first to draw my attention to the use of this drug in passive hæmorrhage from the uterus, and I can testify to its beneficial effects in several cases that have come under my notice. Gr. viii. of the Pulv. Secale Cornut. may be given in milk three times a day for four successive days, when if the hæmorrhage has not abated, no benefit will accrue from its further administration. Ergot of rye probably controls uterine hæmorrhage by causing contraction of the unstriped muscular fibre in the coats of the blood-vessels, whence results a diminution in the calibre of these vessels and their subsequent obstruction. When given for a long time in moderate doses it is well known that it will produce a condition resembling senile gangrene, owing to the supply of blood to the part being cut off by the constringing power of the ergot upon the small arteries. I have not yet tried the effect of digitalis in menorrhagia, but if I had a severe case in which the bleeding was difficult to check, I should certainly resort to it.

Pure air and nutritious diet are as necessary in this variety of vertigo as in those of which I have already spoken.

Passive menorrhagia frequently arises from excessive venery, and in these cases no good will ensue from treatment unless sexual intercourse be prohibited for some time.

The remedies suitable for rheumatism and gout should be had recourse to in cases of rheumatic and gouty vertigo. Iodide of potassium is very beneficial at the commencement, either in combination with iron or given alone. If the rheumatic diathesis is well marked, I always find it necessary to give iron in consequence of the anæmia which exists.

It is still the fashion to give large doses of alkalies in acute rheumatism, and to continue the administration of them for some time. I have often wondered whether this mode of treatment was a wise one, and whether the resulting anæmia was not as much due to the influence of the alkalies in destroying the red-corpuscles of the blood, as to the deleterious effect of the rheumatic poison. The treatment of acute rheumatism by blisters has proved very successful in the cases in which I have tried it, and appears to me for many reasons, especially the one just given, preferable to the alkaline treatment. I have had no cardiac complication in any patient treated by blisters.

Beer and stout should never be taken by patients who are subject either to rheumatism or gout. Pain in the joints of a rheumatic character may often be completely removed by simply withholding beer and stout from patients. If the patient insists on taking some stimulant, let him drink good pale sherry mixed with water.

Besides the iodide of potassium it is advisable to give patients suffering from gouty vertigo two pills, containing one grain of the ext. colchici acet. with three grains of rhubarb and three of blue pill every night, to render the secretions more healthy.

Of course gouty subjects should be warned against eating freely of animal or vegetable food rich in albuminous

matter, whereby their blood becomes charged with uric acid. Perhaps medical men attach too little importance to this in the treatment of gout. They administer remedies with the object of eliminating the uric acid, but at the same time they allow food to be eaten which is directly convertible into the same organic acid.

Alkalies, such as Vichy water, are useful in gout, as they indirectly promote oxidation, by which process the urates may be eliminated as urea and carbonic acid.

According to Dr Bence Jones gout is a disease of sub-oxidation. "Want of oxidation of urates is the cause of the gouty diathesis, as want of oxidation of sugar is the cause of the diabetic diathesis."

Gouty and rheumatic patients should always wear flannel next the skin, in order to keep up active circulation and elimination in that organ.

Atheroma of the blood-vessels is one of the changes which the gouty diathesis induces, and if the vertigo depend upon this, treatment is not of much avail.

I have found counter-irritation to the nape of the neck beneficial in some cases of vertigo occurring in gouty subjects. (Vide Case VI.)

Iron and quinine are the remedies to be chiefly relied upon in the giddiness associated with cardiac disease. If the heart's action be very rapid, the application of a belladonna plaster over the cardiac region is often beneficial. Digitalis, owing to its sedative action on the central organ of circulation, is also useful, for by subduing the action of the heart, it relieves the congestion of the vascular system. Most probably also belladonna and digitalis act as tonics to the muscular tissue of the heart.

In April 1868, I had a young printer under my care at the hospital, in whom the giddiness was so great that he was afraid to walk about. There was a systolic bruit at

the heart's apex, the result of a rheumatic attack, and the heart's action was very rapid. He took a mixture containing gr. ij. Quiniæ Sulph., and m. viij. Tinct. ferri perchlor., three times daily for the space of three months, and had a belladonna plaster over his heart. He was very much benefited by the treatment, but the vertigo did not entirely disappear, although the rapidity of the heart's action was very much lessened. The damaged mitral valve can never be repaired, and he will consequently always have an irregular circulation through the brain and be subject to giddiness.

When general plethora gives rise to congestion of the brain and its attendant vertigo, blood-letting, either from the arm, or from the nape of the neck by cupping, or from the temples by leeching, may be requisite; or it may be advisable to endeavour to bring about hæmorrhage which may have been suppressed, such as the menstrual flow, hæmorrhoidal flux, bleeding from the nose, &c., &c.

Eczema occurring in plethoric subjects liable to vertigo, should be very gradually cured, if cured at all. Sudden death has been known to occur in persons suffering from a chronic skin affection which has quickly disappeared.

The bowels should be kept well open by saline purgatives, or by a draught containing Inf. Sennæ co. and Inf. Gentian. āā ℥vj. given every morning. The patient should be recommended to sleep with his head well raised. Of course the diet must be regulated, and if the patient be a bon-vivant, he must be advised to indulge less in the luxuries of the table.

Dyspeptic vertigo is generally an easy and pleasant disease to cure. I find that acids rarely suit in these cases, but that alkalies, such as the bi-carbonate of soda, or bi-carbonate of potash, with some bitter infusion, give relief very speedily. There is reason to believe that a generation of acid, either butyric or acetic, due to the

fermentation of the food, occurs in some cases, and this explains why a marked improvement results from the administration of alkalies. Vichy water, with a little brandy in it, is also of service. When the acidity of the stomach has been corrected, and especially if there be any anæmia, I then usually prescribe the citrate of iron and strychnia, in three grain doses, with about m. xv. Spt. chloroformi and ʒj. of glycerine in an ounce of water. Strychnine is a remedy of great value in some cases, as also is the bromide of potassium, even when there is no indication of epilepsy. A patient was lately under my care, suffering from dyspeptic vertigo, which had lasted for nine months. At the commencement the attacks came on at considerable intervals, but when I first saw her she was scarcely ever free from vertigo. She suffered most when walking about, and was always the best when lying down. She also complained of headache. Her bowels were very costive. She never lost consciousness and had no visceral disease. After giving a purgative to clear out the alimentary canal, I prescribed Potassæ Bicarb. gr. x, Potassii Bromid. gr. xv, Aq. Camphoræ ℥j, ter die for a month, with great benefit, when I substituted ℥j. Inf. Calumbæ for the camphor water. She was quite well at the end of six weeks.

If the dyspepsia be attended with intestinal flatulence, a strong purgative gives temporary relief, but if the cure is to be permanent, some anti-spasmodic, such as Pil. Asafœt. co. or Tincture of Valerian must be given. Charcoal is also useful in such cases. Horse exercise and regular hours, with as much freedom as possible from the cares and anxieties of business and professional life, should also be recommended.

When the disease has assumed a chronic form, and especially in elderly persons, stimulants, such as brandy and wine, will cause the attack to pass off. Assuming the

recumbent posture and closing the eyes will also hasten its departure.

Time will not allow me to discuss the treatment of more than one other form of this affection, so I shall conclude with a few remarks on the remedies I have found most useful in Epileptic Vertigo. Bromide and iodide of Potassium and Sulphate of Zinc are the drugs I chiefly rely upon. In about one half of the cases the former remedy seems to have little, if any, control over the disease, unless the zinc salt be given along with the bromide. Dr Bazire says that he found the Bromide of Potassium failed to do much good in Epileptic Vertigo. (Vide Trousseau's *Clin. Lect.* Vol. I. p. 103). After correcting any disorder of the stomach and bowels, I commence to give this drug in gr. xv. doses, either alone, or combined with the iodide of potassium and the bi-carbonate of potash. Sometimes a combination of these three remedies answers better than the bromide alone. An ounce of Infusion of Calumba or a drachm of Tincture of Hop may be added to counteract the depressing effect of the bromide. The dose of the bromide should be gradually increased until as much as ℈ij. or ʒj. is taken three times daily. The only disagreeable effects produced by the bromide are mental depression, and occasionally an eruption of *acne* on the nose.

I have at present a patient under my care who has had his nose covered with a pustular eruption from taking ℈j. doses of this medicine thrice daily. On ceasing to administer the drug the eruption rapidly disappeared.

The mode of action of the bromide is somewhat obscure, but its curative influence in Epilepsy and Epileptic Vertigo probably depends upon its allaying nervous irritability and lessening reflex excitability.

There was lately an out-patient under my care at the hospital who was cured of severe Epileptic Vertigo by taking the Bromide of Potassium in ℈j. doses three times

daily, and a pill containing gr. j. of Sulphate of Zinc, and gr. iij. of Extract of Hop every night. I at first tried the bromide without the zinc, but no marked improvement resulted until the patient commenced to take the pill. This patient, who was a hawker, had led rather a fast life. He married at 15, smoked at least ℥ss. of tobacco daily, and drank frequently a gallon of beer daily. His sister was epileptic, but the father and mother were free from the disease.

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