

A GUIDE TO MEDICAL AND SURGICAL NURSING.*

CHAPTER XIII.—THE EYE.

As in the other senses, the nerve-centre is the organ of perception ; and all the beautiful arrangement of lenses of different consistence, of muscular curtain, of pigment, and of tears are hereby subservient to the purpose of ensuring a ready transmission of light, and a true picture of external objects on the expanded nerve, the retina.

The orbit, in which the eye is lodged, is a conical cavity, its apex presenting the hole for the optic nerve to enter. The globe of the eye, or eyeball, is in the form of a sphere, and the bulk of it consists of transparent humours, which are enclosed in membranes spread around them. The strongest of these membranes or coats is thick and fibrous, and constitutes the white opaque portion of the globe seen behind the dark centre. It is called the sclerotic coat, and has, continuous with it, and resembling a watch glass, the transparent *cornea* in front. The cornea is also fibrous in texture, but the arrangement of its component parts is such as to permit the free transmission of the rays of light. The various muscles moving the eye in different directions are inserted into the sclerotic near to the cornea.

The conjunctiva, a delicate secreting membrane, lines the lids and covers the sclerotic. It is turned back or reflected from the lids, so that nothing can pass behind it. The lids themselves are supported by cartilage plates, of which the upper is the deeper, and their edges are supplied with little glands, which keep them moist. A small delicate canal passes from the eyelid to a duct, which leads into the nose, and through which the tears are conveyed into the nostrils. The upper eyelid is raised by a special muscle, and a muscle surrounds both the lids, which closes the eye. The ducts of the tear gland open on the surface of the conjunctiva, and the little red fold of this membrane at the inner corner of the eye prevents the accumulation of particles of dust, and directs them on to the cheek.

On the inner or concave surface of the sclerotic coat the *choroid* is spread out, which is covered with pigment cells and black pigment, and again with this is the transparent nervous expansion called the *retina*, consisting of both nerve cells and nerve fibres.

The conjunctiva is moistened by the tears derived from a gland which lies over the outside

of the globe, and thus the movements of the eyelids and eye are facilitated, and the clearness of the cornea is preserved. The sclerotic gives form and support to the globe, and the attachment to its muscles. The choroid absorbs the rays of light which are transmitted through the retina ; whilst the retina receives the images of external objects, and conveys the impression of them through the nerve to the brain. The cornea has partly the office of refracting as well of transmitting the rays of light. The bulk of the globe consists of the *vitreous humour*, which is soft and jelly-like in consistence, but really composed of a limpid fluid contained in the interspaces of a very delicate transparent membrane, which is disposed in intermediate layers. It occupies the space behind the lens, and allows of the ready transmission of light without much affecting its direction or concentration. The *crystalline lens* is imbedded in the front of the vitreous humour, in which position it is held by a strong and elastic ligament. It is perfectly transparent and convex on both sides, like an ordinary magnifying glass ; but more prominent behind than in front. It is arranged in several layers in a complex way, and becomes more dense as the centre is approached. Its structure, and the arrangement of its component parts, render it very elastic ; and its convexity diminishes, whilst its hardness increases, as age advances.

Between the lens and the cornea there is a considerable space, occupied by a transparent fluid called the aqueous humour, one of the purposes of which is to allow the perforated curtain within the eye to float and move at freedom.

This perforated curtain is called the *iris*, and the central aperture in it is named the *pupil*. The iris is a muscular structure, acting independently of the will, and varying in colour from light grey to nearly black. It is covered behind with a dark pigment to prevent light from passing through it. It is by means of the muscular fibres of the iris that the pupil is contracted or dilated, the iris acting under nerve influence.

Diseases of the eye, like those of the ear, are generally treated in Hospitals, or at any rate in Wards, specially set apart for the purpose ; and in a work of this elementary description it would be impossible to speak of the vast numbers of disorders to which its several parts are liable. But whilst passing through the ordinary Wards of a Hospital you are very likely to meet with some of the various forms of ophthalmia, which is an inflammation of the eye, accompanied by a discharge of matter, and which arises from a number of causes into which I cannot enter here.

Your part as Nurses will probably only consist of gently bathing the patients' eyes with the pre-

* These articles are partially from the pen of the late Miss Alice Fisher and Mrs. Norris, and will eventually be published in book form, being revised by the latter.

[previous page](#)

[next page](#)