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BY

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EYESTRAIN AND THE LITERARY LIFE.*

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BY means of the glimpses I could obtain from biographic and autobiographic writings, I have made a study of the disease of twelve patients who lived in the last century. These were DeQuincey, Carlyle, Mrs. Carlyle, Darwin, Huxley, Browning, Wagner, Parkman, Whittier, Spencer, Margaret Fuller Ossoli, and Nietzsche. If we fuse the data thus gained into a composite clinical photograph the lessons become more clear and striking. The diseases, or rather the symptoms of the one disease, common to all were headache, insomnia, "biliousness," sick headache, "nervousness," indescribable suffering, inability to do literary work without producing these symptoms, and relief of the symptoms whenever, even for a day or a few hours, literary work was stopped, and entire cessation of the characteristic symptoms at about 60 years of age. Here we have a definite clinical picture that differentiates the fundamental pathologic condition from that of any other disease.

The symptoms were briefly, and without quotation marks, as follows:

Of DeQuincey. Pain in the head beginning at 14; violent twitchings of the stomach during sleep, at 17; neuralgic affection at 18 or 19; nervous horror; irritation of the stomach; gastralgia; illness, dejectedness, biliousness, wretchedness, dizziness, a nervous malady of a very peculiar character, insomnia. The digestional difficulty was predominant

Of Carlyle. Dyspepsia; torture as of a rat gnawing at the pit of the stomach; bad health; nervous disorders; insomnia; biliousness; melancholy; cardiac symptoms. The dyspepsia was the leading complaint.

Of Mrs. Carlyle. Sick headache, nervous sufferings, insomnia. Hers was a case of life-long sick headache.

Of Darwin. Dispiritment; pain and palpitation about the heart; sea sickness; illness; inability to do literary work; disordered stomach; prostration of strength; sick headache; vomiting; insomnia; headache, great weakness. The digestive organs were those principally affected.

Of Huxley. Hypochondriacal dyspepsia; cardiac symptoms; unaccountable prostration; liver; headache; flatulent dyspepsia; mental depression. A case again of almost typical sick headache.

Of Browning. Headache; confused cerebral symptoms; depression; dizziness; deranged liver; nervous excitability. This is a case of almost simple headache.

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Of Wagner. Feeble stomach; sick headache; extreme depression; cardiac symptoms; insomnia; shattered nerves; intense irritability; violent headache. A martyr to sick headache.

Of Parkman. Dyspepsia; stirred-up head; photophobia; the greatest inability to use the eyes in literary work; insomnia; insanity feared on the part of friends and physicians. Mental, ocular, and cerebral symptoms dominant.

Of Whittier. Delicate health; great weakness; depression; palpitation of the heart; influenza; headache; weariness; rheumatism; cerebral symptoms; neuralgia; insomnia. Headache, physical weakness and sensitiveness were continuous from early manhood to the completion of presbyopia.

Of Herbert Spencer. Insomnia; inability to use the eyes except for short periods; queer feelings in the head. Insomnia was the chief complaint, others plainly being avoided by astute precautions.

Of Margaret Fuller. Headache, vertigo, nervous exhaustion, martyrdom to ill-health, insomnia, pain in the head.

Of Nietzsche. An intensification of almost all the preceding symptoms, especially the ocular and cerebralones, with final ending in insanity.

The Strange Mystery of the Disease of the Twelve must strike one even with a hasty glance over their "biographic clinics." This lack of cause or reason for their sufferings struck each one, and pages of excerpts might be gathered showing their wonder. An unseen and malignant enemy or fatality seemed seated above them or at the very heart of their being, implacable and inexplainable. To their physicians they turned with beseeching question, and imploring aid. Some spent a great part of their lives in going from one doctor to another, or in dipping into quackery, in traveling for hoped relief anywhere, by "change of climate," "change of scene," etc. Most of them tormented themselves all their lives in dieting, and two gave much of their life to the hydropathic delusion. In every case the one fact stands out clearly, and it could be verified by any number of quotations, that their miseries were consequent directly and quickly upon use of their eyes in writing or reading, and yet not one of them, while repeatedly chronicling the fact with their own pens, ever caught a hint of the causal nexus.* That Mrs. Carlyle should have read in bed until the early morning hours and then have taken morphine to stifle the direct results of suffering; that

*Since the Wagner paper was published, and since this article was written, Mr. Ellis the biographer of Wagner, in a letter just received, tells me he has found an exception to this statement, showing a passing recognition on Wagner's part of the relation between eyes and dyspepsia. In a letter to F. Heine, Wagner writes, April 30, 1853, "Kurire deinen Bauch um der Augen Willen,"—"Cure your belly for the sake of your eyes."

Nietzsche should have taken two big trunks full of books with him when, broken down by eye-strain, he resigned his professorship; that each one told of his torture when he read or wrote, and not have seen that it was the reading or writing caused it,—all this is amazing. But it is the daily story in the oculist's office. That lay scientists and professional observers, as they might be termed, should have been incapable of perceiving the fact is as strange as it is pathetic. That their physicians should not have done so is as strange as it was inexcusable. The reason for the blunder of both patient and doctor is to be sought in deficient closeness and accuracy of observation, and consisted in a threefold error.

Three Inaccuracies of the Patients and of their Physicians. The first was to ascribe the disease to the organ in which the symptoms appeared or seemed to be most manifest. This folly still dominates most treatment to-day and underlies much error in our pathology. Despite a thousand proofs of the fallacy, it seems ineradicable. We acknowledge in words that the organism is a unit with absolutely interdependent parts, and yet we go on practically oblivious of the truth of the old fable of the belly and its members. When we vividly realize that distressing symptoms in an organ may have their origin in another and even in distant organs, we shall make an instant and tremendous advance in practical therapeutics. "Doctor, do you think it is my nerves?" is the primitive pathology of the simple, and is the exact counterpart of that which always traces headache to brain disease only, or digestive troubles solely to diseases of the stomach.

The second faulty observation consisted in thinking that intellectual labor *per se*, or an over-amount of it, caused the symptoms. Patients and scientists forgot that in the great majority of intellectual people it was and is not so. Humboldt, for instance, is said to have worked with his eyes about 20 hours a day for some 80 years. In the twelve patients mentioned it was not the working of the intellect, or the amount of it, that gave pain, but simply an accident of that labor, a certain mechanical, or, shortly, optical part of it, that produced the symptoms.

The third observational mistake occurred in thinking that the "change of scene" everlastingly advised, or "change of climate," or the walking, riding, visiting, etc., of itself, caused the relief. Again, this relief was merely an accident of the out-door life. Thousands of others did not require the change, and the relief of the sufferers was due to nonuse of the eyes at near-range work; if the cause was put in action, the symptoms recurred whenever and wherever the patient was. "Black care sits behind us on the crupper."

The Disease was Functional. De Quincey's physicians said he had "gastrodynia," a name utterly without pathologic meaning to the physicians of the past, or indeed of the present. All the patients had more or less severe gastric symptoms; in some it was the chief, called by various names, such as nausea, vomiting, biliousness, dyspepsia, liver, etc. The modern gastrologist knows nothing of these diseases except as the results of errors of diet, or of organic disease. Some modern surgeons would even go so far as to trace them all to gastric ulcer, for which operation is the only cure. In 1903 a grave medical journal has said editorially that even obscure gastric symptoms demand gastrotomy and excision of the ulcers. The answer to that, of course, is, first, what caused the ulcers? Secondly, it is surgical monomania. Such a modern surgeon would surely have gastrotomized our twelve patients. That affliction at least, was spared them! That the disease of all these patients was functional is demonstrated by the fact that they lived to the average or more of three score years and ten, and that it disappeared at the beginning of old age, precisely and illogically when the general vital powers were lessening toward death.* The older each lived after this the freer he became from the peculiar kind of suffering which had made middle life so wretched. In the year 1902 a physician most well-informed,—at least, expert in other matters—traces to climacteric melancholia, plus heredity, plus neuroticism, the tragedy of one of these twelve, and adds that we call diseases functional because we cannot observe the minute anatomic or organic changes which underlie all such conditions. This seems to me a more foolish pathology than that which said simply, "gastrodynia," and let it go at that. Are there organic tissue changes in sea sickness? That is a very real disease while it lasts. Why does it last so short a time? What caused the changes?

The Variation of the Symptoms. It is a truism of medicine that there is no typical case, even of organic diseases. The "soil" is of as much influence in producing symptoms as the "seed." And of functional disease this is peculiarly true. The symptoms of eyestrain are amazingly complex and differ in some respects with every patient. More than any other morbid cause, its effects are multitudinous. When the role of vision and the functional relations of the eye with the organism, and with life, are understood, the reason for the infinite variety of symptoms is seen. The two things that bind all to unity are the certainty of a common cause, and the equal infallibility of the therapeutic test. If use of the eyes produces any of these results, it is almost surely the cause; if disuse of the eyes relieves, it is doubly sure; if, without disuse

* With the exception, of course, of Nietsche and Margaret Fuller Ossoli.

of the eyes, proper glasses does the same, the demonstration is beyond all question. In every one of the eleven cases, disuse of the ametropic eyes did give temporary relief; the paralyzed accommodation at about 60 did the same thing permanently, and added great ability to the power of ocular use; these symptoms in thousands of American patients have been instantly extinguished by lenses properly correcting the ametropia. The demonstration is perfect.

The Result in Lost Time and Opportunity. If De Quincey's opium-eating, as I have no doubt, was due to his eyestrain, then a large part of his life was certainly wasted from that cause. Surely three-fourths of Carlyle's working time and ability were spent in horseback riding, walking, and in recovering from the exhaustion of writing. He produced during his working life about one-half page a day. Much of Mrs. Carlyle's life was spent in 30 or 60 hour continuous vomiting, and in suffering, and if this could have been avoided, the time, and much good white paper, spoiled by critics, biographers, concerning her and her husband, would have added greatly to the national income—especially in the saving of paper! Darwin was able to read or write only about two hours a day, and his literary product was less than that of Carlyle. The rest of his waking hours, those he did not waste fighting insomnia, were spent walking like a dumb animal about his "sandwalk" or more foolishly enduring the brutal water-cure. Fortunate it is that if he could not read and write, he could think and observe. The output of great minds is to be measured qualitatively, of course, not quantitatively, but ours is the grievous loss, nevertheless.

Just at the climax of Huxley's sufferings, at the zenith of his powers and at the moment presbyopia would probably have given him relief, he was compelled to resign and take to the moors. For 45 years his life and power of work had been greatly crippled by his sick headache. What a tragedy! What a loss for science! Browning avoided suffering, by avoiding eye-work, by going to Italy, by living in the open air, and when he could not do this, in living, as his biographer says, "upon the surface," and by "countless social engagements."

Wagner came near committing suicide many times owing to his tortures. He also squandered a large part of his life in hydropathy, diet, and walking, until relief came all at once from three apparently supernatural sources.

Parkman himself estimated that 75 per cent of his life had been wasted by his inability to use his eyes. He avoided the agonies of others by simple renunciation. Not being ingenious Yankees, they never had a "gridiron" nor recognized the need of it. Parkman's output for 14 years was

about 6 lines a day, and his life product was but little greater. The hideous waste of his superb powers and valuable time was, I think, fully 90 per cent.

All the newspapers which Whittier edited until he had to quit all literary work except versemaking, had to be discontinued because of his bad health. He was forced to renounce his splendid ability as statesman and reformer, and for the rest of his life retire to the farm to nurse his health and write a little poetry.

Spencer avoided suffering by cunning precautions, in nonuse of his eyes; more deftly still he hid his lack of scholarship (German, metaphysics, etc.), which was denied him because he could not study.

The pathos of Margaret Fuller's life came from the fact that her little work, her poverty, and her death itself were due to her eyestrain.

The havoc wrought by eyestrain in a genius the natural peer of any, the superior of most, in the German professor at 24,—the incomparable Nietzsche—is so pitiful and awful that one can scarcely speak of it with restraint.

The Result in Suffering is incalculable and horrible. There are and will be biographies of these people which will not allude to it, and physicians and medical editors have been known who smile ironically at the "exaggeration" of "vivid imaginations;" there are numberless asses who think they are excused from all sympathy with a Carlyle or a Nietzsche, and have no need of a thousandth of their nobility of character, because they, the ignoble long-eared, disbelieve in something the great men have said or taught. "Let us be contemptible because their philosophies are so,"—one seems to overhear. The misery of the pain of one attack of the nausea of sick headache has not been equaled except in some medieval or oriental torture chamber. When for some profound reason the dominant and oldest instinct of the organism, that for food and nutrition, is violently reversed, it should be plain even to the stupidest lay mind that the deepest wrong exists and that the very springs of life are being drained. Add to this another symptom almost equally terrible, intense pain in the brain, the organ controlling both character and life-processes, and what disease could be more desperate? How many of our patients had sick headache it is impossible to tell, owing to the disinclination especially in writing and biographies to speak of vomiting. Probably most of them did have it more or less. Of Mrs. Carlyle, Huxley, Wagner, and Darwin, it was almost constant when the eyes were used in near-work. Whittier, Nietzsche, De Quincey, and Carlyle suffered from it also. Spencer, Browning, and Parkman escaped, undoubtedly by means of not driving the eyes to the degree of

use that would produce it. But headache alone without the "30 or 60 hour" retching is bad enough. Then it must be remembered that for geniuses like these upon whom was laid the awful duty of world regeneration and enlightenment, the mental anguish from knowing their life-work frustrated, was greater than any simply physical suffering could be. This comes out with tragical emphasis in a hundred quotations that I must omit. Until insanity came to his rescue, the mental and physical agony endured by Nietzsche is one of the most terrible spectacles one can imagine.

Insomnia. There were but two of the twelve patients who were not extreme sufferers from inability to sleep. Of some it seemed the chief complaint, and the bitterness and reiteration of the trouble by most was so great as to make this symptom of exceptional interest to physicians and physiologists and to demand a scientific explanation. For 30 or 40 years, several, one would judge, could get on the average but two or three hours of sleep a day ; a full night of sleep was hardly ever or never secured, and the attempt to rid themselves of noise constituted their greater trials and expenses of practical life and dominated all plans and methods of domestic economy. Oriental cruelties, physiologic laboratories etc., have demonstrated the absolute necessity of sleep, the fatality of enforced weakfulness, and every one knows from personal experience how all health and happiness is dependent upon that strange lapsing of consciousness. There is an unconscious divinity of physiology, one at least whose consciousness is so different from ours that we call it unconscious, though it is more ingenious and purposeful than man's most exalted and scientific vision can ever suspect.

Is it not true that the biologic divinity never sleeps? Is it not simple fact that for 16 hours a day he lends to our consciousness, as temporary engineer in charge, the marvellous machine we call the human body and brain? Is it not as evident that even while we as engineers are in charge, his attention is always present in every bolt and bar, in every organ and every cell? One of his little, but to us as physicians, conspicious functions, we have named *vis medicatrix naturae*, the healing power of nature, the wonderful art of instinctive unconscious repair, the amazing and perfect proof of the very presence of God. Is it not again the oldest of physiologic truths that in highly complex and differentiated organisms like ours, the conditions of repair and healing are intermediated by cerebral and neural control? In other words, our derived or subordinate consciousness works by means of the cerebral mechanism loaned to us by the sleepless chief engineer for two-thirds of the twenty-four hours. Follow the logic one link further and it is seen

that while the locomotive is put in our hands, it cannot be repaired. It must stop running and go into the shop for repairs. It is noteworthy that even if no repairs are needed, an ordinary railway locomtive gets tired and must literally be rested. A simple bar of steel, it seems, needs sleep, rest from continuous strains. More strikingly does the human machine require the lapsing of our engineering control, and so of our consciousness. This, or something like it, is the philosophy of sleep. And now for the application to our subjects; the astigmatic and anisometropic eye can scarcely rest from muscular or innervational strain for a second of the sixteen waking hours. The heart rests every beat; every organ and every muscle rests, because no muscle can be steadily innervated for more than a few minutes without painful effort. The safety of the organism, the "making a living," requires this 16 hour restlessness of the astigmatic eye. Nothing like this denial of this absolute law of physiology exists in any other organ of the body. The eye dare not be injured, and the natural injury to it must be reflexly shunted to the brain or to other organs; in extreme cases of overuse, the fundamental conditions of organismal existence, nourishment and cerebral control, are denied and the organism itself is profoundly hurt or even destroyed. That, or something like it, is the philosophy of eyestrain and of reflex ocular neuroses. Lastly, the injury to the cerebral and neural mechanism and its exhaustion and injury is so great by the sixteen-hour struggle that when at night it is given over to the chief engineer, the repairing is such an active process that there is no rest possible and the human consciousness is aroused, is awakened by the very stir and din of the repairing process. That, or something like it, seems to me the philosophy or rather physiology, of the insomnia of eyestrain.

It may be of interest to note in this connection that eyestrain commanded all of our patients to reverse the proverb as to the value of the "midnight oil" to the student and literary man. The eye and brain, tired and disordered by the day's struggle, cannot work at night, and especially by the poor rushlights and candles of the last century. It cannot do so even with the best poor lights of our time. Only in the early morning hours could these patients find enough resilience of mind and strength of eye to do any original work.

The Digestional Reflex, next to insomnia and headache, was the most pronounced and constant symptom of the twelve patients, and of nearly all, it was the most crippling and dangerous. The roles that biliousness and dyspepsia have played in civilization and are still to play, are indeed far from "play," are as serious a part as those of any, possibly of all infectious diseases combined. That, I know, seems exaggeration at

first sight, but not when one reconsiders the fact that denutrition is the fundamental preparation of the "soil" for the reception of most organic and infectious diseases. It is, indeed, a dangerous thing to "explain" or, rather, to attempt to explain, the mechanism of intimate physiologic and pathogenic processes. Most physiology of this kind is crudity and error, guessing at best. In two thousand years I cannot find that the medical profession knows at all certainly what biliousness and dyspepsia really are, and we are surely further still from knowing their causes, and the mechanisms of the causes. Rough observation, crude clinical facts, are about as far as we have got. One shrinks from too much parading of his own clinical experience, but each day of sixteen years, and many thousands of patients, have convinced me that eyestrain is the almost sole cause of the awful disease of sick headache, that it causes a vast deal of so-called biliousness and of dyspepsias of many kinds, and that correction of eyestrain often relieves these troubles suddenly and as if by magic. I frankly confess that despite all pondering over the fact, and study of the physiologies, I am in doubt as to the mechanism. In a general way and usually the head is an inhibitory organ to the so-called vegetative or unconscious processes of the body, but eyestrain is such a peculiar disturbance of cerebral function that one doubts if it is essentially an exhaustion and depletion, or an excitant and irritation. Certain observers have thought that some types of diarrheal diseases are due to it, but the distinct evidence of the twelve cases studied, and of my own clinical experience, leads me to think it is usually, if not always, inhibitory to the digestional process. The vomiting would argue for this also very strongly. Physiologically both the diarrheal and constipational processes may, I understand, be results of the same initial inhibitional and indigestional cause. Indeed the symptoms of essential excess and deficiency of nerve force, of hypersthenic and asthenic disturbance may be the same apparently, or so similar as to end in confusion. Irritation and exhaustion sometimes seem mere names denoting phases of a single underlying morbidity. Several of our patients and quite a number in private practice, have exhibited palpitation of the heart, lapsed beats, irregular rhythm, etc., as an undoubted result of eyestrain. If stimulation of the pneumogastric nerve, as we are taught, results in increased rapidity of the cardiac beat, it is by no means clear that this inhibitory acceleration will explain the cardiac complications of eyestrain. It is a disturbed rhythm, an irritability, a disordered function rather than an acceleration, with which we have to do. The study of the headaches of eyestrain, the migraines, the localization and almost infinite varieties of them, and of the mental or psychic functions,

also leads us into the mysteries and contradictions of cerebral function and localization of function which are so far beyond the unraveling of science. Choreas, twitchings and tics are proofs of sthenic irritation and disorder, while pareses and even paralyses, sometimes also due to eyestrain, are of course only explainable on the theory of exhaustion and inhibition. But facts, accurately observed, precede philosophies, and sufficient unto the day is the evil thereof!

"*Irritability*" *and* "*Nervousness.*" The biographies and letters of patients are filled with evidences, expressions, and facts, going to show cerebral and emotional irritability, what, for want of a better word, may be called nervousness. The passion for activity, the desire for change and movement, are often uncontrollable and the words used to express it are painfully intense. It rises to morbid extremes just in proportion to the amount of eye-work demanded or completed. In every one it took the form of physical exercise, usually of walking. Carlyle walked numberless miles and rode one horse some 20,000 miles. De Quincey walked around his "measured circuit" 1,000 miles in 90 days; during his life he averaged 15 or 20 miles a day in walking, often far in the night. Darwin trudged about his "sandwalk" all the time he was not hydropathizing. Huxley's only relief was 10 or 15 miles a day. Browning, Parkman, Wagner, Nietzsche, even Whittier, were forced to the same plan of life, each in his special way. Even Mrs. Carlyle says she walked from 6 to 10 miles a day for 10 years. Parkman's early fiery athleticism is positively morbid in its intensity; in his youth De Quincey ran to vagrancy for years, and Darwin's devotion to sports in his college days was the despair of his father; and so on. There can be no doubt that this commanding impulse made Darwin take the *Beagle* voyage, made Huxley join the *Rattlesnake* expedition, and turned both from other studies and living to natural history and science. When Parkman was denied the power of reading and writing, and when he could not live among the wilds or go into the army, he devoted himself to horticulture for 14 years (by means of low stools and rolling chairs), and when he could not do this he rowed or practiced sedentary gymnastics. Spencer avoided danger by recreation, and because Nietzsche denied the need of walking and action so much, forcing his eyes to a relentless fury of study, he positively went insane. Wagner felt he would literally go mad unless he should relieve himself by exercise, and he deeply cursed the "damnable organ of sitting still." That they lived to ripe old age, that their health improved as they grew older, that when very old most of them could outwalk all the young men,—all this shows that their hearts were not organically diseased, that

they were essentially physically sound, and that their ailment was truly functional. The demand and ability to carry out life-long physical exercise also points to an overplus of nerve force and an undeniable necessity of draining the surplus innervation to the large muscles of the body. But it also points more surely and clearly to the fact that only by this means could the eyes be rested and the source of reflex irritation shut off. That, or something like it, appears the plain philosophy of the "nervousness" of eyestrain sufferers, and their absorbing need of physical activity. The greater number of literary men and intellectual workers show no such uncontrolled necessity, because these have no eyestrain. Whenever one has such patients, or reads of such men being great walkers, look out for eyestrain. Truant schoolboys are to be studied from the same standpoint. When 50 per cent. of epileptics have unsymmetric astigmatism, it is suggestive of a possible ocular origin of their disease, even though when epilepsy is fully established and extreme, it may not be curable by glasses. When young criminals are found to have an enormously high average of high hyperopia,—such as would absolutely interdict study and handwork—what can they do, if poor and naturally unmoral, what can they do but drift into crime?

Apathy and Exhaustion seem at first sight utterly at variance with a synchronous exhibition in the same patient of nervousness and an impulse, not to be disobeyed, towards activity. In Whittier the exhaustion, anemia, and apathy, were more pronounced than in any of the others. In Darwin the psychic fatigue and depression co-existed with the spurred and jaded body. In Wagner and Mrs. Carlyle it came to a feverish coexistence and alternation of exhaustion and activity, both morbid. In the others it phased itself in varying degrees of predominence and alternation. The intense melancholy and depression of Carlyle, Whittier, Darwin, Wagner, etc., and of most "dyspeptics" is proverbial, and has even provoked many absurd pathologic sayings, themselves pathologic such as "Genius breeds upon a dyspeptic soil," etc.

One heartrending result of their exhaustion was the desire or fear of death, or of worse than death, insanity. Darwin was always on the edge of despair and at one time in middle life made his will in view, as he thought, of approaching death. Carlyle often shuddered at the apparent uselessness and fatigue of life, and the advisability of death. Wagner was constantly tempted to suicide, and at one time seems to have resolved upon it. Whittier, Nietzsche, Wagner, all were convinced, in youth or mid-age, that their lives had been lived out, and that nothing was left to do, at least no ability to do it. The peculiar nature of eye strain, the rapidity with which it produces morbid reflexes, and is

relieved, easily explains the facts of the co-existence and alternation of exhaustion and irritation. They are mere aspects of one neural and psychic fact.

The Ocular Symptoms. One eye of De Quincey was kept closed in the latter part of his life when he was reading or writing, and is plainly divergent in his portrait. That proves a life of intense ocular strain. In the latter part of Wagner's life at least, the left eye was turned upward and outward and the forehead wrinkled to keep the lid above the pupil. That demonstrates many years of grievous suffering. Parkman's photophobia was his first and most constant symptom during life; he also had blepharitis and meibomian cysts. Pain in his eyes was as constant a symptom with Nietzsche as pain in the head and gastric trouble. Most people would think that because of these ocular symptoms, such patients more certainly had eyestrain than the others without a single ocular symptom. This is not so. The almost universal rule is that the more severe the reflexes the more certainly the eyes themselves do not complain; or conversely, the more the eyes are injured by ametropia, the less the reflexes are shunted to other organs. That five out of twelve striking cases of eyestrain had severe ocular symptoms is highly exceptional, and shows that their defects were peculiarly irritating and the labor to which the eyes were put was particularly severe. Parkman's photophobia was very exceptional. In old countries where patients do not have their errors of refraction properly and accurately corrected, one frequently sees patients with blue or colored coquilles or "goggles" such as Parkman wore in the sunlight. Eyestrain frequently produces sensitiveness of the eyes to light, but in Parkman's case there was an extraordinary high degree of it. Parkman avoided headache at least, if not gastric trouble also, by stopping near-use of the eyes. His "stirred-up head" with the least use of his eyes, would also stop when he ceased to work with eyes or brain. The most noteworthy of all the cases was that of Nietzsche, in whom eyes and brain suffered equally and coincidently, both more than the digestive system, and all ingravescent, until his mind gave way. This demonstrates the marvellous balance and equal resistance of all his organs and powers. The eyes first gave way, then the mental mechanism.

Some other Symptoms. Connected with the insomnia of eyestrain is the symptom of night-terrors, bad dreams, restless sleeping, etc., noted in the child Wagner, and in almost every child brought to the oculist's office. Unless relieved in the one possible way, it means a life of intolerable suffering. I have in a day cured a number of children of nocturnal enuresis by glasses alone. The fickle appetite, especially for breakfast

the anorexia of such children, is also indicative of the same morbid cause. Extreme sensitiveness to noise is an aspect of the symptom of insomnia that has been noticed. Complaint of the "nervousness" of patients young or older, the "fidgetiness," etc., of the waste and rush of our modern nervous life, fills the newspapers and magazines. Much of it is due to eyestrain. As high a proportion as 50 per cent. or over of modern school-children are pronounced backward or subnormal in physical and mental qualities. Child-suicide, the most frightful symptom of civilization, and general insanity, are both mathematically in proportion to the number of hours of school-study demanded.

A critic has spoken lightly of the vast amount of drugs taken by the Carlyles in their struggle to prevent or cure their diseases. Quain was scornful and said that drugs and gingerbread caused Carlyle's woe. Nietzsche's sister, as much as the beautiful soul can be, is harsh-toned when she alludes to her brother's drug-taking. But what else could they do? Who would not do the same under the like provocation? And Mrs. Carlyle would have been happier if she had taken as much morphin as Mrs. Browning. It is indeed true that opium was a blessing to De Quincey, as he said it was.

Before stopping I wish to allude to facial eyestrain expression. Observant oculists notice it when some patients enter the room. It is not always present, just as ocular symptoms may be absent in the worst cases. I should say that the expression of the eyes and face is characteristically morbidized in 50 per cent of such patients, especially the older ones. In children with eyestrain anemia, anorexia, and night-terrors, it is however, usually to be detected. It is not a result of heterophoria, the latent or the permanent turning of the eye outward, such as De Quincey and Wagner had. That is a different matter and causes a different expression. It is an almost indescribable haunting signal, as of exhausted and hopeless suffering, a sort of haggard, sunken look, telling a tale of pained, tired, and useless effort. In the late photographs of Darwin, of Carlyle, of Mrs. Carlyle, and of Whittier, it is evident, and suggestions of it exist in those of others. (It was this look that first suggested to me many years ago that Carlyle was an eyestrain sufferer). It is plainly present in the pictures of Beethoven, Tennyson, Mrs. Browing, etc. The "Bachelder eye" of Webster, Whittier, etc., I suspect was a result of the intensity and victory of the effort to compensate for the eyestrain present. Old painters sometimes reproduced the eyestrain expression more or less perfectly in their pictures of medieval saints and ascetics

Lastly, I cannot forbear allusion to the influence eyestrain sequels have had on the growth, during the last century, of European spas and

health-resorts, springs and waters, sanitariums, cures, establishments, etc. The histories of the search for health at these places by Wagner, Nietzsche, Darwin, Parkman, and Huxley bring vividly before the mind directly, and as much by indirection, that these resorts came into being largely, if not principally, in a pitiful attempt to cure eyestrain. Plea sure places and fashion resorts, one realizes often grew out of the superstition. The hunt for diet doctors and water doctors was so intense that its ludicrousness is almost as crying as its unavailing resultlessness, and both are only equaled by the pathos of it all. Hydropathy, its gulls and its gullies, are still dismally echoing in the twentieth century. The peculiar kinds of diseases and of patients on which fatten a hundred forms of quackery, eddyism, osteopathy, absent healing, and all the nauseating rubbish of several million maudlin American cranks and scamps, are also in big part due to an attempt to treat astigmatism by ignoring it, or by means of that potent article of the materia medica, vulgarly named "tommy-rot."

Intercurrent Diseases. Several of the patients, e.g., De Quincey and Nietzsche, seemed extremely subject to influenza or colds; and especially Mrs. Carlyle. When not suffering from headache she was always suffering from colds or influenza—"eight influenzas annually," said Miss Martineau. They afflicted her all her life, most exasperatingly and most wearingly. I have not copied all the excerpts which prove the continuousness and severity of these seizures. It is gratifying to be able to quote a great medical authority that such attacks of colds and influenzas—

"May be due to microorganisms, or local conditions in the air passages, but these maladies, as we now know, both depend to some extent on a special predisposition in the sufferer, having its root in the nervous system, and both leave their stamp on that system and gradually undermine it."

Now here is a truth, or a glimpse of it, that deserves most careful pondering by the profession. In Mrs. Carlyle's case it is noteworthy that these colds and influenzas did not co exist usually with headache and sick-headache; that they came on in a most unaccountable manner, without explainable reason, usually in winter, and remained long; and most remarkable that they ceased at the time of the great change in 57 or 62. Wet or foggy, or not, driving, sailing, or not, she is at this time, "perfectly astonished with the impunity, etc." All of Mrs. Carlyle's sick-headaches were caused by eyestrain, a fact beyond all question. As little doubt can there be that no cause can more directly and infallibly upset and morbidize the nervous, mental, and nutritional

mechanisms. It thus supplied the "nervous system" with precisely the predisposing condition Sir James Crichton-Browne gives as the cause of colds and influenzas. The inference is very suggestive that Mrs. Carlyle's influenzal attacks were the reflex results of eyestrain. The smile of incredulity with which the allwise may receive the thought has nothing to do with its truth or falsity. In private practice the fact of the interconnection of nasal and ocular diseases has often been noted. Illustrative cases have been published. The details of one such are of exceptional interest:

A healthy, clear-headed, intellectual man, was given two pairs of spectacles for his myopic astigmatism, a stronger or higher correction for use at the theater, driving, etc., a weaker correction for reading and daily or constant use. For a year his wife and daughter observed, without telling him, that whenever he wore the strong, or accommodation-exciting glasses, he "caught cold," with coryza, hoarseness, etc., which at once disappeared when the weaker lenses were used. He used the stronger ones but a few times a year. When certain of the strange coincidence his wife told her husband. In the past ten years the cold has been produced in this way—a hundred or more times. Now if his weaker glasses get "crooked" or maladjusted, miscorrecting his axis of astigmatism by a few degrees, his cold promptly appears, to vanish in an hour after a visit to the optician.

Such cases of the interrelation of nasal and ocular disease may be rare, but the careful diagnostician will always be on the lookout for them.

Several of these patients also complained of paretic symptoms. It is not impossible that they were due to a reflex ocular neurosis for I have had cases of numbness, aphonia, pareses, and partial paralyses of hands and arms due directly and beyond all doubt to severe eyestrain, and disappearing at once with relief of the cause.

Nietzsche, Mrs. Carlyle, and others, had more or less constant rheumatism, and Parkman had life-long arthritis. A sound and healthy hip-joint, the supposed seat of neuralgia, has, I have read, been opened for toothache. Mumps may be located in the parotic or in the orchitic gland, and cases have been reported of transmigration to the brain. One who is careful to avoid the subtle demon of prejudice will not rush into dogmatism about the matter, either that such rheumatic affections may depend or may not, upon eyestrain, that is upon the ocularly-caused abnormalized nerve centers of control, vasomotor, reflex, or nutritional. There are multitudes of more seemingly absurd facts than that, well attested too, by physiology and pathology. Throughout his eyestrain

life from childhood on, Wagner was bothered by ever-recurrent attacks of erysipelas. How far that affection may also depend upon innervational and morbld vasomotor antecedents, I do not know, and I suspect no other does.

The Heredity Theory. When a certain class of medical and other scientists cannot explain a pathologic fact that is unduly troublesome, there is a hasty scuttling to the protection of the god of heredity. In one of these eleven cases, to the facts that the father died of typhus fever, that uncles and aunts had few children, and that the patient had sick-headache, is ascribed her sick-headache. That seems hardly scientific, and certainly does not explain her "climacteric insanity" nor her sick-headache. Heredity is not at all understood and has been unduly and illogicly advanced to explain disease. It may be fairly said that it fails to explain more frequently than it explains, and the instances in which the supposed law is absolutely nonexistent are more numerous than those in which it seems to give hints of a possible reason. Browning's physician acquiesced in the fatalistic necessity of his patient's headaches because in facial expression he resembled his mother. He forgot to ask where Browning's mother got her headaches, and if it were necessary to go back to Mother Eve. As all the world do not have headaches it would follow that one half, exactly, must have them (possibly correct) and that Adam had none. From such childish science one can only turn with the evident question, what caused the headaches in the mother and in all ancestors ?

The Climacteric Theory should have long since been abandoned. In order to apply to women it should have been noticed that the sexual climacteric is not synchronous with the climax of the symptoms. These grow more intense for about ten years after the menopause, and this fact makes a careful observer smile ironicly at the pitiable hint of over-sexual minded women patients and of the professional opinion which has encouraged it. The mere cessation of a function not necessary to the life of the individual organism, hair-growth, loss of teeth, loss of eyes, etc., even the excision of arms, legs, uterus, etc., does not produce positive symptoms. The *coup de grace* of this ridiculous climacteric insanity nonsense is given by the very simple observation that the climax of the same kind of sufferings of men comes at the same age as in women, and if men have a sexual climacteric at that age, the genito-urinary surgeons have misinformed us.

A Physiologic Truth Ignored. Concerning the twelve patients considered, of all earthly things each most needed a simple optical device to have freed them, and to have turned the bitterest tragedy to perfect

joy. All except one, inheriting the traditional and ridiculous prejudice, affected to scorn spectacles. For the rest, none except one could have obtained scientifically correct ones, and only in his old age, and he, alas, failed. Optics, opticians, scientists, physicians, all had forgotten that simplest of physiologic truths that no muscle can be steadily and continuously innervated without pain, even for a few minutes. Of the ametropic eye the literary worker demands such an unrhythmic strain of innervation for consecutive hours, and for five, ten, and even sixteen hours a day. The intimate association of the eye with every organ of the mind and body, the amazing delicacy and complexity of the mechanism of vision itself, the absolute dependence upon it for safety and sustenance, makes accurate seeing the *sine qua non* of the life of the organism. Accuracy in this supreme function has been insured by the punishment, on Darwin's own principles, of the organism endowed with the faulty organ—the head cannot direct because of pain, and the stomach with connected organs will not supply food to any part of the machine because it cannot digest. The sole conditions of safe and useful existence, the mathematically picturing eye, being denied, nature strikes work and refuses brain and digestion. That may sound somewhat transcendental, and deductionist in logic, but if Darwin, and Spencer, and Huxley are correct in their science, it is exactly what takes place in the struggle for existence by the elimination and destruction of noncompeting and unsuccessful organs and organisms. Science and medical science, flushed with bacteriology and surgery, and prepossessed, obsessed almost, with the thought of the infectiousness of disease, may neglect this truth, but not for much longer, and already with danger and expense.

The Cause of Disease and the Cure. Just now the cry goes up from a united profession, and is appealingly echoed by kings and prime ministers, "Discover for us the cause of cancer." The most famous man in the world would be he who should make the discovery, and he would be justly honored. But might it not come out that after all our acclaiming we should be no nearer an effective therapeutics than now? We know at last the causes of the two diseases of the respiratory organs which kill more than any other two. Is their deadliness any less because of our knowledge? It emphasizes the measures of prevention, and proves they are proper, but tuberculosis and pneumonia kill as many as before. Prevention is not the same as cure, it is of course better; but the laws of prevention are learned by simple observation, seeing macroscopically rather than microscopically, and reasoning straight from that, plus effective putting into practice of the known needed thing. It is again the old question of morbid soil and morbid seed. Hygienic living

remains still the one preventive of the pulmonic conditions which make pneumonia and tuberculosis possible. One of the most successful, one of the most potent preparers of the morbid soil for any infectious disease, is eyestrain, and it will in time be recognized as such. There is no single more prolific source of the anemia, denutrition, than eyestrain and its reflexes, which prepare the soil wherein may spring up the weeds of any disease.

Eyestrain and its Results Depend, first, upon the kind and degree of ametropia and muscle imbalance, the latter a secondary and rare factor, The low and slight astigmatisms and anisometropias are more injurious to the nervous system than high errors. High errors change character and occupation, low ones disorder nervous control and nutrition. This is because the low error can always be only temporarily neutralized or compensated for, while at the same time the attempt to neutralize can never be renounced. It is a true task of Sisyphus.

Second : The results of eyestrain depend upon the kind of organism in which they occur. The chemic reaction depends upon the substance in which the reagent falls. If the resistances or vital powers are great the effects will be small, even of bad kinds of ametropia, while a small strain upon a morbidly unstable organism will end in disastrous consequences. The reflexes, like all forces, will take the line of least resistance, and expend themselves on the less resistant organ. In an organism like that of Nietzsche, with splendid and equally resistant cerebral and nutritional systems, no one will give way, and the invader, not dreaming of desistance, the storming of all the defenses continues until the defending general sacrifices himself for the cause of peace and to save his few remaining supporters. Rare as they are, such "victories" exist, and are the most lamentable of the results of the war of civilization.

Third : Although but two of our twelve patients were women, the hurt of eyestrain generally is greatest in the female sex. For several reasons the incidence of the morbid effects of eyestrain falls far heavier upon women than men. Their organizations are more unstable, they are more emotional, and they are more sensitive to slight stimuli or inhibitions than men. These are powerful and effective reasons. I see other vague but real reasons why femininity, sex itself increases the liability, but I cannot even recapitulate them here. Outweighing all the others, however, the dominant cause of this seemingly unjust law of nature lies in the simple fact that women do most of the sewing, have more leisure for reading and handwork amusements, and because they live indoors far more than men. It is true that men are seizing upon many of these occupations, tailoring, handicrafts, etc., but that only makes the woman-tragedy the more severe and bitter as they are forced to other kinds of

more enslaving eye-labor. The suffering that is going on in conventual and educational institutions, and in the sewing-rooms of the old countries, is literally appalling. A charity that would supply poor workwomen and workmen with the services of scientific oculists and scientific spectacles would stop more suffering than the combined almsgiving of the world.

Fourth: But the preceding conditions all depend upon a fourth. Eyestrain is wholly a disease of civilization. It is entirely an occupational disease. As an Indian or an African savage, the ocular defects of any of the twelve patients would not have produced a single morbid result of the kind illustrated. Even a basket-weaver or arrow-chipper with the astigmatism of a Nietzsche, would have found other work or been forced into it. He would have failed in the chase or in any art requiring accuracy of vision, and the god of natural selection would have dispensed with him in the old terrible way; there would have been no pain or insanity. This is because the morbid results of eyestrain depend entirely upon use of the eyes within reading or writing, or hand-distance. The more such use the more baneful the consequences. Civilization has multiplied a hundred or a thousand times the amount of such near-range work, and the multiplication still goes rapidly on. In making the eye, evolution never foresaw civilization, and that mechanism, created for accuracy of distant vision, is most glaringly ill-adapted for the near vision our modern life relentlessly demands. There are a few occupations in civilization, slowly being weeded out however, in which our twelve patients could have been happy if—and what an if that is!—it they could each have renounced the intellectual life. Underthis proviso they could have been contented and useful citizens, *e.g.*, as osteopathists, mental-science healers, policemen, night-watchmen, stage-drivers, cattle-drivers, cowboys, burglars, or even political bosses and senators,—but they could not have passed a civil-service examination, or have been of intellectual service to their fellowmen.

"*Great Wits and Madness.*" Dryden's famous couplet is a poor and untruthful variation of Aristotle's "No excellent soul is exempt from a mixture of madness," and of Seneca's *Nullum magnum ingenium sine mixtura dementiæ.* The truth, the little truth, there may be in the sayings, consists principally of three constituent errors: 1. The people who accept such a psychology of genius and insanity are themselves incapable of knowing or understanding in what genius or madness consists, and view both as something alien. They are in no danger of illustrating either *ingenium* or *dementiæ*; 2. They may drive the genius into dementia by their stupid unrecognition and even hatred; 3. A genius may go mad because of eyestrain. Mrs. Carlyle,

tortured for forty years by excruciating bodily suffering, may, in the crisis of pain, and the mystery of it, gaspingly demand a promise that if she goes mad she shall not be put in a madhouse; De Quincy may prevent pain and insanity by opium; great alienists may assure Parkman he will soon be a maniac, and may class Schopenhauer and Wagner as such; Wagner may live in fear of it; and Nietzsche may be crushed into the horrible actuality of it. It all proves not the silly pathology of the proverb, but the sin, and the want, of medical science. A simple, or rather, speaking in optical terms, a compound pair of lenses would have absolutely prevented the entire tragedy in each case.*

Influence of their Diseases upon the Character of their Work. The life-work of DeQuincey, the best classic scholar in Europe at the age of 14, in view of that marvelous beginning, must be pronounced pitiably disappointing. So far as its morbidness and other qualities were directly due to opium, they were also, I am sure, due to eyestrain. So far as he failed to utilize his great intellect the result was directly due to eyestrain. There cannot be any doubt that the pessimism, gloominess, injustice, exaggeration in style and judgment, dictatorial and overbearing harshness, the history in lightning flashes etc., of Carlyle, are the consequences of the disease which made him write, as he said, with his "nerves in a blaze," "in a red-hot element which wastes the life out of me." That is to say, a fury of innervation had to be aroused to overcome the eye-defect. This intensity was ruinous and was of course followed by an equally morbid depression and exhaustion. A similar method and result was necessary in the cases of Wagner, Nietzsche, and was present in a minor degree in Huxley and others.

Surely the frequent over-critical sharpness and acidity of Mrs. Carlyle's letters, and possibly of her conduct, were the cry of her suffering brain.

Darwin's lassitude, his lack of physical energy, the dragging step and the spurred jadedness showing in face and walk, seems also present in his slowly formed conclusions, and in a certain irresoluteness of style and matter.

In Huxley a love of polemics and a controversial harshness, etc., may have been due to the exasperation and intensity which his malady produced.

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* Three months ago a professional student from a great university came to me with a typical history of intense eyestrain which had forced him twice to renounce his intended career. Utter breakdown was again upon him. The cerebral and psychic symptoms were terrible Suicide was constantly in his mind. He returned recently to thank me for his glasses and to say he is happy and studying hard, and that he stands scornfully smiling at the locomotive as it approaches him, while he has not the least hint of his old impulse to throw himself before it.

The naturally rugged and English intellect of Browning may have been directed to recondite metaphysical and ethical subtleties, and his expertness as a versifier almost destroyed, by the cause that set him to walking and working in Italy, instead of among Anglosaxon scenes and peoples and to be satisfied with hastily grasped truths that did not need the artist's reworking and polish. The change to England "had a most depressing effect." His involved and obscure sentences, abrupt breaks, interpolations, etc., are possibly the result of the eyestrain that would not allow finish and outworking. His MSS. show few corrections.

How much more perfect and wonderful might have been the almost perfect and always wonderful art works of Wagner if he had not had a quivering and suffering and exhausted nervous system! Instead of the contentious and unneeded controversialist prose writings, and especially the pessimism which is an almost inevitable result of a tortured and jaded nervous system, instead of frequent crudities and much over-emphasis in his operas, we might have had a hundred times the number of heavenly things he has left us.

Parkman's affliction seems to have had little result upon his literary work except to limit tremendously his productivity. Unless over-conciseness and prosaic sternness were consequent upon the prison-like narrowness of his necessities, the iron logic of his character defied all the cruelties of fate to change or modify his mind or the quality of its work.

Whittier was a true neurasthenic, without a single clinical symptom of what goes by the etymologically absurd name of neurasthenia. The sad apathy of his mind and body late in life is in sharp contrast with the fire of the earlier anti-slavery reformer and politician. His poetry reflects the altered necessity of his life.

Herbert Spencer escaped the fate that would have been inevitable with greater use of his eyes, but the limitations and materialism of his magnificent attempt at "syntheticising philosophy" are too evident to need reemphasis. The man who could not read German, could not synthetize "philosophy" in the nineteenth century. And a man could never have learned German and mastered German thought, who at the age of 83 could "read without spectacles."

Margaret Fuller Ossoli's literary work was but a suggestion of what she might have done had not eyestrain and its effects kept her neurologically and financially impoverished.

The youth who at 24 was a German professor of philology, who had so splendid an organization, physical and intellectual, as had Nietzsche, who was forced to give up that professorship in ten years because of suffering of eyes, head, and digestive organs, and who at the age of 45 was steadily and fatally driven into insanity by his ingravescent

atrocious eye defects coupled with love of knowledge, just at the time presbyopia was beginning its cruel exaggeration of misery,—such a man and such a fate is the very limit of the awful and the tragical. If a scamp of a Nordau says it was all due to Schopenhauer or to unmentionable causes, the answer comes quick that pessimism is the almost inevitable outcome of years of the torture, the denutrition, the drained life-power, and the disappointment due to an eyestrain so atrocious as that of Nietzsche.

The Professional Blunder. For twenty-five years the medical profession has had placed before it the evidences of the pathogenic results of eyestrain to the entire nervous and physiologic economy. The fact was first called to its attention in 1875 in a most reputable periodical and by a most trustworthy physician. There is no evidence in European literature, so far as I know, that any physician of England or of the continent has ever read this article, or the hundreds that have followed it, or cared a fig for its teaching. The stomach specialist has continued to treat the special organ as if its functional diseases had no relation to the general system. Biliousness, like a wandering and very ancient mariner, transfixes us with his glittering and yellow eyes, and lays his spell even upon the wedding guest of science; dyspepsia is drugged and studied, and headache is drugged and not studied. All the time spectacle-peddlers fill the land, ruined eyes and lives multiply, the patent medicine disgrace rules legislation, bitters grow more alcoholic, tons of headache powders are sold every year, and the carnival of eddyism and blatant quackery goes more wildly on. And much if not the most of it all is due to neglect of the physiology of the eye and of its reflex neuroses, and carelessness as to the functional diseases which depend upon eyestrain. The deadliest blow that can be given to quackery in and out of the profession, to the patent medicine and eddyistic humbugs is to prevent the dyspepsias, anemias, neurasthenias, and headaches which are caused by eyestrain, and whereon battens the multitudinous quack incarnadine.

Not the Genius alone but the Common Workman and Workwoman, should be in our mind. One is very likely to get a very distorted, or at least one-sided idea of the role of eyestrain in the world if he sees it only from observing its disastrous effects in the case of great literary and scientific minds. The symptoms and the kind of tragedy it brings to the mechanic and the mechanic's wife; to the sewing-woman, clerk, housewife; to the lonely and distant settlers far from cities and oculists; to the millions of school children and college students; to professional men and women of all kinds,—these are different calamities and they

present in each case a separate problem. The one fact common to high and low is that it morbidizes character, doubles suffering and personal burdens, lessens all productive capacity, depreciates the national valor and validity and wealth, and delays the advance of civilization. This last is its most evil effect, because every act and product of intellect is intermediated by vision.

Value to Nations and to Civilization of its Great Men. The most valuable products and assets of a nation are confessedly not its material things, not those measurable in financial terms; they are not discussed in its legislative halls, or much thought of by kings or presidents. Worth all of these things are the few literary and scientific geniuses that silently emerge in each century. How inestimably valuable were the men whose clinical lives we have hastily studied! And the amount and character of their intellectual product was limited and qualified by their bad health. Of their atrocious sufferings their contemporaries were incurious, and to them indifferent. The pathos and pity of it is appalling whether we think of it as a personal matter or from the standpoint of the progress of civilization. How narrowly each escaped absolute failure to deliver his message, how fine the line between utter loss and the saving of even the wreckage; and there is added poignancy when one considers that it was precisely the act of doing their intellectual tasks that brought the suffering, that crippled and morbidized the results, and that brought the danger of absolute failure itself.

We must also remember that not these few only were they that were lost or ruined, or morbidized. By the very nature of the cases, in the vast majority of instances, the records are wanting from which to gather knowledge of the losses or hints of the failures. With only a little search twelve startling examples have been found. The evidence that has come to us in these twelve examples is too indefinite and unscientific as to details, although it leaves no doubt as to the fundamental and essential pathogenic factor. Had we but data concerning de Maupassant and his insanity, if we knew the facts about Swift, Chatterton, Keats and a multitude of budding or blasted geniuses, many of whose names are unknown to us. For, wherever intellect has sought the solution of the mysteries of our life, wherever reason has attempted to lessen the world's load of suffering and ignorance, there may the eyes have been defective, upon which all results depended, all results to the worker and to the aftercoming workers, who we are. And so it comes to this that the geniuses, the instruments and makers of civilization, depend at last on the medical profession. At last and late we are rising to the measure of our opportunity and our duty.