CULVER (C. M.)

COMPLIMENTS OF THE AUTHOR,
Dr. C. M. Culver.

# TEST-TYPES.

*Reprint from the* ALBANY MEDICAL ANNALS, *November, 1889.*

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60 Metres: at 4 Metres, 0.066 of Normal Vision.

P T E

30 M.: at 4 M., 0.13 of N. V. 20 M.: at 4 M., 0.20 of N. V. 15 M.: at 4 M., 0.26 of N. V.

A N O

10 M.: at 4 M., 0.40 of N. V. 8 M.: at 4 M., 0.50 of N. V. 6 M.: at 4 M., 0.66 of N. V.

B L

5 M.: at 4 M., 0.80 of N. V. 4 M.: N. V.

TEST-TYPES,

SUGGESTED BY

Dr. C. McCulver.

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By C. M. CULVER, M.A., M.D., Albany, N. Y.

If Charles Lamb had been acquainted with the reverence commonly felt for test-types, he might have included, in his "Popular Fallacies," a discussion with the title: "That test-types mysteriously communicate much, concerning eyes that read them, besides their acuteness of vision."

It required some years of experience, in practice, to enable me to make the blank form, of order of examination of eyes, that I now habitually use, as satisfactory to me as it now is. It is not yet, in my opinion, faultless. I think I can now designate some of its faults, which I purpose remedying, as soon as it is practicable to do so, in reprinting. But, in that form, the use of test-types is the seventh method. Before it come Inspection, Subjective History, Family History, Keratoscopy, Ophthalmoscopy and Koroscopy. But I frequently notice, on reaching the use of test-types, what seems to be a feeling, on my patient's part, that, the prelude having been concluded, the real examination of the eyes is impending. As a matter of fact, I use test-types mainly for the determination of the *acuteness* of vision, and as confirmatory of the results of the previously employed methods of examination. In planning the order above referred to, I commenced with the suggestions of Dr. Noyes, found on page 22 of his classical work on "Diseases of the Eye." Useful hints have been obtained from Mr. Carter's chapter on "Examination of the Eye," in Carter and Frost's recently published work on "Ophthalmic Surgery." For my own use, I prefer my own form; but that statement is not designed to be, in any sense or degree, adverse criticism of Dr. Noyes or Mr. Carter. Choice between such forms, within proper limits, may be a matter *de gustibus*, concerning which, it is said, *non est disputandum*. The same methods appear in the different forms in question; the differences are in the

order of the methods. So Mr. Carter, when I was last with him, wore a silk hat, and I didn't. The head of each was properly protected by what was worn; the difference may be explainable as a proper difference in tastes.

As tests of the *acuteness* of vision, test-types are very useful. It is, naturally, desirable that we should have those which are really what we think them. There are visual defects that, *per se*, are not at all to be remedied by glasses. A cataract, as it ripens, gradually diminishes the acuteness of vision, and there is no means of augmenting the latter by glasses which shall contravene the effect of the cataractous opacification. But the determination of the arrival at maturity, of the opacification, is greatly aided by the use of test-types. The old-fashioned rule, of operating whenever the cataractous eye failed to count the patient's fingers, at the patient's arm's length, has pretty well sunk into "innocuous desuetude," because of the different sizes and colors of different persons' fingers, and corresponding differences in the lengths of different persons' arms.

While in Landolt's Paris clinic, about a year ago, I saw a test-type arrangement which offers greater uniformity for such examinations of acuteness of vision. It was a circular, white card about 15 centimetres in diameter, on one side of which was a black "O," whose greatest diameter was 10 centimetres, *i. e.*, the size of the type which, in Dr. Snellen's scale, is to be read, by the normal eye, at a distance of 60 metres. On the reverse side was a letter "C," of the same diameter with the "O" and without any uprights at the upper part of the hiatus in its circumference (which uprights would, if present, lessen its similarity with the "O"). If a patient, at a certain number of metres, could distinguish between the letters on the obverse and reverse sides of the card just described, he had as many sixtieths of normal vision as the card was metres distant from him.

(Note: In using one of these cards, which I draughted for myself, I have found it best to keep it entirely away from the patient's sight, before its direct use, or have the "O" side, only, visible, so that the patient may not, in advance, know what to expect.)

I make the examination of claimants' eyes, for this vicinity, when ex-soldiers desire pensions from the government, for eye-injuries. The gentlemen in authority, in the Washington Pension Bureau, suggest a report relatively to the use of Dr. Snellen's test-types, the height of each of which, at the distance at which the normal eye is expected to read it, subtends an angle of about five minutes. The procuring of accurate test-types is not at all the easy matter that it might be thought. The present writer deemed their obtaining a simple matter, until he commenced to investigate them accurately, when he learned that the simplicity vanished, for the careful investigator.

I have some test-types published by the best known Paris firms, others issued by the best American houses; have lately had some made by the "sand blast process," from plans of my own, by Messrs. Curry and Paxton, of London; but, allowing that any one of these sets is accurately made, the others will be wrong. The height of a Snellen letter, in the card published by one of the most renowned publishers in Paris, is one-six-hundredth of the distance at which the letter is expected to be distinguished by the normal eye. In another card, issued by a Paris house, and purporting to emanate from a learned colleague, the proportion of the letter-height to the distance at which the letter is to be read by the normal eye is ~~less than~~ about one-four-hundredth. As Dr. Edward Jackson has written to me, in this connection, "Snellen's letters are often incorrectly printed; the height of the 6-metres letter should be about 8.7 millimetres, the tan. 5′, with R equal to 6 metres."

Although I do not know Dr. Snellen personally, his professional work has long and often favorably attracted my attention, and what I have known of him, through Landolt, has led me to admire the gentleman. Hence, I do not wish to be misundersood, from what is in this article, as at all adversely criticizing Dr. Snellen's test-types.

Some time ago, Dr. Edward Jackson, of Philadelphia, had some test-types made, which, for the same distances, are only 90 *per centum* as large as Dr. Snellen's. In the spring of 1889, after having completed a day's work in my consultation-

room, my eyes seemed to object to being required to study books in the evening. As I much desire to study books, and find evening the most convenient time for that, I sought a reason for this recalcitrant action on the part of my eyes. Mydriasis and test-types were essayed, but I found it difficult to form a subjective judgment with which I was content.

In '82 I commenced the study of the shadow test with Mr. W. Lang, of Middlesex Hospital, in London. After six years' work with it, I came to regard it as favorably as Mr. Lang did when he wrote concerning it what appears on page 506 of "Treat's International Medical Annual" for 1889. During my long endeavor to achieve skill with this method, Dr. Edward Jackson helped me very much. Last spring I wanted my refraction determined by that method; accordingly I went to Philadelphia, and asked Dr. Jackson to prescribe, optically, for me. He did so, most satisfactorily to the patient. At that time, though my eyes were fully homatropized, and at least some spherical aberration was militating against their exercise of the visual function, they had 125 *per centum* of normal vision, even according to the standard laid down in the construction of Dr. Jackson's test-types. Since that time I have found that a number of patients had even better vision than that. Twenty-thirteenths of Jackson-vision has several times been found. That was present, for instance, in case 1482, and still the boy had compound, hyperopic astigmatism, which troubled him much before its correction by appropriate glasses, and whose correction has afforded him much relief. Hence, it has occurred to me that greater demands, on the part of test-types, might not be bad qualities.

Accordingly, I have had some test-types engraved, shall have them mounted in convenient form for office use, and ask some of my colleagues, to whom I shall send the letters, to test them in cases where $V > \frac{20}{20}$ (Snellen). It is not my intention, or desire, to supersede either Dr. Snellen or Dr. Jackson. The latter's types are published by Messrs. James W. Queen & Co., of Philadelphia. I have written to Dr. Jackson, inviting him to "call me off" if the publication of my proposed four-minutes test-types would interfere in

any way with his designs. In his answer, dated October 10, '89, he has written: "Go ahead with the smaller test-types; you will not interfere with any plans of mine."

It seems to me that such test-types may be generally useful in the practice of ophthalmology. My desire is that they may be thoroughly tested. If those colleagues, who shall make such tests, feel disposed to communicate to me the results of them, it will, of course, afford me gratification.

Appended are specimens of the types in question, with notes affixed, of the distances at which the normal eye is to read them. The distance named opposite the smallest of the letters is four metres. If that be less than can be accepted as the oculist's "infinite distance," the accommodation used for reading at that distance is 0.25 dioptry. This is easily considered, if necessarily, in the estimation of ocular refraction.