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IMPROVED SCHOOL-HOUSE ARCHITECTURE.

As the period of the year is approaching when trustees will be able to devote attention to the building, or to the altering and improving the external and internal conditions of school-houses and premises, we insert in this number some remarks and illustrations on the subject of school-house warming and ventilation. This is probably one of the most important matters connected with the internal economy of a school-house. In a recent work on School-House Architecture, published in England by Mr. Robson, we find some valuable remarks on the subject, which we subjoin. We also insert illustrations of the system of school-house heating and ventilation which has been officially adopted by the Provincial Board of Education in New Brunswick. Mr. Robson, in his work, says:—

"The quantity of glass contained in the windows, or skylight, has a direct voice in the amount of warming-power required. The general request for 'plenty of light' in school-buildings is too often answered by the introduction of windows anywhere and everywhere. Not only is an unpleasant and trying glare of complex lights and shadows thus produced, but in the severe weather of winter it is found almost impossible to warm the rooms. The power of glass in cooling the atmosphere of a room heated to a higher point than the external air is so great that, unless we are prepared to adopt a system of double windows, as used commonly in the class-rooms of Germany, we must not introduce windows quite so lavishly as in a conservatory, nor without due consideration. If we place them exactly in the proper places, we shall find that a less quantity than is generally supposed will afford abundant results.

"The principal windows of a school-room lighted mainly from the back should face the north and east, these being the best aspects for ensuring a good and steady light for purposes of work, yet the importance of other windows on the sunny sides should never be overlooked. Back-lighting alone is better than front-lighting alone, and that side-lighting is superior to both combined. The plan of an English school, as necessitated by the work, renders the invariable left-lighting to which so much else is sacrificed in Germany, impossible. And in no country has closer attention been paid to the judicious lighting of school-buildings, and to the proper shape of school desks. The light is invariably admitted *from the left side only* of the children. In the double class-rooms, for instance, if one room be lighted from the children's left, the other must of course be lighted from the right. Again, in the school rooms, *all* the light cannot possibly be obtained at the sides of the classes, and then the back-lighting from the north or east, already described, should be adopted, but should be assisted, corrected and diffused by other windows, highly placed in the opposite wall. The teacher, being thus made to face a cool, steady light, will not experience that common evil of having the sun in his eyes while teaching. This arrangement has the advantage of securing, at any time when required, a current of air through or across the room, and light both on the faces of the children and that of the teacher. As to the influence of the window-surface on the temperature of the room, Mr. Hood, in an admirable work on Warming and Ventilation, tells us that experiments have shown that one square foot of glass will cool 1.279 cubic feet of air as many degrees per minute as the internal air exceeds the external in temperature. Calculating the cubic content of a room and the superficial area of window glass, we shall easily find on this basis the total amount of cooling-power at work, and the corresponding increase required in warming-power. The more window there is, the greater the warming-power must be. To over-light a room is nearly as bad as to under-light it.

"As to the amount of heating-power practically required in buildings, Mr. Hood further tells us that we should calculate for warming three and a half to five cubic feet *per head per minute*, and, in addition, one and a quarter cubic feet for each square foot of glass.

"Among the many methods of warming practically known