

In *presbyopia*, the failure of the accommodation of middle and old age, due to physiological drying, hardening and inelasticity of the crystalline lens (not to flattening of the cornea), the resort to convex glasses which shall enable one to read small print at 12 to 15 inches, is too often deferred from prejudice until a great deal of unnecessary discomfort has been felt.

The facts thus briefly cited explain, in great measure, the large number of cases of what is styled *asthenopia*, or weak sight, the prominent symptom of which is, more or less discomfort or sense of painful fatigue in and about the eye, on and after engaging at close work (more especially); other signs or symptoms being blurring of print, confusion of sight, inability to sustain the use of the eyes at near work, sensations of heat or smarting in eyes or lids; often also hyperæmia or a slight chronic inflammation of the edges of the lids which resists ordinary remedies unless the cause is removed. Pain in the region of the eye felt *only* on or after taxing it, points to an optical defect, or muscular weakness. Frontal headache is not unfrequently due to one or both of these causes. Indeed, the cephalalgia is occasionally of so serious a nature as to excite suspicion of cerebral mischief. Some notable cases in point were published some years ago by S. Weir Mitchell (and many are on record), in which relief was only had by correcting, by proper glasses, the optical defects present. What may be termed *reflex asthenopia* is perhaps the most annoying and often the most difficult to relieve, in which with too slight optical defect or muscular weakness, it may be, to account for the symptoms, there is some extrinsic cause at work, as uterine, ovarian, prostatic, &c., trouble, or 'neurasthenia,' or hysteria (which may in some sense be regarded as perverted nervous energy).

A few words further on optical defects and the related subject of strabismus:—

HYPERMETROPIA.

Hypermetropia is quite common, and is detected by the fact that, as a rule, far vision, though apparently normal, is not rendered worse by convex glasses, (except in cases referred to below); and if defective, is decidedly improved or rendered normal thereby. A

certain flatness of the face is suggestive of it, as also a distinct space between the globe and outer canthus.

When it is of high degree far vision may be bad (simulating myopia, it may be), and if good is had at too great a strain; and as the defect is *congenital* as well as *hereditary*, many young subjects, contrary to the general opinion, require to wear convex glasses constantly to see distinctly and with comfort; sometimes, indeed, as strong as those ordinarily worn by persons set. 70 for reading, &c. In lesser degrees of the defect the aid of convex glasses is only needed during close work; and when there is some special cause of enervation, as sickness, lactation, worry, &c., they may only be required temporarily.

In unrelieved hypermetropia there is often retinal hyperæsthesia, and the ophthalmoscope shows congestion of the optic nerve and retina. Sometimes, also, spasm of the ciliary muscle ensues, and there is a pseudo-shortsightedness, concave glasses improving far vision, and yet affording no relief or proving worse than useless. It is in such cases, more especially, that atropine and other agents, which paralyze the ciliary muscle and reveal the actual refractive condition,* are made use of in repeated instillations before testing with lenses, the ophthalmoscope not yielding sufficiently trustworthy results though enabling one to gauge the refraction pretty closely in many instances.

It is well known that the ciliary muscles and the internal recti functionate together. Now, the extra tension of the former, incidental to the shallow or hypermetropic eye, is almost necessarily accompanied by undue contraction of the internal recti; and this is the main element in the pathogeny of convergent strabismus, two-thirds of the cases of which are due to hypermetropia. Primary or congenital anomalies in the ocular muscles are also common causes of convergent strabismus, and opacities of cornea or lens occasional ones; but those assigned by the laity are often only supposititious.

* Atropiæ Sulph. gr. iv. ad ʒj aq.; Duboisii sulph. gr. ij. ad ʒj; Hyoscyamiæ sulph. gr. iv. ad ʒj; and Homatropine Hydro-bromate gr. vj. ad ʒj, are in use, and have their respective merits, but as yet the most widely used if not the most reliable is the Atrop. Sulph.