Rest and tonics.

near objects, and thus relieve the ciliary muscle; but the patient should be enjoined to rest the eye as much as possible, and very often a tonic plan of treatment is called for. I have known several cases of this kind, in which the asthenopia had apparently been brought on by general derangement of the health, and a change to Europe entirely removed the troublesome symptoms from which the patients were suffering.

Should the asthenopia depend on H., we must discover the degree of defect which exists in the refractive power of the eye, and supply this deficiency by means of proper convex glasses.

CHAPTER XVI.

CONGENITAL MALFORMATIONS AND DISEASES OF THE EYE.

Congenital Affections.

A few remarks on this subject may be useful, although, with one or two exceptions, these cases are similar to those already described in the foregoing pages. The fœtus is doubtless subject to diseases of the eye *in utero*, the results of which may be apparent at birth in the form of opacities of the cornea or synechia, especially if the parents have suffered from syphilis. The congenital malformations and diseases of the eye, however, may be briefly passed in review in the same order as that I have adopted throughout this work.

Epicanthus.

Malformations of the Eyelids and other Appendages.— Epicanthus consists of a deep fold of skin along the side of the root of the nose, overlapping the inner angle of the eye and completely hiding the caruncle. A modification of this condition is common to all the Burmese and Chinese races: their flat nasal bones and the loose fold of skin covering the inner angle of the eye are peculiar to these people, and as they advance in life present the appearance of an epicanthus.

Ptosis.

Ptosis is at times a congenital affection, and when occurring under these circumstances, usually depends upon a defect of the levator palpebræ muscle, and is, therefore, almost hopelessly irremediable.

Malpositions of the lids.

Ectropium, entropium, and trichiasis have been met with in the new-born infant, following, in all probability, inflammatory affections of the conjunctiva during the child's fœtal state.*

Union.

Mr. Travers mentions an instance of a child having been born with the eyelids united (anchyloblepharon).

* Mr. Wilde on "Malformations and Congenital Diseases of the Organs of Vision," p. 12.

Several cases have been recorded in which the palpebral apertures were so much constricted, that it was impossible for the patient to do more than just separate the eyelids; in other cases the same result has been observed as a consequence of a shortening of the upper eyelids.

Nævi. Nævi of the lids, as already mentioned, are generally congenital affections; I have before described their nature and treatment, and will not, therefore, enter further on the subject in this place.

Muscular malformations. Congenital malformations of the muscles of the eye are by no means of common occurrence. Doubtless abnormalities in the development of one or more of the muscles frequently take place during the period of infant life, but, according to Mr. Wilde, these changes as a general rule, arise subsequently to the child's birth. The influence which a faulty insertion of the superior oblique may have upon the eye, has been already discussed (in the section on posterior staphyloma), being equivalent to deficiency of the internal rectus.

Oscillation of eyes in those born blind. Alteration in the contractile power of the muscles of the eye, if it exists, can hardly be recognised as a congenital malformation. Nystagmus or an oscillatory motion of the eyes is generally present among those who are born blind, though it by no means always indicates that the little patient is absolutely blind; for I have operated on cases of congenital cataract in which this oscillating motion of the eyes was well marked, and after removing the lens the patient has gained useful vision.

Rudimentary eyes. *Malformations of the Globe.*—The eyeball may never have been formed, or only partially developed, the orbit being more or less filled with loose connective tissue at the time of birth. In instances of this kind the eyelids sink in from want of their natural support, but on being drawn open the rudimentary eye may generally be seen as a small button-like process at the bottom of the orbit. The converse of this condition has been described under a very formidable name (hydromegalophthalmus), the eyeball being congenitally formed of a larger size than natural; and in some cases a communication has been said to exist between the ventricles of the brain and the interior of the eyeball.

Monstrous ones. I am unable to state if the flattening of the globe of the eye from before backwards, which is the cause of

hypermetropia, is usually a congenital affection or not. The impairment of sight thus engendered is hardly apparent until the child is three or four years of age, and it would be difficult to determine, therefore, if the misshapen eyeball were due to congenital defects or to subsequent imperfect growth. Hypermetropia.

Tumours. *Congenital Affections of the Conjunctiva and Cornea.*—Nævi of the conjunctiva have in some few cases been noticed at the time of a child's birth. Various forms of tumours have also been observed.

Xeroma. Xeroma of the conjunctiva, arising in all probability from inflammation and obstruction of the conjunctival glands prior to birth, has been described by several authors.

Corneal opacities. Opacities of the cornea are not uncommon, depending on disease of that structure having taken place *in utero*. In other cases, an arrest of development taking place in the cornea, about the third or fourth month of fœtal life, it retains the opaque appearance natural to it at that period; in these cases the cornea is not only opaque, but also of smaller size than in the healthy fœtus.

Keratitis. Vesicular keratitis has been observed at birth; the cornea, becoming attenuated, yields to the intra-ocular pressure, and a prominent and hazy condition of this important structure is the result.

Absence of pigment. Albinos. *Malformations of the Iris and Choroid.*—Cases in which there is an entire absence of pigment in the cells of the iris and choroid, and it may be of the entire body (Albinos), are met with from time to time. This condition is congenital and hereditary. Among the natives of India the Albino is looked upon as a leper, and consequently an outcast from society; marriage is forbidden him, and thus the propagation of the disease is usually checked.

The irides may vary in colour: this is usually a congenital malformation; but among patients affected with leprosy, an alteration in the pigmentation of the irides may be seen to occur in after-life.

Synechia. Synechia, the result of vesicular keratitis, or of iritis taking place *in utero*, is a congenital affection, which has often been described.

Coloboma, or cleft iris. A deficiency of a portion of the iris, or coloboma iridis, like hare-lip, is now and then seen in the newly-born infant. The cleft in the iris usually extends outwards from the pupil, and is generally present in both eyes. The most common form

of coloboma is a prolongation of the pupil downwards, the edges of the pupil dilating and contracting to a greater or less extent on the stimulus of light. This malformation of the iris is generally accompanied by a deficiency in the corresponding portion of the choroid, so that on looking through the cleft iris with the ophthalmoscope, the white and glistening sclerotic may be seen at the back of the eye to an extent equal to that of the defect in the iris.

Extends to choroid.

Absence of iris.

An entire absence of the iris, occurring as a congenital defect, has been met with; but in the few recorded cases the patient's sight was so defective, when not altogether wanting, that we have reason to believe the eye must have been very imperfectly developed in other respects besides that of the deficient iris. It will be remembered, in Professor Von Graefe's case of removal of the iris, that the patient's sight remained remarkably good; so that a loss of the iris alone does not induce blindness.

Partial deficiency of choroid.

Independently of coloboma of the iris, instances of a partial deficiency of the choroid are met with from time to time. On examining the eye with the ophthalmoscope, a white patch of varying size is noticed, occasioned by an absence of the choroid, and the reflection from the glistening sclerotic of the light thrown into the eye by the ophthalmoscope. In cases of this description, the vessels of the retina are healthy, and may be seen coursing over the sclerotic; in fact, the remainder of the fundus of the eye is normal, and in this way we at once distinguish a case of congenital absence of a part of the choroid, from neoplastic formations, or other changes in the part, the result of disease.

Retinal opacity.

Retina and Optic Nerve.—Liebreich has described various forms of opacity of the retina, arising from a prolongation over it of a portion of the opaque nerve-fibres of the optic nerve. In the normal state, the axis-cylinder only of the nerve is prolonged beyond the lamina cribrosa. The reflection from the opaque nervous substance is by no means always confined to the neighbourhood of the papilla, for Liebreich states that he has noticed spots of opacity of this kind toward the periphery of the retina, the nervous structure between the opaque spot and the papilla being perfectly healthy (Fig. 2, Plate XII., of Liebreich's "Atlas"). With the

exception of these congenital anomalies in the retina, the fundus of the eye may be healthy, and the patient's sight is unaffected.

Liebreich also mentions a remarkable case of congenital pigmentation of the papilla.

I have before remarked, that in some few cases a congenital malformation of the lamina cribrosa has been noticed, the disc projecting backwards, and being in fact cupped. It is seldom that more than a part of the disc is thus affected, and the patient's sight may be perfect, the fundus of the eye, with the exception of the papilla, being normal in every respect.

Excavation of optic disc.

Congenital Cataracts.—Soft cataracts are by no means unfrequently met with, having evidently existed at the time of the infant's birth.

Soft and zonular cataracts.

The zonular form of cataract is also for the most part a congenital affection; but as I have fully described its characteristic features and treatment in a former section, I need not return to the subject here, but refer the reader to Chapter XIII. of this volume for further information upon this important congenital affection of the lens.

SNELLEN'S TEST TYPES.

1½.

We all know that light comes from the sun. But what is light? It used to be thought that the rays of light were things too small to see, which came out from the sun and darted down to the earth, and that there were such a number of them, and they came so fast, as to look like one sheet of light. But it has been found that this cannot be the case. For one thing, even though the rays were more fine than air, and far too small to be seen, yet coming so far and so fast they would have force enough to hurt our eye when they got into it. But then what is light? It seems to dart down

2.

Rhine the progress of defection and the decay of national enthusiasm, he determined to be beforehand with those who were now his enemies. He accepted the offer of negotiation from Cerialis. The Roman general was eager to grant a full pardon, and to re-enlist so brave a soldier in the service of the empire. A colloquy was agreed upon. The bridge across the Nabalia was broken asunder in the middle, and Cerialis and Civilis met upon the severed sides. The placid stream by which Roman enterprise had connected

3.

remarkable foreshadowing of the future conflict with Spain, through which the Batavian republic, fifteen centuries later, was to be founded. The characters, the events, the amphibious battles, desperate sieges, slippery alliances, the traits of generosity, audacity, and cruelty, the generous confidence, the broken faith seem so closely to repeat themselves, that History appears to present the self-same drama played on

3½.

selfsame drama played over and over again, with but a change of actors and of costume. There is more than a fanciful resemblance between Civilis and William the Silent, two heroes of ancient German Stock, who had learned the arts of war and peace in the service of a foreign and haughty world-empire. Determination,

4½.

concentration of purpose, constancy in calamity, elasticity almost preternatural, self-denial, consummate craft in political combinations, personal fortitude, and passionate patriotism, were the heroic elements in both. The ambition of each was subordinate to the

6½.

from the sun; how does it come? Many thought that the whole space around the earth, and things upon the earth into which light can get, are full of something

12.

more fine than air, and called ether. The sun is full of ether also. Now the sun is a world

INDEX.