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A STUDY OF THE CONTRIBUTIONS TO OPHTHALMOLOGY MADE BY OUR SOCIETY DURING THE LAST 31 YEARS.

By George M. Gould, M.D.,
Philadelphia, Pa.

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IN 1874 some of Dr. Wm. Thomson's patients discovered that accurate correction of ametropia cured their headaches, insomnia, vertigo, various nervous and psychic ailments, nausea, failure in general health, etc. Thomson told Dr. S. Weir Mitchell of the facts, and in 1874, 1875 and 1876 Mitchell and Thomson reported their cases in reputable medical journals. Again, in 1879, Thomson published a confirmatory report entitled "Astigmatism as a Cause of Persistent Headache and Other Nervous Symptoms." In 1875 Dr. R. Brudenell Carter, in his "Textbook on Diseases of the Eye," tells of a patient with headache, vomiting, and palpitation of the heart who was cured by a pair of spectacles. In 1882 Dr. G. C. Savage gave clinical proofs, and stated the broad truth that sick headaches, or "migraine," was caused by eyestrain. In 1883 Lauder Brunton announced that "migraine, or sick headache, is very frequently associated with, and probably dependent on, inequality of the eyes, either in the way of astigmatism, myopia, or hypermetropia." From this time forward many trustworthy clinicians—Hewetson, Ranney, Stevens, Martin, Gould, De Schweinitz, Hinschelwood, Toms, Callan, Stephenson and a hundred others have in varying degrees and ways reasserted the truth of this theory. If vomiting can be caused by eyestrain, other symptoms referable to diseases of the digestive organs may have a similar origin, and in 1888 I had found it so, and I began publishing reports of such cases. I have continued to do so ever since. In 1898 the general practitioners Stockton and Jones, and in 1903 and 1904 Stockton, give guarded but clear assent to the theory. In 1905 the president

of the American Medical Association says: "The subject is familiar to all. Who has not seen correction of errors of refraction relieve so-called bilious attacks, periodical vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions."

In 1904 a well-known and reputable American surgeon wrote and published these words: "A very large group of cases of intestinal fermentation is dependent on eyestrain. These cases are perhaps quite as often overlooked as any others, but as soon as we have all become familiar with the external signs of eyestrain fewer cases will get to the surgeon with the diagnosis of abdominal disorder. Those that I see are sent to the office most often with the request to have the appendix examined, because the distension of the cecum is apt to cause more pain than distension of other parts of the bowel, and attention is attracted to this region. If there are external evidences of eyestrain, these cases are referred to the ophthalmologist along with my cases of nervous dyspepsia and gastric neuralgia, and some of the most brilliant results that I have observed in any kind of medical practice have come out of the treatment that was instituted."

In 1903 an old and well-known medical journal said editorially that even obscure gastric symptoms demand gastrotomy—advice which would compel many millions of American citizens to have their abdomens opened at once.

Dr. Robert T. Morris, a general surgeon, in the *American Journal of Obstetrics,* May, 1906, says that in young women with uterine flexions, malpositions, ovarian neuralgias, etc., these conditions should be considered as symptoms due to peripheral irritation. The first of these peripheral irritations is eyestrain, and he advises a special examination and report by an expert oculist. If the irritation is due to eyestrain, neither of the lumbar plexuses will be hypersensitive.

There can be no doubt in the minds of serious men, whether lay or professional, that as a factor of general disease eyestrain is of transcendent importance. If we place the estimate at the lowest, there cannot be less than one-third of all Americans who are suffering from headache, neuralgia, functional nervous and mental disorders, such as neurasthenia, insomnia, depression, etc., reflex neuroses, "migraine," and functional disorders of some kind of the digestive system, all leading to inflammatory and organic lesions. Make it lower still and place the number at 20,000,000, and admit that any considerable proportion of these diseases may be due to eyestrain, and it is evident that a scientific yea or nay dictates the happiness, health, and even the life or death of millions.

Our society is named American and also Ophthalmological. What has been its answer to the inquiry? Has it decided the controversy or has it even wished or tried to do so? It is presumed that its members are those best fitted to answer and to judge. Only through ophthalmologists could the truth ever have been found, and as the entire lay world is fast coming to a knowledge

of, or at least a belief in, the theory, it would seem that scientific decision should be made.

Starting with the average date of the announcements of Thomson and Mitchell, 1875, the medical or scientific articles published in 31 years in the Transactions of the American Ophthalmological Society number 870, with subclasses as follows:

Classes.	No. of articles.	Percentage of all articles.
Operations	149	17.13
Extraocular diseases as causes of ocular disease	133	15.29
Tumors	122	14.02
Instruments	94	10.80
Traumatism	59	6.78
Congenital and other anomalies	55	6.32
Refraction as an unapplied science	26	2.97
Physiology	23	2.64
Glaucoma	23	2.64
Sundry inflammatory diseases	22	2.53
Therapeutics	21	2.41
Diseases of the lids	14	1.61
Sympathetic inflammation	9	1.03
Paralysis and paresis	8	.92
Refraction and heterophoria as related to ocular disease	8	.92
Malingering and hysteria	7	.84
Strabismus	6	.69
Physical optics	6	.69
Blindness	6	.69
Eyestrain as a cause of extraocular disease	3	.34
Winking	3	.34
Miscellaneous and unclassified	73	8.39
	870	100.00

It seems perfectly fair to regard these percentages as representative of the opinion formed during 31 years of experience of our most learned ophthalmologists concerning the unsolved problems of ophthalmology and the relative values of the different spheres of our work. Nothing could more plainly say to young men: "These are the comparative values of the different subjects you have to learn and to teach. If you wish for entrance to our society, if you wish teaching positions in your local hospitals, colleges and communities, if you wish consultation cases, if you wish our respect and our blessing, act as we act, spend your strength on these subjects as we do. If not, anathema! We consign you to the shame of Europe and of the medical profession; your progress will be stopped and your good name will surely pass into oblivion."

Take first the surgical aspect of the question. If we add to the

number of papers on surgical operations proper those which imply surgical procedures, we reach the following summary:

Cases.	No.	Per cent.
Operations	149	17.13
Tumors	122	14.02
Instruments	94	10.80
Traumatism	59	6.78
Strabismus	6	.69
	430	49.42

(If some of these articles do not pertain to surgery, they are more than offset by others, *e. g.*, on heterophoria, glaucoma, lid diseases, etc., which at least in part do concern surgery.)

Now, I, for one, deny most emphatically that 50 per cent. of ophthalmic practice is or should be of a surgical character. I think that 80 or 90 per cent. of the office work of American oculists is non-surgical. Surgery has undoubtedly a necessary share in our work, but it is small, and the part played by medicine, therapeutics, and prophylaxis is many times as great; the beneficial results in the relief and prevention of human suffering of these departments is hundreds of times greater than surgery. I judge that the glamor, the money-making, the fame-seeking of the surgical specialist have warped our professional judgment, have narrowed our usefulness, and have disgraced us in the eyes of scientific men. It has certainly blinded us so that we do not see our proper function in the general professional world. It has rendered us so bigoted and intimidated that we will not allow a paper on eyestrain as a cause of systemic disease to be read at our meetings however much members would like to do so. And yet, if we had any sense of humor left, the 122 papers read on tumors, when compared with our daily office work in eyestrain, would make us burst into jeering laughter. Were Mark Twain a physician he only could do justice to this generation-long tumoresque humoresque banality.

If we glance at the next largest class of papers, those on ocular diseases from extraocular sources—the antique "medical ophthalmology"—we find that in the estimation of our members for 31 years this aspect of our work is held to be something like 44 times as important for human welfare and professional progress as is that of the reverse—the ocular source of extraocular diseases. This, one may suppose, is in obedience to the irreligious beatitude, that it is more blessed to receive than to give. What pleasure we have had in assuring general physicians and non-oculist specialists that the eye is the meekest of all the organs of the body and we the meekest of medical babes! Eye and eyeman welcome the results of all the bad work and diseases they pour upon us, but the eye, that noblest, most delicate, most used, and most useful organ, can do no harm to others and will never cause any trouble to its hundred neighbors and masters. Now, I am certain that the future ophthalmologist will find, as many are now finding, that the cases

of systemic disease caused by eyestrain are not only not 44 times less, not only 44 times more numerous than the old medical ophthalmology of our members suppose, but are perhaps 4400 times as numerous.

Let us come to the heart of the matter. In 31 years there have been read before the society four papers pertaining to the extraocular diseases caused by eyestrain. One of these, however, was a charming argument against the theory. It reminds one of the story of that learned body of European medical men who gravely pronounced against the railroads then planned, and with vast erudition demanded that high board fences should be erected on both sides of the track. In this way, they said, those riding in the cars would avoid vertigo, sickness, and grave cerebral disease bound to follow from the rapid motion and changes of scene. Reduced to its essential elements, the proposition of the modern ophthalmic opponent referred to was that the counting of noses fixes the truth or error of a scientific theory. If the noses of the Royal College of Physicians of Bavaria had been counted, our railways would today be lined with high board fences, much to the increase, one judges, instead of the decrease, of dizziness and brain disease. And balloting, surely, was what killed poor Semmelweiss and his absurd theory of puerperal septicemia. In the same controversy Hodge and Meigs also had all the ballots with them and against the pitiful upstart, Oliver Wendell Holmes.

Among the thousand proofs of the invariable law that the "leaders," or supposed leaders, in any science never discover, and always oppose new discoveries, may also be adduced this, quoted by Dr. Croskey: "On April 6, 1705, in the Hospital of Doornik, Brisseau performed an autopsy upon a soldier. One eye of the corpse contained a simple ripe cataract, upon which Brisseau operated. He first made a depression of the cataract; he then removed the membrane which he thought to be the cataract, and upon examination he found that the pupil had its original black color. Upon dissecting the eye he found that the opaque lens was not in its proper position, but that it had been depressed into the vitreous. He reported his observation to the French Academy, which totally ignored his announcement, and one of its members (Duverney) advised him to keep his discovery to himself and not make himself the laughing-stock of the Academy."

In American ophthalmology "one toddled off and then there were three." But of these three one suggests no more than that eyestrain causes headache—nothing else. Another carefully limits the headache-producing cause to heterophoria, and, most frightened of all, the third tremblingly hazards the thought that in one case headache and chorea were "simulating" diseases, "just pretending earnest," as the children say, and that the choroiditis, which was possibly the result of ametropia, was really the cause of the head symptoms. At best it was the old story: "This is the rat that ate the malt that lay in the house that Jack built." Of course, the rat was murderously pounced upon. For example: "A

great many cases of astigmatism in young ladies of nervous temperament have been reported. A great many have come to me supplied with glasses of all kinds without being relieved. In the most of them I found sight, refraction, and accommodation normal. I have simply advised these patients general hygiene, and they have got well. To prescribe glasses to almost every patient that has not a coarse organic lesion seems to be so much the tendency of the day that very soon oculists will be called refractionists, as 25 years ago they were called iridectomists."

And not a protest was made against this arrant unscientific, inhuman, inexpert, plebeian, and positively vulgar nonsense. Never since, except once in discussion last year, has a member dared to write or speak in support of the truths which we all know are true—the truths that not by the ophthalmoscope alone, and especially without cycloplegia, can there be any accurate refraction; that glasses do often relieve the symptoms which no "hygiene alone" can cure; that the ophthalmology revealed in the quotation is a ludicrous travesty of genuine art and science; that it is precisely the low errors of refraction, "too slight to diagnose and too trivial to correct," which cause the most ruinous reflexes in the general system; that the recklessness of these truths and inexpertness in the art of refraction are filling the offices, near and far, of men with finer minds and skill who are rescuing from atrocious suffering those turned away by blunderful indifference, and, finally, that a man of healthy instincts would rather write 122 papers reporting sick headache or spinal curvature cured than 122,000 on melanosarcoma or cyst of the iris or 55,000 on colobomas and other curiosities.

But, as evidenced by the papers allowed to be read, the American Ophthalmological Society states to all young aspirants for membership, to all would-be teachers in medical schools and colleges, to the medical profession in general, that the theory that eyestrain can cause any extraocular disease except possibly, rarely, and doubtfully headache* is not even worth mentioning. It says that even headache as a result of eyestrain is scarcely worth a glance and a sneer; that operations are 50 times as important as the whole pother about eyestrain; that ocular diseases due to extraocular causes are 44 times as injurious as eyestrain; that tumors are 40 times as harmful as eyestrain; that the devising of instruments does 31 times the good to the world; that injuries are 20 times as frequent; that describing curious congenital anomalies is of 18 times the service to humanity than would be the possible relief of all the neurasthenias, headaches and other cerebral diseases, dyspepsias and vomiting of 20,000,000; that refraction solely to better vision is of eight or nine times more benefit than "the ocular-neurosis crank" could be; that physiologic problems should interest the curer of disease eight times more than all non-ocular diseases; that mere physical optics is a nobler study for medical men by two to one than all reflexes of eyestrain, and, lastly, that the mere fact

*And one member avows that frontal headache is due to the nose instead of the eyes!

of winking (*absit omen!*) is of greater suggestion and interest than all the dyspepsias, malnutritions, nervous disorders, and mental diseases that a hundred condemnable refractionists have ascribed to eyestrain. It seems a very topsy-turvy world, indeed, wherein we oculists live.

And sadly enough the upside-down and backside-to is bound to grow worse and more confusing! There are at least 15,000,000 or 20,000,000 American citizens suffering from eyestrain; a large proportion of these from the systemic effects of eyestrain, which are wrecking happiness, ambitions, life-work, and even life itself. All the cynicism and ignorings, all the denials, will not change the fact or hinder the recognition of the truth. The ophthalmologists and their societies pretending ignorance and assuming indifference are doomed. Hiding the head in the sand only invites more speedy and a more ignominious end of the animal, and end of the play.

Why is this absurd silence and this opposition to a truth which we all know to be a truth? At least three-fourths of the daily practice of ninety-nine one-hundredths of American oculists is made up of eyestrain problems and eyestrain work. The other one-hundredth are busy a big part of their time in turning away patients they are incapable of treating or have not time to treat, or, for other reasons, will not treat. Why must official ophthalmology pretend to ignore what practical ophthalmology works at all day long? Well, that, too, should be perfectly plain to all of us.

In the first place, official and authoritative science of any kind, and especially that of medicine, and especially the ophthalmic division of medicine, never discovered anything. They never even allowed any discovery to come to fruition except when forced to do so and after long years of cursings of the discoverers and promulgators by the so-called "officials" and the "authorities." Only a little knowledge of history and of psychology is required to make this evident. One of the funniest of the many funny methods whereby the blind authorities oppose new discoveries is by crying "exaggeration" and "hobby-riding," and all the time their own exaggeration and hobby-riding is so exalted (122 papers on tumors, 430 on surgery, etc.) that not to laugh requires an owl-like intelligence and an amazing ability to ignore illogicalities. These authorities and their methods are preoccupied with the sweet self-flattery of supposing themselves too broadminded and erudite to be "extremists" and "spectacle-peddlers," and all the time they are shining examples of "specialism gone mad," of "hobby-riding gone to seed," and all the rest of the pet expressions used so glibly.

It requires but a modicum of acumen to see that a most extraordinary laboriousness and conscientiousness, a highly exceptional delicacy and accuracy of mind and hand are required to master the problems of refraction and eyestrain. Those who have grown up in the surgery and organic-disease crudities of anatomic pathology cannot be expected to have the judgment, skill, and intellectual acumen required in the diagnosis and treatment of functional dis-

eases and in the deeper and finer problems of eyestrain and systemic disease. We may pity and excuse this in individuals, but our duty is not to them nor to the profession, but it is to our patients. Science and the profession may go hang; our duty is to cure and prevent disease by any right means in our power.

The crux of the matter is accuracy in diagnosing ametropia, judgment in prescribing glasses, and an enormous conscientiousness and zeal in getting the right spectacles rightly worn. It is not exaggeration to say that 50 percent of the refraction done by America's 5000 or more oculists is ludicrously incorrect and would not cure eyestrain. Then fully 50 per cent. of all opticians' work is so inaccurate in make and adjustment that failure must follow even with correctly ordered glasses. The spectacles get awry or their use is discontinued. Besides these things, the refraction changes in a couple of years; at least the old glasses become incorrect.

There is not a machine shop and scarcely any manufacturing establishment in the land in which infinitely greater skill and accuracy is not daily illustrated by common workmen than in the majority of the offices of the ophthalmic surgeons of the world. If our car axles were turned as blunderingly, our steam valves as imperfectly, if our dynamos and watches and scales, and a thousand instruments of precision were made with as amazing a lack of precision as the vast majority of the diagnoses of ametropia, we could not carry on our civilization for a day. The whole business would come to sorry smash. As a profession, as a civilization, we have not met the conditions demanded by the facts and demanded by the eyestrain cranks and hobby-riders. The sneerers and cynics of the eystrain theory are not so illogical as it would seem, for if they had done the accurate work which is demanded they would have had thousands of their cured and grateful patients demolishing the most inexpugnable and solidly-built systems of prejudice and "success."

And one of the strangest, yet inevitable, results of this is that the general physician knows and recognizes the truth better than the famous oculists, and the intelligent lay world knows it better than the medical profession. A well-known professor in a great university writes to me as follows: "Keep hammering at the general practitioner; perhaps sometime he will understand the reflexes caused by eyestrain. I, devoting all my time to internal medicine, have difficulty in compelling most oculists to bear me out in believing that eyestrain can cause so many disturbances." And our lay patients, sensible common people as well as educated literary workers, are more cognizant of the truth than the profession. They discovered it, not we, and they are today begging us to rediscover it. So evident has the truth become to the laity that the Governor of one of the greatest and best of New England States in his inaugural address says: "There are, to quote one line of work only,

children now struggling for education through pain, ailing little creatures, backward in their lessons, tortured with racking headaches, who only need relief of a complaining set of nerves by a pair of properly-adjusted glasses to transform them to healthy, happy children, capable of assimilating all the benefits of their school work."

I recently received a letter of indignant protest from one of the most famous of American physicians against a plan I had urged that all children should have their eyes carefully examined by expert oculists. In dentistry it is advisable; in ophthalmology it is specialism and extremism.

Dr. John G. Wilson of Montrose, Pa., in the *Journal of the American Medical Association,* May 19, 1906, thus hits his finger upon another ailing place. As to headaches due to eyestrain he says that "large numbers of school children go to their physician and are given headache remedies without end. This is to no purpose, and they finally have to give up school on account of becoming nervous wrecks, unless by chance they happen into some jewelry store and are given some kind of lenses to wear which may relieve the trouble to some extent. The country physician, therefore, should take up refraction work. The great mass of working-people simply cannot pay the fee demanded by the oculists, and are forced to put up with the indifferent work of the so-called opticians. Two or three hundred dollars will buy the necessary equipment and a month's work in some eye infirmary will give one a start, and one can do as well at once as any optician will ever be able to do."

As a profession and as specialists we have not raised one finger to prevent or to undo the deep disgrace hinted in these lines. There is not a single adequate, serious school of refraction in the world, nor is there a sign that one is coming. Yet such a school is more needed and would do more good than all the ophthalmic departments in all the medical colleges and hospitals of the world.

Moreover, there are at least 15,000,000 American children and adults afflicted with lateral curvature of the spine. All the smiles of incredulity will not, alas! lessen the number nor the horror of the consequence of the abnormalism. There is no existing machinery, no care or solicitude to prevent the sufferings nor to prevent the very existence of these millions of scoliotics. The defect arises unknown and unsuspected by physicians and by orthopedists. When it is incurable the orthopedist learns of a few of the cases. Surely over 90 per cent. of these scoliotics owe their tragedies to ocular molfunction readily demonstrable and its results always preventable. Two months ago, for example, a child of five years of age was brought to me with many complaints—vomiting of food, peevishness, ill-health generally. A nurse and a physician were retained as constant attendants of the child. I found a grade of astigmatism so low that great authorities in this society publicly to the profession and daily to their patients state that it is useless to correct it. Both axes of this astigmatism were 105°—a defect that

produces head-tilting and spinal curvature. The child had both. Glasses were applied, and since then the incipient spinal curve has disappeared, there is no vomiting, no drugs are required, there is steady gain of weight, there is complete return to normal health. What would have been the life-history of this little one had it fallen into the hands of the "ophthalmic surgeon" who scorns the refractionist, who sneers at functional and beginning disease, who does his refraction with the ophthalmoscope and without a mydriatic, who loves surgery 50 to 500 times as much as he does the prevention of disease, who loves surgery 5,000,000 times as much as he loves the prevention of surgery, who is 40 or 100 times more interested in a sarcoma or an osteoma or a coloboma than in the headache and vomitings and "neurasthenias" and suicides of his patients?

At present we oculists are most busy and earnest, and effectively so, in creating "fake" ophthalmic and refraction schools, refracting opticians, peripatetic spectacle peddlers, and quack M. D. oculists. These things are the direct result of our neglect, our bigotry, our money-making, and our pseudoscience. At present osteopathy is influencing legislatures, and ignorantly, but far more successfully than many of the profession, it is treating the millions of distorted or weakened and diseased backs of our people. We neglect the study of the spinal column utterly and wholly in the functional and beginning stages of lateral curvature. Osteopathy is a product of our professional neglect and bigotry, and especially of the ophthalmic variety. Eddyism is rampant in the land, and as professional blunderers and sinners we are to a great extent responsible for Mrs. Eddy and her foolish children. By our policy of ignoring and self-satisfaction we are absolutely the creators of quack refraction, osteopathy and faith-cure, and half of this professional blunder is due to ophthalmologists.

P. S.—The program of the 1906 meeting of the society emphasizes the lessons drawn in the paper:

1. There are only 27 papers upon the program, illustrating the truth that the old subjects have had all the juice sucked out of them long ago. Conservatism and Zeitgeist still dominate.

2. The discussion on the papers dealing with bacteriology and purulent ophthalmia ends in the old truth that frequent irrigation with pure water is of as great value as the germicides.

3. Tumors, curiosities, and anatomic pathology still occupy the major part of the attention. The influence of hospital and dispensary practice outweighs all else.

4. There is not a paper in the program dealing with any phase of eyestrain.

5. The single paper that, from the reputation of the writer, might be suspected of heresy is placed by the committee as the last bristle on the end of the tail of the program.