

Observations on the preservation of sight, and on the use, abuse, and choice of spectacles / [John Harrison Curtis].

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OBSERVATIONS
ON THE
PRESERVATION OF SIGHT,
AND ON
The Use, Abuse, and Choice
OF
SPECTACLES, READING-GLASSES, &c.

VIDERE EST OPERÆ PRETIUM.

BY
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(LATE T. DAVISON.)

PREFACE.

THE following little work is extracted from my Treatise on the Physiology and Diseases of the Eye, published in March last. In that Treatise, after showing the intimate connexion existing between the organs of sight and hearing, and describing the structure and functions of the Eye in man and in animals, I gave an account of its principal diseases, together with the most approved methods of treatment, and explained my new mode of curing Cataract without an operation ;—I then cited some remarkable experiments on light by Lord Brougham, and on vision by Sir John Herschel ; and concluded with a chapter on the Preservation of Sight, and on Spectacles, Reading-Glasses, &c.

Since the publication of my work, several *brochures* on the care of the eyes have appeared ; but as most of these are destitute

of that sanction for their accuracy which an author's name gives to the public, and as some of them have laid my Treatise under contribution, I have been solicited to reprint the chapter on the Preservation of Sight, &c. in a separate form: hence the origin of this publication.

I have only to add, that my aim has been to furnish plain directions whereby persons may preserve their sight,—to point out the most frequent causes of injury to the organ, and how they may be avoided; as well as to lay down a few intelligible rules by which all may know when, and what kind of glasses they need.

Hoping that my readers may be benefited by my advice, and that it may conduce to the preservation of their sight, I leave my suggestions to their candid consideration.

JOHN HARRISON CURTIS.

2, *Soho Square*, Dec. 24th, 1833.

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ON THE
PRESERVATION OF SIGHT,

AND ON THE
Use, Abuse, and Choice of Spectacles,

&c. &c.

MY design in this chapter is to give, in plain and easily understood language, some advice on the care necessary to be taken of the eyes, on the means of restoring their healthy action when impaired by over-exertion, and to offer some remarks on the use, abuse, and choice of spectacles.

In proportion to the expansion of the pupil of the eye, is the sensibility of the organ : the mean diameter of the pupil, though varying from one to two tenths of an inch, in proportion

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the effulgence of the sun's meridian splendour.

Rubbing the eyes on waking is a destructive habit which many people have contracted; and though healthy persons, whose sight is moderately used through the day, may not be sensible of receiving any injury from this custom; yet those whose occupations demand close application of their visual organs for any continued space of time, will soon be convinced by painful experience of the truth of this remark. Besides the daily injury thus done to the eyes, it sometimes also happens that hairs and other foreign matters are forced into them by their being violently rubbed, which may occasion inflammation, and are frequently very troublesome to dislodge. The inflamed and weak eyes of many persons are likewise in a great measure to be attributed primarily to this most imprudent habit. Should, however, the eyelids be so fixed that a difficulty in opening them is felt, let them be moistened with a little warm milk and water for a few minutes, which, in all cases where the organ is healthy,

will be found to answer the purpose in a manner such as they can have no idea of who have never tried this simple remedy.

The use of shades and bandages, on every trifling affection of the eye, is an evil that cannot be too strongly reprobated; for the action of light and air being thus excluded, and the organ rigidly compressed, ophthalmia, and even total blindness, is not infrequently the consequence of that which, being perhaps merely a slight flow of humour, or a little extravasated blood, would have subsided in a few days, if judiciously treated, or even if left to itself.

Bathing the eyes occasionally during the day as well as on rising, is of much importance to their preservation: where the organ is healthy, cool spring water should be preferred; but where there is reason to suspect any disease, people cannot be too careful, considering what a very delicate organ the eye is, in having professional advice before they adopt any remedial means. When the roads are dusty and the weather windy, bathing the eyes is so pleasant, and felt to be so necessary

to comfort, that I need say nothing as to its salubrity, to induce its employment by those who have experienced the annoyance arising from dust in walking our streets in summer ; but I have to remark, that care must be taken to be perfectly cool before bathing the eyes, because if the face be covered with perspiration, the application of cold water may be very dangerous.

The most frequent situation of counting-houses, and other places where business is carried on, in close and dark situations, is equally injurious to the sight and to the general health ; for the latter is not more affected by confined and ill-ventilated rooms, than the former by dim and obscure ones, into which the light of day can hardly ever be said fairly to penetrate. It is therefore essential to the preservation of the sight in any degree of vigour, that the apartments in which the greatest portion of our time is spent, and in which are carried on those occupations requiring a continued exertion of our eyes, be in a light and cheerful situation ; for whoever neglects this

advice will assuredly sooner or later feel the baneful effects of his temerity. Care should also be taken to avoid rooms whose windows face whitewashed walls, which reflect the rays of the sun so powerfully as in a short time sensibly to weaken the strongest sight, causing inflammations, and a train of other evils.

An excess of gilding, or indeed of any shining or white articles, in rooms, ought to be carefully avoided. Dress also, it cannot be doubted, exercises much influence on the visual organs ; and many naturally good eyes have been permanently weakened by the apparently innocent custom of wearing a veil, the constant shifting of which affects the sight so prejudicially, in its ceaseless endeavours to adjust itself to the veil's vibrations, that I have known not a few young ladies who have brought on great visual debility by this means alone. Again, tight clothing is manifestly hurtful to the sight ; too copious a flow of humours being thereby induced to the head : for it needs not to be demonstrated, that the effective state of the eyes, like every other part of the body,

depends on a free circulation of blood, which cannot take place when the body is too straitly laced or buttoned.

Rigid cleanliness is a point of much importance as regards the sight of children especially; for it is well known, that though one powerful cause of inflammatory ophthalmia among the children of the poor consists in improper and innutritious diet, yet it cannot be denied that the putrid exhalations of the places in which many of them are doomed to live have a greater effect in producing diseases of the eyes, than even the deleterious and insufficient food which is the lot of but too many of our miserable fellow-creatures, in this great and densely-populated metropolis.

Costiveness, and whatever causes much straining at stool, is very injurious to the sight; as, in such cases, the pressure on the intestines impels the blood with an unnatural rapidity to the head.

A due portion of sleep is as essential to enable the eyes to perform their office comfortably and effectively, as a due portion of

rest is to enable the limbs wearied with toil, or the mind with reasoning or other kind of exertion, to resume with alacrity their wonted offices. But sleep too long protracted, on the other hand, is perhaps hardly less destructive of accurate and healthy vision than when taken too sparingly; for as in the one case the organ is enfeebled by unremitting activity, without a proper degree of repose, so in the other case the eye, from unfrequent or insufficient exercise, becomes torpid and dull, and if inaction be persisted in, is at length unfitted for its functions.

Consequently, however strong and good our sight may be, it ought always to be moderately and carefully used; and to make it plain, what I consider the symptoms of its having been immoderately and carelessly used, I shall throw together a few remarks by which each may judge for himself of the nature of his own case.

If, in order to perceive objects distinctly, we are compelled to place them nearer to the eye than we have been accustomed, *i. e.* if the focus of sight or point of view begins closer

to the eye than usual. If one desires, while employed or otherwise, to fix the eyes steadfastly on some distant object, and they begin involuntarily to emit aqueous humours. If during labour or occupation, a painful contraction through the entire orbit of the eye be experienced, but which invariably disappears after a few minutes' rest, or shutting the eyelids now and then. If the employment be protracted, or require close mental application added to considerable visual tension, and the contraction just noticed is followed by heat in the eyelids, heaviness, difficulty of opening them, &c. If in young persons who are fair and sanguine, the borders of the eyelids become red, or thicker than when in health, and the blood-vessels turgid. If, in fine, we perceive motes floating before the eyes (called *muscæ volitantes**), and objects become so indistinct

* For an account of the mode of treatment in severe cases of *muscæ volitantes*, vide the Author's Treatise on the Physiology and Diseases of the Eye. *Muscæ volitantes* is a nervous disease, and should be treated medicinally like nervous deafness. In addition to the remedies prescribed, the patient should at-

and ill defined as to oblige us to shut our eyes for a while;—then, in any of these cases, we may be certain that the sight has been over-worked, and that relaxation is absolutely necessary to its recovery of a healthy tone. It is of the utmost consequence that these premonitory symptoms be carefully attended to, otherwise the eyes are in danger of being materially weakened ever after.

If, however, these symptoms are neglected, others of a more formidable character will not be long in making their appearance; the first of which will be, that objects will seem as if encircled by a faint cloud or mist, the extremities of it being tinged with every variety of colour: after which, objects will begin to

tend to his general health, breathe a pure air, take much out-door exercise, live on plain but wholesome food, give rest to the affected organ, and enjoy a little cheerful society: above all things, he should carefully guard against constipation of the bowels. To have the mind tranquil and free from anxiety is likewise of primary importance in this, as in all nervous affections; and every other precaution will generally be found to be of little avail, unless this desideratum be attained: the *mens sana* can seldom exist but *in corpore sano*.

dance before the eyes, which are suddenly enveloped in great obscurity, and the objects themselves, at times seemingly raised, at others lowered, not unfrequently topsy-turvy, look as if they were floating at random. Now, though even this stage can hardly be called an actual disorder, being rather perhaps a kind of oscillation, as it were, between disease and health, yet, if still unattended to, it may altogether ruin the sight for the rest of life.

A few simple remedies are, indeed, all that are required to restore the healthy functions of the organ in such cases; and these I shall briefly explain.

The first thing to be attended to, is a careful regulation of the use of the eyes in regard to length of time, as far as this is practicable: entire disuse of them suddenly would be almost as injurious as a continued straining of them beyond their capabilities. They should, therefore, be variously employed as much as this can be done, not applying them too long or too intently to the same object, but relieving

them by change of scene and diversity of occupation.

Another means that will be found to be beneficial, and to help the eyes where much relaxation cannot be obtained, consists in shutting them now and then while at work, going into the air, looking out at an open window, especially if there be any trees or verdure within sight: this interval of rest, though only of a few minutes' continuance, will be found greatly to relieve the eyes, and enable them to resume their employment with comparative pleasure.

A third caution is, that those who are conscious from experience that their sight has been weakened by its severe and protracted exercise, or arising from any other cause, should carefully avoid all attention to minute objects, or such business or study as requires close application of the visual faculty, immediately on rising; and the less it is taxed for a while after eating, or by candle-light, the better.

The fourth means I have already recommended,—viz. bathing the eyes frequently through the day with cold water. Though the effect of this simple remedy may for a time be hardly perceptible, yet, if duly persevered in, I can vouch for its producing the happiest results. So long as there is no actual disease of the eyes, only cold water should be used; and this, applied in the gentlest manner, will soon become sufficiently tepid for all the ends of utility and comfort.

These several methods are of course referable only to cases of weakness, &c. brought on by fatigue and over-exertion. But where no such causes can be assigned for imperfection of sight and pain in the organ, advice ought to be immediately sought; and on no account should any remedies be applied but under the direction of an experienced oculist*.

* As many persons, however, especially in the country, may not have an opportunity of consulting an Oculist, the collection of valuable prescriptions in Latin and English, given by the Author in his Treatise, may be advantageously referred to: among them are several by the most eminent Continental Oculists.

The kind and degree of light in which an occupation is carried on, deserves some notice.

Whatever be the nature of the occupation, an equal degree of light should, if possible, be attained, and a happy medium observed—there should neither be too much nor too little, both being very destructive to the eyes. Some, however, seem to think that nothing can affect their sight; hence we find such persons, as a matter of choice, working opposite a wall white enough to reflect powerfully the sun's rays; never considering that this foolish conduct cannot fail to weaken their vision. I have, indeed, frequently known this to be the cause of obstinate and dangerous inflammations, which, even after being cured, left the eyes still so weak as to unfit them ever after for their accustomed duties.

A good and equal light being procured, the next remark I have to make is, that it is highly conducive to the comfort and durability of the eye, to vary frequently the position in which any employment is carried on; this being a very effectual way of preventing

too great an influx of humours to the head. For example, the student and man of letters should be furnished with a high desk, at which he should stand to read or write, alternately with sitting. This, simple as it seems, if once fairly tried, would, I am confident, so strongly commend itself by its beneficial influence not only on the sight, but on the general health, that they would not easily be induced to abandon the custom. To their constant habit of sitting, and seldom changing their position, there can be no reasonable doubt that very many of the complaints peculiar to literary men are owing.

That the colour of the eyes should affect their strength may seem strange; yet that such is the case need not at this time of day be proved; and those whose eyes are brown or dark-coloured, should be informed that they are weaker and more susceptible of injury from various causes than grey or blue eyes. Light-blue eyes are, *cæteris paribus*, generally the most powerful; and next to these are grey. The lighter the pupil, the

greater and longer continued is the degree of tension the eye can sustain.

Within these few years past, screens and shades against the light have come very much into vogue for weak eyes; but I may observe that such artificial defences are only serviceable and proper for those whose eyes are very prominent, and who have very sparing eye-lashes and eyebrows. To such as, from this cause, need some protection for their eyes, a green silk shade is the simplest as well as the best contrivance that can be used *.

* It is well known that, during the late war, our army in Egypt suffered severely from ophthalmia; and one thing that tended much to aggravate the disease, which was primarily caused by the action of the sun upon the arid sands, was, in my opinion, the form of the soldiers' caps: these had a very small peak in front, which was made of polished black leather, instead of that material simply tanned; and thus, by its smallness and shining, insufficiently shaded their eyes, at the same time causing a powerful reflection of the light on their visual organs. In fact, polished black leather is at all times injurious for caps or other coverings for the head; and what can be worse than the black-leather-topped caps worn by military officers, which, besides attracting the sun, and being made to fit so close to the head, are also highly objectionable on account of their weight? When serving at the Royal Naval Hospital at Haslar, I saw

Reading by moonlight, or gazing steadfastly on the moon for any considerable length of time, is a common practice with many young people, but one which cannot be too strongly censured. Even total loss of sight has sometimes been the consequence of astronomers pursuing their observations of the moon for too long continued a period, without sufficient intervals of repose; and in all cases the sight is more or less dimmed and weakened by exposure to such influence*.

Some remarks on the care and use of the

much of ophthalmia; and the circumstance has again recurred to me, from the fact that the Belgic troops were lately suffering very generally from that disease; and what is surely very remarkable, it has not appeared among civilians. May not this be partly explained as above? viz. from the want of a sufficient protection to the soldiers' eyes, arising from the smallness of the visor or peak of their caps.—While on this subject, I may add, that the ladies' bonnets now in fashion, from having such small fronts, and being thrown so far back off the face, cannot but be injurious to the sight; and I have myself frequently remarked the effect produced on my own eyes by wearing a hat with a narrower brim than usual. These things deserve consideration.

* It may not be amiss here to caution naval officers, in their desire for the promotion of science and for the effective performance of their arduous duties, against too frequent and long-con-

sight from infancy to age, may with propriety be made here.

The eyes of infants should be gradually accustomed to exercise themselves in scrutinising distant objects; but this should be done in the most careful manner, without inducing them to strain their tender sight on such things as are too remote or dazzling for them to see without causing too forcible a contraction of their immature organs, which may lay the foundation of permanent and irremediable debility throughout life.

If these precautions are duly taken in infancy, and a proper regard be had in the use of the vision during youth, by not overstraining it, by excessive reading at night, or by needlework too long continued by candle-light, or any other practice likely to be de-

tinued straining of their sight by looking through powerful glasses at the moon and other celestial objects: many have in this way so seriously injured their vision as greatly to have prejudiced their usefulness to their country; and thus, from mere incautiousness in this respect, have frustrated the object upon which they were most intent, and for which they would cheerfully have sacrificed their lives.

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ful to the eyes. Hence, when carried to the extreme, complete deprivation of sight has not unfrequently ensued; of which classical history furnishes numerous instances. To notice only one or two: Dionysius of Sicily, deservedly called the Tyrant, taxed his own ingenuity and that of those about him, to devise continually some new method of tormenting his victims; and among those which gave the greatest satisfaction to this monster in human shape, was that of confining his wretched captives in dungeons of the deepest darkness, till their sight was almost lost from being unused, and then suddenly having them brought forth into the broad light of the meridian sun; the consequence of which, as may readily be supposed, was excruciating agony, followed by total blindness.

Equally barbarous, though perhaps admitting of some palliation, when it is considered how formidable an enemy to Africa their prisoner had been, was the treatment of Regulus by the Carthaginians: having cut off his eyelids, they exposed him in this deplorable

condition to the direct rays of a tropical sun, by which he was very soon blinded.

But to return to my directions as to the best time for demanding unusual activity from the eyes, I remark, in the next place, that it will be well, whenever it can be accomplished, to give them rest for a while after eating, especially if our occupation oblige us to sit. The bad effects of an opposite line of conduct may be daily seen in the red faces, livid lips, and bloodshot eyes of those who either think intensely, or strain the sight soon after meals*.

Again, after all employments that tend to inflame the passions, as pleading, preaching,

* A singular proof of this occurred in Lord C., a patient of mine, who being extremely fond of the Opera, was in the habit of going thither immediately after dinner: on such occasions his lordship was always very deaf, and affected with dimness of sight for some time after entering the house. He and his friends were greatly at a loss to account for so singular a phenomenon, especially as the nobleman in question was very temperate. The solution of the problem, however, is not difficult. The determination of blood to the head, occasioned by the increased action of the heart and arteries, produced a pressure upon the auditory and optic nerves, by which their functions were impeded: after remaining quiet for a short time,

lecturing, debating, &c., rest to the sight is absolutely essential to its preservation in old age; for the blood being more heated than usual, and flowing to the head in excess, unfits the eyes for a time for exertion; and will, if persevered in, produce the most painful consequences, of which I might cite many cases, in every profession exposed to such influences.

The practice of turning the back towards the light* for the purpose of seeing better to read or work, though frequently adopted by many persons, is extremely pernicious—the rays of light being too directly reflected; and in proportion as the paper or other subject is whiter, the greater will be the injury.

I would here advise a plan which I have myself found to be of signal benefit both to

however, the blood descended to the extremities; and consequently his hearing and sight returned. Some information on the impropriety of either bodily or mental exertion, directly after dinner, will be found in the chapter on the causes of disease, in the author's Essay on the Deaf and Dumb.

* In one instance, however, this practice may be adopted: when one eye is affected and is unsightly, if the person will take the precaution to sit with his back to the light while in company, the defect will not be noticed.

the mind and the body, namely, that where it is necessary to employ the faculties in the evening in reading or writing, the latter should always be preferred, as being less exertion to the eyes, and more likely to be done effectually than reading at night.

Although what follows may perhaps be considered as belonging more strictly to the chapter on the treatment of diseases of the eye, yet as these remarks refer only to cases in which, for the most part, professional assistance is not essential, they may, without impropriety, be introduced at this place.

Foreign bodies are often forced into the eye by various causes, such as a gust of wind, mending a pen, &c. &c., and here the method taken to remove such is generally wholly unsuited to that end. The eyelids are first rubbed with the hand, which always produces unpleasant sensations, and not unfrequently inflammation, the offending substance being in danger of being forced into the coats of the eye, whence it cannot, without considerable difficulty, be removed. On the contrary, let

the head be leant forward, and the upper eyelid raised by the person suffering, who will be more gentle than another can be; and by this means he will commonly succeed in expelling it. The natural consequence of raising the eyelid, and retaining it in that position, is a flow of tears, which bring with them the intruding body, or carry it towards the canthus of the eye next the nose, whence it may be easily removed. Should this, however, be found ineffectual, the finger may be gently passed over the eyelid, towards the nose, a few times, which seldom fails to cause the substance to descend to the lachrymal glands, and thus be dislodged.

But should he still be unsuccessful, then it will be advisable to let another person introduce, between the eyelid and the ball, a small hair-pencil dipped in cream, beginning at the outer corner and proceeding towards the nose, which usually effects the desired intention. Further than this I would warn any unprofessional individual from going; as a serious lasting injury may be done to so delicate an

organ before we are aware of it, and cause much painful reflection on ourselves afterwards.

As connected with the care of the eyes, what I am about to mention may perhaps properly be introduced here. It has lately become much the practice in this country, to *hire* both single and double opera-glasses at the theatres; and in doing so, it behoves persons to be particularly careful. Few organs are more sensitive than the eye, or more readily take an infection; and should the smallest particle of purulent matter from the eye of an individual afflicted with ophthalmia adhere to a borrowed glass, and come in contact with a healthy eye, the disease will almost invariably be communicated: in the same manner as a foul comb, used after a person having tinea capitis, induces the disease; and as many other diseases are communicated by touching the vestments, &c., of those affected with them. I therefore earnestly caution my readers, either to have a glass of their own, or to be extremely particular in using one after another person.

I now come to the second part of this chapter, in which I purpose briefly to give some general advice on the use and choice of Spectacles.

Most persons begin to feel the necessity for some assistance to their eyes in reading and working after the age of 30 or 35; though even the commencement and progress of the deterioration of the eyes vary according to the degree of health the individual has enjoyed, their original formation, the use that has been made of them, &c.; so that some persons have as much occasion for spectacles at 25 as others have at 50; and others, on the contrary, have as good sight at 50 as they had at 25. Still, the average time at which glasses are needed for reading, may be said to be from 35 to 45. After this latter period of life, the power of adjustment possessed by the eye in youth fails; and those who continue to perceive distant objects clearly, are unable to see plainly those which are near; and the man who can read the smallest print unfatigued without glasses, cannot distinguish any thing distinctly at the distance of ten yards.

His late Majesty George the Fourth was always particularly careful of his eyes; and it is by no means improbable that the afflictive blindness of his revered father, during several of the closing years of his life, was often present to his mind, and was the main cause of his care in this respect. The spectacles he used for viewing distant objects were No. 6; for nearer objects No. 2; but it is very singular that for reading he wore only preservers of 36 inches' focus.

- Among the many vulgar errors that are daily injuring those who cherish them, few have done more injury to eyes than the notion that all persons of the same age require glasses of the same focus. Nothing can be more absurd; as well might the same remedies be applied indiscriminately to all diseases, provided the ages of the sufferers but tally* !

* "The proper selection of glasses for imperfect vision is a point of much deeper importance than is generally believed. An oculist who is acquainted only with the diseases of the human eye, without possessing any knowledge of it as an optical instrument, is often led professionally to recommend

The most general, and probably the best direction which can be given to those who feel that glasses are necessary to enable them to use their eyes with comfort to themselves and advantage to their occupation, whatever that may be, is to make choice of such as represent objects nearest to their natural state; for to be exactly suitable to the eye, spectacles ought neither to magnify nor minify, but should enable us to read or work without creating any straining or unnatural exercise of the pupil.

The great design of spectacles is to give the eyes of the wearer ease; and although this is also attended by increased power of application, yet no glasses can be said to be properly accommodated to the sight of the individual, which do not, with additional capability, also procure rest and comfort to

glasses when they ought not to be used, and to fix on focal lengths entirely unfit for the purpose to which they are applied; and the mere vender of lenses and spectacles is still more frequently in the habit of proffering his deleterious counsel.”
—BREWSTER on Spectacles.

the eyes. If they weary them, we may conclude, either that we have no occasion for any, or that those we have are improper for us, or defectively made.

Glasses are of two kinds—*convex* and *concave*: convex glasses are for the use of those who have what is commonly called an old, or long sight, and are unable to read or see small objects near them; concave glasses are for the use of those who are short-sighted, to enable them to see distinctly objects at the same distance at which they were able to perceive them before they became short-sighted.

By the aid of convex glasses of 36 or 30 inches' focus, persons whose sight is beginning to be unequal to read small print, or to work, without fatiguing and paining their eyes, will be enabled to do either; and, if properly chosen, by the ease and comfort they afford, will tend materially to preserve the sight: hence their name of *preservers*, which, however, is a term as applicable to all the various gradations of glasses. The length of time that will elapse before it may be necessary to

change these first spectacles, must depend upon the same circumstances which I have mentioned as creating the necessity for using them at all. However, it may be said that they will commonly serve for reading in the day-time about six or seven years.

As soon as the eye begins to do little better with the glasses used than without them, it is time to change them for more powerful magnifiers, and the second sight, or 30 inches' focus, are necessary ; though these should not be too hastily adopted by those who wish to preserve their sight unimpaired to old age ; but they should be content to use them as sparingly as possible—only when unavoidable. Many have worn out their sight prematurely by using spectacles of too great a magnifying power, or of improper materials and faulty workmanship, to which their eyes have soon become accustomed ; but they speedily exhausted the resources of art, and before death have become totally blind.

Those who are about to commence wearing glasses, as they cannot know what will suit

their eyes, will do well to borrow a set of glasses, consisting of spectacles of regular gradations of power, and try at home for a few days which suit them best: they should make the experiment by day-light and candle-light, in that posture of the body in which they will be most used.

Almost all persons, on first wearing spectacles, if they keep them on for a few hours, complain of fatigue and uneasy sensations in their eyes; and this, even though they have been judiciously chosen, and when they were needful. Such weariness will be most felt by candle-light, and is caused, no doubt, by the eyes for some time before resorting to glasses having been tasked beyond their ability; and not, as is commonly supposed, by the artificial light, though that probably contributes to it.

Those whose avocations or amusements render the assistance of magnifiers necessary, ought to bear in mind, that the lower the degree of magnifying power possessed by their glasses, the less the eye will be fatigued

by them, the less constrained the position of the body in using them, and the larger as well as more uniformly distinct the field of view embraced by them. Where only a moderate magnifying power is required, I would recommend, instead of a single magnifier, the use of spectacles of nine inches' focus, which will enable the eye to be directed to minute objects without weariness for a longer time than if an eye-glass only be used, as well as being of material benefit in preserving one of the eyes from becoming injured by being constantly unemployed.

The glasses called *compound magnifiers*, consisting of two plano-convexes with their plane sides outwards, as they have a large and distinct field of vision, are very agreeable and useful to some persons. I believe it is known only to very few how long ago this peculiar construction of an eye-glass has been invented; but I find it stated in the *Philosophical Transactions* for 1688 (vol. iii. p. 842) that one Eustachio Divini made a microscope with two plano-convex glasses so placed that

they touch in the middle of their convex surface ; and the writer says that the instrument has the peculiarity of showing objects flat, not crooked ; although, he adds, “ it takes in much, yet magnifieth extraordinarily.”

Short-sighted people, as I have mentioned above, require *concave* glasses. The late Mr. Jesse Ramsden used to make the first number of his concaves equivalent to a convex of 24 inches’ focus, (that is, he joined a convex of this focal length to a No. 1 concave) ; the combination of which forms a plane, through which objects appear neither magnified nor diminished, but just the natural size. This is now the common practice of opticians*.

* “ A new kind of spectacles, called *periscopic*, were introduced some years ago by Dr. Wollaston, who secured the privilege of the invention by a patent. Their principal object, as the name denotes” (*περὶ around, σκοπέω to view*), “ is to give a wider field of vision than those of the common kind ; and they derive their property from always having the surface next the eye *concave*, whether the glasses are intended for short or long-sighted persons, the convexity of the outer surface being less deep than the concavity of the inner one for short-sighted persons, and more deep for long-sighted persons.”—BREWSTER.

The use of spectacles is every way preferable for short sighted-persons to single eye-glasses; a strong confirmation of the truth of which may be found in the fact that Mr. George Adams, a late highly-celebrated optician, asserted that he did not recollect an instance of a short-sighted person who had occasion to increase the depth of his glasses, if he began with spectacles: but, on the other hand, he knew many cases where only one eye had been used, in which the individuals had been obliged repeatedly to change their glasses for concaves of higher power. Indeed, the advantage of a pair of spectacles over an eye-glass is very evident, from the circumstance that all objects are much brighter when seen with both eyes than when looked at with one only.

Little can be said in the way of advice as to the choice of spectacles for those who are short-sighted; the defect being totally unconnected with age, and making no regular progress, by which an optician might be guided in his recommendation of one focus rather than

another. It rests entirely with the persons who feel their need of assistance; but I would strenuously advise all such to be satisfied with glasses as slightly concave as possible: by which I mean, that they should employ no higher power than is necessary to enable them to see distinctly objects at from forty to fifty feet distance. This will be found amply sufficient for all ordinary purposes; and when it is desirable on any extraordinary occasion to increase for a time this power, it may be done with pleasure and without injury.

Near-sightedness remains almost the same through life; and few who have chosen their first concaves judiciously have occasion to change them even in old age, the same glass continuing to give the very same degree of help which it did in early manhood.

To see very distant objects, many persons are in the habit of looking through a concave eyeglass placed obliquely; but a small opera-glass, from its having an adjustable focus, though it magnify only twice, will be far better than a single concave, in consequence

of the facility with which it can be adapted to various distances.

It is perhaps hardly worth while to notice a mistaken notion in respect to short-sighted persons, viz. that their sight is stronger and better to advanced age than the common sight : nothing can be more erroneous than such an idea.

The science of optics seems to have gained ground in this country, in proportion as acoustics has been neglected ; for, perhaps, in no part of Europe have spectacles, reading-glasses, &c. been more correctly and better made* : in proof of which, it may be stated, that most foreigners who require glasses are said to procure them when in England. On

* The best spectacles are undoubtedly the Brazilian pebbles ; they are cooler to the eyes, besides not being so liable to be scratched or broken ; and where expense is not an object, they are preferable to all others. Persons cannot be too cautious of whom they purchase spectacles ; for it is a fact that they are to be bought wholesale at little more than *one shilling* per dozen ; and the use of such inferior articles cannot be too much reprobated.

the other hand, truth compels me to add, that while we make the best glasses, we also make many of the very worst; so that spectacles formed of common window-glass, polished only on one side, are hawked about at low prices, by which the eyes of the poorer classes are frequently more injured than in any other way.

For those who have been operated upon for cataract*, and afterwards require cataract glasses, the best are the double convex, varying in power from 2 to 5 inches' focus.

* There are three modes of performing the operation for cataract, and likewise three ways of treating it without operating; the latter are the antiphlogistic, the stimulant, and the counter-irritant, each of which ought to be fairly tried; and it is only when unsuccessful, that recourse should be had to the knife. In confirmed cataract of several years' standing, nothing can be done but by an operation; and when the patient is old and feeble, its success is problematical. Incipient cataract, however, like incipient deafness, may be cured without an operation; but when neglected until it has become structural, there is, as in other chronic diseases, little relief to be expected. There are some who advise that a cataract when forming should be let alone till mature; on the contrary I think that the sooner it can be dissipated the better; and further, that the earlier this is attempted, the greater is the

It will probably be expected that I should here say what opinion I entertain of the amber spectacles. These have been recommended by several oculists, and my patronage has been solicited for them. But surely those gentlemen, who have given them their sanction, can not have remembered that amber is comparatively a soft substance, consequently very liable to become scratched, and that the polish is easily worn off. They are also much

probability of cure. For this purpose I have found no means so efficacious as applying a solution of the potassa cum calce to the affected organ, and combining with this a course of antiphlogistic and constitutional treatment. I wish it to be distinctly understood, that I speak only of incipient cataract; of the cure of several cases of which, by these means, an account will be found in my Treatise on the Eye; and, as facts are better than theories, and examples more valuable than precepts, I have much satisfaction in referring the reader to these cases. With regard to an operation, where only one eye is affected, it ought not to be attempted, since the sound eye is thereby frequently injured, by inflammation supervening. Neglect of the disease in its early stage, and maltreatment afterwards, are commonly the causes which render operations necessary; and were diseases of the eye to be generally taken in time, I am convinced that they are as curable as diseases of the ear, or those of any other organs of the body.

more expensive than even pebbles, and, as it appears to me, possess no one advantage corresponding with their cost. For these reasons I entirely differ from those who have thought them preferable to pebbles or glass*.

I have not deemed it necessary to notice *squinting* among diseases of the eye, the cure for it being of a purely mechanical nature. The best contrivances of this kind, with which I am acquainted, are spectacle-frames fitted with convex horn, having a small aperture only large enough to admit light to the centre of the pupil, by which means the squinter, if he wishes to see at all, is obliged to accustom himself to look straight forward.

To persons of weak eyes, and to those who have been in the habit of using goggles for riding, driving, or walking, I would recommend the gauze spectacles, on account of

* Mr. Dollond, Optician to his Majesty, and Fellow of the Royal Society, informs me that he considers amber a very improper material for spectacles, on account of its colour, its not being homogeneous, its liability to scratch, and its being also impossible to form it into a perfect lens.

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OF the medical institutions of the metropolis for benevolent purposes, no one has a more powerful claim to public attention than the Royal Dispensary for Curing Diseases of the Ear; since, in all ages

the forlorn state of the Deaf and Dumb has excited the sympathy of the compassionate and humane. It has been wisely remarked, that "knowledge is power;" and from the intimate connexion of the faculties of hearing and speech, it is now universally acknowledged, that when deafness occurs in early infancy, dumbness always follows. Yet it is a fact of peculiar interest, that many cases of deafness and dumbness admit of relief, when subjected to an early examination and proper mode of treatment.

In consequence of the great success which has crowned the exertions of the Royal Dispensary, it was resolved, at a late meeting of the Governors, still further to extend its sphere of usefulness, by enlarging the present building, in order to receive within its walls not only deaf and dumb patients, but also persons from the country afflicted with deafness or other diseases of the ear, who are destitute of a habitation.

Such patients as require acoustic instruments are supplied with them gratuitously.

Every Subscriber of one guinea per annum is entitled to one patient always on the books; two guineas entitle to two patients, and so in proportion; ten guineas constitute a life governor.

Accidents, and also cases of deaf and dumb, are admitted without letters of recommendation.

Subscriptions are received at the Banking-houses of Sir William Curtis, Bart., and Co., Lombard-street; Messrs. Barclay and Co., Lombard-street; Messrs. Hammersley and Co. Pall-mall; W. Cobbe, Esq., No. 31, Regent-street, Piccadilly; Henry Sheppard Smyth, Esq., at the Dispensary; and by J. H. Curtis, Esq., Surgeon to the Institution, No. 2, Soho-square.

* * By the last Report of this Institution (November 28th, 1833) it appears that since its establishment in 1816, upwards of 8,520 patients have been cured or relieved, including several cases of deafness and dumbness.

✂ *The benevolent views of this Charity are not confined to the inhabitants of the metropolis, but extend to every individual.*