

**THE ELEMENTS OF  
SCHOOL HYGIENE:  
FOR THE USE OF  
TEACHERS IN SCHOOLS**

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The Elements of School Hygiene: For the Use of Teachers in Schools by Walter E. Roth

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SCHOOL HYGIENE:

*FOR THE USE OF TEACHERS IN SCHOOLS.*

*With a Bibliography.*

BY

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## P R E F A C E.

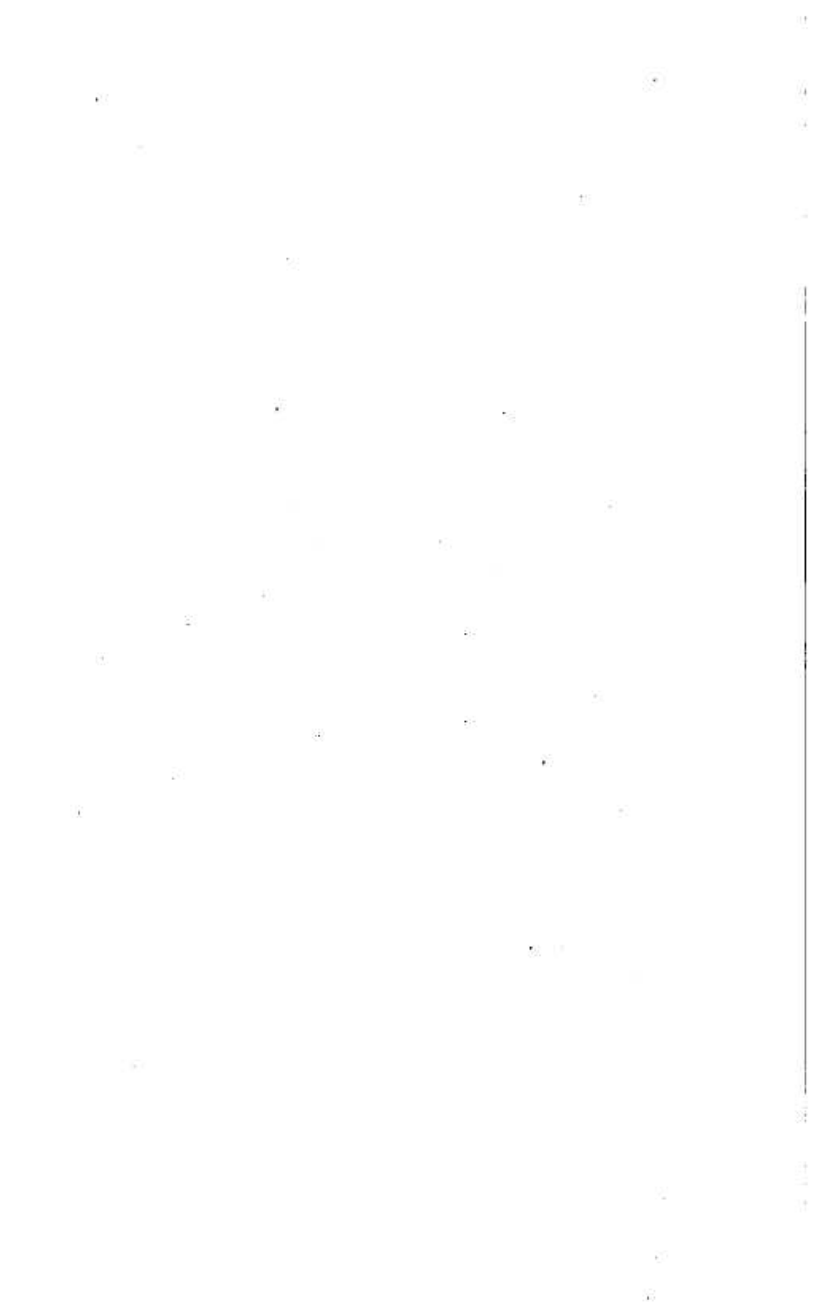
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THE following pages make no pretence at originality ; my object has been to make the subject as concise and intelligible as possible, in order that it may prove acceptable alike to teachers as to pupils with the average amount of intelligence. In the compilation of the Bibliography there have been many difficulties to encounter, but I trust that with regard to School-Hygiene, Scientific Physical Education, School-Construction, School-Diseases, and the medical aspects of school-life generally, it may be found useful to subsequent workers in the same field.

WALTER E. ROTH.

48, Wimpole Street, London, W.

*22nd July, 1886.*





## THE ELEMENTS OF SCHOOL HYGIENE.

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It is a matter of practical experience that the Choice of a School-site can seldom be determined upon by hygienic considerations solely. The munificence of some philanthropist, the proximity to residences of its scholars, and the value of the land, are among many of the potent factors one has been obliged to contend with, and necessity, rather than option, has thus but too often proved the guiding rule. Nevertheless, we should do our utmost to secure the following desiderata:

(a) It is well if protection be afforded from the too direct violence of cold and damp winds. Where the gentle slope of a hill-side can be made use of, many advantages will be gained; otherwise, the planting of quickly growing and hardy trees will prove of great value. According as they are dry or moist, cold or warm, the action of the winds will vary. Cold and dry winds produce a disagreeable sensation on the skin and respiratory organs, and are frequent sources of illness; but cold and wet, they are still more dangerous, resulting often in rheumatism and catarrh. Warm and moist winds tend to check perspiration; on the other hand, warm and dry winds are most refreshing.

(b) The soil must be dry and well drained. The presence of ground-water is a subject often totally neglected, or at most only cursorily dealt with, but the intimate relation that has of late years been established between it and certain important

disorders, will probably result in greater attention being paid in this direction. It is undisputed that typhoid fever and cholera are closely associated respectively with its fall and rise: when the mean level of the water in question is within six feet from the surface, the site is unhealthy, and must be remedied by suitable means. This ground-water may sometimes be increased and modified by the vicinity of fresh-water swamps or tide-water marshes, which in turn are often themselves aggravated by mill-dams. In the one case, the proper cure lies in the lowering of the water-table in the soil by thorough drainage; while in the latter, simple raising of the ground by filling appears to be the most practicable. Ground-air, though in great measure influenced by variations in the atmospheric pressure, is also intimately dependent on this ground-water. With regard to moisture in the air, a cold dampness very often gives rise to rheumatism, catarrh, chest and abdominal affections, and a very great loss of heat; it hinders the action of the lungs and skin, and is the temperature least suitable for people to live in. A warm dampness is weakening, for it renders the respiration laborious and perspiration difficult, produces dulness and enervation, and is sometimes a great source of danger owing to the production of effluvia from neighbouring marshes. Excessive damp is a predisposing cause of rickets. Accompanied with decrease of temperature, dryness of the air favours respiration, increases the appetite, and facilitates digestion, but only on the condition that the child is able to stand the loss of heat.

(c) Other things equal, it is preferable to have the site placed well above the sea-level.

(d) The site should be removed as far as convenient from human habitation, and especially from any manufactories, the contiguity of which would be continually evidenced, especially by the organs of hearing or of smell. But when it is practically impossible to prevent such approximation, the height of the neighbouring buildings and walls will have an important bearing on the construction and position of the windows in the class-

rooms. For instance, on the ground-floor of the school building we must be able to see a piece of sky from the school-seats farthest from the window; *i.e.*, the neighbouring wall, or whatever else it may be, must be at a distance of at least twice its height away from the school-wall.

(e) The position of the building itself is best arranged in such a manner that, speaking generally, its long axis is exposed as much as possible to the sun, while its shorter axis, where the windows are to be at a minimum, faces the direction of the prevailing winds. The direction of the long axis to the north-east or south-west is a very common and good one. In

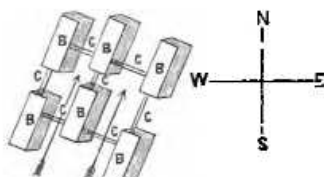


FIG. 1.

B B. The various blocks connected by  
C C. The various covered passages.

The arrows show the direction of the prevailing winds. The shadows cast by the various blocks do not interfere with one another.

In those cases where the school comprises a number of blocks, it is advisable that these buildings be situated parallel-wise, in such a way, that (a) no shadows cast from one block may fall on another, and that (b) the prevailing winds may be able to act their full rôle as air-scavengers along the main lines between them. Fig. 1 will help to make this point clear.

(f) The shape of the site is, of course, dependent on the local conditions, and on the special kind of school to be built. Thus we may have it constructed on a 'corridor' system, where the class-rooms are given off from one or both sides of a corridor; or on a 'compound' system, consisting of a square building with central enclosed area or quadrangle; or the school may be built in blocks. It is advisable for the kitchens and bedrooms to be on top floors.