

ding, and the whole forming a convincing and indisputable proof, connecting what is granted (data) with what is sought to be proved (quæsitæ), and winding up by a triumphant Q. E. D.

Vision is defective when less than normal. We have normal vision when we see as well as the average of a large number of individuals believed to have perfect vision. The systems of measuring vision are chiefly those of Snellen, (Utrecht), and Jaeger (Vienna). As the result of the examination of many thousand eyes by each of these a set of test types has been arranged. Vision may be normal (i) for distance; (ii) for near work, as reading, writing, sewing, etc. We need a standard for each. Vision may be considered normal for distance when a large, broad-faced capital letter can be distinctly seen when so far removed as to subtend an angle at the eye of not more than five minutes. Thus, such a letter three-eighths inch in height subtends five minutes at twenty feet. True, quite a percentage of eyes see such at 22 or even 25 feet, but these are as much beyond the average and as exceptional as people over six feet high. Such vision is for the most part found in keen-eyed, healthy children and young adults. The measure of vision given is meant to apply to all ages, and in practice is sufficiently precise. Ordinary diffuse daylight of a well lighted room is presupposed. If an eye sees at only 10 feet what it should see at 20 feet, we infer that vision is $\frac{1}{2}$, counting normal vision as unity. Such an eye requires the object to subtend an angle of ten minutes. In this way we can get a sufficiently precise measure of a given eye; for distance. I say eye, rather than eyes, for each eye should be tested separately. If

the eye see it at 15 feet off, vision is $\frac{3}{4}$, and so on. To test a scholar for distance then he should be asked to read letters of the kind indicated. These letters should not form a word, and should be such as are likely to require close observation. P is often mistaken for F, and *vice versa*. K, R, and E in like manner are somewhat liable to be mistaken; so are S and 8. Hence the types should contain such letters, and a fairly accurate reading be required. Should vision for distance be $\frac{1}{2}$ or less, the child labors under great disability, and should not be too much urged and abused in his classes. When vision is $\frac{2}{3}$, $\frac{3}{4}$, or more approaching unity, he will not complain for distance except for the finer letters, which subtend angles of little more than five minutes. In the school room, vision for distance means use of blackboard and maps chiefly.

For reading closer at hand a graded series of test types is needed, running from that termed "Brilliant" by the printer, and which should be read easily at a foot, to "Pearl," "Minion," "Brevier," "Bourgeois," "Long Primer," and so on. We, in like manner, infer power of vision according to what size of type is seen.

In general, each teacher, in a case in which bad vision is suspected, should determine the case for himself, unless he can have an oculist do so. Where this is impracticable let the teacher determine vision for far and near, and if defective in any considerable degree, refer only such as are so to an oculist.

In the next paper the percentage of cases found will be shown, with the great evils resulting from overlooking them.