ON THE STATE
OF THE
OPTIC NERVES AND RETINÆ
AS SEEN IN THE INSANE.

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It is not my intention to delay the Medical and Chirurgical Society with any remarks beyond the matter in hand. I have made a series of observations upon the optic nerves and retinæ as seen in the insane, and I wish to confine myself simply to the record of my observations, and to such conclusions as these may seem to justify.

In some instances I find an abnormal state of the nerves, in others a normal state. The cases in the former category may, perhaps, have more interest for the Society; but I may be allowed to say that the absence of morbid change in any one instance is as much to the point as is its presence in another. I submit that the records of negative are as valuable as the records of positive instances, the presence of a healthy optic nerve in one case of insanity being a fact as positive as the discovery of a failing nerve in another case.

I think my records show, to some extent, in what kinds of brain disease, accompanied by insanity, we may expect to find optic changes, and in what kinds we may not expect them. The subject which I have ventured to take in hand is, however, one of extreme complexity, and I would be understood as speaking throughout with great hesitation.

My experience of changing optic nerves and retinæ is, indeed, now somewhat considerable, and many of my observations were repeated twice and even three times. I believe, therefore, that my notes may be received as trustworthy. My conclusions, on the contrary, must be both given and received with great hesitation. I shall be satisfied if my cases, which, comparatively speaking, are few, and my conclusions, which must, therefore, be very fallible, may be taken as stepping-stones to a better knowledge.

The Society will readily understand how an observer, who, like myself, had given some attention to cerebro-spinal diseases, was led on to inquire into the phenomena of insanity.

Even with the present more positive methods of dealing with disease, we scarcely realise sufficiently that a hospital for lunatics is, speaking generally, a museum of cerebral diseases.

Functional or organic disorder of the hemispheres depends upon many kinds and many degrees of change; it may depend upon primary disease of the hemispheres themselves, or upon interference with them by means of disease in other near or more distant parts.

It may, therefore, be objected to me that I have busied myself with an artificial family of disorders, composed of cases so heterogeneous as to forbid any discussion of them in common.

It may be said that I ought to have taken a series of cases classified, not by accidental disorder of a particular function, but by the pathological characters or the original positions of morbid changes.

I might reply by several answers. I would say, however, not by way of answer, but by way of explanation

of my efforts in this direction, that I first examined the eyes of general paralytics for the chance of finding in the retina some of those changes of or about the blood-vessels, which several observers have described in the brain in persons who have died of that disease.

In this I was disappointed, but I was thus led to the discovery of a certain condition of the optic nerve in general paralysis which I shall describe presently. Having in this way begun my researches, I determined to continue them, because the tendency of researches of this kind is to remove the study of mental diseases from the metaphysical methods, and to place it upon a positive basis. I will only now say farther, that I hoped and still hope to find in the indications of the ophthalmoscope some test by which the alienist physician may sift the unwieldy mass of diseases with which he has to deal, and may approach a more certain knowledge of the various pathological conditions of his patients. I hope, for instance, that in dealing with mania the physician may be helped by the ophthalmoscope to decide, in doubtful cases, whether he has to deal with a mania depending upon organic or only upon functional changes, as the phrase is. It seems farther possible that the state of the vascular parts of the eye may indicate to some extent the state of the cerebral circulation in mania.

I shall not spend the time of the Society by entering upon any special questions concerning the nature or origin of mental disorder, nor even concerning its connection with various well-known pathological changes. I shall, for convenience, use the commonest classification, and, perhaps, the most useful, viz. general paralysis, idiocy, dementia, mania, monomania, and melancholia. I shall make a separate class of cases of insanity depending upon or connected with epilepsy. Such a classification is, I know, logically indefensible, but it will serve our purpose sufficiently well.

My observations have been made partly in the West Riding Lunatic Asylum, at Wakefield, with the help of Dr. Crichton Browne, whose diagnosis of each case I place in my schedules; and partly in the North and East Riding Asylum, at Clifton,

near York, with the help of Dr. Christie, who selected and named for me a number of well-marked cases. I cannot sufficiently thank these gentlemen for their courtesy and pains. Upon Dr. Browne's time and patience I made large and repeated demands, to which he most generously responded.

The examinations were made at various dates during the second half of the year 1867.

The examination of the eyes of lunatics is a very tedious and often a very trying task. My natural anxiety to note down no observation of a doubtful character, while, at the same time, to observe was so difficult, would have been too heavy a strain upon my attention had not Dr. Browne and Dr. Christie so materially lightened my labour by their interest in my work and by their hearty aid.

I shall draw the attention of the Society, in the first place, to my cases of general paralysis.

It is in this form of insanity that I have the most definite results to communicate.

GENERAL PARALYSIS.

Cases of especial interest—4, 8, 10, 11, 13, 14, 16, 19, 21, 28, 29, 35, 37, 38, 42, 47, 49, 52.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
1	William Brear, æt. 36, Wakefield, W. R. L. Asylum	First stage. Second examination (four months later), in the first yet, being slow progress	Rather white. Second examination (four months), as before; disc cannot be called decidedly atrophied	First and second examination, show a curious instance of choroidal exudation with ramifying vessels, like Liebreich's 'Atlas,' tab. iv, fig. 5. This patch extends from the region of the spot almost up to the disc.
2	William Walker, æt. 37, Wakefield Asylum	Second stage	Normal? Both discs are much smaller than natural. Hypermetropia?	Normal? Normal.
3	Thomas Wroe, æt. 46, Wakefield Asylum	Second stage	Too white Veins somewhat large.	Too white.
4	William Snead, æt. 49, Wakefield Asylum	Beginning of third stage	Commencing white. Atrophy distinct	Complete white. Atrophy.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
5	Richard Webb, æt. 46, Wakefield Asylum	First examination, second stage Second examination (three months later), end of second stage or beginning of third stage <i>Post-mortem examination.</i> —Membranes thickened. Arachnoid attached to pia, and many vascular connections. Sulci gaping; grey matter shallow and light coloured, in some places scarcely distinguishable from medullary. Many punctæ sanguineæ on section. Medullary substance very watery and glistening. Ventricles capacious and filled with serum. Weight of whole brain 43½ oz.; of cerebellum, pons, and medulla, 6 oz. Optic nerves unfortunately not noted.	First examination, rather white Second examination, as before	Healthy? Second examination, healthy?
6	Joseph Sykes, æt. 40, Wakefield Asylum	Incipient Second examination (in four months), first stage, slow progress	Normal (Perhaps a little coarsely pink. Second examination, normal	Normal. Pupils very contracted.) Second examination, disc decidedly larger and more staring than right.
7	Henry Cartwright, æt. 41, Wakefield Asylum	Second stage, far advanced	First examination, both discs atrophic and retinal vessels fine. Second examination (six weeks afterwards), previous observation verified.	
8	Duke Waddington, æt. 49, Wakefield Asylum	Second stage	Both discs atrophic, very decidedly ; vessels fine ; pupils very contracted.	
9	James Greenwood, æt. 45, Wakefield Asylum	Second stage Second examination (in three months), much the same.	Both discs rather atrophic ; retinal vessels fine. Second examination, disc atrophic, not far advanced.	Second examination, scarcely to be called atrophic, but vessels rather large and plum coloured, and some of them a little tortuous.

10	Louisa Lockwood, æt. 38, Wakefield Asylum	Beginning of second stage	First examination, apparent outer edge indistinct and pink; opposite edge too white Second examination (four weeks after), appearances the same	First examination, edge clearing all round; decided atrophy at apparent <i>inner</i> . Second examination, decided atrophy all round the disc.
11	Ann Taylor, æt. 39, Wakefield Asylum	Second stage	First examination, no change that can be decidedly noted; doubtful Second examination, appearances still doubtful; disc seems too pink and edges not clear	First examination, disc pale, atrophic? vessels seem too fine. Second examination (in six weeks), I am now sure that there is atrophy of this disc.
12	Sarah Maccaby, æt. 46, Wakefield Asylum	Second, passing into third stage Has had several attacks of "apoplectic form congestion."	First examination, ocular disc an unnatural colour, being edges indistinct, and little patches (of old infiltrations?) about the borders Second examination (in four weeks), disc whiter	First examination, commencing exan-atrophy. Second examination, I find noted "decided white atrophy." (This eye seems to be blind.)
13	James Nowlin, æt. 45, Wakefield Asylum	Autopsy.—Brain very much wasted and atrophied <i>generally</i> ; shallow cortical substance; ventricles large; and quantity of serum escaped. First examination, beginning of second stage Second examination (six weeks later), beginning of third stage	First examination, discs do not seem quite natural; however, much contracted and atropine. Second examination, nutrition of edges indistinct, and discs of a dirty or slate colour.	First examination, discs do not seem quite natural; pupils, however, much contracted and not sufficiently dilated by the atropine. Second examination, nutrition of nerves decidedly impaired; edges indistinct, and discs of a dirty or slate colour.

N.B.—For illustration of this and all similar cases *vide* Liebreich's 'Atlas,' tab. xi, figs. 8, 9.

	Name, place of observation, and age.	Name and extent of disease.	Right eye.	Left eye.
14	Jonathan Allen, æt. 41, Wakefield Asylum	First examination, second stage Second examination, beginning of third stage	First examination, both discs suffused pink; edges only to be made out on very careful observation; vessels natural size; pupils very contracted. Second examination (in six weeks), discs both decidedly whitening; edges in some places becoming sharp.	
15	John Hyde, æt. 37, Wakefield Asylum	Second stage	First examination, a great many vessels converging to both might pass for a normal appearance, especially to this; edges a little indistinct; no decided change however Second examination, gives no more positive results.	As right, but less marked;
16	Peter Reynolds, æt. 48, Wakefield Asylum	Second examination, advancing in second stage Second stage Second examination (in two months), is still to be called in second stage, but much worse	Both discs scarcely distinguishable from retinæ, except by convergence of vessels; pink, and edges barely to be made out. Second examination (in two months), much ocular ataxy; very decided suffusion and <i>slight</i> exudation on and about both discs; edges invisible; both discs much affected and vessels many, but right the worse.	
17	John Benson, æt. 35, ¹ Wakefield Asylum	Beginning of second stage	First examination, commencing simple atrophy Second examination (four weeks after), first observation verified Simple atrophy, not extreme, but decided	As right.
18	John Plumer, æt. 43, ² Wakefield Asylum	Second stage		Simple atrophy, as right.

¹ 17. J. B. is now advanced in the third stage, and his sight is very much impaired.² 18. J. P. Vision much impaired before death.

19	Goodworth Fox, æt. 33, Wakefield Asylum	First examination, second stage	Edge pink and invisible towards apparent outer side; atrophic and sharply defined on opposite side	An excess of pinkness and vascularity on apparent outer edge, but not to be pronounced unhealthy.
20	James Birkin, æt. 34, Wakefield Asylum	Second examination (one month later), end of second stage	Second examination, this disc clearing into simple atrophy	Second examination, as before.
21	Mary Ann Sykes (21 ward), æt. 37, Wakefield Asylum	Incipient First examination, second stage	Disks apparently normal, but not to be seen very well, the patient being very unmanageable. Vessels rather large and dark coloured, and disc pinker than natural	Vessels rather large and dark coloured; disc decidedly whitening.
22	William Hanson, æt. 40, Wakefield Asylum	Second examination (in two months), third stage Incipient general paralysis	Second examination, vessels in both discs diminished, and nutrition of both much impaired; they are slaty grey, with ill-defined edges (<i>vide</i> Liebreich, tab. xi, fig. 7). Retina very anæmic; disc natural	Second examination, vessels in both discs diminished, and nutrition of both much impaired; they are slaty grey, with ill-defined edges (<i>vide</i> Liebreich, tab. xi, fig. 7). Retina anæmic; disc said by self and three independent observers to be decidedly whiter than right disc, but cannot be called decidedly atrophied.
23	Edward Thornton, æt. 35, Wakefield Asylum	Third stage and death	Complete amaurosis some weeks before death.	
24	John Carrodus, æt. 36, Wakefield Asylum	Third stage and death	Complete amaurosis.	
25	William North, æt. 63, Wakefield Asylum	Third stage and death	Amaurosis nearly complete, but can tell light from darkness.	

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
26	Thomas Binks, æt. 43, Wakefield Asylum	Well on in second stage	Disc as pink as retina; edges unseen; disc found only by convergence of vessels	Decided commencing atrophy; edges not even, but rather an- gular, not jagged, are sharply defined.
27	James Henry Winn, æt. 28, Wakefield Asylum	Second stage	Disc pink as retina, distin- guishable only by entrance of vessels (no infiltration ?); pupils very contracted	As right.
28	Thomas Kay, æt. 46, Wakefield Asylum	Second stage far advanced	Marked atrophy, invading from apparent inner edge; indistinct- ness and pinkness at opposite edge	Disc quite atrophic, white; edges clean cut; vessels fine.
29	Mark Longden, æt. 34, Wakefield Asylum	First stage far advanced	Disc too white; edges clean cut; vessels beautifully designed upon the disc	Whiter still; extreme atrophy, or at any rate fully developed.
30	Mary Menhull	Incipient general paralysis; progress very slow	No marked change in either disc.	
31	Abraham Whittaker, æt. 49, Wakefield Asylum	First stage	Must be called normal, though it is a little suggestive to me of commencing atrophy	Disc quite atrophied, but is surrounded by irregular patches of (syphilitic?) choroiditis.
32	William Woodhead, æt. 41, Wakefield Asylum	Beginning of second stage	Commencing atrophy; con- gestion towards apparent outer edge; other edge whitening	As right, but more distinct.

33	Harriet Brown, æt. 46, Wakefield Asylum	End of second stage, slow progress	No pronounced atrophy; disc a little staring? a small hemorrhage in the course of a vessel bending round the yellow spot	Is decidedly whiter than right, but neither disc can be certainly called atrophied.
34	William Robinson, æt. 62, Clifton Asylum	End of first stage	Marked atrophy; nerve slaty grey; vessels fine; edges clean cut, but not very even	As right; simple atrophy.
35	James Butler, æt. 44, Clifton Asylum	First stage	Disc very pink, and edges, especially (apparent) outer, indistinct. I should not pronounce it decidedly changed except for the condition of left disc	Decidedly whiter than right disc, especially at apparent inner edge, the others being still pink. No doubt right is congested and left whitening.
36	Richard Davis, æt. 32, Clifton Asylum	End of first stage	Opaque (traumatic)	Disc decidedly too white, but not completely atrophied. N.B.—There is some little myopic cupping, but not enough to confuse the diagnosis.
37	Michael O'Connor, æt. 55, Clifton Asylum	Second stage	Disc in congestive stage, very pink, and many converging vessels; edge dim, especially at (apparent) outer side	Disc beginning to whiten; very different to right disc; edges staring, except some dimness at (apparent) outer; about tint of natural nerve at that part.
38	Charles Mercer, æt. 30, Clifton Asylum	First stage, in arrest, and seeming quite well	Decided commencing atrophy, with several small tortuous vessels	A little white crescent or "arcus" on (apparent) outer edge, but I should not have noted this save for appearances in right.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
39	William Kirton, æt. 37, ¹ Clifton Asylum	First stage, well marked	Some slight indefiniteness about the edge of the disc	Healthy.
40	— Querchet. Recorded by M. Bouchut, 'Du diagnostic,' &c., p. 333	Stage not stated, probably the second	Atrophy of optic disc	As right, and with central excavation; not glaucomatous, but deeply bowl shaped.
41	William Ledson, æt. 40, Wakefield Asylum	First stage, but rapidly progressed to death <i>Post-mortem examination.</i> —Pia and arachnoid thickened. Brain surface watery and hollowed out into deep sulci and depressions, one especially in course of middle meningeal artery. Grey matter pale and shallow. Medullary very rosy and speckled and marbled with rosy patches. Choroid plexus pale and anæmic. Atheroma of basilar artery and other trunks.	Commencing atrophy of disc	As right, but still more marked.
42	Walter Griffiths, æt. 44, Wakefield Asylum	Third stage, near termination in death <i>Post-mortem examination</i> , January 12th, 1868.—Five ounces of serum escaped on removing the brain. Arachnoid slightly thickened and opaque near median fissure. Brain soft and watery. Cortical substance pale and shallow. Convulsions shrunk. Sulci gaping. Numerous and persistent punctæ sanguineæ. Large effusion into ventricles. Corpora quadrigemina wasted and softened, rounded outline lost, testes being quite wasted and almost diffident. Optic nerves, tracts, and commissure all wasted and attenuated, and semitransparent, of a pale-pinkish, bluish-grey colour. The wasting is more decided as the tracts are traced backwards. Olfactory nerves wasted almost away.	Disc atrophied; vessels natural size, but varicose; edges not <i>veasels visible on the surface</i> ; "punched out," but obscured by some recent effusion. (Patient blind.)	As right, but there were <i>no vessels visible on the surface</i> ; edges as right.

¹ In a letter I lately received from Dr. Christie, telling me that the patients I examined at Clifton (Nos. 34—39) were all living, he adds that he has ascertained some impairment of vision in Nos. 34, 36, 37, 38, 39.

43	Samuel Blamire, æt. 35, Wakefield Asylum	Second stage	Patient very unmanageable, and inspection very difficult. Disc thoroughly disorganised, having something the appearance of "optic neuritis," but not well seen	Disc dusky and no doubt ab- normal, but very hard to see.
44	Charles Redfern, æt. 39, Wakefield Asylum	Beginning third stage	Disc dusky at apparent outer edge, and lots of tortuous vessels; the other edge whitening. This disc is in an earlier stage than left disc	Contrast very interesting; ap- parent inner half of disc quite pearly; the other half is tra- versed by a few fine vessels.
45	John Rayner, æt. 51, Wakefield Asylum	First stage. At commencement under Dr. Allbutt, at Leeds Infirmary	Nothing marked in either eye save a little peripapillary con- gestion, which may or may not be morbid.	
46	Mark Whittaker, æt. 43, ¹ Wakefield Asylum	Second stage	Disc decidedly redder than left disc. There may be a little atrophic tendency about some parts of edge of disc	Disc seems a little redder than natural.
47	John Sykes, æt. 34, Wakefield Asylum	Beginning of third stage	Optic appearances most interesting. Disc whitening in a blotchy way towards apparent inner edge, and a white line creeping round half circumference; from the white it shades into a dusky reddish-brown, and so into a fresher pink at the apparent outer edge, which is quite indis- tinct; edge blurred all round; vessels rather many	Both discs large. Disc whiter; edge more de- fined; vessels passing brightly and rather numerous over it. The atrophy is scarcely to be called pearly or staring.

¹ 46. M. W. Now advanced in third stage. Vision much impaired. August 24th, 1868.

	Name, place of observation, and age.	Name and extent of disease.	Right eye.	Left eye.
48	William Parkinson, æt. 40, Wakefield Asylum	Beginning of second stage	Were it not a case of general paralysis I should say the discs were healthy, though not quite of healthy look. The discs are alike, but both have a hard pearly look at the apparent inner edges. Two other observers called them white before I had pronounced upon them. Over the white parts are one or two fine vessels, rather too thready and a little curly—these are suspicious.	
49	John Maguire, æt. 60, Wakefield Asylum	Second stage	Optic appearances very interesting, the discs whitening evenly all round, and not from <i>outer</i> edge. Disc dirty red or brown and blurred; dirty white ring all red appearance, probably less ad-round; depth equal half radius; vanced than right disc. vessels suspiciously <i>fine</i>	
50	Joshua Wilson, æt. 39, Wakefield Asylum	Second stage	Disc dusky, but not distinctly diseased	Disc reddish-brown; edges indistinct; a good many vessels. It is decidedly and characteristically affected.
51	Patience Kershaw, æt. 40, Wakefield Asylum	Beginning third stage	Discs small and reddish; pigment about edges.	Unaffected?
52	Thomas Brown, æt. 44, Wakefield Asylum	Second stage. Only retains a few words, and curiously unable to receive words; though not deaf, cannot understand what is said to him	Atrophy commencing in a slightly different degree in each eye. In this case the whitening seems of the simple kind, invading from apparent inner edge (and not? preceded by any dusky redness, &c.).	
53	William Henry Smith, æt. 35	Beginning of second stage	Discs perfectly normal.	

I have scheduled 53 cases of general paralysis, in 5 of which I find no change in the optic nerve and retina.

Of the remaining 48, I find atrophy of the optic disks in its various stages in 41 cases, and 7 cases must be marked as doubtful. In all doubtful cases I made two or three examinations at intervals of a few weeks.

I note the following points :

1. That atrophy of the optic nerves takes place in almost every case of general paralysis, and, I may add, of the olfactory nerves also.

2. That it travels slowly down from the optic centres and along the tracts, becoming evident to the ophthalmoscope at about the end of the "first stage."¹

3. It becomes apparent as a hyperæmia of the nerve with slight exudation, but without much stasis—as a "red softening," in fact. It then whitens, generally from the real outer edge inwards, the nerve becoming white and staring, and its edge sharply defined. (Sometimes it takes a slate colour. *Vide* Liebreich, pl. xi, figs. 6, 7, 8, 9.)

From Case 38 it appears that the smaller vessels become fine and very tortuous before they vanish. If there has been decided exudation, the edges are, for a time, uneven, but the "punched-out" look always establishes itself in the end.

This kind of "white atrophy" may, in general paralysis, be watched throughout with great accuracy. Ophthalmic surgeons are rarely called upon to examine an optic nerve in the earliest stages of its failure, as these stages are not generally attended with marked loss of vision. They are, therefore, more familiar with the latter or white stages. The process I have above described may be called chronic optic neuritis, as opposed to the state commonly known as optic neuritis, a more highly vascular condition with great exudations, passing on into a more ragged and crushed-looking atrophy, which again, however, after a long period of time, may end in the clean-edged form.

¹ Such was my opinion at the time when this paper was read. Since that time I have made a large number of sections of the optic tracts and tubercula quadrigemina in cases of general paralysis, and have been led to the opposite conclusion.

4. The atrophy of the nerve seems to bear no fixed proportion to the ataxy of the orbital muscles seen in general paralysis. This ataxy is probably dependent upon the same causes as the ataxy of the articulating and other muscles.

5. The nerve changes are generally proportionate to the well-known contraction and dilatation of the pupils. These contract in the early or hyperæmic stage, and dilate as white atrophy succeeds.

6. As atrophy of the optic nerves can seldom be surely ascertained in the incipient stages of general paralysis, its diagnostic significance, therefore, is not great. Its value lies rather in its important pathological significance.

Appendix to Cases of General Paralysis.

Dr. Browne has been kind enough to forward to me a report of such autopsies as have taken place upon any of the above cases, viz. upon Nos. 3, 4, 10, 12, 14, 18, 19, 33, 47. In all, the membranes were found thickened and the convolutions wasted and water-logged. In all but two atheromatous disease of the arteries is noted.

In No. 3. The corpora striata, thalami, and corpora quadrigemina were "flattened, as if wasted."

In No. 4. "All the cerebral nerves much wasted; the optic nerves, commissure, and tracts, especially, atrophied."

In No. 14. "The optic thalami flattened, as if wasted."

In No. 18. "Corpora quadrigemina flattened, wrinkled, and softened; cerebral nerves also softened."

In No. 47. "Optic nerves, commissure, and tracts, white, flattened, and wasted."

P.S.—Since this paper was in type No. 26 has died, and, in addition to the usual changes in the membranes and convolutions, the optic nerves were degenerated. Dr. Browne says, "the nerves appeared quite plump and round, and I should have reported them as healthy but for their *white glistening appearance* [white atrophy, T. C. A.]. On examination they were quite without consistence, and were chiefly made up of connective tissue and watery fluid."

Of mania I have noted 51 cases. Of these, the state of the nerves was, in 25 cases, symptomatic of intracranial disease; in 13 cases it was of doubtful meaning; and in 13 cases I found either no changes at all or only local changes, such as glaucoma, myopia, &c. I think the Society will be surprised to hear of symptomatic change being found and suspected in so large a number of cases. It was far more than I looked for. But it will be remembered, on the other hand, that the patients submitted to me were always well-marked cases of disease, and in the larger proportion of them organic disease was suspected on grounds independent of my conclusions. From my list of mania cases I propose the following points for future observation:

1. That symptomatic changes in the eye are to be found in a large proportion of cases of mania.

2. That if cases known to be functional only, or incorrectly named (such as erotomania, transient mania, hysteria, &c.) be omitted, the proportion of cases presenting permanent change in or near the optic discs is still larger.

3. That both in mania depending upon organic causes and in functional mania the back of the eye, if observed within a few days after a paroxysm, presents a vascular suffusion or pinkness, a pinkness so great after severe paroxysms as to obscure the disc. No exudation is seen in these cases, unless there exist some permanent mischief.

4. That during the paroxysm, on the contrary, the disc is anæmic, perhaps from spasm of the vessels.

5. That the permanent changes in the disc are due either to stasis from obstruction to the intracranial circulation, with consecutive atrophy; or to *ramollissement* ending in simple white atrophy; or they may present changes of a mixed character.

I may make a few further remarks upon my propositions concerning the hyperæmia or blush of the optic disc and retina in mania. I found this so frequently in maniacs who had recently passed through a paroxysm that I began to think I could detect cases of mania by this appearance only. However, I carefully avoided any theorising during my inves-

tigations, lest I should unwittingly vitiate my observing powers. On reading my lists over, however, it occurred to me that this suffusion, which I also saw sometimes upon the conjunctiva, might be due to a paralysis of the vaso-motor nerves.

I instantly turned to the notes of a case which I had by good luck been able to observe during a paroxysm, a piece of rare good fortune.

The Society will see that I have there noted an anæmic retina, and a whitish state of the disc which I put down to commencing atrophy, though with some doubt. May there be in the eye, and so in the brain, a spasm of the arteries—an epilepsy of the mental functions—followed by a paralytic dilatation of longer or shorter duration? Of course my one case can be nothing more than a suggestion of such a mode of action. The appearances of excessive vascularity seemed to last, on an average, from five to eight days. I watched its fading in several cases.

MANIA.

Cases of especial interest—2, 4, 10, 12, 22, 24, 25, 26, 27, 28, 31, 35, 38, 39. Mania after rheumatism—51.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
1	John Kendall, æt. 44, Wakefield Asylum	Mania passing into dementia <i>Autopsy.</i> —Chronic degeneration of brain.	Simple white atrophy, with even edges This patient is quite blind.	As right.
2	W. Beaumont, æt. 48, Wakefield Asylum	Chronic mania; subacute meningitis? Three months afterwards I hear has had clot on left side, probably in the hemisphere. Previous, therefore, perhaps softening <i>Autopsy.</i> —General wasting and disorganization of brain; atheroma of vessels; weight of brain 42½ oz. This patient died after an apoplectic seizure.	Disc atrophied, edges patchy	Disc atrophied; edges irregular, and patches about and near them, probably of old exudation.
3	Kate Kavanagh, æt. 17, Wakefield Asylum	Hysterical mania; severe case This patient completely recovered	Discs both healthy, but perhaps a little too pinky; certainly pinker than average	
4	Walter Lee, æt. 14, Wakefield Asylum	Three or four attacks of recurrent mania; meningitis Discharged recovered	Disc suffused; vessels large, plum-coloured, and numerous Certainly some obstruction to the circulation of the retina.	As right.
5	Henry Brown, æt. 45, Wakefield Asylum	Chronic mania	Cornea opaque	Disc, &c., natural.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
6	Jos. Hall (No. 1 ward), æt. 44, Wakefield Asylum	Chronic mania; partial paralysis. <i>Autopsy</i> .—General wasting of brain; weight 42½ oz.	Discs rather white at the edge, but probably healthy.	
7	Joseph Hall (No. 2 ward), æt. 75, Wakefield Asylum	Chronic recurrent mania, passing into senile dementia	Disc atrophic; consecutive atrophy, with ill-defined edges	As right.
8	Benjamin Holt, æt. 60, Wakefield Asylum*	Chronic mania	Vessels large, and some tortuous; disc too white	Vessels large; disc too white; no infiltration.
9	William Brown, æt. 47, Wakefield Asylum	Chronic mania; constant excitement four months; chronic meningitis	Normal? Appearances doubtful	Outline indistinct; some infiltration; vessels well marked, but not much swollen.
10	George Crossley, æt. 34, Wakefield Asylum	<i>Autopsy</i> .—Wasted brain; weight 43 oz.; atheroma of vessels; pia mater glued to layers of arachnoid, but separable from brain. Death occurred during an apoplectic fit. Convalescing from a most violent attack of mania. Now has great disturbance of vision, recognised by entrance of retinal flashes of light, &c., also visual hallucinations	Very deeply congested; vessels full; disc only to be recognised by entrance of retinal vessels, where there is a white spot	As right, but even more marked in degree.
11	Thomas Camm, æt. 18, Wakefield Asylum	Mania and morbus cordis	First examination, slightly congested Second examination (six weeks later), right as before.	First examination, photophobia. Second examination, still some photophobia, but disc seen, which is more congested than right disc.
12	Joshua Kiteon, æt. 35, Wakefield Asylum.	Mania; chronic meningitis Died some months subsequently.	Atrophied; edges not clean cut, nor yet very irregular, but ill-defined	Almost as right; no important difference.

Pupils contracted.

* Same case as No. 26. Examined at an earlier date.

13	Jane Turpenney, æt. 21, Wakefield Asylum	<i>At autopsy.</i> —Diagnosis verified; thickening and opacity of arachnoid; adherence of membranes; serous effusion; capillary congestion; tubercle in lungs.	Discs, &c., both normal.
14	John Spencer, æt. 23, Wakefield Asylum	Mania functional; subsequent complete recovery	Retinæ anæmic; discs healthy.
15	Daniel Milligan, æt. 53, Wakefield Asylum	Mania; subacute meningitis	Disc very pink, not to be distinguished in colour from the retina. Central veins well marked and plum-coloured. Localised pigmentary retinitis.
16	Fred. Simpson, æt. 35, Wakefield Asylum	Acute mania (commencing Graves' disease?) <i>Autopsy.</i> —Brain wasted; weight 43 oz.; pia mater and arachnoid thickened, opaque, and adherent to surface of brain. Symptoms of general paralysis set in subsequent to examination.	As right, perhaps a little more marked.
17	William Denton, æt. 38, Wakefield Asylum	Chronic mania	Retinæ anæmic; discs normal.
18	James Richmond, æt. 34, Wakefield Asylum	Recovered from an attack of acute mania	No decided change in either eye; perhaps some fulness of vessels, which are rather plum-coloured.
19	Joseph Broughton, æt. 52, Wakefield Asylum	Chronic mania and meningitis	Disc appears abnormally white, but very transitory view obtained
20	John Beckwith, æt. 42, Wakefield Asylum	Chronic mania	Could not be seen; patient very difficult to manage. Retinæ anæmic; discs normal.
21	Harriet Lee, æt. 39 (<i>vide</i> Walter Lee, No. 4, her son), Wakefield Asylum	Recovering from mania. (Has also slight Graves' disease?)	Vessels very tortuous and numerous; disc veiled by infiltration The state known as "optic neuritis," and clearly not the retinal stasis sometimes seen in Graves' disease. As right.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
22	Charles Chadwick, æt. 53, Wakefield Asylum	Recurrent mania, slight, right hemiplegia	Decidedly atrophic, edges clean cut	Atrophied; a brilliant white nerve.
23	Martin Devine, æt. 35, Wakefield Asylum	Recurrent mania	Back of the eyes presents marked changes due to myopia.	Back of the eyes presents marked changes, but they are the changes due to myopia.
24	Michael Wouldhave, æt. 55, Wakefield Asylum	Recurrent mania, no doubt caused by organic disease; attacks very violent	Commencing atrophy; apparent outer edge vascular and suffused, opposite edge whitening and distinct; no infiltration	Complete atrophy; edges distinct, not ragged.
25	Robert Hazelgrove, æt. 23, Wakefield Asylum	Recurrent mania, often very severe. Is now recovering from a violent attack; he is also congenitally imbecile	Too many vessels, which are also plum-coloured; some indefiniteness of edges	Commencing atrophy; edges too clean; vessels numerous; a minute punctiform hæmorrhage near the yellow spot.
26	Benjamin Holt, æt. 60, Wakefield Asylum*	Chronic mania; right hemiplegia; attack two months ago, followed by profound coma	Markedly diseased; atrophy at apparent inner edge, and suffusion and vascularity of opposite edge	As right, differing but slightly in degree.
27	Wm. Williams, æt. 16, Wakefield Asylum	Mania transitoria, functional; attack now passing off	Both discs very pink, and vessels full.	
28	William Broadhead, æt. 43, Wakefield Asylum	Chronic mania, with degeneration of brain	Edges indistinct all round, and disc itself as pink as the retina. Commencing atrophy?	No decided change; vessels a little dark and full.

* This is the same case as No. 8. Hemiplegia had occurred between the examinations.

29	W. F. Seymour, æt. 45, Wakefield Asylum	Mania recent; just admitted	Retinæ anæmic; the discs, however, are very pink, but they are both <i>exactly</i> alike, and probably, therefore, healthy.
30	Ephraim Wood, æt. 37, Wakefield Asylum	Convalescing after acute mania. Gangrene of foot	Disc seems a little white, but cannot be called diseased
31	B. W. Skelton, æt. 23, Wakefield Asylum	Acute mania (severe). By good fortune we secured an examination during a paroxysm	Retina anæmic; disc rather white, looking like commencing atrophy
32	L. Henry, æt. 25, Wakefield Asylum	Mania	Retinæ anæmic; discs healthy.
33	James Grey, æt. 40, Clifton Asylum	Chronic mania, with great depression in intervals of excitement	Disc white and much encroached upon by a patch of pigment; some vessels tortuous; probably some local (perhaps congenital) condition
34	Sam. Jackson, æt. 51, Clifton Asylum	Chronic mania, now passing into dementia	Natural
35	Jos. Blackburn, æt. 29, Clifton Asylum	Mania, probably functional; has been very violent; has been tolerably quiet for three days	Irregular in outline and whiter than right disc. No remains of any old exudations.
36	Sarah Walls, æt. 64, Clifton Asylum	Chronic mania	As right, but even more distinctly marked.
37	Thos. Ward, æt. 44, Clifton Asylum	Chronic mania, passing into dementia	Discs, &c., natural. Both discs, &c., healthy.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
38	Thos. Brighton, æt. 29, Clifton Asylum	Mania violent, with left hemiplegia	Before I was aware of the left hemiplegia I noted that this right disc was much congested, and the retinal vessels many, full, and plum-coloured (obstruction)	Natural.
39	W. G. Broadbent, æt. 36, Clifton Asylum	Old and bad case of mania. No evidence of organic disease; now quite quiet	Disc red, and vessels rather many and full	Even more congested than right, the edges of the disc being almost indistinguishable; no exudation.
40	Mary Wright, æt. 23, Clifton Asylum	Old history of mania and of states resembling catalepsy, but not very well marked; probably organic disease	Commencing atrophy; some vessels tortuous; apparent inner edge very white	As right, but a little whiter.
41	Mary Bellerby, æt. 46, Clifton Asylum	Chronic mania; seldom excited	Healthy	Healthy.
42	Isaac Hutton, æt. 40, Clifton Asylum	Mania; supposed syphilitic meningitis	Slight atrophy, apparent inner being white; edges defined	More marked still, but far, however, from being complete; edges a little ragged.
43	Thos. Kelley, æt. 26, Wakefield Asylum	Chronic mania	Disc pinkish, more than natural; some excess of vessels	Cornea opaque.
44	Wm. Bedford, æt. 67, Wakefield Asylum	Recurrent mania (degeneration of brain?)	Discs, &c., both normal.	

45.	Jos. Morris, æt. 37, Wakefield Asylum	Mania; paroxysm recently passed by	No marked change in either eye, but right disc whiter than left.	
46	Edw. Rayner, æt. 48, Wakefield Asylum	Chronic mania; subacute meningitis	Disc whitish at apparent inner edge, and some pinkness about the opposite edge, but taken alone should not be pronounced diseased	Disc very different to right disc, being whiter at apparent inner edge and more suffused about opposite edge. Taking the two discs together, I have no doubt of progressive change.
47	Wm. Woodhead, æt. 41, Wakefield Asylum	Mania; chronic meningitis	Disc ill seen, as the patient was very violent, and kicked the spat while being examined. The vessels are dark and large, and there seems to be effusion, somewhat obscured, though not or, at least, much congestion	Disc ill-seen, as was the case with right. But the disc and neighbouring retina look cloudy, and the vessels near the disc are somewhat obscured, though not concealed. No doubt this disc will atrophy.
48	Rob. Feathers, æt. 21, Wakefield Asylum	Acute mania, probably functional; attack passed by some few weeks ago	Disc red or muddy, and with whitish edge at apparent inner side. But it may be nothing more than hyperæmia (a doubtful disc)	As right, but less in degree; not quite right in appearance; doubtful.
49	John Cockcroft, æt. 44, Wakefield Asylum	Chronic mania; degeneration of brain	Discs both quite normal.	
50	Henry Wickham, æt. 25, Wakefield Asylum	Recurrent mania, hereditary	Disc small and reddish	Disc whiter than right, and edges indistinct.
51	Abraham Waddington, æt. 35, native of Conoley. Attended by Dr. McNab, of Crosshills. Wakefield Asylum	Admitted with violent mania, sequence of rheumatic fever; is now recovered (Feb. 18, 1868); has tubercle of lungs	White atrophy <i>distinct</i> , though not very extreme; can read No. 3 Jagg. with difficulty	Disc atrophied, but not so decidedly as right disc; reads No. 3 Jagg. with difficulty.

The next portion of my schedule contains 38 cases of *dementia* not connected with epilepsy. Most of them, however, were due to organic disease in the brain, and were picked out for their severity.

Of these I found disease in the optic nerve or retina in 23 cases; I found 6 in a doubtful condition, and 9 were healthy. It will be seen that in simple acute dementia (uncomplicated with organic disease), however profound, no changes in the optic nerve are recorded.

I will only note further, that in dementia, where atrophic changes were seen by the ophthalmoscope, I both made inquiries concerning the sight, and, in some cases, tested it. I confirmed my former belief, that statements concerning visual power, whether made by patients, or by their friends, are of no value (*vide Dementia, e. g.* No. 29); and, moreover, that failure of sight, as tested by types, is wholly an oculist's symptom, and bears little proportion to the amount of atrophic or other disease that may be seen in the nerve. Mapping of the field of vision is a most important physician's symptom, but with lunatics this would have been simply out of the question.

DEMENTIA.

Cases of especial interest—1, 3, 5, 7, 11, 12, 13, 19, 23, 25, 26, 27, 29, 35, 38.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
1	James Dutton, æt. 48, Wakefield Asylum	Profound dementia; paraplegia; can but just walk <i>Autopsy</i> .—Dura mater thickened and puckered; brain wasted; weight 44 oz.; vessels atheromatous, and projecting from cut surface; remains of old small hemorrhages.	Marked atrophy of disc	Cornea opaque.
2	Joseph Sykes, æt. 46, Wakefield Asylum	Dementia	Vessels well-marked; eyes healthy?	
3	Jane Dixon, æt. 65, Wakefield Asylum	Senile dementia; partial paralysis of all limbs	Discs both much changed in outline, and rather too white; frequent pigment spots about margins of both; blotchy condition of both retinæ, especially of <i>left</i> .	
4	— Bancroft, female, æt. 24, Wakefield Asylum	Acute dementia	Both discs, &c., healthy.	
5	Jemima Batty, æt. 23, Wakefield Asylum	Acute dementia and bronchocele	Active change in both discs; much congestion for about three-fourths of margin in both, which is quite concealed by a veil of exudation; there seems a tendency to whiten at both (apparent) inner edges; vessels many, the <i>smaller</i> slightly tortuous in many cases.	
6	Thomas Messenger, æt. 57, Wakefield Asylum	Dementia	Discs both atrophic, not very far advanced; vessels fine.	

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
7	John Kendall, æt. 62, Wakefield Asylum	Dementia following mania	Simple white atrophy, with even edges	As right.
8	Benjamin Kemplay, æt. 62, Wakefield Asylum	Old case of dementia; degene- ration of brain	No marked change	Slight, but I think decided commencing atrophy.
9	Henry Oldham, æt. 61, Wakefield Asylum	Dementia; left hemiplegia; old clot	Disc normal? perhaps slightly pink and, it may be, a little in- distinct towards (apparent) inner margin	Disc compressed from above downwards, and much whiter than right disc; could not alone be called decidedly atrophic.
10	Nathan Bentley, æt. 38, Wakefield Asylum	Dementia; tubercle	Both discs misshapen and compressed from above downwards; vessels a little too pronounced; discs are both a little too pink, and their edges somewhat indefinite; both, however, are exactly alike.	
11	Patrick Carpenter, æt. 50, Wakefield Asylum	Profound dementia, far gone <i>Autopsy</i> .—Disorganization of brain.	Discs both atrophied, and small; vessels fine; both eyes quite alike. This patient is quite blind.	
12	Richard Buckley, æt. 31, Wakefield Asylum	Dementia; right hemiplegia; clot	Right optic disc too white Vessels normal.	Left disc, decided atrophy; edges even.
13	Joseph Hall, æt. 75 (of No. 2 ward), Wakefield Asylum	Senile dementia following chronic recurrent mania	Atrophic disc, with irregular edges	As right.
14	Caroline Brooke, æt. 44, Wakefield Asylum	Dementia; chronic disorgani- zation of brain This patient was examined again some weeks later—observation verified.	Vessels rather too pronounced, and some a little tortuous	Disc decidedly too white; atrophic.

15	Benjamin Lister, æt. 49, Wakefield Asylum	Dementia; softening of brain; paralysis of left side from old clot	Healthy	Cornea opaque.
16	William Pepperdy, æt. 42; Wakefield Asylum	Dementia; clot; right hemiplegia; no aphasia.	Healthy	Disc slightly but, I think, decidedly atrophic; decidedly, at any rate, whiter than right disc.
17	Henry Holloway, æt. 21, Wakefield Asylum	Acute dementia; recovering	No marked change, unless it be some pinkness of the discs and a little photophobia.	
18	David Lambert, æt. 32, Wakefield Asylum	Dementia; masturbation	Discs small and pinkish; vessels a little numerous. I think, however, that this is only a presbyopic change, not a symptomatic.	
19	Mary Ann Hessey, æt. 47, Wakefield Asylum	Dementia and Graves' disease. (Comp. Harriet Lee, No. 21 of Mania schedule). Since dead <i>Autopsy</i> .—Adhesion of dura mater to skull-cap; atrophy of the cortical substance; large serous effusions; old pericarditis (sclerosis?) of the medullary substance	Disc shows a tendency to atrophy Her sight is known to have been failing for four or five years.	Left disc decidedly atrophied.
20	John Maguire, æt. 60, Wakefield Asylum	Old dementia and degeneration of brain	Right disc looks a little atrophied; a pigment ring round one third of circumference on (apparent) inner side	Left disc looks, on the contrary, unnaturally pink.
21	Edward Hurst, æt. 31, Wakefield Asylum	Disease as No. 20, with occasional and various paralyzes	Discs both a little troubled, as if with a little former exudation, but no advancing change.	
22	Charlotte Drake, æt. 62, Wakefield Asylum	Senile dementia; disease of capillaries (?), so that the slightest rap upon the arm causes marked ecchymosis, &c. <i>Autopsy</i> .—Brain soft, wasted, and watery; much atheroma of vessels.	The media are dull, and the discs and retinæ of a dim muddy look, not exactly anæmic in appearance; no apparent change in the vessels.	

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
23	John Emmott, æt. 19, Wakefield Asylum	Dementia; profound anæmia <i>Atopsy.</i> —Brain substance generally pale; layers in cortical matter well defined; veins and sinuses much distended with blood; all the veins about the base remarkably full. Phthisis pulmonalis.	Disc decidedly atrophic at (apparent) inner edge; apparent outer obscured and too vascular	Disc decidedly but not extremely atrophic.
24	Joseph Jubb, æt. 60, Wakefield Asylum	Senile dementia	Pigmentary retinitis both eyes; a large increase of vascular ramifications; discs not decidedly abnormal (whitish?).	
25	Thomas O'Brien, æt. 22, Wakefield Asylum	Dementia following meningitis	Disks pink; considerable increase of vascular ramifications; the circulation of the discs is decidedly affected.	
26	— Wakefield Asylum	Partial dementia; clot; left hemiplegia, and some difficulty in swallowing	Both discs congested, and most of the margin (especially at apparent outer edge) of both invisible.	
27	Jacob Rogers, æt. 60, Wakefield Asylum	Dementia, old case; double hemiplegia, with partial recovery; strabismus; several clots, some rather large	Both discs markedly atrophic.	
28	Mich. Bartlett, æt. —, Wakefield Asylum	Dementia; right hemiplegia; aphasia	Disc perhaps a little too white, and, when taken with left disc, may be called slightly atrophic	Disc decidedly atrophic.
29	John Carrier, æt. 48, Wakefield Asylum	Dementia; right hemiplegia; no aphasia	Disc, (apparent) outer edge indistinct and suffused pink; opposite edge quite atrophic	Left disc quite atrophic. Stated by self and others that his sight was in no way failing.

30	Ralph Harper, æt. 50, Wakefield Asylum	Dementia; old disorganization of brain	On examination can only read 16 Jäger with left eye, and cannot read ordinary news print even with right.
31	George Wheatley, æt. 25, Wakefield Asylum	Acute dementia	The vessels in and about both discs are fine and few. I have little doubt that atrophic changes are going on in both eyes, left disc being much whiter than right disc; but as myopic changes are also going on, I cannot give a decided opinion.
32	William Poppleton, æt. 25, Clifton Asylum	Dementia; no history	Discs natural; retinæ anæmic.
33	Edward Farrow, æt. 57, Clifton Asylum	Dementia; paraplegia. (Paralysis below the sympathetic region of cord)	Commencing atrophy of disc; apparent outer edge indistinct, and opposite edge white
34	James Tynan, æt. 42, Clifton Asylum	Dementia; organic disease of encephalon; paralysis of articulation (tongue and larynx); remnants of right facial paralysis	Healthy.
35	Joseph Pratt, æt. 51, Clifton Asylum	Dementia; organic disease; degeneration of brain	Decided but not complete atrophy of the disc; choroid healthy.
			Disc, edges obscured by wide dimmed in places by exudation, but very partial and slight
			Disc, edges obscured by wide large or plum-coloured, and are hidden as they approach and pass through the exudation region. This is probably <i>genuine</i> optic neuritis.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
36	Richard Waddington, æt. 33, Wakefield Asylum	Blow on head over left parietal; concussion; interval of health, then gradual change in affections—1, in emotions; 2, in intellect. Wasting and loss of muscular power; certainly has organic disease of brain	Whitish in centre, but cannot be pronounced to be diseased	Left disc compressed and decidedly too white.
37	Ann Gallagher, æt. 16, Wakefield Asylum	Profound acute dementia, functional	No marked changes, unless it be some largeness of the vessels.	
38	Dennis Higgins, æt. 65, Wakefield Asylum	Profound dementia; irregular paralysis <i>Autopsy</i> .—Changing clots on surface of brain; total atrophy exactly up to median line of left half of fornix; wasting of thalami on both sides, which were hollowed out; attenuation of corpora quadrigemina and deep brown discoloration of the nates; optic nerves seemed unaffected to the naked eye, so also commissure and tracts. Under the microscope, however, sections of them showed great proliferation of the connective tissue and atrophy of the nerve fibres.	Patient quite unmanageable; eyes could not be thoroughly examined; but there was complete anaurosis, and the discs were white.	

In *melancholia* and *monomania*, which I have tabled together for convenience, the relation of events is changed. As a large proportion of these affections are functional only, so I find, on analysing my list, that of 17 cases, the optic nerve and retina were healthy in 10, doubtful in 4, diseased in 3 cases. Of the *four* marked as doubtful, the case of John Booth (No. 1 of the table), which is noted as possibly a case of commencing atrophy of disc, has since shown symptoms of locomotor ataxy, as Dr. Browne tells me. This event accounts for my suspicion of commencing atrophy. I find in the 3 diseased cases that Dr. Browne notes "atheroma of vessels" in one; in another "probable organic disease;" in the third, "chronic disorganization of the brain."

Alienist physicians will not be surprised to hear that I very frequently noted the presence of anæmia of the retina in melancholia.

MELANCHOLIA AND MONOMANIA.

Cases of especial interest—2, 4, 9, 10, 12, 13.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
1	John Booth, æt. 49, Wakefield Asylum	Melancholia; has since shown symptoms of locomotor ataxy	Contracted pupils; discs rather white, with frequent circles about edges	As right. I cannot say that either disc is unhealthy.
2	Henry Shirt, æt. 51, Wakefield Asylum	Deep melancholia (moral cause)	Disc <i>reddish</i> Probably both healthy?	As right.
3	G. Crowther, æt. 45, Wakefield Asylum	Hereditary melancholia (suicidal)	Discs whitish, but probably only anæmic; a little appearance of pigmentary retinitis.	Probably both healthy?
4	Stephen Sagar, æt. 60, Wakefield Asylum	Monomania; atheroma of vessels	A good many full vessels, and some a little tortuous; disc seems edge of ocular disc indistinct, as if from very slight infiltration; whitening at edges, which are very distinct	Vessels less full and fewer; edge of ocular disc indistinct, as if from very slight infiltration; disc slate-coloured; tendency of part of edge to whiten.
5	Thomas Pinder, æt. 37, Wakefield Asylum	Syphilophobia and hypochondriasis; has since recovered	Both discs healthy.	Both discs healthy.
6	Hannah Moorhouse, æt. 37, Wakefield Asylum	Religious monomania, with hallucinations of sight and hearing	Both discs, &c., healthy.	Both discs, &c., healthy.
7	Ann Shaw, æt. 45, Wakefield Asylum	Melancholia; scirrhus of mamma	Profound anæmia of both optic discs and retina.	Profound anæmia of both optic discs and retina.
8	Mark Vause, æt. 54, Wakefield Asylum	Melancholia (long history)	Healthy	Healthy.

9	Eliza Parker, æt. 49, Wakefield Asylum	Melancholia; anæmia and morbus cordis from rheumatism	Disc pink and a good deal of vascularity; edges indistinct	As right.
10	James Longley, æt. 51, Wakefield Asylum	Confirmed melancholia; masturbation; probable organic disease	Pinker than natural (healthy?)	Suffusion of colour and vascularity at apparent anterior edge; commencing atrophy at opposite edge.
11	Patrick Heya, æt. 40, Wakefield Asylum	Monomania of suspicion, with sense hallucinations, especially visual	Disc flattened from above downwards	Disc very decidedly whiter than right disc.
12	Christus Seward, æt. 29, Wakefield Asylum	Melancholia, passing into dementia	First examination, discs not natural, but the appearances probably those of hypermetropia. Second examination, I think there is decided hyperæmia of the disc and retina, not dependent upon any change in the coats of the eye.	
13	Thos. MacNamara, æt. 28, Wakefield Asylum	Melancholia; old case. Chronic disorganization of brain	Apparent outer edge of disc indistinct and vascular; commencing change; opposite edge whitening	Scarcely any change? quite different to right.
14	John Brown, æt. 36, Wakefield Asylum	Profound melancholia; hereditary	Retinæ <i>not</i> anæmic; discs healthy.	
15	Thos. Abbott, æt. 56, Wakefield Asylum	Melancholia; injury to head	Right disc pinker than left disc. Healthy?	A greyish-white spot on the course of one vessel, and a rather larger and very distinct one near the yellow spot not on the course of a vessel. Both are, I think, old hæmorrhages.
16	Benj. Copeland, æt. 46, Wakefield Asylum	Melancholia; pigment in skin all over body	Discs healthy.	"Pigmentary retinitis" in both eyes.
17	Rob. Moorhouse, æt. 35, Wakefield Asylum	Melancholia	Discs and retinæ normal.	

Of *insanity depending upon epilepsy* I bring 43 cases. It may surprise some of my hearers to be told that when compared with general paralysis, mania, and dementia, the proportion of epileptic cases which present symptomatic changes in the eye is small.

I note disease of the optic nerve or retina in 15 cases out of the 43. I mark 9 as doubtful; the remaining 19 showed no diseased change.

It is known, however, by those who have used the ophthalmoscope in cerebral disease that epilepsy alone (not dependent upon organic disease) is not usually accompanied by disease of the optic nerve. It is thought that some change in the vessels of the retina may be seen in epilepsy, and some of my cases seem to bear this out. On a re-examination of the table it will be seen that organic disease was known by unilateral symptoms, or otherwise, to exist in most of the cases in which the optic nerves are noted as diseased.

I should perhaps remind the Society that the general diagnoses and the eye examinations were noted by different persons.

INSANITY WITH EPILEPSY.

Cases of especial interest—13 and 41, 22, 24, 27, 30, 33, 36, 37.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
1	M. Darwin, æt. 25, Wakefield Asylum	Old epileptic and dementia	Disc a little too pink; edges a little indistinct. No marked change	Venæ centrales very large in this eye; otherwise as right.
2	B. Feathers, æt. 39, Wakefield Asylum	Epilepsy five months; dementia	A little infiltration around the margin of disc	Ocular disc, edges very irregular, and a good deal of infiltration about them, especially toward apparent outer edge.
3	Wm. Hy. Ellis, æt. 3, Wakefield Asylum	Epileptic; enfeebled faculties	Disks, or at any rate right disc, is decidedly white, but patient very unmanageable.	
4	Chas. W. Walton, æt. 33, Wakefield Asylum	Epilepsy; blow on the head and exfoliation; loss of portion of cerebral substance	Apparent outer edge of disc invisible; of suffused and vascular appearance; other edge clean cut and whitening	As right, but less in degree.
5	M. Evers, æt. 32, Wakefield Asylum	Confirmed epilepsy; much ocular ataxy	Disc pink, about the colour of the retina, and difficult to find except by convergence of vessels; edges very indistinct; vessels full, not tortuous	As right, but worse.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
6	Wm. Woodhead, æt. 41, Wakefield Asylum	Confirmed epilepsy with de- mentia; tubercle in both lungs	Atrophied; edges clean out	Some infiltration and excess of vessels on apparent outer edge; other edges white; atrophy sharply defined.
7	Elizabeth Crackle, Wakefield Asylum	Confirmed epilepsy and de- mentia Examined again after three or four days of excitement	First examination, healthy Second examination, healthy	First examination, healthy. Second examination, healthy.
8	Martha Dickenson, Wakefield Asylum	Epilepsy occasional; partial paralysis of right side; no aphasia	Exophthalmos; disc healthy? Vessels a little large	Exophthalmos preceded that of right eye, but now receded. Disc healthy? Vessels <i>finer</i> than usual. Disc a little whitish?
9	Hannah Gates, æt. 23, Wakefield Asylum	Is liable to long series of fits, followed by long coma. No unilateral spasm	Healthy Nothing abnormal in vessels?	Healthy.
10	Sarah Walsh, æt. 55, Wakefield Asylum	Confirmed epilepsy and de- mentia. Lately, impairment of muscular power	Healthy	Healthy. A small pigment patch, probably congenital, upon retina.
11	Sarah Holdsworth, æt. 20, Wakefield Asylum	Severe (traumatic) epilepsy; profound dementia. Depression 1 × 2 inches at longest diameters at anterior and upper border of right parietal bone	Disc too pink; edges invisible	Ocular disc natural, unless, perhaps, some slight excess of pinkness.

12	Louisa Sellers, æt. 23, Wakefield Asylum	Epilepsy five years' standing and dementia	There is a whitening at part of margin in both discs, but probably only commencing myopic change.	
13	Charles Wood, æt. 27, Wakefield Asylum	Chronic epilepsy and mania, not meningitis. Second examination, has just passed through a violent epileptic paroxysm; has visual and other hallucinations	First examination healthy; vessels large and full. Second examination. On for- mer examination the vessels were noted as rather full than other- wise, but now are very small, visible, fine, and few	First examination, healthy? Second examination, vessels here also smaller than before, but artery and vein distinctly visible.
14	— Scholefield, Wakefield Asylum	Epilepsy and dementia; epi- lepsy from childhood; left hemi- plegia from childhood	Disc of irregular form and almond-shaped	Compare this with Case 41. As right, but a little whiter.
15	Mary Cooper, Wakefield Asylum	Epilepsy; dementia; phthisis	Vessels a little too distinct, and disc rather too pink. Healthy?	As right.
16	Hen. Bence, Wakefield Asylum	Epilepsy; dementia	Disc pinkish? Retina very anæmic	Disc as right; vessels fuller than in right, and more than usually full; retina very anæmic.
17	Isaac Kendrew, æt. 20, Wakefield Asylum	Continual epilepsy and de- mentia	Disc atrophic	As right.
18	Thos. Greenwood, æt. 30, Wakefield Asylum	Epilepsy and dementia	Pigmentation about the margins of both discs, which, however, are probably quite healthy.	
19	Chas. Paget, æt. 28, Wakefield Asylum	Severe epilepsy and dementia; anæsthesia and impairment of muscular power	Over vascularity and pinkness of disc, but no decided change	As right.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
20	Edwd. Scholefield, æt. 20, Wakefield Asylum	Epilepsy and dementia; hemiplegia of left side with wasting of muscles	Healthy	Healthy.
21	Jane Sheldon, Wakefield Asylum	Epilepsy and dementia	Healthy	Healthy.
22	Rob. Boasman, æt. 33, Clifton Asylum	Dementia, unilateral (right); epilepsy; no aphasia	Commencing atrophy of disc	Perhaps there may be slight atrophy; the disc has a doubtful whitish look, but is not nearly so white as right.
23	Wm. Eggleston, æt. 22, Clifton Asylum ¹	Mania and epilepsy; <i>suspicion</i> of organic disease	Right disc decidedly a little whiter than left	Left is also pale, but I would not assert that either disc is atrophied.
24	Geo. Monkman, æt. 35, Clifton Asylum	Dementia and epilepsy; probably organic disease	Disc congested, and vessels many, but I should not, except for left disc, have attached much weight to it	Left disc is very decidedly congested, and its edges for about half circumference on (apparent) outer side misty. Taking both eyes together there is evidence of change.
25	Joseph Williamson, æt. 22, Clifton Asylum	Epilepsy; dementia; much stupor	Right disc, &c., congested; vessels frequent	Healthy.
26	Rebecca Braithwaite, æt. 36, Clifton Asylum	Mania; epilepsy affecting right side; supposed organic disease	Healthy	Healthy.

¹ No. 23, Wm. E.—, died January 24th, 1868, of repeated epileptic seizures. Autopsy forbidden.

27	Hannah Humble, æt. 42, Clifton Asylum	Recurrent mania and epilepsy	Both discs and neighbourhood showing the pinkness and vascularity I have often noted after attacks of mania.
28	Martha Hutchinson, æt. 27, Clifton Asylum	Epilepsy and mania; no unilateral symptoms	Healthy
29	Thos. Storey, æt. 41, Wakefield Asylum	Epilepsy and dementia	Healthy.
30	Sam. Jowitt, æt. 31, Wakefield Asylum	Dementia and <i>unilateral</i> epilepsy	Discs, &c., healthy.
31	Horatio Edwards, æt. 27, Wakefield Asylum	Dementia and epilepsy	Commencing atrophy of disc Atrophy more advanced than right, but scarcely to be called complete.
32	George Lawton, æt. 28, Wakefield Asylum	Dementia and epilepsy	No change.
33	John P. Halligan, æt. 56, Wakefield Asylum	Eleven years standing dementia and epilepsy, following depression of skull from a blow	Discs healthy? Several (congenital?) patches in both eyes about their margins. Decided atrophy Vision obviously impaired.
34	Fr. Richardson, æt. 19, Wakefield Asylum	Dementia and epilepsy	Complete atrophy. Discs normal, &c.
35	Alfred Swaine, æt. 26, Wakefield Asylum	Dementia; epilepsy	Some over-pinkness and vascularity in and about both discs, but no marked change.
36	Isaac Challoner, æt. 49, Wakefield Asylum	Dementia or epilepsy, with evidence of cerebral degeneration	Decidedly whiter than right Commencing atrophy; apparent inner edge pearly; opposite disc. edge suffused, and vessels many and fine

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
37	Thos. James, æt. 17, Leeds Infirmary	Dementia and epilepsy; unilateral (left) symptoms	Has been under my notice for eighteen months, the dementia slowly creeping on. He had, when I first saw him, congestion and exudation in and about both discs. This is now passing into consecutive atrophy with ill-defined edges, &c. Examination, nine months later, shows the edges clearing and becoming definite.	
38	Br. Dyson, æt. 21, Wakefield Asylum	Dementia and epilepsy	Both discs white, vessels few; some indistinctness of inner edge in both.	
39	Alfred Forbisher, æt. 16, Wakefield Asylum	Congenital imbecility and epilepsy	Disc atrophic at apparent inner edge; many tortuous vessels inner; opposite edge cannot be about opposite edge, but it can distinguished even with 4"; probable distinguished with 3½", not badly some little exudation; one with 2" fine and curly vessel crosses the atrophied half.	Disc atrophic at apparent edge; opposite edge cannot be about opposite edge, but it can distinguished even with 4"; probable distinguished with 3½", not badly some little exudation; one with 2" fine and curly vessel crosses the atrophied half.
40	Mary Slater, æt. 21, Wakefield Asylum	Dementia, epilepsy; hereditary; father and sister	Vessels to both discs look rather large and a little tortuous, and the discs are not as distinct as they usually are in normal states.	
41	Eliz. Brown, Wakefield Asylum	Dementia and epilepsy. Has just passed out of a status—a succession of fits and coma	Discs anæmic (or slightly atrophic?) She can read No. 1 Jäger. Two vessels of right disc look a little tortuous.	
42	Alfred Burrows, æt. 22, Wakefield Asylum	Dementia and epilepsy	Vessels very fine, almost like embolism	Disc decidedly whiter than right disc. Anæmic?
43	Geo. Ainley, æt. 44, Wakefield Asylum	Dementia and epilepsy	Discs, &c., healthy.	

My last table is one of *idiocy*.

I examined some idiots because I had formed a suspicion from the few cases which had occurred in my own practice, that atrophy of the optic nerves was not uncommon in idiocy. It will be seen that of 12 cases I note very decided atrophy of the discs in 5, and advancing disease in 1, while 2 may be called doubtful. Whether this be due to encephalic inflammations in childhood, or to whatever causes it may be, I leave to future observers to say.

IDIOCY.

	Name, place of observation, and age.	Nature and extent of disease.	Right eye.	Left eye.
1	Alfred Crossley, æt. 21, Wakefield Asylum	Congenital imbecility	No marked change in either eye; perhaps some over pinkness and excess of vessels.	
2	Eugene Slin, æt. 19, Wakefield Asylum	Congenital idiocy	Apparently complete atrophy of both discs, which are clean cut and brilliant; seems to see his way well about, but is very stupid.	
3	Charles Blackburn, Wakefield Asylum	Congenital idiocy	Discs decidedly atrophic, having a brilliant whiteness; observation, however, difficult, as the patient has tremulous iris, tremulous eyeball, strabismus, and is deaf and stupid.	
4	George Talbot, æt. 16, Wakefield Asylum	Imbecility after acute hydrocephalus in infancy	Both discs markedly atrophic; outlines irregular, but not uneven or ragged; central vessels of natural size.	
5	Joseph Ogley, æt. 44, Wakefield Asylum	Congenital idiocy; dumb	Discs natural; retinæ anæmic.	
6	Chas. Thos. Watson, æt. 19, Wakefield Asylum	Congenital idiocy	Right disc pinker than left disc I cannot be sure that there is any progressive change going forward.	Left disc, may be in course of atrophy, is decidedly whiter than right disc; also left disc is much larger than right disc.

7	John Newby, æt. 35, Wakefield Asylum	Congenital imbecility	There may be some atrophic tendency, but neither disc can be called diseased.	
8	Walter John Milner, æt. 26, Wakefield Asylum	Congenital idiocy in highest degree	Commencing atrophy of disc Arteriæ centrales beautifully distinct on the pearly ground, especially in left.	Very decided, if not complete, atrophy of disc.
9	Ann E. Haglewood, Wakefield Asylum	Congenital idiocy	Neither disc healthy, but as there is presbyopic disease apparent, I cannot decidedly say whether there is any atrophic tendency or not.	
10	Joseph Heald, æt. 30, Wakefield Asylum	Congenital idiot	Opaque cornea	Presbyopic changes only.
11	Thomas Wood, æt. 19, Wakefield Asylum	Congenital idiot; very slight case	Discs, &c., healthy.	
12	Walter Newton, æt. 20, Wakefield Asylum	Imbecility	Disc rather congested, whitening toward apparent inner edge; opposite edge indistinct and with appearance of old infiltration obscuring the margin; vessels many and full	As right.

Such are the few remarks which I venture to make upon my observations. The main interest of my communication must still lie in the schedules themselves. To enter upon a study of these in detail would be to detain the Society very unreasonably. I point out the main inferences only, namely, that in old or severe organic disease of the brain and its membranes, whether degenerative, hæmorrhagic, meningitic, or due to tumours, obvious changes in the eye are to be seen in a very large proportion.

That in so-called functional diseases, however profound, such changes are to be found only in a very small proportion.

That atrophy of the disc is perhaps a constant symptom of general paralysis, a fact of the highest pathological importance.

That in functional mania and functional epilepsy, but especially in the former, the variations of vascular tension in the retina and disc may have great interest for the observer.

Finally, I hope I have shown that the account of a cerebral disease cannot be complete if without any record of ophthalmic observations.