

finally considered by experts in ophthalmic disease to be, in the main, accurate. The point was also then made that it was impossible, in a large number of cases occurring in young persons, to determine whether or not a refractive anomaly existed, unless paralysis of the ciliary muscle had been produced by the use of a mydriatic, and it was argued that the reason that many observers did not find this relation existing between blepharitis and ametropia was that they did not thoroughly test the refraction with the aid of a mydriatic. I still think that this view is correct, but I did not ask your attention for the purpose of saying any more upon this subject of the relation of certain diseases of the eyelids to uncorrected errors of refraction. I merely wished to bring to your attention, as preliminary to the present discussion, the fact that very early in my practice I resorted to the thorough use of a mydriatic before attempting to determine, in the case of young people with asthenopic symptoms, whether or not glasses should be worn, and if so, what. I continued this practice of using a mydriatic for the purpose of measuring the eye up to the year 1888, both in my hospital and private practice. It is a method of treatment entirely satisfactory in its final results, but it is extremely disagreeable to the patient; it involves a great deal of time, and it is tedious in the extreme to the practitioner. In many instances it was found to have been unnecessary, except that the positive determination that no considerable degree of astigmatism existed was made. It often settles the fact that there is no astigmatism sufficient to be corrected, and that only hyperopia or myopia, which can be very well determined by the ophthalmoscope, exists.

While in Paris, in 1887, and seeing a little of the work of Dr. E. Javal, I was greatly surprised to find that he, who had been an enthusiastic advocate of the use of atropine for as long a time if not longer than I had myself, and who was in the habit of prescribing glasses from the results obtained by the atropine, now, since he had perfected the ophthalmometer—the instrument for measuring the cornea—had entirely abandoned the practice. I found also that Dr. Bull, formerly on my staff, concurred in these views.

But this thorough use of atropine, which I believe was properly insisted upon as the only sure means of accurately determining the refraction,

was somewhat abused by those who recommended it when there was no apparent spasm of accommodation, and for persons in middle life or advanced years. After 1876, papers began to appear from neurologists and young ophthalmologists, showing that they used atropine in what I should term an indiscriminate way—for example, in persons beyond forty years of age, where there can be no question, except in entirely extraordinary and exceptional cases, of spasm of accommodation. These writers ignore the physiological principle of tone in a muscle. In other words, presbyopes, who needed nothing but a few minutes' testing with glasses, were put under the influence of atropine, and persons with an eye so nearly normal that its deviation from emmetropia could be expressed by a positive spherical glass of one or two diopters, were considered to be subjects for glasses because under atropine they would accept, say + 0.50 D., when really all the belladonna had done was to remove the tone of the muscle. Something must be allowed for this in every human eye. The attempt to convert an ordinary eye into an ideal one, which in some quarters is said to be the proper course, I deprecate, founding my opinions primarily upon the work of Donders and Loring, both of which authors dwelt properly, as it seems to me, on the natural tonicity of the ciliary muscle. Most observers have long since come to the conclusion that the hypermetropic eye is the average eye of the human race, excluding myopia, and that it is a condition which of itself can cause no inconvenience until presbyopia is reached, when to the congenital axial elongation of the eye must be added flattening of the lens and rigidity of the ciliary muscle caused by time. Then, as everybody knows, a glass will be required for the presbyopia plus the hypermetropia.

When I found Javal measuring the cornea, and being satisfied with that as a means of determining the refraction, I undertook the same practice myself, and after six years of experience I am convinced that the use of a mydriatic to determine what glass should be worn is entirely unnecessary if the ophthalmometer is used. The great object in using a mydriatic was not to determine how much hypermetropia existed—that can be approximately estimated, although not always with complete accuracy, with the ophthalmoscope—but it was used to determine if astigmatism existed, and