

CHRISTIAN PHILOSOPHY.

LECTURE ON THE HUMAN EYE,

By Thomas Taylor.

CHAPTER II.

"He that formed the eye shall he not see?"

In the convenient situation in which the eyes are placed, the student of nature will not fail to observe the wisdom and goodness of our Creator. To the astronomer it is of importance that his observatory be erected on an elevated site of ground—while to obtain an extensive view of the country around, the General, will if possible, fix his tent and post his sentinels on a lofty hill. And that the eye might have the greater extent of view, it was necessary that it should occupy a commanding situation—intended to communicate with the brain through the medium of the optic nerve it was desirable that it should be placed near to that great source of sensation—whilst for defence and security it was requisite that it should be sunk considerably in the skull. For these reasons the eye is commodiously placed in an elevated position where it commands the most enlarged prospects. No less is it conveniently fixed in reference to its proximity to the brain, so that the intercourse between the eye and brain is scarcely liable to interruption. And instead of the entire ball of the eye protruding from the face, thereby endangering its existence every moment, the greater portion of it is safely lodged in receptacles finely adapted for its comfort and preservation. In no other part of the body could it have been located with equal advantage. Too low in the foot, it would have been of little benefit to man—and although in the hand it might have been employed more easily, yet its distance from the brain and the uses to which the hand is applied, would have exposed it to innumerable dangers. Reflecting with gratitude on the fact that, "we find the precious organ, the eye, placed not as if by accident, somewhere near the centre of the person, but aloft on the proud eminence, where it becomes the glorious watch-tower of the soul," we shall be prepared, somewhat minutely, to notice all its beautiful, and wisely arranged appendages.

The appendages of the human eye, it need not be remarked, are almost as important to vision, as the eye itself. An instrument at once so tender and valuable, required to be guarded and fortified with peculiar care; and the extraordinary contrivances adopted for its use and preservation, are among the first things belonging to this organ, to engage the attention of every diligent observer of the works of God. The socket in which the eye rolls, and generally termed its orbit, is composed of seven portions of bone, and in shape bears some resemblance to a pear, with its large end turned outwards. Above, the plate of bone is arched, and on it rests the brain, while under it, the eyeball moves in various directions. The cavity itself is much larger than the globe of the eye, but the interval is filled up with a considerable quantity of fat. This cellular substance contained in the hollow, bony socket, is of manifest utility. It greatly facilitates the motion of the ball, assisting it to revolve in all directions, with perfect freedom, and without undue friction. When a severe blow is inflicted on the ball, the eye is saved from contusion, to which it would inevitably be exposed if allowed to come in contact with the hard bones of the orbit, by taking refuge in this cushion of fat. The warmth derived from this bed of fat, enables the eye also to repel the effects of cold longer than any other portion of the face; and thus, frequently tends to the preservation of human existence. Owing to the loss of a part of this cellular substance by absorption, occasioned by the efforts of nature to sustain the system, we observe in most persons, after a tedious sickness, a sinking of the eye. Thus, for the safekeeping of so precious a jewel as the organ of vision, our heavenly Father has provided a casket, and lined it with a substance softer than wool, the best adapted to its repose and motion. O that men would praise the Lord for his goodness!

The eyelids are two beautifully soft but substantial curtains, hung on a most slender, cartilaginous rod. Composed of skin, cellular matter, and a gristly substance, they are of considerable strength and firmness. A number of minute glands, smaller than the head of a pin, which pour out an oily secretion to prevent the lids adhering together, may be distinctly observed along their edges. When a number of these tiny glands close, an inflammation takes place, which causes the common disease, generally called, the sty. An increase of the secretions from these glands, appears to occur during the night, as we frequently see children and adults who have weak eyes, with their lids almost glued together in the morning. The swift action of the eyelids is accomplished by two appropriate muscles, while to accelerate their movements and fit them for a course of unwearying exertions, on the inside of the upper lid are several ducts which take their rise in the great lachrymal gland, and which send forth their never-failing little streams of limpid fluid, to varnish and lubricate the ball. Without the incessant working of the lid, the eye would become dry and shrivelled, a fact easily tested, by observing the eye of a sheep or bullock, when separated from the skull, or kept uncovered by the lid. For the purposes of vision, therefore, it

is requisite that the moisture of the lids from the perpetual flow of tears, should frequently glaze the exterior surface of the cornea, in order to preserve its beautiful transparency. When any offensive particles of matter are introduced to the eye, the celerity with which the lids move, is of the greatest importance to the preservation of the eye. No sooner does the injurious substance light upon the globe than the miniature torrents begin to flow, and the lids to play, till the little intruder by the impetuosity of the current is swept to the inner corner of the eye. The curious provision made by our merciful Creator for the security of the eye in this respect, and noticed first, by that eminent anatomist and physiologist, Sir Charles Bell, ought to induce our most fervent gratitude. The little rills which pour forth their diminutive floods as if in haste to overwhelm the bold interloper, form the least part of this remarkable provision—they merely float the substance downwards and would lodge it under the lower lid, from whence it might be difficult to extract it, but for a wise arrangement which helps to direct these torrents to the most convenient part of the eye for the removal of the hurtful particles. The curious provision referred to, is this:—upon the falling of the upper eyelid, the lower lid is moved towards the nose. Thus if the edges of the eyelids be marked with black spots, it will be seen that when the eyelids are opened and closed, the spot on the upper lid will descend and rise perpendicularly, while the spot on the lower lid, will play horizontally like a shuttle. Well has the distinguished individual just mentioned, remarked that "we do not reflect sufficiently on those actions of our frame which are most admirable in themselves, which minister continually to our necessities, and perfect the exercise of our organs, until we be deprived of them: like unnatural children, unconscious or unmindful of indulgence, we feel only the loss of benefits." Millions of times we have exercised the muscles of the eyelids, without duly reflecting on their great utility, and without presenting our most fervent thanks to the wonderful form of our bodies. "With much compassion as well as astonishment, at the goodness of our loving Creator," says Dr. Nieuwenhuyt, "have I considered the sad case of a certain gentleman, who, as to the rest was in perfect good health, but only wanted the use of these two little muscles that serve to lift up the eyelid, and so had almost lost the use of sight, being forced as long as this defect lasted, to shove up his eyelids every moment with his own hands."—How strangely inconvenient it would be for us, every time we might wish to behold an object, to be compelled to use our hand in raising the lid, and yet to this extremity we should be reduced, but for the goodness of God, in having provided us with a proper apparatus for its motion.

Perfection is everywhere observed in animal mechanics. The solution of the question, How are the tears disposed of? will furnish another striking proof of the admirable skill of the great Architect of the human frame. We have before observed that vision would be rendered imperfect without the secretion of tears to keep the ball moist and bright; but if so acrid a fluid were allowed to collect and remain between the ball and the lids, it would materially injure the sight. To obviate this danger, an apparatus is expressly provided for the removal of the tears; an apparatus "by which they are not only disposed of but rendered a second time useful in the animal economy." When closed, the eyelids meet only on the outer edge of the tarsal cartilage, so that a kind of groove or gutter is made by their inner edges remaining apart, and along this artificial canal the tears flow to the inner angle of the eye. Nearly at the termination of the eyelids next the nose there are two minute tubes, of diameter not more than sufficient to admit a thin bristle. By means of a common looking glass, any person may distinguish these pin-like orifices. To keep these tear-tubes open, they are surrounded by a rigid substance like a hoop. At their further extremities these tubes open into a little bag, placed at the very angle of the eye next the nose, the lower part of which bag, communicates with the nostrils. Observe then, this manifest provision, for it is another beautiful illustration of superhuman contrivance. First, there is the great lachrymal gland situated just under the edge of the orbit, above the eyeball, which is continually pouring out its contents by the pressure and the rolling of the eye. Then, there is the groove formed by the outer margin only, of the lids embracing and which extends from the outer to the inner corner of the eye, allowing the tears to flow to the inner angle. Next, at the termination of this canal are two gaping tubes which are kept open by a hoop set in the mouth of each; these absorb the liquid by capillary attraction. Once more, through these tear-tubes the secretion is conveyed into a kind of sac, and thence the tears pass into the nose which they moisten, and thus subserve the purpose of assisting the secretion of the nostrils to counteract the drying effect of the air, constantly passing through them in the act of respiration. Fishes are unprovided with the secretion of tears, as the watery element in which they exist is sufficient to keep the cornea bright and transparent.

SOUND travels at the rate of one thousand one hundred and forty three feet in a second, or thirteen miles in a minute.

THE PEARL.

HALIFAX, JANUARY 20, 1838.

"A DESCRIPTIVE AND PLAINTIVE ELEGY on the death of the late Rev. John Wesley, A. M. By Thomas Olivers." A work of the above title re-printed at Lunenburg, N. S. has been placed in our hands. In an introductory notice appended to the pamphlet we are informed "that the Elegy now presented to the public, has been out of print for some length of time; and it is doubtful whether it ever obtained a very wide circulation in this Province. An individual, who is a great admirer of the apostolic Wesley, thought he would do that which would prove acceptable to those who are like-minded with himself in this respect by having it reprinted." While we duly appreciate the goodness of the intention in reprinting this Elegy, we must be allowed to demur to the wisdom of such a course. Almost anything concerning the sainted Wesley will be read with delight by thousands—still we think something should be set before his followers more in consonance with the taste and literature of the age than these most feeble stanzas. That Mr. Olivers was a man of strong native powers of mind is certain—and that he penned some beautiful songs of praise we also know: but who would suppose that the author of the well known and much admired hymn, "Lo! he comes with clouds descending," composed the following lines—

"He often rode, as thro' the land he past;
Fully thirty miles, before he broke his fast!
Then added thirty more, before he stooped to dine!
And ten or twenty more, before his preaching time!"

When worn with toil, and age, and sore disease,
He rode an easier way, his friends to please:
But neither friends, nor age, his wonted speed could stay;
For now he often went his hundred miles a day!

Or these

That this is no romance, one instance hear,
And may it rend in twain each sluggard's ear!
His last day's-work, but one, he plann'd and thought to ride
A hundred miles and eight! and preach, and write beside!

Besides the rest, which we assert as facts,
He wrote in all above two hundred tracts!
And yet, in every year, a thousand missives sent,
Through this, and various Isles, and every continent!

All this is truth, however romantic, but it is not poetry, although there is the jingling of rhyme. Altogether, we are sorry that the elegy was not quietly allowed to sleep in oblivion. Its intrinsic merits are not sufficient to justify the expense and labour of its resuscitation. To those of our readers who may wish to peruse a narrative of the life and labours of Rev. John Wesley at once concise and elegant, we refer to 'Watson's Life of Wesley.'

SICK CLERGY.—The following extract is taken from a late number of the Colonial Churchman. In the fervent wish expressed for the restoration to health and usefulness of the pious and indefatigable individual mentioned, the Rev. Mr. Uniacke, we feel certain that our readers of all religious denominations, will cordially join.

"No doubt many excellent men are sacrificed, and their labour lost to the church, by the unreasonable demand for exertion which characterises the present insatiable age. The people forget that their ministers are made in the same mould with themselves, and they look for physical and mental toil such as human nature was not made to endure. We are persuaded now (whatever we once have been,) that it is a duty in ministers not to be too prodigal of their strength; though we trust we shall not be suspected of leaning to indolence or inaction. Three services on Sunday, besides week day lectures, meetings, bible classes, and ordinary parochial duties, will prematurely wear out nine out of ten that try it. Several of our youngest clergy in this province have shown signs of failing health, attributable no doubt to excessive labour. Among these we regret most sincerely to find the Rev. Fitzgerald Uniacke, the estimable Rector of St. George's, Halifax, where his indefatigable labours, in season and out of season, have been so long and so favourably known to the public, and blessed, we trust, of the Lord, to the good of many. We understand, that having been obliged to discontinue his professional duties for two or three months past, and being still unwell, he has determined on a voyage to England by the desire of his physicians, and has taken passage in the ship Halifax, to sail the latter end of this month.

We most earnestly pray that God, whom he serves in the Gospel of His Son, to restore our beloved brother in renewed health and vigour, to his attached parishioners, and to the Church at large. We are informed that Mrs. Uniacke, (a help-meet for such a brother, and one whom the poor, and the sick, and the friendless, have cause to remember) will accompany her husband."

NEW BRUNSWICK LEGISLATURE.—The following resolutions submitted by the Hon. Mr. Crane, have passed the legislature unanimously; and a bill was about being introduced, authorizing His Excellency to organize, with the least possible delay,