

SCIENCE

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FRIDAY, SEPTEMBER 29, 1899.

THE PERCEPTION OF HORIZONTAL AND OF VERTICAL LINES.

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MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

ALMOST every person is occasionally called on to decide 'by the eye' whether some straight line is horizontal or some other line vertical. It usually happens, as, for instance, when one has to set a picture straight on the wall of a room, that the judgment is helped by the presence, in the neighborhood, of other lines, known to be nearly horizontal or vertical, but sometimes all standards are lacking and then the decision is a little more difficult to make.

In order to find out whether such training as a student of physics gets from several years of laboratory work is likely to improve his judgment in such matters as these, and whether astigmatism affects the results materially, I have experimented in the Jefferson Physical Laboratory upon forty persons who kindly consented to make observations for me.

We used two very simple pieces of apparatus. One of these is a fixed horizontal telescope, the eye piece of which can turn freely in its tube. The eye piece carries a single cross hair within, and a large sheet brass disc coaxial with the telescope without. This disc serves as an eye screen, and carries, on the side away from the observer, a divided circle which has a fixed reading microscope. The observer, sitting in a chair before the instrument, with eyes screened from a view of extraneous objects, turns the disc while