point of the plane is always parallel to the axis of the pencil of light. Optics teaches that the illumination varies as the cosine of the angle of incidence, the distance from the light to the surface illuminated remaining constant. Now, the smaller an angle the greater is its cosine. It follows then, that, as we lift the page and place it at any angle to the horizontal, the direct illumination will vary with such angle and be greatest when horizontal. It may be objected that we may avoid stooping and still incline the printed page at an angle to the horizontal, and have it *sufficiently* illuminated by increasing the light—turning on the gas for example. But this creates "glare," itself an evil. Of two avoidable evils choose neither.

*Light should come from one side.*—As front, rear and above have shown to to be very objectionable directions the only directions left are from the sides. It is commonly a matter of indifference which side it comes from were it not that most of us being right-handed we are to some extent in our own light when it comes from the right, as the hand and arm cast a shadow sufficient to diminish the illumination. This makes illumination from the left commonly preferred. It is best that it should come somewhat over the shoulder, as there is then a minimum of glare, yet it should not be so far towards the rear as to cause the shadow cast by the body to diminish the illumination.

It is hard to give a very definite statement as to the amount of light in general requisite, because this depends upon the exposure to different points of the compass. A Southern exposure gives the maximum; a northern the minimum. Light also varies with the surroundings of a room, as the proximity and height of neighboring buildings, trees, &c. It has been reckoned that for a class-room containing 20 persons there should be from 4,000 to 6,000 square inches of glass, which would give each scholar from 200 to 300 square inches, or a pane of glass from 14 to 17 inches square. A room 20 feet square should not have less than about 75 square feet of glass. Can a room be too much illuminated? it may be asked. There should be such a set of artificial shades that this can be modified according to the direction of the sun, cloudiness, and so on. In general a Northern exposure is to be avoided. The fact that a Northern exposure is preferred by the photographer and other artists is due to causes not present in a school-room of which we speak.

It is also a fact that if we reduce the illumination it has exactly the same effect as to reduce the size of the object. Hence, the less the light, we have to bring the object the nearer, thereby increasing the strain in performing the visual act. A proper illumination is then indispensable to the healthy eye. Sufficient light has an exhilarating effect on the animal spirits. This for the present does not concern us.

Dr. Cohn's investigations on near-sightedness in Germany are very elaborate. They have been already referred to. He thus expresses an opinion which is very pertinent to the present subject, and is concise and expressive. I ask the careful attention of trustees and teachers to it. He says: "The narrower the street in which the school-room was built, the higher the opposite buildings, and the lower the story occupied by the class, the greater the number of near-sighted scholars."

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## HOLD THEIR CHINS UP.

Mr. William Blaikie, author of "How to get Strong, and how to Stay So," spoke before the Brooklyn Teachers' Association recently on "Physical Education." "I want," said he, "to