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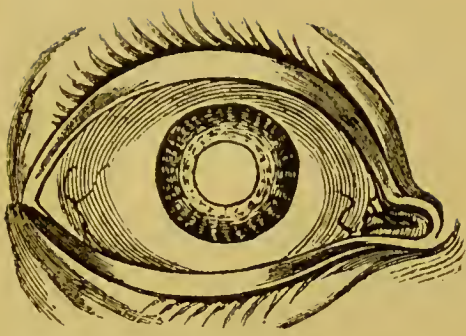


Fig. 1.—The Eye as it appears affected with Cataract.

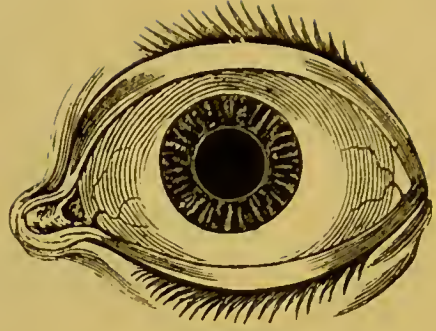


Fig. 2.—The Natural Eye magnified.

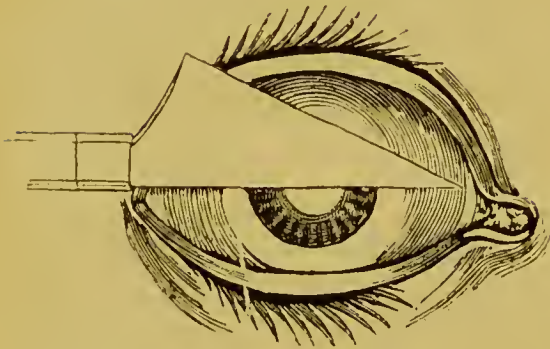


Fig. 3.—The operation for extraction of the Cataract.

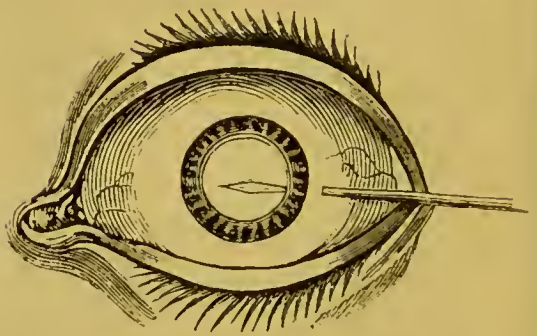


Fig. 4.—The operation for solution, by division of the Lens and its Capsule, by means of the Needle.

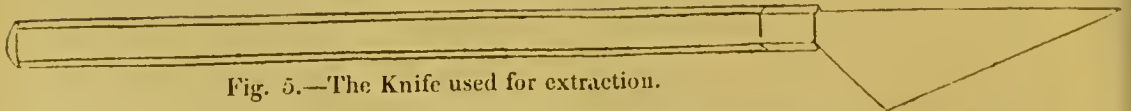


Fig. 5.—The Knife used for extraction.



Fig. 6.—The Needle used for the operation of solution.

PRACTICAL OBSERVATIONS

ON

BLINDNESS

FROM

CATARACT;

WITH

CASES,

ILLUSTRATING THE ADVANTAGES OF AN EARLY  
OPERATION.

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## PREFACE.

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The frequent occurrence of blindness from cataract will, I hope, be a sufficient apology for intruding before the public the practical observations contained in the following pages. I do not attempt to enter fully upon the subject, it would be impossible to do it justice in the limits of this paper; my principal object is, to point out the importance of an early attention to the first symptoms of the disease, and to explain how easily it may be cured in its first stages, by comparatively a painless operation, and to prevent the misery and unhappy state of many, who from an erroneous opinion, still too prevalent even in the profession, are permitted to be in a state of darkness, and compelled to wait a long period before an operation is performed for their relief, in order to allow the cataract to become hard, or as it is called ripe, that it may then be in a fit state either to be extracted, or depressed, by the operation of couching.

PREFACE.

The operation I advocate in these pages, and have practised with great success, is not a modern invention; it was first made use of by the late Mr. Saunders, and it has since been practised by some of the profession; but it is not known or appreciated to the extent its merits deserve, as when resorted to early, and properly performed, it is most certain in its effect, causing little pain or confinement to the patient, and is unattended by the dangers and uncertainty of either extraction or couching: experience having proved, that so soon as a cataract is decidedly developed, whether in one or both eyes, it ought to be submitted to an operation without delay.

Middle Pavement, Nottingham,

April, 1840.



PRACTICAL OBSERVATIONS

ON

CATARACT.



PRACTICAL OBSERVATIONS  
ON  
CATARACT.

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Before entering upon that part of my subject which relates to the operation of which I purpose to treat, it will be desirable, for the benefit of my non-professional readers, to describe, concisely, the structure of the eye—that beautiful and delicate organ, which, by its functions affords to us the most delightful of our perceptions—so delicate is its structure, and so exquisite its sensibility, that disorders, which to other organs would be trifling, prove to it destruction ; it is guarded by the eyelids and eyelashes from many injuries, such as dust and insects ; and its surface is kept moist by the secretion of tears, the superabundance of which is carried off by a groove in the inner edge of the eyelid, which conveys them to the small openings, called puncta lachrymalia, at the corners of the eyelids, when they reach a tube which conveys them into the nostrils. We should notice also and admire the perfect mechanism of muscles which move the globe of the eye in all directions at will—the tough sclerotic coat gives firmness and figure to the eye, and with the anterior transparent part,

called the cornea, forms the globe of the eye; the dark or choroid coat, placed internally, to absorb the superfluous rays of light, is called the second coat; and the retina, formed by the expansion of the optic nerve, and for the purpose of receiving impressions of surrounding objects, and conveying them to the brain, is called the third coat. The cavity formed by these membranes is filled by three humours or fluids of various degrees of consistency: the first in order and contained in what is called the anterior chamber, is named the aqueous, and occupies that part of the eye in front of the crystalline lens: this fluid is capable of dissolving very hard substances, and when admitted by an operation to the crystalline lens, from which it is separated in its natural state by its capsule, it is found speedily to cause its solution and absorption; the next is the crystalline, commonly called the lens, and which, when changed by disease, forms cataract, the subject of this paper; and the third humour is called the vitreous, situated at the back part of the eye, and is by much the largest, occupying three-fourths of the whole space: these humours transmit and converge the rays of light to a focus upon the retina, which, as I have before described, conveys the sensation of objects to the brain.

The iris, which gives colour, beauty, and expression to the eye, is like a highly sensitive and moveable curtain, dividing the anterior from the posterior part of that organ, the black opening through

which is commonly called the pupil; the use of this membranc is, to regulate the admission of the rays of light, so that by its contraction in a strong light, to prevent too much being admitted; and by dilating in a weak or dull light, to give strength and clearness to vision; this is easily demonstrated in the eye of the cat. The eyes of cats and tigers are formed for seeing better in the dusk than in the broad glare of sun-shine. The pupil, in fact, is capable of opening very wide, or shutting very close; and, by contracting it, the brighter light of the day, which would act too powerfully upon the sensibility of the eye, is excluded; while, by dilating the pupil, the animal takes in the more faint rays of the night, and thereby is enabled to spy its prey, and catch it with greater facility in the dark.

The minute anatomy of the eye is not necessary for the right understanding of my subject, and I shall not now, therefore, enter upon it further than to explain the situation and structure of the crystalline lens; my principal object being to show how a diseased state of that humour causes blindness, and to point out how it may, in most cases, be removed, and so give hope and consolation to many who, from, I think, a mistaken notion, still too prevalent, even in the profession, are waiting an indefinite period in nearly total darkness, before any thing is attempted for their relief; and even then, are destined to submit to an uncertain and painful operation.

The crystalline lens, or middle humour of the eye, has the shape of a double convex lens, and is of the same use to the eye, as a glass of the same shape is to a microscope; namely, to bring the rays of light to a focus, before they strike upon the retina; it must be manifest, if this lens from any cause becomes dim, or opaque, by a loss of its vitality, or any other cause, the power of refraction must be lost, and it becomes an impediment, and obstruction to vision, which nothing but its removal can remedy. Such is precisely the case in cataract. The lens, from being beautifully transparent and colourless, is observed to become turbid, if early noticed; sometimes white, like milk, occasionally in old cases yellow, or amber coloured, and in some rare cases black; there are several varieties of cataract distinguished by name, as the part implicated may differ, as capsular cataract; the part affected being only the capsule, or membrane inclosing the lens, which remains transparent, or may have been absorbed by an operation, or injury, from some pointed instrument having entered the eye, and caused a communication with the aqueous humour, in which case the capsule may, and often does, remain opaque, and obstruct vision. A second kind is called capsulo lenticular, from the capsule and the lens both partaking of the same disease; and a third and most common is, the lenticular cataract, the lens or crystalline humour *only* being in a state of disease; this is again di-

vided into several kinds, according to the different degrees of consistency it may possess ; hence it is sometimes called fluid, or milky ; if of the consistence of cheese, caseous ; hard, or firm, when it generally becomes amber coloured from age. The causes of cataract are as various as the kinds of that disease. The crystalline undergoes many changes in its shape and transparency ; as from age, from slow inflammation, from mental excitement, from long continued exposure to a brilliant light, cataract is often caused by external injury of the eye, as a blow, or a prick from a thorn, needle, or other sharp body wounding the lens :—it sometimes makes its appearance suddenly, after violent exertion, or long exposure to the vicissitudes of climate, more commonly, it is very gradual in its course, beginning with slight dimness, and gradually progressing to complete blindness ; it may be said to be hereditary ; many members of a family having been afflicted with it. Children are sometimes born blind with cataracts ; when they are called congenital, and are always soft and milky, and frequently capsular, these are cases which particularly call for an early operation, as will be hereafter explained.

Cataract in its various forms is sometimes combined with disease of the other parts of the eye, as for instance, the retina may be diseased producing amaurosis ; when the removal of an opaque lens would be attended with no benefit to vision.

The vitreous humour is often the subject of disease, which would prevent the propriety of an operation for cataract, the iris may be so adherent to the capsule of the lens or to the cornea, as to render the result of an operation doubtful. The symptoms of cataract are in the first place a shortness of sight, a dimness, indistinctness, or mistiness of vision, unattended with pain, and from this cause, often unnoticed by the sufferer; and if in one eye only, is frequently not perceived till some accidental circumstance points out the loss: this haziness continues to increase till all useful vision is lost, and the eye can only distinguish between light and darkness; the bright black aperture of the pupil is occupied by a white or yellowish body, totally obstructing the rays of light, in their passage to the back part of the eye, and nothing but an operation can then afford relief, or restore the sufferer to the blessings of sight. Medical treatment is of little avail as a cure for cataract; and it is only when the other parts of the eye partake of disease that it can be of much service; except as a preparative for an operation. It must be evident, therefore, that when the loss of sight is occasioned only by an opaque lens, nothing but its removal from the axis of vision can restore sight—as may be supposed, many modes of doing this have been proposed and practised: I shall only notice those which are now generally in use—extraction, couching, or depression, and the opera-



tion for solution or absorption. Extraction is performed by making an incision through the transparent cornea, sufficiently large to admit the passage of the crystalline lens out of the eye; this operation, when successfully performed, is certainly most complete and admirable; but unfortunately, this is not always the case, even in the most experienced hands, and when it fails, it fails irremediably; it is often productive of great deformity, and is the cause of much suffering; requiring severe antiphlogistic treatment before the operation, and after it confinement to bed, and darkness for some time.

Another mode of operation, is by depression of the lens with a suitable instrument, called a couching needle, which is introduced through the sclerotic coat of the eye, and over the upper part of the lens, which is pressed down out of the axis of vision; this operation is attended with considerable danger of inflammation, and often leads to total blindness, from the pressure of the lens on the retina, and its being torn from its natural situation, and driven into the vitreous humour, which is thereby disturbed and injured; it must be looked upon as a foreign body: and it is at any time liable to start up again into its old situation, and require another operation to remove it; and as it does not become absorbed, but lies imbedded in the vitreous humour, it is always liable to produce irritation and ultimate blindness, which is often the case sooner or later after this operation.

A slight alteration has been practised in this mode of operating, which is called reclinacion, and differs from the former one, only in passing the couching needle in front of the lens, and inclining it backwards, laying it flat in the body of the vitreous humour, so that the rays of light may pass over it to the bottom of the eye: this operation is liable to the same faults as the former, the lens may re-ascend, and it must injure the vitreous humour, though it may not press on the retina, or injure the delicate structure of the ciliary processes, as the depression of the cataract is more liable to do; in *all* these operations it is necessary that the lens should be in a firm, or hard state, or the object could not be accomplished, and this is the reason why persons have been made to wait for months, or even years in a state of blindness; in order that the cataracts may become what is called ripe, or ready for the operation.

How gladly then it may be supposed, should we embrace and adopt a mode of cure, far more successful than either of the above—easy of accomplishment by moderate dexterity, and accompanied by little pain, or self denial to the patient, having the same end as the extraction of the cataract in view; namely, the removal effectually, and for ever, of the obstruction to vision. The operation I advocate is no new one, it has been used for many years by some of the profession, and was first adopted by the late Mr. Saunders, and the only

astonishment is, that its use has not been more general; from the experience I have had of it, I believe that almost every case may be cured by it, or the lens when hard so softened and lessened in size, that it may with safety be depressed by a subsequent operation. I allude to the operation by solution or absorption, by division of the lens and its capsule, through the sclerotic coat, or anterior cornea, with a fine couching needle; the chief advantages of this mode of operating are, when properly performed, that the least possible mischief is done to the eye, the lens shall be moved as little as possible from its natural situation, and divided as freely as the firmness of its nature, will admit, it is most important that the capsule should also be thoroughly divided, that the aqueous humour may act as a solvent upon the lens, and the needle must be carefully and quietly withdrawn in the same direction as it entered. By this means many objects may be accomplished, very little pain is caused, and there is slight risk of inflammation following. The vitreous humour is not violently ruptured, the iris is untouched, and the retina escapes the danger of a heavy and enlarged lens resting upon it. This operation may be resorted to in all cases of cataract, where it is desirable to operate at all; the propriety of attempting any operation must be a matter of great consideration; there are many cases where it is needless, and many where it would be useless.

In very elderly persons where the increasing

opacity of the lens is slow in its progress, and a moderate degree of vision remains, it will be better not to interfere by an operation; sight may be much improved by the application of belladonna, which dilates the pupil, and allows more light to pass to the retina.

Where the other humours of the eye are diseased, or the nervous power so lost that the patient cannot distinguish light from darkness, any operation to remove the opaque body would be attended by no improvement of vision: in some cases of cataract in one eye only, the other remaining sound, I certainly advise an operation, and on these grounds:—the deformity is very obvious, and the sight very deficient, and if disease is making progress in the other lens, the operation will not hasten it, and one eye will be restored to health before the other is quite lost; and an early operation is desirable, that the retina may not lose the healthy stimulus of light, which, if lost for many years, the recovery of sight is very doubtful; to the objection that the difference of focus, when one eye is the subject of an operation for cataract, being a serious impediment to useful vision, I urge, that it is easily obviated by glasses properly adjusted, and, even without them, I have found, in many cases in young persons, that for all ordinary purposes, the eye, after a time, adapts itself to the loss of the lens, and they see very well, and express themselves perfectly satisfied with the result. The eye having remained

many years in darkness, acquires a rolling motion, which is very difficult to overcome, after the cause of blindness is removed; this is particularly observed in the case of children who have had congenital cataract, and have not been operated on for some years, and is well marked in case 7.

It may be proper to observe, that many cases admit of relief by the needle which are often abandoned as hopeless. I allude particularly to those cases which have been the result of injury, and where the iris is made irregular and almost closed, by adhesion to the cornea or the capsule; and I would again urge an early attention to the first symptoms of cataract, and the benefits of an early operation, convinced by experience, that no practical good, but much mischief, is the result of delay.

In order to exemplify more clearly the value of the different operations spoken of in these pages, I subjoin a few cases of each kind:—

CASE 1.—Mrs. S———, of Sawley, aged 74, applied in consequence of being nearly blind. She had a firm, and amber coloured cataract in the right eye, and the same disease in the left, but not in so advanced a state, some degree of vision still remaining. The eyes were in other respects healthy, the iris acted well and freely, and she could distinguish light from darkness with both eyes. She was anxious to submit to any operation to regain her sight. When her age, and the evident hardness of the lens in the right eye were taken into con-

sideration, extraetion was thought most desirable, and, after having undergone the necessary preparation, the operation was performed without any accident; the wound healed in a few days, and she returned home in about a fortnight, strictly eautioned not to use her eye too much. The eye gradually regained strength, and she could see large objects without a glass. In six months from the operation the left eye beame totally dark, and she eame again to me, resolved to have the disease removed, if possible. I performed the same operation upon it, and with the same fortunate result. She is now in the enjoyment of good vision, and, with proper glasses, can see to read and to do needle work. The favourable result of this case may in some measure be attributed to the patient possessing a quiet and traetable temper, and to her not being an inflammatory subject.

CASE 2.—W. B ———, of Nottingham, aged 60, quite blind from eataracts in both eyes. The right lens appeared the hardest and most yellow; the iris acted freely, and he could distinguish light from darkness. It was determined to extraet the right, and use the needle to the left lens. The operation was performed without any untoward accident, and the lens extraeted whole, and proved to be very firm. After the lapse of a few minutes, I proeeded to divide the eapsule, and, if possible, the lens of the left eye with the eouching needle. This I partially succeeded in doing without displacing the

lens from its natural situation ; the capsule was freely divided, and the aqueous humour by that means admitted to act as a solvent upon the lens. The patient was then placed in bed, and every caution given to keep him quiet, and suitable medicines administered. He went on well, and had but little pain in either eye for the first twenty-four hours, when he was persuaded to get out of bed, and, by the exertion or change of posture, before the wound in the right eye was healed, the vitreous humour began to escape through the wound, violent inflammation came on, which no treatment could arrest, and the destruction of the eye was the result, after much suffering. He had but little pain in the left eye, which had been operated upon with the needle ; though it was nearly two months before there was much improvement, it did become smaller at this time, and he could see a little. The disease appeared stationary, and I thought it right to introduce the needle again ; I found upon doing so, the lens much softer and less in bulk. After this operation, absorption took place more rapidly, and he soon found his way about without a glass, and, after some months, he was able, with the aid of a proper glass, to read and write. He is quite satisfied that the loss of his right eye was owing to his improper conduct in not attending to the directions given to him, a proof how easily an operation of this kind may fail, though it may have been performed ever so skilfully. The result of the operation on the

left eye also shows, that a hard and firm lens may be absorbed by a much less dangerous operation. Had the needle been used in both instances, I believe a perfect cure might have been effected.

CASE 3.—Mrs. W———, of Oxton, aged 45, applied to me in consequence of being nearly blind from a cataract, fully formed and quite white, in the left eye, and the same disease in a less advanced stage in the right: the pupil of the left eye was large, and the iris tremulous, with prominent cornea, and large aqueous humour; she could distinguish light from darkness only with this eye. As the right eye was getting worse, daily, she was anxious to try the chance of an operation, and after being prepared with suitable medicines, I thought it best to extract the lens, supposing it to be hard; when the knife had passed nearly across the pupil, the capsule of the lens was wounded, and the lens began to escape, being of the consistence of cheese, instead of firm and hard; the incision was made sufficiently large to admit of its total escape, and the patient was put to bed. Although the extract of belladonna was not used, the pupil was much dilated, and the next day a small portion of the iris protruded through the wound, producing much inflammation, and preventing the wound from healing; the result of the operation was anything but satisfactory.

In a few months Mrs. W. came again, with the disease in the other eye so much increased, as to



cause total blindness. After the unfortunate termination of the former operation, I resolved to trust to the needle; with it, I divided the lens, and its capsule freely, through the transparent cornea; great absorption took place in a short time, and by a second operation of the same kind, this patient recovered a very useful degree of sight.

This case is interesting in consequence of showing the danger of mistaking a hard for a soft cataract; had the needle been used instead of the knife in the first instance, how much more satisfactory would have been the result; and I would here beg to observe, that a cataract may, in some instances, be extracted after the needle has been used in vain. But if the knife is once used, and any accident happens, or much inflammation follows, the case is hopeless, no second operation can be of any avail.

CASE 4.—Mrs. R——, of Sutton in Ashfield, aged 51, blind with both eyes for eight months, since having had the influenza;—pupils irritable, and some intolerance of light, the lens in both eyes was of a yellow hue, and appeared firm; I operated with the needle through the sclerotic, and found the lens hard; some inflammation followed, and she stayed in town a week. This patient came again in a month, and could find her way about with the right eye, the lens being broken up and nearly absorbed; the left lens, which was much firmer in texture, was not much altered, and as it rather pressed upon the iris, I thought it better to recline

it backwards into the vitreous humour ; she was kept in bed for a few days, and the chief difficulty was a great intolerance of light, which, after a time, and with the aid of medicine, gradually ceased, and she regained a tolerable vision.

CASE 5.—Mrs. P——, of Radford, aged 30, mother of several children, applied to me with well-marked cataracts in both eyes ; could see very little with either ; the left was most advanced. As the organ appeared otherwise healthy, I operated with the needle upon the left eye, the operation was repeated in about a month, as absorption appeared to take place but slowly ; after this operation the lens rapidly disappeared, and vision became much better ; the right eye was now become quite dark, and the same operation was performed upon it ; and soon after she could see her way from Radford to Nottingham, and was able to come to me without assistance ;—by the kindness of a friend in the village, she was supplied with proper glasses, and she can now see to attend to her little family, and to do needle-work for them.

According to the old system, this poor woman would have been condemned to darkness for three or four years, till the cataracts had become what is called ripe, or hard, and then must have suffered a severe course of medicine, and a painful operation, with confinement to bed for some time, and after all, might not have been restored to sight.

CASE 6—Is of a similar kind. Mary M——,

of Attenborough, aged 26, was blind from cataracts in both eyes—the organ otherwise healthy; the use of the needle was here perfectly successful, and she was able to return home immediately after the operations; no inflammation followed, and her vision is good. Her brother is now under treatment by me for the same disease in both eyes—he is perfectly dark; but I have no doubt, in a short time, he will see well. This is a case in point, to prove the hereditary nature of this disease;—these were not cases of congenital cataract, the disease had been gradually increasing only a short time before they applied; the sister's case occurred some years since.

CASE 7—Is a case of congenital cataract. A. T——, a child from Basford, aged 4 years, was born blind; he had a fine blue eye, with the white centre spot in the place of the black opening, called the pupil; his eyes were constantly in motion, and the chief difficulty in the operation was to fix his eye and keep his head steady: I cut up the lens and its capsule freely; in both eyes absorption took place rapidly, but some part of the capsules remained opaque, requiring a second operation; no inflammation followed, and he now enjoys the blessings of sight, and is able to find his way about, and to go to school; the rolling motion still remains, and will be long before it is overcome: had this child been operated on when a few months old, this unpleasant symptom would not have existed, it having been acquired by the habit of searching about for

light. This child could only distinguish light from darkness, and all the beauties of the visible world were unknown to him; by the operations he underwent, with the needle, instead of being a burthen to his family, he will be able to earn his bread.

CASE 8.—Master A——, of Newton, aged 13, suffered much inconvenienc and deformity from a cataract in his left eye, caused by a blow with a stick. I operated on this patient with the needle, and with complete success; the vision is sufficiently good for all ordinary purposes without a glass, and by the aid of one, he can see to read and write much better than he did before, and his appearance is much improved.

CASE 9.—Miss C. of N ——, had a cataract in her right eye for some years. The deformity it occasioned had of late much increased, in consequence of its becoming whiter; and the inconvenience caused her to wish its removal. The needle was introduced through the sclerotica, and the lens as freely divided as the firmness of its nature would admit, without displacing it from its natural situation, or causing mischief to the vitreous humour or other parts; considerable absorption took place, but the lens was so hard that a second operation became necessary, which has been attended with success; the whole of the lens is absorbed, the eye has regained its natural appearance, the deformity is removed, and the vision much improved; the retina had not lost its power,

though light had been excluded from it for some years.

CASE 10.—Mr. ———, aged 21, had a cataract in the right eye for ten years, caused by a table fork having penetrated the eye. There was adhesion of the iris to the capsule, causing irregularity of the pupil. He had no power to distinguish objects, but a good sense of light. With a fine needle I cut up the lens, and divided the band of adhesion to the capsule; no inflammation followed, and in a short time the cataract became absorbed, and a great improvement in vision and appearance was the consequence.

CASE 11.—A boy from Radford, underwent the same treatment as the foregoing case for similar disease, caused by a thorn having penetrated the eye; the result was also most satisfactory.

I think this sufficient to prove, that there are few cases of cataract which the couching needle, if properly used, is not capable of removing, and that it is by far the least dangerous, and least painful mode of operating on the eye for that disease. With regard to depression or reclination of the cataract I have given no cases. My experience of them has led me to reject them, as unnecessary and dangerous.

I trust, these few pages, which are written with the intention of alleviating the sufferings of my fellow-creatures, may answer the end intended, by convincing them that as delay is at all times unpro-

fitable, it is so particularly in diseases of the eye ; an early attention to which, may often prevent the necessity of a painful operation, and prove the only chance of preserving sight.



