has elapsed since the first glasses were supplied, or whether myopia has progressed, or whether an apparent myopia has decreased. It is also useful to know whether insufficiency of the motor muscles has become more or less marked, and whether in a case of presbyopia the increase in the power of the glasses needed for reading be only such as would naturally be expected.

The names of customers should be indexed so that a record can be looked up without undue waste of time, and customers who are satisfied with corrective lenses always feel pleased if they know that they can obtain another pair in case of loss or accident to them. And, indeed, a customer should always be told that it is merely necessary to send in his name and address in order to obtain another spectacle or *pince-nez* if it be needed. The mere entering of details has on customers a beneficially impressive effect.

The visual acuity of the right eye should be first taken, and then that of the left; then these details should be entered in the book, the one eye being occluded while the other is being tested. The optician finds out what is the smallest line of letters legible on the test card at a distance of six metres; these letters represent the visual acuity.

A complete set of test types consists of a series of letters graduated in size according to the greatest distance at which they are supposed to be able to be read. Each letter is called according to this distance, and the largest, number 60, is of that size which represents the smallest sized object which can be distinguished by the averge normal eye at a distance of 60 metres. The smallest on the distance card is number 3, and this should be legible at 3 metres. Between number 60 and number 3 there are numbers 36, 24, 18, 12, 9, 6, and 4.5 visible respectively at 36, 24, 18, 12, 9, 6, and 4.5 metres. the average normal eye can distinguish between two luminous points when they subtend on an angle of not lest than 1', and the arms or part of each letter subtends this angle, the whole of each letter subtending an angle of 5'.

Proper distance test types are always made "block," and each part is in diameter 1-5 of the whole letter. Under angles of less than 5' and 1' letters might be seen as black objects, but they would rot be made distinguishable as certain letters; thus confusion might be between a B and an E or a G and an O. It is better that the largest letters on the test card should be above, so that the smaller ones be more nearly on the level with the customer's eyes, and if the card be used at a distance of 6 metres there should be letters that represent the normal visual acuity for a shorter distance, say, 4.5 metres, and if the card be used at 4.5 metres the type should be graduated down to number 3.

It being understood that each letter represents the smallest object that ought to be distinguishable at its respective distance, and the test of the visual acuity being made at 6 metres, then if an eye can only see, say, number 18, its vision equals 6/18; which means that at a distance of 6 metres the eye can only distinguish that sized ob ect which it ought to be able to see at 18 metres. If number 36 is the smallest or number 9 or number 6, then vision equals 6/36, 6/9, or 6/6. When vision equals 6/6 it is normal; it is able to see at 6 metres that which the average normal eye ought to see. But vision equal to 6/6 is not, under all circumstances, normal vision, for most eyes, if there be no high degree of error, can see, up to about fifty years of age, number 4.5 at 6 metres. Therefore, in such eyes normal vision is 6/4.5. On the other hand, when there is a high degree of refractive error, it is rare that so good a sight is obtainable, and normal vision must be take... as 6/6 or even 6/9. Also after fifty years of age, 6/6 must be taken as normal, and later in life 6/9 or 6/12, because with age the visual acuity decreases.

When rays of light come to a focus at the retina there is a clear, sharp, retinal image, and on the size of the retinal image depends whether an object be seen or not. Now the retinal image is to an object in size as the distance between the nodal point and the retina is to the distance between the nodal point and the object. Consequently, the shorter the distance of the object, or the greater the distance between the nodal point and the retina, the smaller is the object that can be seen. When the latter is increased, as in the long myopic eye, the visual acuity is greater than it is in emmetropia or in hypermetropia, and other things being equal, the myope, with corrected refraction, can see small objects beyond their normal distance, and therefore, can see objects under smalle, angles than 5, and 1'. The hypermetrope of low degree can also see rather better than the normal, be

cause, exerting accommodation for distance, he can make the focus at the retina very exact.

Those people who have, owing to uncorrected astigmatism and hypermetropia, never been accustomed to sharp retinal images, cannot appreciate them, and they require larger retinal images in order to recognize objects, and so have lower visual acuity.

If some letters on a certain line be read, but not others, say on number 9 line, then the sight should be recorded as vision equals—6/9. If a line is particularly clearly seen, but the next is not legible, vision might be recorded as + 6/9, or whatever the line might be. If the test be made at 4 metres instead of 6 the visual acuity would be recorded as 4/9 or 4/18, as the case might be.

Some opticians prefer to use the English instead of the metric measurements. If the test be made at 20 feet, vision would be recorded as 20/40, 20/60, etc., and the types on the care are called numbers 200, 120, 80, 60, 40, 30, 20, 15. and 10, they being letters which subtend angles of 5^{*} and 1['] at these distances in feet.

As each letter on the card subtends precisely the same angle at its respective distance, it follows that, if number 6 be legible at 6 metres, then number 20 would be legible at 20 metres, number 60 at 60 metres, and anything at any distance would be seen by such an eye as well as it could be seen by any average emme-When no letter on the card tropic eye. is visible at 6 metres the card must be approached to the customer or the cus tomer approached to the card until number 60 can be read. Suppose this to be only visible at a distance of z metres, then vision equals 2,60, but generally the same purpose is served by roughly measuring the distance at which fingers can be counted, because the diameter of figures is about equal to the diameter of the parts of number 60 type. The hand test types for determining near vision used to be square letters subtending the same angles as the distance ones, but it has been found more convenient to use ordinary type graduated in size, and these are generally called number 1, 2, 3, etc., number 1 being the smallest and number 3 being the same as newspaper type.

If an optician has to deal with people who cannot read, or who, being dumb, cannot express very well the recognition of letters, or children, he should employ what is called the "ignoramus" card,

5