

The Home Doctor.

Sanitation in the Schoolroom.

Avis Gordon Vestal.

"We've such a lovely new school-house in our town," Mrs. Allen was enthusing to several of her hostess's friends. "It's pressed brick, with stone trimmings."

"And is it sanitary?" asked one of her hearers.

"Why, I suppose so," was the reply.

Was this new building healthful? Mrs. Allen had three children shut up within its walls for six hours a day, five days in the week, and yet she only "supposed" that the conditions there were conducive to health. Do you, as a mother of school lads and lassies, caring for their health at home, know certainly whether their schoolrooms are undermining or sustaining their bodily welfare? Visit the school and see for yourself, bearing in mind the following principles:

Location: In the first place, the school should be upon dry, well drained soil, not too heavily shaded by trees. If it is not, some drainage may be effected by tiling in the yard. At any rate, when a new edifice is required, you can agitate for a more healthful situation.

Building: The old stone and solid brick walls, formerly so common, are usually damp and difficult to heat. Brick built with air spaces in the walls disposes of moisture and is a good non-conductor of heat, making a building warmer in winter and cooler in summer. Frame is also dry, but too treacherous of fire, against the spread of which great precaution should be exercised in the arrangement and materials used throughout the whole structure. If there is a basement or coal cellar it should be cement lined, if possible, or at least tile drained and with open windows. Lime or charcoal will aid in purifying the air and in dispelling moisture.

Seats: Have you not seen overgrown boys stuffed into seats three sizes too small and little girls dangling their feet from seats four inches too high? Each room should have most of its desks of a uniform size, but with several both larger and smaller ones. Better still, as soon as new ones can be purchased buy those whose seat or desk or both can be regulated in height by a lever kept in the possession of teacher or janitor. Too many cases of spinal, nervous or eye trouble are due to misfit seats.

Light: Light should be provided in abundance, through windows, and by skylights where outside wall space is limited. When practicable, arrange these windows so as to avoid direct glare in the faces of the pupils or conflicting lights from opposite directions. The area of windows should equal one-tenth to one-fourth of the floor area, depending upon the points of the compass from which light is admitted and upon the amount of shade from nearby buildings. Thus a room 20 by 30 feet has 600 square feet of floor and requires 60 to 150 square feet of light-openings. Where windows can be cut in only one wall the use of prismatic glass is helpful, for it bends the light rays so that they reach the dark sides of the room.

Cream or yellow walls are best for dark rooms because they reflect light instead of absorbing it as darker colors do. White holland shades upon rollers that can be lowered or raised by a pulley and rope are best for the schoolroom. They soften brilliant light and, when desirable, the lower sash may be shaded while the upper one admits full light. Lacking these, cheese cloth sash curtains are helpful in screening too brilliant sunshine.

Artificial lights should be installed for use on dark days, and they are worth their cost in their benefit to both eyes and discipline, which is noticeably more difficult on dark days. If gas, it should not be in flickering open jets but in Welsbach mantles, which give a stronger and steadier light with less gas. Whether gas or electricity be used the

fixtures ought not to be higher above the desks than is necessary for a grown person to pass under them, and they need dark shades above them to reflect all of the light downward instead of diffusing it through the entire room. If kerosene is used the lamps should be more numerous and thoroughly clean. Electricity vitiates the air not at all, gas mantles are next in purity, while open gas jets or kerosene requires much oxygen in burning and throw off some unwholesome gases, therefore needing more ventilation to keep the air breathable.

Heat: A cold boy is likely to be a stupid boy, for his circulation is sluggish and his brain poorly supplied with blood. Likewise, an overfed, overheated

Air: If the schoolroom be crowded, high ceilings supplement the air space. When windows alone provide ventilation it is advisable in winter to raise the lower sash by a board the width of the window and six inches high. Thus the air circulates between the two sashes at the middle of the window. Another way to avoid direct drafts upon pupils is to fit a frame the size of one sash with a canvas cover, and to insert it under the raised sash.

For efficient mental and physical activity thirty to fifty cubic feet of air per person is used every minute. Average pure air contains carbon dioxide as three parts in ten thousand; air that has been breathed has lost much of its life-sustaining, oxygen and in turn has more carbon dioxide which has been thrown off by the lungs as waste. Six or seven one-hundredths of one per cent. of it may be breathed safely, but when the proportion rises to fifteen hun-

pay for sufficient janitor service, to have the floors mopped daily with water and antiseptics and to have the dusting done with a damp cloth, frequently washed, than to pay doctor's bills, and to have suffering, even needless death, among our loved children.

Miss Henry, of Worcester, Mass., has solved the problem without expense. Each month two girls from each room are appointed to the "Health Brigade." These two come early every day for that period, don aprons and caps, and do the damp-dusting. The cloths are rinsed daily and boiled weekly. Every year eighteen little maids are helping themselves and their roommates and learning principles of neatness valuable in their mature years as homekeepers. As a result of a year's experiment she reports not a single case of contagion among 425 pupils, "the first year in the history of the school that this has been true."

Disease: Besides the diseases conveyed in dust, there are others moving from family to family via the school. Typhoid, dysentery and cholera germs lurk in impure water; see that the water is examined by a physician periodically. Mouth diseases, as diphtheria, and some poisons, also the white plague, can be communicated from a drinking cup which has touched many lips in succession. A spouting fountain, doing away with cups, is best. Failing of this, urge the use of individual paper or paraffin cups, to be burned after using, or at least of separate cups kept by each child in a box in his desk.

Teach the youthful learners that their mouths are for eating and speaking and not to be used as pockets for pencils, marbles, and the like, and that they should not "swap" partly eaten food or borrow each other handkerchiefs.

Knowing that the school is a natural mingling place for the germs of the community, we close them and fumigate them during epidemics which have resulted in several deaths. Why not substitute an ounce of prevention for this costly pound of cure? Fumigation might be conducted to advantage every week end, or at least monthly. Sunlight and streams of fresh air begin the purification. Burning sulphur is popular, but it is usually not in sufficient amount and it spares certain bacilli of disease. Carbolic acid, if used, should be in strong solution, applied to wooden surfaces. Corrosive sublimate is good in washing floors and walls, but injures metals. The best means of disinfection is formaldehyde gas. One pound of commercial formaldehyde (a solution of 40 per cent. in water) is necessary to be volatilized for each 1000 cubic feet of space. It is most effective when vapor is present from an open kettle of steaming water or from wet sheets hung in the room. The gas penetrates well.

Toilet Facilities: It is desirable that a healthful school should have plumbing for cleanliness and the disposal of waste. Where you have it, see that it is free from leaks and the soil pipe above the roof at least four inches in diameter at its outlet. Closets should be self-flushing and these and the lavatories should be washed daily with antiseptics to prevent the spread of skin diseases.

If you can have only the outdoor sheds, at least separate those for the two sexes by a six-foot board fence. Each building should have individual compartments and be scrubbed daily, with lime thrown often into the vaults.

Having visited your schools with seeing eyes, rejoice if they be ideal in wholesomeness! If not, as is too frequently the case — suggest needed changes to the superintendent or board of education. Many defects are remediable at slight cost. If you are told, "Changes cost money and the taxpayers are grumbling already," mention the possibility of a rearrangement of expenditures, providing for health at the expense of some less necessary feature. When radical and expensive alterations alone will safeguard your children, educate public opinion through an organization of the parents of school pupils, or through "Parent-Teacher Associations," to more generosity of school allowances.



The mountain climber's paradise.

ed child cannot do active mental work. In both cases, not "feeling like studying," the youngsters are prone to mischief. A thermometer on the wall about the height of the children's bodies best regulates the heat, the limits of 68 to 72 degrees being conducive to most efficient work. Steam or hot water furnaces best stand the test of providing sufficient warmth in zero weather or within thinly walled buildings, but they are apt to overheat in mild weather. Hot air, delivered through wall shafts supplies warmth and ventilation at once. Many of them, however, in certain phases of the wind, fail to distribute their heat equally. Soft coal stoves heat most country and village schools. With them, the floors are too cold, while the pupils on the front rows simmer as those at the back of the room endure arctic temperatures. As the combustion of the fuel in the room exhausts its oxygen, more fresh air is needed than in any other case.

dredths of a per cent., headache ensues.

In both our homes and our schools the warm air is too dry. Air can take up more water vapor as its temperature rises and this should be available. An open vessel of water on the stove or radiator will evaporate the needful moisture. Wet cloths suspended to dry serve the same end. For a temperature of 65 degrees a relative humidity of 60 per cent. is proper. Colds, influenza, catarrh and pneumonia are most dangerous to those whose systems have been weakened by overwarm, dry air.

Dust: Dust from powdered soil not only irritates the sensitive mucous membranes of the throat and lungs but it carries with it untold germs of disease, as tuberculosis and scarlet fever. Smooth floors, walls, and woodwork prevent the permanent lodgement of dust. Paint or oil best finishes a floor after its cracks are well tightened or filled. Burn all the feather dust-scatterers in the school. It is cheaper to