THE

SCHOOL MAGAZINE.

DECEMBER, 1880.

HEALTH DEPARTMENT.

Editor: A. Hamilton, M. A., M. D., Port Hope, Ont.

THE SCHOLAR'S EYE.

IV.

OVERSIGHTEDNESS.

Optical Analogue to Oversightedness.
Nature of do.
Chief Symptoms of do.
Prognosis of do.
Percentage of Oversighted Pupils.
Use of Convex Glasses.
Disadvantages and Sufferings.

IN last month's MAGAZINE certain optical facts were impressed upon the mind by an experiment there given. Referring, if necessary, to the experiment as there described, the reader will readily understand what follows immediately.

When rays approximately parallel meet a 3-inch lens they are brought to focus at or just within 3 inches. If the receiving screen be brought to say 2¾ inches, the bright spot is less concentrated. If, by some mechanism, we could so change the form (and so the power) of the lens sufficiently, we could still focus on the screen at the 2¾ inches. If, however, the rays be not quite parallel, but come from a luminous point a foot or two in front of the lens, the focus, even with a 2¾ inch lens, will not be on the screen, but at a point somewhat behind it, as the rays received by the lens are now diverging. We can still have the focus on the screen by either again changing the form of the lens to 2½, 2¼, as needed; or, if changing the form of the lens be out of the question, we can do the same by inserting a weak convex lens before the one already there.

The analogue of all this is going on in the oversighted or hypermetropic eye. The depth of the normal eye from front to rear averages $\frac{19}{20}$ inch outside measurement, or about $\frac{9}{10}$ from cornea to retina or inside measurement. The refracting crystalline lens and its adjuncts are adapted to such a distance. But the oversighted eye is preternaturally short, and so is less than $\frac{9}{10}$ inch the amount which it lacks of being, $\frac{9}{10}$ being a measure of the amount of shortsightedness. Now, the lens of the eye can be so changed in form as to bring parallel rays to a focus at a distance less than $\frac{9}{10}$, say ⅞ inch, by