A new operation for the cure of amaurosis, impaired vision, and short-sightedness : in a letter, addressed to John Richard Farre / by James J. Adams.

A NEW OPERATION,

FOR THE CURE OF

Amaurosis,

IMPAIRED VISION,

AND

SHORTSIGHTEDNESS,

BY

JAMES J. ADAMS, F.L.S., G.S.

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A NEW OPERATION

FOR THE CURE OF

AMAUROSIS,

IMPAIRED VISION,

AND

SHORTSIGHTEDNESS,

In a Letter,

ADDRESSED TO

JOHN RICHARD FARRE, M.D., &c.,

PHYSICIAN TO THE LONDON OPHTHALMIC HOSPITAL, MOORFIELDS;

BY

JAMES J. ADAMS, F.L.S., G.S.,

MEMBER OF THE COLLEGE OF SURGEONS.

London:

PUBLISHED BY JOHN CHURCHILL, PRINCE'S STREET, SOHO.

SHORTLY TO BE PUBLISHED,

BY THE SAME AUTHOR,

OBSERVATIONS ON STRABISMUS,

CONTAINING AN ACCOUNT OF A PECULIAR MODE OF OPERATION,
WITH NUMEROUS PRACTICAL REMARKS.

TO

JOHN RICHARD FARRE, M.D.

SIR,

HAVING devoted much time to the study of ophthalmic surgery and to the anxious investigation of ophthalmic disease, it is *now*, with feelings of pleasure, that I venture to address to you the following letter, wherein a new operation is proposed for the cure of a large class of the hitherto incurable forms of blindness, accompanied by a description of the peculiar characteristic symptoms by which the curable cases may be detected or distinguished.

That you, Sir, are most justly entitled to my peculiar deference on this occasion, will, I think, appear evident when I state that the contents of this letter have arisen out of the opportunities afforded to me for studying ophthalmic disease at the Royal London Ophthalmic Hospital, at the very birth of which (if I may be allowed the expression) you assisted—whose infancy you have watched with the anxiety of a parent—and in whose maturity you have not failed to remain its friend and patron.

Permit me, here, to remind you that the late eminent Mr. JOHN CUNNINGHAM SAUNDERS, the principal founder of the London Ophthalmic Infirmary (now known as the Royal London Ophthalmic Hospital), published in the year 1809 a letter, addressed to the Governors of the above Institution, announcing his most important

discovery and successful performance of an operation for the removal of cataract in the infant born blind, which operation was almost unaccompanied by danger, and attended by the gift of sight; thus appropriating to the Ophthalmic Infirmary, at once, a character of preeminence for its usefulness to the needs of society—the benefits of which have not been limited to the inhabitants of this kingdom, but have been freely extended to the surrounding countries, as well as to the natives of India, and of the remote parts of the world, by Gentlemen educated at that Institution. With the remembrance of the fact, that the first operation on the infant born blind, was performed in this Hospital by its founder, and its results made known to the Governors as a reward for their charitable support, it cannot, at this time, but prove highly gratifying to you, not only in common with its friends and the public, but also as a colleague of Mr. Saunders, and one of the surviving founders of this truly valuable Institution, to learn that it still holds itself preeminent, —not only in the relief it bestows on the poor, by restoring "eyes to the blind," and by preventing multitudes from becoming subjected to the utter and calamitous privation of sight: but equally so in the instruction it affords to the profession—for it is from the extensive opportunities afforded to me of witnessing disease of this afflicting character, at the Royal London Ophthalmic Hospital, that I am now enabled to offer to the profession and the public a means whereby certain, hitherto incurable, forms of blindness, known by the vague term *amaurosis*, may be perfectly cured by surgical operation.

I would here also observe, that the present distinguished Surgeons of this invaluable Institution have shown a zeal worthy of its founders, in freely bestowing upon all diligent inquirers into ophthalmic disease, the rich results of their observation and experience—and that it would be, on my part, an act of ingratitude, were I to neglect this opportunity of publicly returning them my very sincere thanks for the numerous

kindnesses and attentions I have received from them while pursuing my investigations in ophthalmic surgery.

In conclusion, Sir, let me beg that you will view the contents of the accompanying pages in no other light than as an introduction to a new and important subject, and one that cannot fail in its consequences to lead to a better knowledge of many of the most important ophthalmic diseases; and believe me when I say, that I shall feel myself amply rewarded for my labour if, in your opinion, I shall be thought to have extended the manifold blessings of that branch of the medical profession to which you are so warmly attached, and to the usefulness of which you have so largely contributed.

I have the honour to be, Sir,

Yours most respectfully,

JAMES J. ADAMS.

27, New Broad Street,
City.

Sir,

The particular form of the disease concerning which I am about to write to you, being dependent for its existence on the peculiar anatomical arrangement of certain parts in immediate connection with the optic nerve, I hope that it will not be thought irrelevant if, previously to describing the disease, a brief notice be taken of the course of the optic nerve, and of the various parts which surround it in its different situations. The optic nerve being of considerable length, and distinctly continuous from its origin to its termination, exists, in particular parts of its course, under very different circumstances, namely :—in the first part, it is situated strictly within the cranium, and is called the cerebral portion ; in the second and succeeding part the nerve being without the cranium, but within the orbit receives the name of the orbital portion ; the third or last part, which is the distal termination of the nerve, is enclosed strictly within the globe of the eye, and known by the name of the retinal portion. Thus, it is evident that the parts, immediately surrounding each portion, not only vary in their nature, but are totally different in their structure ; from which it must follow, by consequence, that each division of the nerve is liable to be differently affected by the parts in immediate contact with it. Indeed, some writers, well convinced of these facts, have attempted to class the different forms of impaired vision, which are known to depend on injury, disease, or defect of the nerve of sight, according to the part of the optic nerve which they conceive to be affected ; but with so little good have their efforts been attended, in consequence of numerous cases being found, in which no symptoms would enable the surgeon to refer the disease, with certainty, to any particular part of the optic nerve, that the prudence of such a plan has been doubted ; while, by others, it has been thought

impossible to form an unexceptionable arrangement based on the mere anatomy of the parts. However, that such an arrangement, for the future, may be looked upon as less difficult than it has heretofore been, I hope in the following pages to be able to refer the origin of many, at present doubtful cases, to a peculiar affection of the second or orbital portion of the optic nerve, to the situation of which, with respect to the muscular apparatus of the eye-ball, I would respectfully invite your attention.

The optic nerve having passed through the optic foramen, which is situated obliquely in the sphenoid bone, proceeds, by a tortuous course, in a direction forwards and outwards, to enter the posterior surface of the eye-ball, at a point about two lines to the nasal side of its axis, so that "the nerve is longer than would barely reach from the back of the bony cavity to the globe of the eye."* As the optic nerve escapes from the optic foramen, it is almost immediately surrounded by the origins of several large muscles, which arise for the most part tendinous and but slightly muscular, from the edge of the optic foramen; of these the four recti form the principal, three of which are attached to a fascia connected to the sheath of the optic nerve; which, as it proceeds towards the globe, is surrounded by much cellular membrane and oily fat, also by several small nerves and blood vessels.

The recti muscles are designed to give free motion to the eye, by acting either separately or conjointly; or to retract and steady it by one united and simultaneous action.

Having thus briefly, but sufficiently for any present purpose, described the relations between the muscles and the nerve, I propose, at once, to proceed to that section of the subject which concerns the sight, and at its conclusion consider the probable effects which such an arrangement of the parts may have on vision.

In order that the particular form of the disease, of which I am about to write, may be the better understood, it does appear to me necessary that the true meaning of the term which has been given to the disease itself should be analyzed, its general signification, as sanctioned by long usage, mentioned; and its particular mode of application, on the present occasion, distinctly laid down. *Amaurosis*, a Greek word (from αμαυροω,

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* See page 85 of Dalrymples Anatomy of the *Human* Eye, which is the best work in the English language on that subject.

obscuro, to darken,) if considered etymologically, means, simply, dim or darkened sight: therefore is capable of being applied to those forms of blindness which result from affections of the lens or cornea, and which by some of the older writers was so applied; but such is not its signification in the present day—it being strictly limited to the impaired vision resulting from diseases and imperfections of the nerve of sight, without any reference to that part of the nerve which may be affected.

The term *amaurosis*, as here about to be employed, will be used more in accordance with its true meaning, by signifying, simply, a dim or darkened sight, without implying any organic disease of the optic nerve.

Having thus restricted the term amaurosis to the expression of a symptom, common to many diseases of the eye, namely, dim or darkened sight; a necessity arises for distinguishing, by an additional term, the different cases of impaired vision in accordance with their degree or cause; therefore, as the *cause* of the amaurosis, which will form the subject of the following pages, will be found to depend on muscular action, and not on any disease or change of structure in the nerve, I propose to distinguish it from all the other forms of blindness by the term *Muscular Amaurosis*. Numerous, indeed, have been the various unsuccessful attempts to separate cases of amaurosis into divisions and subdivisions, so as to include all its forms. Amongst the principal divisions which have been from time to time approved of, may be mentioned the following as separate classifications.

1. The continued or intermittent.
2. The organic, functional, or sympathetic.
3. The incipient, partial, imperfect, or complete.
4. Lastly the organic or functional diseases as affecting particular portions of the optic nerve.

Though to all these forms of arrangement very important objections may be raised, I think that the latter mode of division will be found hereafter the least objectionable; the more especially on account of a most numerous class of cases, which have hitherto been alternately attributed to the brain or retina, being now, with certainty, capable of being referred to the orbital portion of the optic nerve as their seat or cause.

In proceeding to investigate the forms of amaurosis which may be supposed to depend, either altogether or in part, on a particular affection of the orbital portion of the optic nerve, all cases which present satisfactory signs of injury or disease within the brain,—or of injury or the growth of tumours within the orbit,—or of change in the structure of the retina which has *destroyed* its functions (*i. e.*

those of the nerve), should at once be excluded from the investigation; those cases, about whose origin and extent of disorganization the surgeon may doubt, alone being kept for consideration.

The simple and uncomplicated forms of Muscular Amaurosis, which it is, particularly, the intention of this paper to inquire into, will be characterized, on the one hand, by a perfect transparency of the humours of the eye, and a healthy condition of all its structures; on the other hand, by the absence of those signs which render the presence of permanent diseases or changes in the brain or optic nerve evident and certain. The complicated forms of this affection will only be detected by the most careful investigation of the past history, and by serious reflection on the present symptoms of the case, for, though certain changes in the structures of the globe of the eye, and of its transparent contents, may appear to the surgeon to be sufficient to explain the cause of the loss of sight, still, they may not always be sufficient, in themselves, completely to deprive the patient of the power of seeing, if the nerve itself be capable of performing its functions.

Therefore the existence of this form of impaired vision, which I shall beg to call *Muscular Amaurosis*, must be sought for, and detected by ascertaining the presence of several of certain symptoms, which, for the convenience of the surgeon may be classed into two kinds. *Objective* and *subjective;* by the former, is meant those changes in the actions and appearances of the eyes which can be appreciated by the sight of the investigator; by the latter, those sensations which are only experienced and felt by the patient.

In the simple forms of the disease the *objective* symptoms are few, they may be subdivided into two, namely, those which exist within the eye, and those which relate to its position and motions. Of the former very little can be said, since they consist only of slight variations from the natural condition of the pupil; the iris may be more dilated and less active than natural, and the colour of the pupil may be somewhat less brilliant than usual, though not to that degree which is recognized as a turbidity of the humours. Of the latter more may be observed; the position of one eye, and generally of the one most affected, may be slightly diverged so as to constitute a peculiar stare, but not a squint; also, if the eye least affected be closed, the affected one may become violently inverted, which will be increased by any effort on the part of the patient to straighten it by looking directly forwards, though he may

have perfect power to direct the eye to the outer canthus if he wills it; again, if both eyes be open and an object be held directly in front of the root of the nose, one eye may be apparently attracted towards the object, or turned towards its inner canthus, while the other will be repelled or moved towards its external canthus, so that the patient may be found to have scarcely any power over the equal convergence of both eyes.

Though these symptoms are frequently found either separately or conjointly, it is not unfrequent to find them all entirely absent, and only the natural appearances of the eye present.

The *subjective* symptoms are, in the uncomplicated forms of the affection, numerous and liable to much variety, and may like the *objective*, for convenience sake, be subdivided into two kinds, namely, those which affect the sight, and others which affect the feelings of the patient. Those which affect sight may commence in several different ways, either suddenly, gradually, or irregularly, in one or both eyes at the same time. If suddenly in both eyes, the patient may, while following some ordinary occupation, or on his first rising in the morning, find himself blind or nearly so; if one eye only be affected, he will feel conscious of seeing objects on the affected side less perfectly than on the opposite; this condition may rapidly pass away, or continue for several hours, then gradually cease or lessen; but on the first active exertion or application of the eye to fine work, or reading, the patient is surprised to find that he cannot see small objects for more than a few minutes at a time before they appear misty and confused; it will sometimes not advance beyond its first degree, but remain stationary for many years; at others, it will advance very rapidly, and the sight become so defective that the patient cannot see to guide himself about, though the amaurosis will very rarely be found complete, except for during a few hours at a time. In some instances the first failure of the sight is attended by a bright yellow or red spot, or, indeed, a mixture of them both; the yellow being encircled by the red.

If the disease commence gradually in both eyes, the patient at first will merely complain of the eyes feeling weak and soon fatigued after moderate exertions; this state may continue without any particular attention being paid to it, till at last he finds that on waking in the morning the sight is very dim, and remains more or less so during the time of his dressing, and that in the day time it has become much worse than it used to be, distant objects are less distinct, and near objects

cannot be viewed for so long a time without a dimness and confusion of vision being produced. If he attempts to read, the book is brought closer to the eyes than is usually natural in order that he may see the print distinctly, and this he may do for the space of ten or twenty minutes, when the sight will become gradually dim, the letters confused, and (as it were) running one into the other: if the patient continues to look at the print, for the space of a few seconds, it will become distinct, then misty, again distinct, and again misty, till at last the mist will increase and remain to such an extent that the form of the largest letter cannot be seen, and he will become for a short time more or less blind. However, if the eyes be closed for a few seconds, the sight will be again restored, and the patient once more enabled to see to read distinctly; though instead of being able to read for twenty minutes, before the symtoms of confusion and dimness of vision commence, he will find that he cannot read during more than *ten* or *fifteen* before another rest will be required, and that of a longer duration than the first, even, perhaps, to three or four minutes; at the end of which time the sight will again become fit for reading, but for a still shorter period: perhaps not more than five minutes will elapse before the confusion of the letters will require another period of rest, of a still longer duration than the preceding; thus the increasing inability to maintain a clear view of an object will continue, until at last the patient will find it impossible, even after a long rest, to see any near object for more than a few seconds together; he is therefore compelled to give up, for many hours, or for the remainder of the day, the employment of his eyes on the subject which causes the dimness. When the disease has advanced to this state, he, in all probability, cannot see to read a single line of print by candle light; should it have commenced gradually in one eye the inconvenience will be somewhat less than above described. The gradual form of the disease, like the sudden, is always liable to a rapid increase in its severity.

What I have here written as likely to occur in a case of muscular amaurosis commencing gradually, is appliable to those forms which begin suddenly, though, generally, not till after they have existed for a short time, the sudden form being often more severe at first.

That form of the disease which, in its commencement, is irregular, commences by attacks like those already described, which last but for a short time, and seem only to return when the patient is much out of

health, or has been over using his eyes: also it may affect either eye by turns, and continue to visit the patient through life. When both eyes are affected, if either be examined separately, it will be found that during the first few seconds or minutes, as the case may be, the object looked at will appear more or less distinct, but will very speedily become obscure by a dense mist, which may be either dark or of a yellow colour, and more dense in some particular direction; in some cases the direction is reversed in each eye, in others it corresponds; if the patient continue to gaze at the object, it will become nearly or completely obscured.

The following remarkable facts sometimes occur when the affection is confined to one eye, namely, that the patient is often perfectly unaware which eye is affected, and that the vision of the unaffected eye is capable of being sympathetically and temporally impaired by the affected one; for example,—in a case where the sight of one eye is at all times very imperfect, and its fellow capable of viewing minute objects distinctly, I have know the closing of an eye, the sight of which was almost useless, to be instantly followed by an intense degree of dimness in the apparently unaffected and corresponding eye: and again to be relieved by the opening of the closed lid. The contrary of this will not unfrequently take place, and help to prove the existence of a sympathy between the muscles of each eye, for instance,—a patient, who with both eye-lids open can read for only ten minutes without requiring a rest, may, by the closing of one eye, which is almost blind, continue to see to read during many hours without inconvenience from dimness, or confusion of vision &c. In these cases it is not unusual to find the cornea of the closed eye turned in some particular direction not at all correspondent with the open eye.

In severe forms of the complaint certain luminous appearances may be present, as for example,—numerous red or bright stars, or a single yellow bright spot, attended by red flashes of light, on closing the eye-lids in the act of winking; one of my patients states that she has seen the appearance of a large bright yellow spot, attended by flashes of red light before each eye, every morning during the last past fifteen or sixteen years; the spot presents itself directly after waking, and generally subsides about the time she has dressed herself.

Were I to enter, on this occasion, upon the consideration of those symptoms which concern the feelings of the patient, as fully as I have done with respect to those which affect the sight; it would only tend

to lengthen this letter without at the same time answering any very useful purpose, since this is not the occasion for a detailed consideration of facts, but rather that of an introduction to a new and important subject: therefore it will be sufficient for me, here, to enumerate the principal symptoms that an extreme case may present, and to state which of them, most frequently, attend the milder forms of the complaint.

The symptoms which may be expected to occur, in a severe case of Muscular Amaurosis, are a sense of weight, occasionally amounting to severe pain, across the forehead; also an aching and shooting sensation through the brows and temples; sometimes the sensation in the temples being compared to that of a violent pressure, a general aching and throbbing of the eyes, and in a few instances a dull pain about the occiput, with a general headache, to which may be added giddiness, and to that degree which will cause the patient to stagger or to fall. Besides these painful local symptoms, there are a few general or constitutional ones, which occur when the former are at their height: they are a sense of nausea and faintness at times accompanied by sickness.

However, in the milder forms of the affection, the symptoms by no means approach to near the severity above described, since they often consist of only an aching about the eye and brow, after a slight bodily fatigue, or moderate exertion of the eyes on minute object, attended by more or less lachrymation; and, in some few instances, the patient may be perfectly free even from these slight symptoms. Such being the extreme degrees in which patients may be affected, I think it will be well to relate in what degree the symptoms are most frequently found to exist, and in what manner they are influenced by the sight: I will therefore proceed to state what frequently takes place if one of these patients attempts to read or view minute and bright objects for longer than a few minutes. Slight pain will commence in the brows, and extend across the forhead, lachrymation, attended by aching of the eye, will be present; then, if the patient continue to read, the pains in the brow and forehead will increase and extend to the temples; and the lachrymation, if there be any, may become so profuse as to prevent the patient from seeing the object; in many cases, however, the lachrymation is absent, a simple dimness of sight alone being found to accompany the pain, and to increase according to its severity so as to require a temporary but perfect rest of the eyes.

If the patient, anxious to pursue his occupation, will, after a short

rest, resume his work and only cease when the pains become intolerable and attended by dimness of sight, he will find that the periods of occupation will become shorter and shorter, while the intervals of rest will require to be gradually increased in length, even to the absolute rest of many hours. The intensity of the painful symptoms, indeed, is so intimately connected with the degree of dimness in the sight, that the severity of the one seldom exists without a corresponding increase in the other, so that the condition of a patient suffering under one of the combined attacks of pain in the head, giddiness, sickness, and blindness, is truly distressing.

With respect to the exciting causes of this affection, I have observed that its first attack is generally preceded by fever, rheumatism, some unusual debility, or by a protracted inflammation of the eyes; and, in a few instances, by injury to the globe of the eye: also that, occasionally, no apparent cause can be assigned.

In order that what I have stated with respect to the symptoms of this complaint may be rendered more intelligible, I subjoin the particulars of a few cases of the most common forms of the disease which are, at present, under medical treatment for the mitigation of their symptoms or for their cure; but, previously to doing so, it seems to me that this is a convenient opportunity for stating that some forms of this disease are not altogether incurable by medicine, but, on the contrary, are often capable of being greatly mitigated, particularly with respect to their painful symptoms, or sometimes of being perfectly cured: however, that they are not always so may be readily proved by a visit to our Ophthalmic Institutions, where numerous cases may be seen, of many years standing; either, not at all, or but very slightly relieved. Therefore, by consequence, the cases adapted for operation are only those *which have proved otherwise incurable.*

Henry Skinner, 22, Cabinet Maker.—Of healthy appearance, but of delicate complexion, fair hair, and grey irides. The positions of both eyes are perfectly natural.

If an object be held at the distance of four inches from the eyes, both will equally and fully converge, but if the object be approached close to the root of the nose, the equal convergence will become destroyed by

the left eye turning towards its natural central position, while the right eye more completely enters its inner canthus.

The appearance and action of the irides are natural. Sight, with both eye-lids open, very defective after moderate exertion; when he first attempts to view a small object or to read, the object or print is perfectly distinct for about four or five minutes, when a dimness of the sight, attended by some confusion of the objects looked at, prevents his continuing to use his eyes till they have been rested for about one minute; after which rest, he is again able to pursue his employment with all the advantages of distinct vision, till the approach of the next attack of dimness, which will commence, at a period somewhat less than five minutes, and last, during nearly double the time of the first: if he be anxious to pursue his occupation he can only do so by the means of repeated rests, of a gradually increasing length, and at shorter and shorter intervals, till two or three hours have expired; he will then be compelled to rest his eyes during many succeeding hours, otherwise the dimness or mist of which he complains would become so complete, as to leave him in perfect darkness for a time. A few days since he endeavoured to write a short letter, which, after much difficulty, he accomplished in the space of two hours; he says, that had his eyes been well, he could have performed it easily in twenty minutes.

If either eye be examined separately, their degree of impaired vision will be found to be nearly alike, perhaps the right may be rather more imperfect than the left, but, in both eyes, the sight is most imperfect towards the nose.

The sight is generally worse in the first part of the morning, and after dinner.

In the morning, during the first half hour after he has left his bed, the sight remains very good; it then commences to become dim, even if he looks at large objects, and this state of the sight will continue for about three hours; it then becomes much less so, even sufficiently good to allow him to follow his business; after dinner, the same kind of attack commences, but generally does not last longer than one or two hours.

H. S. states that he suffers very much from pains in the brows, forehead and temples, which are always increased when the dimness of sight is most troublesome, and are readily excited by the light and heat of the sun, or by extra bodily exertion.

The history of the case is simply this, that about twelve months since he first came to London from the country, and that his sight soon began, gradually, to fail him while at work—also, that its defect has steadily increased in spite of continued treatment by alteratives, purgatives, and counter irritants.

Susan Miller, 16.—A healthy looking girl—fair hair, and gray irides.

Position and appearances of both eyes perfectly natural.

Sight in the left eye perfectly good, if used by itself. By the right eye, alone, cannot see to read newspaper print. After two or three minutes exertion of the eye over large print or small objects its sight becomes very dim, but least so towards its external canthus.

With both eyes open, can read small print or see to do fine needle work for about twenty minutes, then the object looked at will become dim and confused, so that a rest of the eyes will be necessary; which, if she continues her occupation, will require frequent repetition, the intervals of occupation becoming successively shorter, till the object can be viewed only for a few seconds without appearing misty.

Suffers from severe pain in the brows, more particularly over the right eye, the pains frequently extend to the back of the head, and are increased or excited by bodily exertion or exposure to the rays of the sun.

Sight is much worse in the mornings and evenings. When candles are present, the sight becomes very dim and sparks are seen towards the right external canthus.

History—three weeks since she caught cold, which affected the eyes; they were slightly reddened, and the lids adhered together after sleep. In a few days these symptoms subsided, leaving a pain and uneasiness about the left eye. The patient states that, three days since, she closed first one eye, then the other, and then found that the sight was very much worse in the left than the right: at present, this is reserved, the right eye being the defective one as regards the sight.

Ann Lucas, 43.—A healthy looking woman, light hair, grey irides, and of fair complexion; catamenia regular and healthy.

Position of both eyes perfectly natural.

Irides act freely and in union when equally and simultaneously exposed to the light; but if the light be admitted to the eyes separately, the left iris, which is slightly irregular, will contract more slowly and less completely than the right.

If an object be held at the distance of three inches from the nose, both eyes will equally and slightly converge. If the object be approached close to the root of the nose, the left eye will turn to a point slightly outwards from its centre, or in other words be repelled, while the right eye will be deeply converged to its inner canthus, and may be said to be attracted towards the object.*

Sight, when both eyes are open, is very good if she looks towards her right side, but dim if she looks towards her left. Has the appearance of a bright yellow spot encircled by a many-coloured zone, constantly before her sight. Cannot see to work at her needle for longer than half an hour, or to read for more than ten minutes at a time, without such a degree of confused vision and dimness being produced as to compel her to rest her eyes; however, after a short rest, she is able to resume her work or reading for a period somewhat shorter than just mentioned: the mist, in front of the sight, commencing sooner, and becoming more dense than it did on its first attack.

If, after the second attack of dimness, she persists in attempting to read or work, she will find it impossible to do so beyond a very few minutes, sometimes for no longer than one or two; the confused sight and misty state of vision being so rapidly produced.

Sight in the right eye very good; can see well in all directions.

Sight in the left very defective; she says that a bright yellow spot, surrounded by a zone of variegated colours, is constantly present; that she cannot see to guide herself about, or to distinguish large printed letters, but can see lines of print at the distance of four inches, and not beyond. If she continues to look at an object intently, the sight will become very dim in less than a minute. The sight is best at a point

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* See Provincial Medical and Surgical Journal, Vol. I. No. 24, page 888, for a full explanation of the terms attraction and repulsion.

directly forwards, to either side of which there is a constant and much greater degree of dimness.

Does not complain of any pain in the head or eyes.

History—On last Tuesday (this day being Monday), while sweeping the floor of a room she felt a sudden dimness, attended by a strange confusion of objects, come before her sight, which was increased if she looked towards her left side; she then proceeded to the stairs, and while descending the staircase, perceived the appearance of a large bright yellow spot before her eyes, which she alternately closed, to see if one or both eyes were affected; she found that the appearance only existed when the left eye was open, and that the sight in the right eye was as good as ever it had been. In about one hour afterwards, the yellow spot became encircled by a zone of blood-red colour, and continued so till Wednesday, when the zone became many-coloured, from the Wednesday till to-day; the appearance of the spot and zone has continued the same.

Elizabeth Belcher, 28.—A delicate looking woman, dark hair, and grey irides.

Position and appearance of the eyes, natural.

Irides act freely, equally, and regularly when both eyes are simultaneously exposed to the light; if their actions be examined separately, those of the right will be found to be more slowly and less completely performed than the left.

If an object be held close to the root of the nose, and the patient be directed to look steadfastly at it, the right cornea will be repelled full to the centre of the palpebral aperture.

The power of inversion and eversion of either eye is perfectly natural.

With both eyes open, can do needle work for an hour without inconvenience, but if she attempts to work for a longer time, dimness of sight commences, attended by pains in the head, which, for their relief, require the eyes to be rested during a few hours.

By the left eye, alone, can read small print for a long time without producing dimness, and sees best towards the external canthus.

By the right eye, also alone, can read small print, only for a few minutes, the letters becoming confused and obscured by a mist, amounting to nearly perfect darkness; sees best directly forwards.

She is subject to pains in the brows, temples, and forehead, which are much increased by the light and heat of the sun.

History—Fourteen years since had the scarlet fever, which was accompanied by inflammation of both eyes; from that time the eyes have remained much in the same state as they are now.

Has been subject during the fourteen years to an occasional loss of sight in both eyes, for about ten minutes at a time; the attacks occur either once or twice, every two or three months; they have occurred at all times of the day, but most frequently in the morning, and without apparent cause.

Mary Hamnet, 15.—Of fair complexion, light hair, and grey irides. States that she enjoys a moderate share of health and that the catamenia have not appeared.

Position of both eyes not quite natural, the left being slightly turned upwards.

Sight—if both eyes be open can see to work or to read by day-light for several hours, without inconvenience.

By candle-light, finds a difficulty to see to work at her needle for longer than an hour, occasioned by a dimness of sight, and a dull heavy pain over the left eye.

With the right eye, can read small print. By the left, cannot see to guide herself about or to make out the form of the largest printed letter; can only see very large objects when brought close to the eye. If the right eye be kept closed for a few minutes, the sight of the left will become perfectly extinct, and the patient unable to distinguish by it the difference between light and dark. Sees best directly forwards. All objects appear much smaller than natural.

Is very subject to attacks of pain across the forehead and brows, which will last for two or three days at a time.

The light of the sun does not excite or increase the pains; she has

been subject to them during the last nine years; the attacks occuring as often as once or twice a week.

History—The left eye-lid, nine years since, was observed to drop lower than the right; the condition of the sight in each eye was then examined and found to be slightly defective in the left; for a few years it gradually became worse, and then remained as at present.

Ann Price, 25.—Has been married four years, but has not had children. Has red hair, blue irides, and a floried complexion. States that she does not enjoy very good health.

Position and appearances of both eyes are natural.

Sight, with both eyes open, is very defective; she cannot see to read moderate-sized print for more than five or ten minutes, without the sight becoming very misty, and the print confused, so as to require a rest of the eyes; if she attempts to pursue her reading, she cannot do so for longer than a few minutes at a time without the aid of frequent rests, at intervals of gradually diminshed length, till about half an hour has expired; at which time she will become perfectly blind for a few minutes, and, from the ready return of the blindness, on a re-application of the eyes to the print, she finds herself compelled to desist from all further attempts at reading, till after the lapse of several hours. Cannot see to thread her needle by candle-light, and only a very large one by day-light; cannot see to do fine needle-work, but can do coarse work for an hour at a time without much difficnlty. If she looks at a distant object for a few minutes the sight will become misty and the object invisible. She is subject to become blind for two or three minutes at a time when not exerting her eyes.

By the right eye, the left being closed, can see to read moderate sized print with ease, but small print with much difficulty.

By the left eye can only just make out the letters of moderate size print. Sight being rapidly dim after moderate exertion of the eye, she also sees best with it towards the external canthus.

Is very subject to pain across the forehead, and in both brows and temples; also to a severe aching of her eyes. These symptoms are

most severe over the left eye, and are much increased by the light and heat of the sun; says that she is seldom quite free from headache.

History—when fourteen years old fell into a coal pit of about six feet deep, and struck her left eye brow; after the accident, the sight of the left eye was very nearly gone; various treatment was employed, which seemed at the time to have but little affect on the sight. However, at the end of three years, the sight had decidedly improved, and became much in the same condition as it is at present; the pains have become less severe than they used to be.

Jane Patrick, 16.—A healthy looking girl, fair hair, and blue irides; catamenia have not appeared.

Position of both eyes natural; pupils moderately dilated; irides act freely.

Sight, with both eyes open, slightly dim if directed towards a distant object, but perfectly distinct and clear if directed to a near one; can see to read small print, by day-light, for about one or two minutes, with perfect distinctness, then a sudden confusion and dimness of vision will commence, which will prevent her distinguishing even the form of a large printed letter. By candle-light, cannot see to read small print, but can read large print without inconvenience for about seven or eight minutes, then the sudden approach of dimness and confused vision will cause her to rest her eyes, after which she will be able to resume her reading for about five minutes, when a return of impaired vision will require another rest. If she be still anxious to read, she can only do so for about two minutes, but not longer, before she will feel herself compelled to rest her eyes for upwards of an hour, and, on some occasions, for a much longer period; at times, after slightly exerting her eyes, the printed page will appear of a blood-red colour.

With the right eye open, by itself, she can see to read during a longer time than with both eyes open.

With the left eye cannot distinguish at any time a letter of large print.

If either eye be used to look at an object intently, dimness very rapidly increases; it commences quicker and becomes more dense in the left.

At times red flashes of light appear before the eyes; she complains of very severe pain across the forehead, over the brows, in the temples, and in the eye-balls. If she stoops, the pains are instantly increased, and, on rising up, feels very giddy.

The pains are most severe over the left eye, and are worse in the evening than at any other time. The pains increase in proportion to the degree of dimness in the sight.

Cannot see to do fine needle-work, but can do coarse work for about half an hour, is then prevented by the presence of pain and blindness, so that she is incapable of earning her living by needle-work. Six months since, tried to work for one week at the business of cap-making; since then her eyes have become, and continued, much worse.

History—Six years since, first complained of pains about the forehead, with dimness of sight, and that she has gradually got worse, but more particularly during the last six months.

The foregoing cases will, in all probability, be but slightly benefited, as regards their vision, by medical treatment; though it may be expected that much relief will be given to the painful symptoms: at least, such has been the result in similar cases, as I have frequently witnessed.

A future opportunity being reserved for a full consideration of this subject in all its parts, accompanied by numerous cases of the simple and complicated forms of the disease, some of which are now under treatment, I shall here illustrate this subject no further than by relating the details of a few cases of a more severe kind than the preceding, which were subjected to operation, and which, from their several peculiarities, may be considered as examples of different forms of the same disease: but, previously to so doing, I shall state that the operation which I propose, for the cure of muscular amaurosis, consists in the division, and *the extensive separation* of one, two, or more of recti muscles: of which, be it observed, the separation must be *equal* and *even* in each instance. The mode by which I perform this operation I have made peculiarly my own, by adapting a particular set of instruments to it, and by requiring, for its perfect success, a very extensive separation of the muscle, not only from the sclerotica, but from the cellular tissue and conjunctiva which lies in front of it. A description of the instruments I employ, with a detailed account of the steps of the operation may be seen in the Provincial Medical and Surgical Journal, No. 22, Vol. I. page 356, and the instruments may be obtained at Weiss's.

Sarah Hicks, 22.—An intelligent woman, of delicate appearance; has light brown hair, and dark irides, catamenia regular and natural.

Position of both eyes natural, and in appearance healthy, but the right is slightly smaller than the left.

Pupils not more than ordinarily dilated; irides act freely and in union, when equally and simultaneously exposed to the light; but if the light be admitted to the eyes separately, the right iris, which is slightly irregular, will contract more slowly and less completely than the left.

Repulsion—passive, and central in the right eye.

Convergence—slight and equal.

Inversion—to about one third of the cornea in the left eye, and rather more in the right.

Eversion—Complete and equal—*i. e.* natural.

She states that when both her eyes are open she cannot work at her needle, read, or view small objects for more than a few minutes, without much dimness and confusion of sight being produced, which compel her to rest her eyes.

If the left eye alone be used, she does not suffer any inconvenience from the sight for several hours; but if the right eye be used by itself, dimness or mistiness, which is constant, exists to such a degree that she cannot see *to guide herself* about.

By the right eye she can distinguish faintly the bars of the window, but not the tassel cord which is attached to the blind; also, the difference between the print and margin of a page, though she cannot read the largest printed letter. The mist before the right eye is least in a direction towards the right inner canthus.

She is very subject to giddiness, and to pain over the right brow and temple; has experienced severe pain over the right side of the face and nose. The pains commence if she begins to read, work, or bustle about. At some times the dimness of sight and pains have been so slight that she has been enabled to work, during several hours, without inconvenience; at other times she has not been able to do a quarter of an hour's work, or even to follow her occupation as servant: for, if she attempted to exert herself, or to move quickly from place to place,

giddiness, with pains about the head and eye, would commence, which would become so intensely severe that she would almost be deprived of sight; indeed, on three different occasions she has found herself perfectly blind with both eyes for several hours; the sight afterwards returned to its previous condition.

The history of S. H.'s complaint is as follows:—about two years since, while at needle work, she felt suddenly a mist or fog come over both her eyes, which by closing the right eye-lid was removed; also, she felt at the same time a fluttering sensation in the right eye, which, to use her own words, resembled "the jumping of a fly." The mistiness and sensation continued, and became so troublesome, that she was not only obliged to abandon all attemps at needle-work, but to leave, for several days, her situation as servant: after which returned to her place, but at the end of one month, again was compelled to quit her mistress for a longer period, on account of the reoccurrence of the giddiness, the headache, and confusion of vision. She then placed herself under medical treatment, to which, during six months, she attended, without any apparent benefit; her surgeon then advised her to quit London, and try the effect of her native air. While she continued in the country, she remained affected by so much pain and imperfection of vision that she was not able to earn her living, or to do a day's work.

Moreover, several medical men had seen her, and gave her so little hope of a recovery, that she had no prospect of again being able to support herself.

Her medical treatment has been blood-letting, blistering, and probably mercury; on one occasion after a blood-letting, she describes herself to have perceived with the right eye "sparks and flashes of fire."

March 1st, 1841.—I divided the right internal rectus muscle, having previously separated, as completely as possible, all its cellular attachments to the globe; the immediate effects of which were, a slight abduction of the right eye beyond its natural central position, and a slight but decided improvement in the sight, the fog or mist being less dense in the direction of the right external canthus.

4th.—Position—left eye central; right eye everted to near its external canthus.

Sight very much improved; fog much lighter than it was soon after operation; sees most distinctly towards the *external* canthus; all objects appear clearer; can distinguish the tassel cord; is able to read (as she

did, in the presence of myself and others) several sentences of large print; sees all objects double when both eyes are open.

S. H. states that she read, on the day after the operation, the large printed title of a child's book by means of the right eye, the left being closed.

7th.—If the left eye be closed, and the right open, feels very giddy, every object appearing to be in motion, and if she attempts to move, she feels afraid that she should step on them. These symptoms are instantly relieved by opening the left eye-lid.

12th.—Position of the right eye much altered, and is now nearly natural; the patient says that three days since it came suddenly straight.

Association—very nearly natural.

Repulsion—right eye slightly beyond its centre.

Inversion—to the concealment of about one third of the cornea in the left, but the right eye the cornea cannot enter its inner canthus by about half a line.

Eversion—very complete in both.

Sight considerably improved since the last report.

Read, in the presence of several professional friends, the large print of a public Journal.

15th.—Sight still much improved; having read, in the presence of many gentlemen, a moderate sized print; * still sees double.

The pains about the eye and brow have been, since the operation, much less; but she has had two or three attacks of general headache.

I now proceeded to divide the right external rectus muscle, carefully separating its cellular connexions.

The immediate effects of the second operation were to render the position of the right eye perfectly central and corresponding with the left, to remove the double vision, and to cause the sight to become perfect, in a direction towards the right inner canthus.

20th.—Sight more extensive since the second operation; can see with the right eye, as well towards the left hand as towards the right. Can see to read the ordinary newspaper print.

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* It may be well to state that many of the operations that I perform are done publicly, though at my residence, as I have long since permitted any medical gentleman to witness them without the necessity of an introduction.

24th.—Sight in the right eye greatly improved since last report; cannot yet read very small print.

With both eyes open can read the smallest print, or do fine needle-work without pain, confusion of vision, or in fact any inconvenience.

31st.—Has had a slight attack of cold since I last saw her, during which she states, the sight in the right eye became again slightly impaired, and the sight in the *left* nearly extinct, however, after a few hours, the sight became restored in both eyes; at present the sight is much improved in the right eye; can read pearl type, (a print of very small size.)

April 17th.—Sight has remained perfectly good since the last report; can see to read the smallest print with either eye. Says that she felt a few days since, for a few minutes, an unusual sensation in the right eye, somewhat as if it was in rapid motion.

Her brother was by her at the time, and he witnessed the rapid motion of which she complained; however it soon subsided, and has not since returned. Has not had any frontal pain since the last operation.

Mr. Robert Cooke, 38.—A very intelligent man (by occupation a clerk); has a wife and five children. He is tall, thin, of pale complexion, and unhealthy appearance.

Position of both eyes perfectly straight; their appearance nearly healthy; both pupils being a little more dilated than is usually natural, the right particularly; the colour of the pupils somewhat slaty, as seen when the humours are called slightly turbid.

I requested him to read, and I then found that the right eye, after it had been directed towards the print for two or three minutes, turned slightly inwards towards the nose, and that, if he continued to read, its inversion became increased.

Sight, with both eyes open, good for a short time, but soon becomes dim and confused. If he endeavours to pursue his occupation, namely, that of writing, after the misty state of vision has once commenced, he will only be able to do so by the aid of repeated intervals of rest, which will require to be lengthened on each repetition, while the periods of

occupation will become gradually more and more shortened; so that after one or two hours of irregular work, he will be compelled to rest his eyes for many hours.

The sight, in the right eye, is so very dim that he cannot see to guide himself about if the left be closed.

In the left eye, the sight is so much impaired that he cannot see to to read a moderate-sized print for more than a few minutes at a time, without the appearance of a large bright yellow spot being presented to its view, which, on the closing of the eye-lids, in the act of winking, would appear as a red flash of fire; muscæ are also seen after exertion.

The history of his case is exceedingly curious. Fifteen years since his occupation required him to sit and write, during many hours of the day, at a desk which had a strong light upon it coming in from a window, situated to his right side; at this time, he observed that his left eye became dim, but was unattended by pain or uneasiness; he continued daily for two years to sit at the same desk in the same position: the light coming strongly on the right side, while the left was in the shade.

He now reversed the position of his desk, so that the light was made to fall on the left side, the right being in the shade, the result of which was, that the sight in the left eye began slowly to improve, while the sight in the right began to grow dim; he continued at this desk, as last placed, for about two years, when the sight in the right had become nearly as much impaired as at present, and the vision in the left had regained its natural appearance. The next desk, at which he sat daily for five years, was situated in such a manner, with respect to a window, that the light came directly towards both eyes.

His sight continued bad in the right, and remained good for a few years in the left, then muscæ began to float before it, which would increase if he subjected his eye to extra exertion, or became out of health; the muscæ, from their first appearance till the present, have never entirely left him.

Two years since, while reading a newspaper in a strong light, a large bright fixed spot, like a scarlet dahlia, suddenly appeared in front of the left eye, and prevented his seeing any minute objects or continuing to read.

One week after the appearance of the bright spot, which continued to be present, he applied to a skilful ophthalmic surgeon who prescribed preparations of iron, alteratives, purgatives, and counter irritants.

This treatment, with slight variation, was continued during a period of eight months. He then, at a subsequent period, took bark and soda during four months—the result of which was, that the spot became less bright, more distant, and of a yellowish colour, but still attended by red flashes of light at the moment of closing the eye-lids. During the last year and a half these appearances have continued of the same character, only very much increasing at times, when out of health, or while endeavouring to look intently at an object: so that he has required, from time to time, medical treatment for the mitigation of these symptoms.

The patient, having no useful vision in the right eye, and the sight of the left being much impaired, felt fearful of losing all sight, and of thus being disabled from supporting his wife and family; in this lamentable condition he presented himself to me, and sought my advice. I then submitted the full particulars of the case to a careful and deliberate consideration, which terminated in my proposing to him to allow me to divide the internal rectus muscle of his right eye: at the same time explaining to him the nature of my doubts as to the perfect success of an operation, as well as the probabilities it afforded of relieving him; and stating, frankly, my want of the knowledge of the result of any similar case to guide my opinion. The conviction of his otherwise hopeless condition being grounded on the fact, that he had consulted the best medical advice during several years without permanent relief, made him readily consent to submit to the operation I proposed, and, in some measure, to share with me its responsibility. I, therefore, on *August* 15th, divided the right internal rectus muscle, which had no other effect on the position of the eye, at the time, than to deprive it of the power of turning inwards, to the same extent as it did previously to operation.

16th.—All fog or mistiness from before the right eye had disappeared, and every object looks bright and dazling.

20th.—Looks very ill; complains very much of the dazling appearance before the right eye, and says that the yellow spot before the left eye appears nearer than it had recently been; and that the flashes of red light are more frequent and vivid. Bowels confined. Ordered a dose of Castor Oil immediately; and to take of Hydr: cum Creta gr. iv, with Extr: conii gr. v, twice in the day (in pills), and to have enough for six doses only.

23d.—The whole appearance of the man wonderfully improved; the

dazling before the right eye much less; bright spot more distant; flashes less vivid, and not so frequent; ordered to take only three more pills, one each night, then to omit them.

September 6th.—Since I last saw him has been in the country during eight days, and in London during the last six. He appears very much improved in health, and all signs of the operation have subsided. He states that, on the *day* following the operation, he saw better by the right eye than he had seen at any one time during the last *seven* years; the dazling continued during four days; and, as it subsided, every object, viewed by the right eye, became more and more distinct: also that, on the fourth day of his visit in the country, the bright yellow spot before the left eye suddenly disappeared, and, with it, its red flashes; but, that after he had returned to London, he observed, on the fifth day (yesterday), a slight return of the bright spot and flashes, which lasted for about one minute, and then left him again quite free. To-day he has seen them at times very faintly, and at a distance so remote that they have not interfered with his sight.

With the right eye, unaided by the left, can read a passage in a bible of rather small type.

12th.—Presented this patient, at St. Thomas's Hospital, to Mr. J. H. Green and Mr. Barnsby Cooper, for their examination; he told the time of one of their watches by the right eye, the left being closed.

November 1st.—The general appearance of the man is very considerably improved: in fact, he looks much better and happier than I have ever seen him. Has had no return of the bright spot before the left eye, or one bad symptom in it since the last report. With the right eye, alone, can now see to read distinctly, and without fatigue, a moderate sized print. With both eyes open can read, write, or view minute objects for many hours without the slightest inconvenience, and is, therefore, capable of supporting his wife and children by the earnings of his occupation as clerk.

Have not seen or heard from him since November.

Mr. Wm. Beckworth, 29.—By trade a velvet weaver, and in appearance healthy ; has light hair and grey irides.

Irides act freely and in union, when both eye-lids are open, but if the left eye-lid be closed, the right iris will become largely dilated and *immoveable.*

Association unusual—that is to say, if the left eye-lid be closed, the right will become much inverted, which inversion is remarkably increased the more earnestly he attempts to look directly forwards ; then, if the left eye-lid be suddenly opened, its cornea will be found directed towards the outer canthus ; but, if the eye-lid be kept open, it will speedily resume its natural central position, and correspond with the right, which, at the same instant, has moved from its inner canthus. If the right eye-lid be closed, and suddenly raised, the association will be found perfectly natural, *i. e.*, both corneæ will remain in the same position as when both the eye-lids are open. If an object be held close to the root of the nose, and the patient be directed to look intently at it, with both eyes, the cornea of the right eye will be moved slightly outwards beyond its centre, while that of the left will be turned much inwards towards its inner canthus.

The power of inverting each cornea is very complete, but more so in the left eye. The power of eversion is also very complete, but to a greater degree in the right than the left.

Sight, with both eyes open, very dim and confused, so as entirely to prevent him from pursuing his business as a weaver. He states, that at the moment he first looks at an object, it is perfectly distinct, but, after a few seconds, he is troubled by a peculiar confusion of vision, attended by a mist which rapidly increases, and he can no longer see the object he wishes to view.

The vision in the right eye is nearly extinct, and a dense yellow mist appears to the patient to be always present before it, from which cause he says, he cannot even see the blaze of a strong fire, nor distinguish the flame of a lighted candle if held to the inner side or in front of the right eye ; but, if the candle be held at the outer canthus, and near to the right shoulder, he can perceive a faint light in the form of the flame. In strong day-light, if a printed page be held in the same direction (*i. e.* towards the right shoulder), he can distinguish, for about half a

minute, the difference between the print and the margin, it will then suddenly disappear, and he will be in total darkness.

Sight in the left eye perfect, if used by itself.

Has had pain in the right brow and eye-ball, but no flashes of light or muscæ.

History—Three months since was struck on the right eye by the hand of a man; the eye speedily became painful and red, and its sight slightly dim, which state continued, without improvement, during the five or six following weeks, and caused him to apply for the advice of a surgeon, who treated the case as one of chronic ophthalmia, and soon relieved the pain and cleared the conjunctiva of its redness—but without in the least degree improving the sight, which was gradually becoming worse, so that he could not continue at his velvet-weaving for longer than a few hours each day. He states that, in a few weeks after he received the blow, he observed that his sight, when both eyes were open, began to fail him thus:—At his first commencing to weave, his sight would be clear and distinct, and continue so till about the end of the first hour, when it would become confused and misty, so as to require a rest of the eyes, which rest would enable him to resume his occupation, though not for so long a time as an hour: indeed, for little more than half an hour, before a repetition of the rest would be needed, in order to render the eyes capable of being again employed. This state of sight, which required *increased* intervals of rest, at *decreasing* periods of occupation, continued daily to augment till he placed himself under my care; he was not then able to do one hour's work in the day: thus causing to him the utmost distress of mind at the loss of his occupation and means of livelihood.

After an attentive consideration of the interesting, but distressing particulars of this case, I found a sufficient number of facts to convince me that, whatever might be the cause of the blindness in the right eye, there was certainly a permanent and very unnatural state of contraction of the right internal and external recti muscles, which was capable of producing, temporally, on any slightly-exciting cause, the same state in the corresponding recti of the opposite eye: to which, from its frequent and increasing repetition, the loss of sight was threatened. I, therefore, proposed to him my performance of the requisite operations, under the expectation that I could relieve the confused and misty vision, as experienced when both eyes were open, so as to enable him to return to

his occupation, although, at the same time, I gave him but very little hope to expect any useful return of sight in the right eye.

He gladly accepted my offer, and on *January* 28th, 1841, I divided the right internal rectus muscle: the immediate effect of which was an extreme divergence of the right eye.

29th.—Position of the left eye central; right very much everted.

Association—as before operation, but not quite to the same extent, the cornea of the right eye is still brought to a point about three lines inwards of its natural central position by closing the left.

Sight in the right eye improved: *the yellow mist before it has entirely subsided;* objects appeared to be obscured by a darkness without colour; can faintly distinguish large objects if held directly in *front* of it; can distinguish letters of very large print, if held near to the right shoulder, but not accurately; a dimness will completely obscure them if he attempts to view them for longer than one or two minutes without the assistance of the left eye. States that last night he saw the fire distinctly by the right eye alone.

February 2nd.—Can see the bars of a lighted grate if situated directly in *front, or even slightly towards the inner side* of the natural position of the right eye; has felt pain in the right eye-ball.

6th.—Wound healed. Position of the right eye still much everted.

The peculiar association of the eyes remain the same as before operation, but not to the like extent; the inversion of the right eye, on closing the left, not being so complete as it used to be.

Sight in the right eye much improved, can discern by it the bars of the windows when looking directly forwards. The confusion and mist which used to be present on slight occupation of the eyes, when both were open, *are very much lessened.*

8th.—Divided the right external rectus, and separated it as freely as I thought necessary. The right eye did not come perfectly straight, and this I attributed to its association with the undivided left external rectus.

11th.—Postion of the left eye, with both eyes open, slightly everted; sight improved in the right eye, by which he can now tell the number of fingers held up before him in the day light, but not by gass-light; cannot yet see to guide himself about by it.

18th.—Position of the left eye central, that of the right everted, and *to a greater extent than immediately after the last operation.*

Right pupil natural in appearance when both eyes are open, but much dilated when the left is closed, though slightly *moveable* if a strong light be employed.

The association as before operation, but in a less degree.

The extent of the power of inversion of the right cornea is about two lines less than previously to the division of its internal rectus muscle, but that of the power of eversion is only lessened by one line.

Sight, in the right eye, much improved, can see to guide himself about by it, and can distinguish, by the variation of dress, a man from a woman, situated on the opposite side of a street in which he is walking. He has also attempted to follow his occupation as a weaver, and has not found the slightest inconvenience from dimness of sight or confusion of the vision; so that the defective state of vision, with both eyes open, as complained of before the operation, has been *entirely removed.*

March 11th.—The position and association of the eyes remain the same as at last report.

Has worked at his business during many hours each day without experiencing the slightest confusion of vision, dimness, or any other inconvenience while using his sight; but he complains at times of pain about the right brow and temples. The sight in the right eye has not improved since last report.

May.—Position of the right eye still everted, its remarkable association yet the same, it being always inverted from its centre on closing the left eye-lid; and extremely everted if he attempts to look at an object, held close to the root of the nose.

The sight, in the right eye, much the same as in March last, certainly not worse; has frequently recognised trees by it at considerable distances, and has distinctly perceived smoke issuing from the top of a high factory chimney. The sight, with both eyes open, *remains unconfused and free from dimness;* but a fresh cause to interrupt the steady pursuit of his business is now present, and has gradually approached, since the last report, namely, the continuance of the pains about the right side of the head, particularly in the brow and temple of the side, which are excited and increased by close employment of his eyes.

It needs scarcely be to remarked, that the continuance of the peculiar state of the association, after the operation, though in a minor degree, does appear satisfactorily to indicate the present existence of some remaining portion of that morbid contractile affection of the recti mucles

in the right eye, which, by the operations above mentioned, has been so considerably lessened. For the more effectual relief of this affection, and the removal of the symptoms now complained of, I have recommended the patient to submit to another operation, which has for its object a more complete separation of the right external rectus, which I believe has reunited too close to its original insertion; and moreover, because, in some few instances, all the painful symptoms of this affection, in their severest form, do exist, without the sight becoming affected, so as to inconvenience the patient, and are capable of being removed by operation; also, that in such a case, I have operated with perfect success, and relieved a patient of pains which, in spite of the most skilful treatment, had lasted during many years, and had rendered the life of the patient miserable.

Charles Baskerville, 13.—A sickly boy, of strumous aspect, with brown hair, and hasel irides; is affected by a slight oscillatory motion of of the eye-balls, the corneæ of which constantly tend to turn directly upwards beneath their upper-lids, that of the right eye, at times, turns slightly inwards, while the left cornea remains central.

Association—nearly natural, the left cornea being but very slightly inverted if the right eye-lid be closed. It was also observed that, on closing one eye, the other immediately had its oscillatory motion violently increased.

Repulsion—If an object was held close to the root of the nose, and the patient desired to look at it with both eyes, the left cornea was repelled quite to its external canthus, while the right was fully attracted to its inner.

Inversion—Both corneæ could be made, at the will of the patient, to enter their inner canthi, but the left more completely so than the right.

Eversion—The power of turning the corneæ, to the external canthi, very perfect in both, but more particularly in the right eye.

The appearances of the corneæ were those which usually result from a long continued strumous inflammation of the conjunctiva; the conjunctiva palpebræ was slightly granular, and the conjunctiva scleroticæ

here and there freely injected by red blood-vessels, which extended to the conjunctiva corneæ, on which a few slight opacities existed.

Sight, with both eyes open, can see to read small print at the distance of *three* inches, and large print (double pica,*) at the distance of *nine*. The longest period that he can read large sized print, without resting his eyes, is one quarter of an hour; and the longest period by the aid of frequent restings, does not exceed one hour: after which, his eyes are incapable of viewing print or small objects till they have been rested for many hours The sight is generally most impaired in the first part of the morning.

He has never for a moment lost his sight completely while both eyes have been open.

Sight of the right eye, good for the first few minutes whilst an object is looked at, but continued exertion appears to cause the object to vanish. He sees best with it in a direction towards his nose.

Sight in the left eye very dim, can just see, if held within the distance of *two inches*, the principal part of black letters, two inches in length; *cannot tell, with certainty, the number of fingers held up before him.* Dimness rapidly increases on slight exertion, if the eye be used by itself, but not to complete blindness. Sees best towards the nose.

He is very subject to pain across the forehead and brows, also to a beating sensation in the temples; these are instantly increased by moderate bodily exertion, by stooping, or after a short exposure to the rays of the sun.

History—A few days after birth he was attacked by an inflammation of both eyes, attended by a profuse discharge of a fluid resembling pus: since then, they have never been entirely free from inflammation, which has always been aggravated during the summer months.

He has been principally under the careful treatment of three of the most eminent surgeon oculists in London, three years under one—two under another, and one under the third. For a time, each surgeon relieved the attacks of inflammation, but neither of them improved the sight, though his attendance under each of them was constant and regular.

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* A type full *three times* the size of newspaper print.

May 10th.—I divided the left internal rectus muscle; and the left cornea became instantly extremely everted; indeed, so much so, as to conceal nearly the whole of the cornea within the external canthus. He fancied an instant improvement of the sight.

11th.—Position of the left cornea very much diverged, and the oscillation in the right eye increased.

Sight, wonderfully improved; sees better by the left eye than he can remember ever to have done; can see to guide himself about by it, and during his journey to my house, this morning, read the names of several steam vessels, omnibuses, and shop keepers, &c., several of which were at the distance of many yards from him. He read to me several words in a type called (six line pica*), and even could distinguish the letter o in the type (double pica,†); dimness still increases very much, but not so soon as it did previously to operation. Sees best towards the nose.

Sight in the right eye remains the same as before operation.

He has suffered since the operation from pains in the head and sickness.

12th.—Position of the eyes, the same as yesterday. Sight still more improved in the left, he can read easily a type of above double the size of common newspaper-print.

13th.—Position of the left eye still very much diverged.

The left cornea can be turned towards its internal canthus till its edge touches the punctum lachrymale of the lower lid.

The left eye is slightly more prominent than before operation; but not more than is usually natural. Pupil natural.

Sight very much improved, he can see to read a large-sized newspaper print. Sight most perfect towards the external canthus, but dimness quickly increases, till he looses sight of the object. Does not see double.

Divided the right external rectus, which did not cause the left eye to come perfectly straight.

16th.—The left eye is still slightly everted when both eyes are open, but is slightly inverted if the right be closed.

Sight much improved; can see to read by the left eye, without the

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* The letters of which are about one inch in length.

† Which is full *three times* the size of newspaper print.

least difficulty, the ordinary newspaper print for several minutes, (has not thought it prudent to try for a longer period;) after the exertion of the eye only a very slight dimness was produced.

Complains of headache and pain over the brows, particularly over the left.

18th.—When both eye-lids are open the right eye is much inverted, and the left is yet slightly everted, though less so than at the last report; this slight divergence of the left eye is increased by attempting to read. Sight, with both eyes open, much stronger than he has ever known it to be, can look at any object for a much longer time, without the presence of a mist, than he ever remembers to have done.

22nd.—Position of both eyes natural, if he looks directly forwards at a distant object, but, if at an object placed within six inches of the nose, the left cornea will become everted, and which position will be confirmed to an extreme degree, if the object be held close to the root of the nose.

If the right eye-lid be closed, the left eye instantly becomes inverted, and then if the right eye-lid be suddenly raised, the cornea of the right eye will be found to be extremely diverged; however, if the eye-lid be kept open, the right cornea instantly returns to its natural central position, to correspond with the left, which, at the same instant, returns to its centre.

The oscillation of both eyes, when open, has much subsided, particularly in the left. If the left eye-lid be closed the oscillation in the right is very much increased, the reverse of this takes place if the right eye be closed.

By the left eye cannot yet see to read print smaller than that of a newspaper, though the letters and their interspaces are seen plainer than they were at last report.

The sight, in the right eye, is improved since the operations on the left, though still subject to slight mist after exertion; can now see with it equally well in all directions.

In the course of two or three weeks it is my intention to operate on the right eye, thereby to prevent the occurrence of dimness, after exertion, in the right.

On taking a review of the preceding cases, and of what has been said concerning the symptoms to which similar cases are liable, it cannot but be plain to every one that the following peculiarities constitute the chief characters of the disease (when uncomplicated), here called Muscular Amaurosis, namely, the absence of every other symptom but blindness, to indicate a disease of the brain; the absence of any demonstrable change in the structure of the retina, and the presence of a voluntary power to increase the dimness of vision, by directing and fixing the eye steadily on any minute or bright object, to which may be added its sudden mode of attack and its liability to a momentary and complete recovery of the sight, or change from eye to eye; therefore, at once precluding the idea that the disease can depend on alteration or *destruction of the component parts* of the optic nerve. Such being the distinguishing features of this complaint, it becomes us to enquire, by what agency the functions of the nerve are thus impaired; and in order to do so, the injuries and disturbances which may take place in the structures surrounding the optic nerve must be carefully considered.

The various circumstances, then, affecting the healthy transmission of retinal impressions through the different portions of the optic nerve may be thus classed:—Firstly, into changes which may arise in the substance of the brain, variations in the quantities of its fluids, and the enlargement or bursting of blood vessels; these are referable to the *cerebral* portion. Secondly, into diseases of the bone, periosteum, and ophthalmic artery; these we connect with that portion occupying the optic *foramen*. Thirdly, into numerous diseases, which are for the most part obscure in their origin and progress; these are of the *orbital* portion; those diseases which have been found to press on the nerve and impair its vision in this situation are Tumours, Cysts, Abscesses, and growth of bone, &c.; but, of late, there has been reason to believe that the existence of a certain kind of impaired vision may depend on a cause hitherto unnoticed, and entirely different from the preceding, arising from and out of the peculiar anatomical arrangement of parts which encircle the opic nerve; therefore, that its probability may be considered, I will briefly notice a few facts connected with its anatomy.

The optic nerve, from its escape at the optic foramen, takes a tortuous course to its point of junction with the clerotica, and is enveloped by a fibrous sheath which separates it from the contents of the orbit; its sheath, at the edge of the optic foramen, is almost inseparably united to a strong aponunosis formed by the conjoined tendons of external inferior, and internal recti muscles, which are firmly attached by it to the elevated ridge at the under part of the optic foramen; in all other parts of the orbit, the sheath of the optic nerve is surrounded by globules of oily fat, and cellular membrane, to which may be added a ganglion, several small nerves and blood-vessels, one of which, the arteria centralis retinæ, pierces the nerve obliquely and is lodged among its fibrillæ.

The intimate connexion which exists between the muscles of the orbit and the optic nerve being as above stated, I, for the present, leave the reader to reflect on the possibility of the former influencing the latter by any unusual contraction, and proceed, lastly, to mention the causes most likely to disorder the functions of the remaining position of the optic nerve: they are, namely, diseases of the choroid and other tunics of the eye, characterised by a temporary congestion, or by a permanent organic change.

Having enumerated the above causes, as liable to interfere with the due performance of the functions of the optic nerve, from their seat being closely approximated to it, I venture to believe that no cause will be found so likely in its consequences to produce the peculiar disease of which we have been considering, as the arrangement of the recti muscles with respect to the nerve, for whatever the cause may be, it must possess the power of *acting suddenly*, of varying its degree by becoming *complete or incomplete* by turns, and of *changing from eye to eye;* moreover, *of existing without danger to the life of the patient, and, frequently, without in the least degree altering the healthy and natural appearances of the eye, from childhood to old age.*

I am therefore of opinion that the peculiar form of amaurosis, here designated by me as *Muscular Amaurosis*, depends on the bending or partial folding, and compression of the optic nerve, caused by the shortening and thickening of the recti muscles during a state of morbid contraction, which further may be attributed to an affection of the third and sixth nerve, probably at or near to their origins.

The form of impaired vision, just described as muscular amurosis, may be complicated by a slightly prominent, or extremely conical state

of the cornea, both of which complications tend to produce different degrees of shortsightedness; and by cataract or changes of structure in the globe of the eye and optic nerve, which render its diognosis extremely difficult; also by strabismus. I shall here only illustrate the two former complications, because the latter will, on a future occasion, be separately considered.

Louisa Wright, 24.—Of very dark complexion, dark hair, and grey irides; says that her health is generally good. Both corneæ are very conical, the right more so than the left; both are slightly opaque at their most prominent points, the opacities in the right are more extensive than those in the left; they are not very dense, and, in appearance, resemble a thin grey cloud.

With both eyes open, cannot see to recognise a friend across a common road, or to do fine needle-work, or to read small print. By the aid of frequent restings of the eyes, can see to do coarse work for two or three hours at a time; is then compelled to rest her eyes for several hours. Cannot read for longer than ten minutes without a rest, after which she can resume her reading for a few more minutes, somewhat less than ten, and thus continue alternately resting, and employing her eyes for about an hour. The intervals of rest having been increased, in the inverse ratio, to the periods of employment. The cause of the frequent restings is owing to the presence of a dimness and mistiness before the sight, which become more and more dense the longer the patient attempts to view the object.

After about one hour's occupation of the eyes, the disposition to the reproduction of the mist becomes much increased, and occurs at intervals of only a few seconds, so that she is obliged to rest her eyes for many hours before she can again read for ten minutes, without a rest.

To see distinctly a moderate-sized print with both eyes, the book must be held at the distance of six inches.

By the right eye, nearly blind, cannot see the bars of a window, can, but with difficulty, tell the number of fingers held up before any part of its cornea. Dimness will increase, after exertion of the eye, even to *perfect darkness*.

By the left eye, can see to read very small print at the distance of four inches from the nose, but not beyond; cannot read a moderate-sized print beyond six inches, and then only for a few minutes, without a rapid increase of dimness.

Does not see the appearance of various colours by daylight, but, when candles are present, she perceives, at times, the appearance of long coloured streams of light, proceeding in a direction between her and the flame of the candle.

Suffers from violent pain in the forehead, and top of the head: also, from a violent beating sensation in the temples; is very seldom quite free from these pains, which are always worse after moderate exertion of the eyes or body, and their degree generally corresponds with the degree of dimness in the sight.

Treatment has been very various, she has been mercurialized three times, and on each occasion for the space of several weeks.

Has been under the care of three of the most eminent surgeon occulists for the last six years, without benefit, and is gradually becoming worse.

Margaret Fitch, 25.—A healthy looking woman.

Position of both eyes natural.

Both corneæ conical, the left more so than the right; no opacity.

With both eyes open, can see to guide herself about, and, at a short distance, recognise the features of any one; finds much difficulty in working at her needle beyond an hour, for the sight becomes obscured by a mist, accompanied by pain in the brows and temples, which require, for their removal, a rest of five or ten minutes; the utmost time she can work, without a very long rest, is about four hours; after the first hour, the work of the remaining three is interrupted by numerous rests, which become more frequent and of greater length towards the close of the fourth hour.

Can read full-sized print at the distance of six inches, and small print at three inches. The dimness and pains are more quickly produced by reading than working.

By the right eye can see the smallest print at about four inches distant, and more perfectly than when both eyes are open.

By the left she cannot see to guide herself about; its dimness very rapidly increases upon exertion, and mostly so if she looks towards the inner canthus; *sees much the best in the last named direction.*

Is very subject to severe pains in the head, principally in the brows and temples, and the left more than the right; the attacks of pain are often attended by sickness, and occur as often as three times in a week.

Any continued exertion of the eyes, a short exposure to the sun's rays, or a quick walking will rapidly produce an attack of pain and sickness, which will occasionally continue for one or two days at a time. The pains are often referred to the situation of the frontal notch, and their severity is frequently felt to be in proportion to the dimness of vision.

History—About five years since, her eyes felt to her perfectly well, she was not aware of any defect of sight, till about half a year afterwards, when she perceived the necessity of bringing objects closer to her eyes than had been usual for her to do.

In six months more, objects, to be viewed distinctly, were required to be brought still nearer to the eyes, which would feel soon fatigued, and ache after a very moderate exertion; pains also began to be felt about the brows and temples. This state continued but slowly to increase till twelve months since, when the pains became so violent that she applied for advice, and under which she has continued to act ever since, without any apparent benefit; indeed, the sight and pains have gradually become worse, so that she is perfectly unable to earn her livelihood by her own industry.

Thomas Willis, 21.—A Warehouse-man, of healthy appearance, of dark complexion, and blue irides.

Position of both eyes perfectly natural. Pupils natural. Irides active and healty.

With both eye-lids open, can see for the space of one or two minutes, distinctly, any small object, if situated at a moderate and usual distance

from the eyes; he also can distinguish the letters of small print at the distance of fifteen or twenty inches, during a few seconds, but not for a longer time, in consequence of the sudden appearance of a mist before the sight, which will prevent him reading at any distance beyond two or three inches from the nose. If a book be held at the distance last named, he can read during one hour and a half, without being required to rest his eyes. However, if he continue to use them after this period they will require *frequent rests* at intervals of a gradually decreased length, till he will be compelled to rest them for several hours at a time. If the position of his eyes be observed after he has been reading or viewing any object very attentively for several minutes, the right eye will be found slightly converged more than the left. His defective state of vision very much interferes with the pursuit of his present occupation, on account of the difficulty he experiences in discovering the marks on different goods.

With the left eye he can see nearly as well as if both eyes were open; it is subject to the presence of a mist after exertion, and its sight is is always most perfect towards the nose.

With the right eye he can see to read a moderate-sized print, if brought to within the distance of two inches of the nose; very small type he cannot read at any distance, but only make out some of the letters. He cannot read a full-sized print for more than a very few minutes, without dimness being produced, which will rapidly increase in its density so as to render him incapable of seeing the form of the largest letters; sees most clearly towards the nose. The dimness of sight is always accompanied by a pain over the right brow in the situation of the supra orbital notch. He is very subject to headache, indeed is never a whole day free from it; it generally occurs in the after-part of the day, but is at all times readily produced by the light and heat of the sun, or by any sudden and active exercise of the body, or over-use of the eyes. The pains are always most severe on the right side of the head.

History—The sight of his eyes has been as at present, as long he can remember, and has much interfered with his education and occupation; spectacles have afforded him much assistance.

Henry Stevens, 17.—A healthy-looking lad, marked by the small-pox, has light hair and grey irides, with rather more than usually dilated pupils.

Association unusual, if the right eye-lid be closed the left eye remains in its natural central position, but, if the right eye-lid be suddenly raised, the right cornea will be found much inverted; if the right eye-lid be left open, the right cornea is seen to move, gradually, to its natural central position, in order to correspond with the left. If the left eye-lid be closed, a similar result does not take place, the association being perfectly natural.

Position of both eyes perfectly natural.

If an object be held close to the root of the nose, and the patient be desired to look at it both corneæ are, at first, slightly and equally converged; but, as the effort to view the object with both eyes increased, the left eye becomes more converged than the right, the cornea of which returns to its natural central position, and remains there.

The power of inversion and eversion of the corneæ are equal and complete.

Sight, with both eyes open, can see the letters of small print for a few seconds, if brought to a point within *three inches* of the eyes: and see to read very large print if within *seven* inches, but not beyond.

His present employment is that of assisting to print oil floor cloth, but he finds that it will be impossible to continue at the occupation, because he cannot see distinctly the marks* for joining the patterns, or tell the straightness of a line, exceeding one yard in length.

Has tried to follow the business of a wheel-wright, but was obliged to abandon it on account of his not being able to see the figures of the rule, and many *other* necessary parts of the work. Has also endeavoured to follow the trade of his father, namely, that of a tailor, but he can neither do fine needle-work or thread any needle less in size than a worsted one. His parents have taken much pains to teach him to read, and have

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* They are called pitch marks, and consist of thick wire points.

procured for him books with very large type, but all to no purpose, for if he endeavoured to fix his attention on the letters they would only be seen for the space of a few seconds perfectly distinct, and then would become so obscured by a mist as not to be recognized till the eyes have been rested; so that on any slight exertion of the eyes they become dim and filled with tears—thus quickly depriving him of the power to see anything distinctly.

If the left eye be open, while the right be closed, the sight is *better* than when both eyes are open; dimness, however, soon increases after exertion of the eye; its sight is best towards the nose: can see small print at *three* inches and large print at *seven*.

With the right eye, unassisted by the left, the sight is much worse than if both eyes were open. He can just tell the difference between man and woman by their dress, but cannot see their features; *cannot accurately tell the number of fingers that may be held before him* or see to distinguish the form of the largest printed letter, which, in order to examine, he holds at the distance of *two inches* from his eyes; the dimness of this eye, after very slight exertion, will increase to nearly perfect darkness; in general mist is less dense in a direction towards the shoulder.

He complains of much pain in the forehead, eye-brows, and temples, accompanied by a sense of soreness: and that moderate bodily exertion, or application of the eyes to small objects, instantly excites the pains.

If he looks at any small object for a few minutes the sight not only becomes so dim as to leave him in perfect darkness, but the pains will have been produced in their severest degree, and will continue for an hour or more. The fits of pain are occasionally attended by attacks of of sickness, giddiness, and general headache. Has been subject to these attacks ever since he had the small pox; they are more frequent in the summer than the Winter.

History—Previously to the age of nine years, his eyes were perfectly healthy and natural; at nine years of age he was attacked by the small pox, accompanied by severe inflammation of both eyes, and intolerance of light, which lasted during many weeks.

On his recovery, his eyes were much in the same condition as they are now, and they have continued thus ever since.

May 10th.—Divided the right internal rectus muscle, which caused the right eye to slightly diverge, and its pupil to become largely dilated, but not to be deprived of the power of acting freely. It remained in this state for several hours after the operation.

12th.—Position of the right eye slightly divergent; the left natural.

Sight very much improved in the right eye, all objects look brighter and plainer; he can see objects at a greater distance than he has been accustomed. He has been using his eye to examine the lines of the pavement, the cracks in the floor between the boards, the markings of the tiles, &c., all of which appear so very large and plain, and to quote his own words, he says that he "feels as if he was in a new world, every thing appears so strange;" can distinguish the lines of print, and the spaces between the letters; dimness deeply increases in the right eye after a moderate exertion.

With both eyes open, sight is much better than it was before the operation; but he sees double, at times, to the left side.

17th.—Position of the right eye very divergent; of the left, natural.

Sight of the right eye in every respect improved; can distinguish the features of different people; can tell, accurately, the number of fingers held up before him—in fact, *he can recognize any object that may be presented to him* and can even read the letters of very large-sized print at the distance of about *six inches*. The dimness after exertion of the eye still increases, but not so rapidly, or to so severe a degree as it used to do.

Divided the right external rectus muscle, which caused the right eye to become straight, and the left slightly inverted.

19th.—Position of the right eye, central left slightly inverted.

Sight, with both eyes open, much better than he has *ever* known it to be; can read newspaper print with ease, at the distance of *twelve* inches, for a much longer time than before operation (has not ventured to try the full extent of this improvement); sight, in the right eye, remarkably improved; can read by it, easily, a print of about twice the size of common newspaper-print, at the distance of about *nine* inches. Dimness does *not* increase after moderate exertion, though he still sees best towards the right external canthus.

He states that the sight in the left eye is very much improved since the operation on the right, for he can see further and plainer with it, also, that its dimness does not increase so quickly.

This case is, at present, incomplete; the performance of two more operations, on the left eye, being necessary for its perfect cure.

From the facts which the symptoms and history of the preceding cases of conical corneæ and shortsightedness present; and from the results of the repeated observation, that, if they be complicated by strabismus, a carefully performed operation for that disease will invariably be attended by a more or less perfect removal of the defects of vision, and even by a *lessening of the conical state of the corneæ*; I can have but little hesitation in stating it to be my opinion, that the division and extensive separation of certain recti muscles will be found to be an effectual cure for numerous cases of shortsightedness, and a mode of relief for some of the distressing effects of conical corneæ.

The intention of this letter being, simply, to publish a description of certain forms of blindness, with a view to their being selected and submitted to a cure by operation, I feel myself compelled, by the form of my present communication, to defer the consideration of those particulars which relate to the treatment after operation, and on which the perfection of each case must mainly depend, till a future period; when this division of the subject, in connection with other parts of it, will be fully entered into.

At this stage of a task I so willingly set myself, let me, Sir, in conclusion request that you will look kindly on its defects, and believe it to be the sincerely offered result of an ardent love for the pursuits of a Profession which has been Divinely permitted to bestow such blessings on mankind.

I have the honour to be, Sir,

Your's most respectfully,

JAMES J. ADAMS.

27, New Broad-street, City,
May 30, 1841.

N. B. Communications, intended for the Author, are particularly requested to be directed to Mr. JAMES J. ADAMS, No. **27,** New Broad St., City, there being another Surgeon of the name of Adams in the Street.

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From the Author