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# HYGIENE OF THE EYE.

• BY •

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*presented by the author*



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## HYGIENE OF THE EYE.

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THE care of the eyes for the preservation of the vision should begin before the birth of the child. To prevent the evils which civilization has brought upon us, we should seek the origin of many eye troubles in the progenitors of the race. There is no doubt that one cause for the many nervous affections which have been a source of trouble among the present generation is the fact that during the excitement incident to the trials and tribulations brought about by the late civil war the offspring of the men and women of that day inherited the nervousness of their parents. The exposure, sickness and exhausted physical stamina, all contributed to cause the general debility so common among the first generation after the war and transmitted frequently to the

second generation. We can see this in the children of to-day in more ways than one.

Therefore let the parents look after their good health, let the natural selection start with a perfectly healthy mother and a father free from taint, and perforce a good, strong, healthy offspring will be the result, with an inherited tendency to perfection and strength of the organs of vision.

#### OPHTHALMIA NEONATORIUM.

One of the most prolific sources of blindness to-day, is a certain amount of careless handling of the child at birth. It is a well-known medical fact that all mothers during pregnancy have more or less discharge from the genitals. This discharge is infectious in from 20 to 40 per cent. of the cases. This infectious discharge when implanted on a surface like the lining of the eye (conjunctiva) causes great irritation and a discharge similar in character to that found in the mother. If infectious inflammation is allowed to develop, not only is the lining of the eye-lids destroyed, but it attacks the cornea, eats its way through the delicate

layers of this coat of the eye, causing blindness. How important it is for every family physician and every mother to know, when such a condition exists, how to eradicate the disease !

Let every mother, when she knows that she has leucorrhoea, not only bathe the parts, but also use a syringe so that she can cleanse the inner walls of the vagina more thoroughly with an antiseptic lotion of some well-known formula. As soon as the child is born let the physician drop into each eye as an invariable precaution a solution of nitrate of silver 5 to 10 grains to the ounce of water. Crede, who is the author of this line of prevention, has lessened the outbreak of this disease to almost nothing. In the absence of this remedy, any astringent is better than nothing; alum, always on hand, will be of some value. To-day, in all medical colleges, much stress is laid upon a thorough teaching of the infectious diseases of the eye, and rightly so. Many States have gone so far as to have printed rules scattered among all classes of people so that they may know what to do when such emergencies arise.

## INFANCY AND CHILDHOOD.

For the first six months it is necessary to guard and watch over the infant's eye-sight most carefully; at this time much evil is wrought. There should be not too much exposure to bright objects, plenty of fresh air, plenty of sleep, and the eyes should be guarded from the direct rays of the sun; avoid exposure to clouds of dust, and when the child is exposed to atmospheric changes great care should be exercised that plenty of warm clothing be worn to protect the vital organs.

When should children first attend school? This is a very important question. I believe if it were possible to prevent a child from opening a printed book before he is ten years of age, we should have less eye trouble than we are now having under existing customs. Kindergarten instruction is far preferable in more ways than one; up to ten years of age, let the child's eye work keep step only with his physical development. I feel sure that a boy who commences his studies at ten will far out-run by

the time both attain the age of fifteen, one who commences his studies at six. Every child should commence his lessons in the nursery. Let object lessons be his primer; let him be taught by word of mouth and by objects; then, when his brain is what it should be for a boy of ten, his eyes will be the better able to bear the fatigue and the burdens which will be forced upon them. Our children are kept at continuous work too long at one sitting; note the result, eye-exhaustion and mental fatigue before the child is ready to begin his more important studies. The teacher demands too long hours at study to memorize lessons which are as a rule beyond the comprehension of the little ones; something must give way. If the eyes do not break, down the health will. If the eyes give way nearsightedness develops, caused by overstraining and abuse of them during school hours. Then comes the Frankenstein—terrible as it is to the fond parent, but the only relief—wearing spectacles. The child must wear glasses so that he may continue not only to see with more ease the objects near him but also dis-

tant objects. There is no reason why the little, circular, focusing-muscle of the eye which aids in making one see objects clearly, may not become fagged out just as the larger muscles elsewhere do. Place a heavy weight on your shoulders, and bear the weight all day long, and a very tired condition of the supporting muscles of the body naturally follows. It does not require much elaborate thinking to conceive what results must follow upon the prolonged abnormal use of the eyes. This muscle is potent enough to disturb the whole physical act of seeing, and by indirect action be a potent factor in also producing headaches.

\* "Professor Pflüger attributes this large amount of bad sight to insufficient lighting of school rooms, badly printed books, etc. One must agree with a certain writer, who says: 'schools are absolute manufactories of the shortsighted, a variety of the human race which has been created within historic time, and which has enormously increased in number during the present century.'

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\* Excerpt from a lecture given at the Franklin Institute by the author.

Granting that many predisposing causes of defective vision cannot be eliminated from the rules laid down by our Board of Education in requiring an education, it would be well if the architects of school buildings would bear in mind that light, when admitted into class-rooms, should not fall directly into the faces of children, but desks should be so arranged that the light must be sufficiently strong and fall upon the desk from the left-hand side. My attention has been repeatedly called to the cross-lights in a school-room. The light falling directly into the eyes further contracts the pupils which are already contracted by the action of the muscle of accommodation in its effort to give a clearer picture to the brain. This has a tendency to elongate the eye-ball, and as a permanent result we have nearsightedness. Where the eye-ball has an unnatural shortness this same action manifests itself by headaches, chorea, nausea, dyspepsia, and ultimately a premature breaking down of the health. The first symptom of failing sight is a hyper-secretion of tears, burning of the eye-lids, loss of eye-lashes, and con-

gestion of either the eye-lids or the eye-ball proper.”

*Nearsightedness or Myopia.*—A condition of defective vision and that which Americans should be careful to guard against, and yet are most criminal in neglecting, is myopia or nearsightedness. Civilization is responsible for this malady. Let any number of savages be tested for distant vision and mark the common result — perfect vision. Transfer your examinations among the highest classes of intelligence, or the bookworms, and note the change — nearsightedness. Sift the statistics of Cohn and Risley. They tell us that myopia is rapidly on the increase among school children. This means that as generation follows generation, visual defects will also multiply.

Extreme cases of nearsightedness are in danger of conversion into blindness by excessive eye strain, the inner coats of the eye separating and floating about in the vitreous fluids. Parents and teachers have a great responsibility resting upon them. They should see that children have proper glasses when needed, and should never allow them to as-

sume cramped positions while learning their lessons, for stooping forward fills the blood vessels, and long continuance of this condition brings about more or less permanent changes which are hurtful to the vision.

My friend Dr. S. D. Risley, who has made a very large number of observations on this subject and who has examined many hundreds of school children and who has watched the effect of study on the eyesight, has confirmed Prof. Pflüger's views. Dr. Risley has gone farther, he has made observations which prove beyond a doubt that the proper adjustment of glasses will prevent an increase of the nearsightedness.

If the vertical writing can be introduced in our public schools, eye troubles will be correspondingly lessened. With our present system children naturally assume a cramped position. The new system is certainly more legible and more rapid and consistent with hygienic principles, a circumstance which is of even greater importance.

*Farsightedness or hyperopia*, is the natural condition of the human eye. Savages are far-sighted. Humboldt speaks of the exceed-

ingly acute vision of the Indians of South America. My own examination among Indians of our own country confirms this. Prof. Jaeger, of Vienna, examined the eyes of many new born children and found, with very few exceptions, all far-sighted. When the eye-ball is too short to allow the rays of light to converge to a point upon the retina, objects are not focused distinctly on the nerve membrane of the eye unless a very strong effort is made by the ciliary or focusing muscle. In youth, this function is very pronounced, it weakens as age advances, as we approach fifty it is lost. The very far-sighted individual is prone to headaches. Many children that appear dull and stupid suffer from this defect. It requires a constant effort to recognize both the distant and near objects, and this effort exhausts the eye and the brain.

As long as an individual has an out-door occupation this sort of vision causes very little disturbance in the life work of the individual. But when such a person has an indoor occupation, then do many troubles arise. Among the first to show themselves

are headaches, pain in or about the eyes, a tired and languid feeling. These symptoms are so well recognized by the alert family physician that the professional aid of an ophthalmic surgeon is soon invoked for adjustment of the proper glasses which relieve the abnormal strains.

#### ADULT LIFE.

The individuals who should know how to take care of their vision are those who lead a sedentary life, such as book-keepers, typewriters, etc.

Men who are constantly employed either at reading, drawing, or adding columns of figures or near work of any kind, should take short intervals of eye-rest, especially those working upon white or glazed paper, wood engravers or etchers. Probably no body of men use their eyes more than accountants or book-keepers. The majority of the latter work in badly illuminated rooms, illy ventilated in cramped positions. The nature of their occupation precludes them from taking much exercise, the rooms being small, with blank walls closing out all eye-

rest. When insufficient daylight exists, it is supplanted by gas or electric light. To concentrate the light, a reflector is placed around the burner which throws the rays directly on the glazed surface of the book ; these rays are again reflected into the eye, causing the pupil to contract, shutting off sufficient light to see the letters or figures distinctly without great eye strain. A pure white illuminating light is not a good thing for constant work.

Men who follow such an occupation, should take off the reflector from the gas jet or electric light and wear a shade over their eyes. The Welsbach light, which is beautiful for illuminating purposes, is a dangerous light for constant use ; it is too white, a pink or arundel tinted shade should be used around its base. Let the light be evenly diffused about the room. Paradoxical as it may seem, an electric light has not the diffusing power of gas. Electric light will not travel around corners. The light is bright and the shadows are dark. In many places the incandescent burner is not renewed often enough. Many an unfortunate book-keeper

is deluded with the thought that he is working under a good light, because it is electric and bright. Probably even worse off than our friends the book-keepers are the typesetters, who have had "copy" to read and dark type to gather from the cases or to distribute.

Another source of eye strain is produced by constant reading in railway carriages. I have often been impressed by the avidity with which passengers seize their morning papers and devour column after column to and from their places of destination. On account of the oscillating movements of the car, the paper is held nearer than the proper reading distance; this is done to get a larger image of the reading matter, but in doing so the muscles of accommodation, as well as the converging muscles, are kept on a severe eye strain.

These same men pass rapidly from the station to their places of business, neither looking to the right nor left of them, but with thought intent and a fixed gaze they still hold these muscles with a strong grip; all day at business the same strain and a repeti-

tion of the morning's mal-hygiene upon the train homeward bound at night ; and so for ten to twelve hours these patient eyes are forced to work under an unhealthy strain, and on account of the tension more blood is brought to the parts thus in a short time producing failing sight and chronic congestion of the eye-lids or eye-balls.

We must not forget that a certain amount of recreation is conducive to good health, but it is absolutely necessary to preserve the strength and keenness of the eyes.

Book-keepers may protect their vision from the white paper by providing themselves with a colored piece of tin sheeting, green or blue or black, so thin that when adding up columns of figures, it can be placed under the page ; the dark color will penetrate the leaf of white, and they will then be working upon a slightly colored page with a neutral tint, which will be a source of relief to an overtaxed eye. A piece of tin painted with any of the above colors will answer very well, and can be made to fit any sized book. It may not answer all forms of book-keeping when there are as many

pages to be turned over as there are seconds. In such cases, I would suggest blotting pads, in which the upper side is tinted with a neutral color; these placed immediately under the writing will give great relief.

To any one who works at still higher pressure, neutral tinted glasses may be worn. If the man or woman working at such a speed has any visual defect, it soon becomes manifest, and one is thus doing a friendly act to himself if properly adjusted glasses are obtained and used. I always prescribe the arundel tinted glasses for such cases.

To those who are surrounded by blank walls, let their efforts be put forth in trying to decorate these walls with some colored pastoral scene. All can get a picture representing green fields, or a country lane with trees on either side, and I am sure none will regret doing so. Nothing gives such eyes greater relief than a green disc or square of sufficient size suspended on a direct line of vision at or against the wall, on which the eyes rest; but it is best of all if one can look through the window upon a green grass plot or green trees. Whenever

one can raise the eyes and look at long distances, one will be taking the strain off those little muscles which are so nicely adjusted and yet so easily injured.

Always try to carry the head in the erect position and, as it is exhausting to stand constantly, change the position as much as possible.

Let him who bends forward see that the clothing is made loosely ; avoid tight neckwear, such as collars which are too small or shirt bands or neckties tightly drawn ; all these impede the flow of the downward column of blood towards the heart. Such a retardation dams up the blood in the capillary blood vessels of the head and eyes, and the heart driving against this column of blood with sledge hammer blows, is sure to cause dilatation of the vessels and the development of certain diseases or functional disturbances ; almost certain consequences are fullness of the head, headache or dizziness.†

The same rules hold good for constriction of the waist and shoes.

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† Excerpt from a lecture given at the Franklin Institute by the author.

It is essential to preserve good eyesight by such means as will not interfere with good health, and the first step in that direction is to have plenty of light and air. If with all these precautions there still becomes manifest certain ocular difficulties, the advice of a competent oculist should be obtained to correct them. By persisting in forcing the eyes to work under such circumstances much injury is done to them; but by having them corrected, "many a frown would be saved to man and many a wrinkle to woman." As age increases the hours of reading, writing, or work upon small print must be lessened, and old people should be careful not to overwork the eye. They must rest at shorter intervals.

I can do no better, in conclusion, than repeat certain rules for aiding the preservation of the vision, viz., those formulated some years ago in a lecture delivered before the Franklin Institute of Philadelphia.

(1) Avoid sudden changes from dark to brilliant light.

(2) Avoid the use of stimulants and drugs which affect the nervous system.

(3) Avoid reading when lying down or when mentally and physically exhausted.

(4) When the eyes feel tired rest them by looking at objects at a long distance.

(5) Pay special attention to the hygiene of the body, for that which tends to promote the general health acts beneficially upon the eye.

(6) Up to forty years of age bathe the eyes twice daily with cold water.

(7) After fifty, bathe the eyes morning and evening with water so hot that you wonder how you stand it; follow this with cold water, that will make them glow with warmth.

(8) Old persons should avoid reading much by artificial light, be guarded as to diet, and avoid sitting up late at night.

(9) Do not depend on your own judgment in selecting spectacles.

(10) Do not give up in despair when you are informed that a cataract is developing; remember that in these days of advancing surgery it can be removed with little danger to the vision.



