Nursing of Diseases of the Eye.

(Continued from p. 131.)

By Harold Grimsdale, F.R.C.S.,
Assistant Ophthalmic Surgeon, St George's Hospital.

DISEASES OF THE LENS.

Cataract is simply an opacity of the lens or its capsule, due either to mal-development or to degeneration. It will be remembered that the lens was said to consist solely of layers of epithelial cells, which secreted the cuticular capsule and multiplied inside that. Inasmuch as there are no other elements in the lens, there can be no inflammation of this body, no purely epithelial mass—*e.g.*, nails or hairs—can be the seat of inflammation. Opacities in the lens, therefore, must be due to some other cause.

It is rare for the capsule alone to lose its transparency, and we may, without danger, neglect primary capsular opacities and deal only with changes in the lens itself.

Any defect of transparency of the lens causes more or less interference with vision. If the opacity be small and dense, the sharpness of the image formed by the lens will hardly be interfered with at all; but a certain amount of light being stopped, the general illumination will be to that extent diminished. If the opacity be large and semi-transparent, the light is partly stopped, partly diffused over the whole picture, blurring the outlines, and therefore interfering greatly with the visual acuity. This defect of vision is often the only subjective sign of cataract. The most important divisional landmark in the large class of opacities of the lens is to be found in their progress.

Many cataracts after their first appearance remain unaltered for years, and are hence known as stationary cataracts. This class includes most congenital and infantile forms, such as anterior polar and lamellar cataracts.

On the other hand, many opacities increase more or less rapidly, and such are known as progressive. This latter class includes, amongst others, senile and traumatic cataracts. Although this system of division is convenient and, in the main, accurate, we may find certain cases of the stationary forms, which slowly progress, and, on the other hand, certain senile cases whose course is so slow that they might fairly be called stationary.

Progressive cataract may be due to several causes. It may be an exaggeration of the normal sclerosis, which always occurs in advancing years; it may result from an injury to the lens, usually rupture of the lens capsule; or to some malnutrition consequent on general or local disease. Thus diabetes may cause cataract even in quite young children; on other hand, when the local nutrition of the eye is much interfered with, when the vitreous or the choroid is extensively diseased, opacities appear in the lens because the circulation of the eye, and so the healthy interchange of fluids which nourish the lens, is no longer carried on normally. The lens, it will be remembered, is an agglomeration of epithelial cells, and has no vessels of its own. It is therefore entirely dependent on the fluids outside itself for its nourishment. The arrangement of the fibres should be marked, as it has an important bearing on the appearance of the opacities.

The lens is made upon a single cup of epiblast, which becomes cut off the surface—and closes, so that it posseses originally a single layer of cells surrounding a cavity. This cavity becomes obliterated as the posterior cells grow, and the lens then seems to have two layers, the one retaining its simple cubical shape immediately under the anterior capsule, and the cells of the other elongating and forming the long fibres of the lens in a number of layers.

The whole is built up of a number of sections, each made of many fibres. Each fibre starts from one of the diverging radii, and, passing round the lens margin, approaches one of the radii on the opposite surface. The fibres are massed into concentric layers, whose arrangement is shown diagrammatically in the figure. This construction governs to a large extent the shape and position of opacities of the lens.

Lens Partially Dissected to Show the Structure.

The lens, in its capsule, increases in size throughout life. The epithelial cells are continually multiplying, and thus the fibres get more and more tightly packed, and the mass of the lens increases. The size, however, does not increase proportionately. As the central fibres are pressed more and more closely together, and are removed further and further from the surface where alone fluid can enter, they come eventually to form a toughish mass, which is called the nucleus of the lens. There is no nucleus in a child's lens, and none of any definite importance before the age of thirty; after that, however, the density and size of the central mass increases, until eventually almost the whole lens may have undergone this change.

The nucleus of an old lens is always of a brownish-yellow tinge. The sclerosing change, if

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