PUBLIC SCHOOLS: DEFECTIVE VENTILATION AND BRAIN POISONING.

It would seem that the last quarter of the nineteenth century was a somewhat late date at which to urge the necessity of pure air in schoolrooms, for the ancient dictum that "the breath is the life of man" is a truth that no one has ever thought to doubt. The known sensitiveness of children to all physical influences, the increased demand which the brain in special action, as it is during study hours, makes upon the heart for blood, and the consequent requirement of the blood upon the lungs for air to purify it, are supposed to be matters of general knowledge. In practice, however, all these facts are ignored by men who construct school buildings and those who control them. A room as large as a family sitting-room, in which half a dozen people cannot sit for three hours without drowsiness, headache, nausea, feverish heads, or all of these discomforts in succession, is supposed to be good enough for occupancy for the same length of time, by twenty, thirty, forty, fifty, and even seventy-five children, and during the very hours when the brain is called upon for the principal work of the day. If such a room had doors and windows so placed that currents of air could visit every portion of the apartment, the air would not even then be as good as the human system demands; but even such facilities for ventilation do not exist in city school-rooms, where the size and shape of a building, and the arrangement of its rooms, are regulated by the location of the ground upon which the building is placed.

The consequence is that the air of almost any school-room in a city will be found, during school hours in the cooler season, to be oppressive to the lungs of the visitor and offensive to the nostrils. A window may be slightly down at the top, but unless a door also is open there is no circulation of air, while a draft direct from door to window is sure to chill the pupils in its path without particularly benefiting those in the other portions of the room. In the walls of some rooms are flues, which are supposed to conduct the impure air upward, on the principle that warm air being lighter than the outer air, is bound to rise; but as warm air cannot rise unless other air can come from somewhere to take its place, and as carbonic acid gas, which is plentifully thrown out with exhausted breath, is heavier than any air, and will not rise at all unless by suction or force, these flues are of but little good.

These being the facts—and we would be ashamed to quote information so simple were it not that it has successfully escaped architects, school officers, and teachers—certain physical results inevitably follow. Nearly every schoolroom in the United States, if visited an hour or two after the session has opened on a winter day, will be found to contain children, almost all of whom have pallid faces and lustreless eyes, no matter how bright they may have been two hours before. The teacher will frequently be found in the same condition; oftener, however, the earnestness peculiar to the conscientious teacher will have combated the stupefying influence of the air, and the result will be the same as that which follows a physical struggle against opium or any other narcotic: an unnatural excitement and uncontrollability ensues, and the teacher who naturally is patient, considerate, just and kind, becomes fretful, unreasonable, flighty and unfair. This is no fanciful statement; rare are the good teachers that will not admit that it faithfully describes their own experiences twice a day and five days in a week throughout the seasons of closed windows and doors.

The remedy that naturally suggests itself is the frequent changing of the air by opening all doors and windows; but this plan, besides occasioning sudden and great changes of temperature, would make the warming of the rooms impossible. Besides, occasional charges of air are not sufficient; the change should be continuous, so that pure air may be steadily admitted and foul air steadily expelled. When this is done, the ingress of cold air is not rapid enough to occasion chilling draughts. There are mechanical methods of obtaining this result: a system combining force and suction is sufficient, but this is generally dependent upon a steam engine as the motive power, and such a plan not only implies the great expense of an engine, but also that of a superior engineer, for no ordinary man—certainly no school janitor—could be trusted to manage so dangerous a machine in a building crowded with precious lives.

The desideratum of pure air, continuously supplied at small expense, and without need of any personal attention, has lately been realized in some schoolrooms in Jersey City by a very simple contrivance, which has already been used successfully in mills, railway cars and elsewhere, where steady change of air is necessary, but draughts intolerable. A flue, either specially constructed, or perhaps any old one that may have been in use, is terminated at the roof by a cap so constructed that air enters chambers on its outside, and moves spirally to its top, where it creates a current which sucks the air steadily from the inside of the flue. The force of the air in these spiral chambers is communicated by the wind, the openings of the chambers radiating to all points of the compass. These chambers narrow rapidly toward their exit, so that a light breeze, moving barely a mile an hour, has its momentum multiplied several times before it finds an exit. The effect is exactly that of a miniature whirlwind, the principle being precisely the same, and the only difference being that instead of sucking up and scattering dust, leaves, &c., it gathers and dissipates bad air. Registers placed in windows or walls allows a gentle influx of pure air to replace that removed through the flue.

At first thought it may appear that such a contrivance would be effective only on windy days, as moving air is necessary to momentum. The fact is, however, that except during a few days in mid-summer, when schools are either not in session, or when all doors and windows may safely be left open, there is always air in motion at the level of the house-tops. No matter how still the air may be at the level of the ground at other times, it is almost impossible to find a day when flags on house-tops or shipping are not in motion, thus showing the existence of currents of air. A breeze that will lift a flag is amply sufficient to the purification of a schoolroom by the means suggested.

The District Telephone Companies employ various kinds of alarms by which attention can be called to messages about to be sent. Vibrating reeds and magneto call-bells of many patterns are found to be most efficient devices. A summons, however, sent to one house will necessarily be heard in all the houses or offices on the same circuit. In some localities this has been found to be very objectionable. There are many theoretical ways in which a call can be localized, so to speak. The most obvious way is to employ a set of reeds or tuning-fork which will only respond to definite notes. At the sending office the proper reed or other vibrating means is set in action, and the reed or tuning fork at one station responds only. There are, however, certain practical difficulties in the use of this method; it is comparatively costly and requires accurate adjustment. Niemoller, in a late article in *Wiedemann's Annalen der Physik und Chemie*, describes a simple method of setting a wire in vibration, which might be also turned to account in localizing calls on telephone circuits. A steel wire stretched between two points is provided with a platinum point at its middle; this point dips into a vessel containing mercury. A current of electricity is passed over the half length of the wire and a magnet placed above the middle point of the half length through which the current passes serves to maintain the vibration of the wire. The application of this simple interrupter to telephone circuits is obvious. At the sending office a wire could be stretched with definite weights over a long channel of mercury, and the length of the wire could be readily altered by simple bridges. In each office or station wires could be stretched on suitable sounding boards, provided with electro-magnets placed above their quarter lengths, and tuned to respond to the note of the wire at the central office. Only the wire which is of the proper length and tension would respond to the same length and tension of the wire at the central office. The wires could vibrate between bells or could strike when their amplitude of swing was at its greatest upon some sounding substance. This method also requires careful adjustment, but it is much cheaper than any system of reeds.—*Scientific American.*

How to Distinguish Mushrooms.—Amateur gatherers of mushrooms are often spoiled of their enjoyment in eating the result of their researches by the fear of poisoning in the shape of a venomous congeneric. A French contemporary gives a simple means whereby to distinguish the real from the spurious comestible. "The stem of a genuine mushroom is short, thick, and white, marked under the head with a promient ring. The head is white and regularly convex, the edges are bent inwards, the flesh is white and firm, the under leaves are deep pink, and separated as they approach, but do not touch the stem. When the mushroom grows old the hat-like shape changes; it becomes brown, flat, and scaly, the under leaves also turn brown. It is better when eaten young. Spurious mushrooms have their heads covered with warts and other membranaceous substances, which adhere to the upper surface; they are heavy, and spring from a species of bulb; they generally grow in bunches. When the mushrooms are doubtful sprinkle a little salt on the under and spongy part; if it turns yellow they are poisonous, if black they are good."—*Land and Water.*

Soothing Syrup.—On Monday evening an inquest was held at the Victoria Hotel, Ellor-street, Pendleton, before Mr. Price, district coroner, relative to the death of a child, five months old, the daughter of Richard Rawlinson, laborer, Salford. About a week ago the mother of the child obtained a bottle of Mrs. Winslow's soothing syrup. Since that time she had administered to the child ten drops of the syrup twice a day until last Friday. On that day the child showed symptoms of illness, and died whilst being nursed by its mother. The Coroner said the effects of Mrs. Winslow's soothing syrup were those of a narcotic, and according to the *Pharmaceutical Journal* of 1872 a child had died from two doses of it with all the symptoms of narcotic poisoning, and from analysis it had been shown that one ounce of the syrup contained nearly a grain of morphia with opium alkaloids. The same authority added that it was not to be wondered it should prove fatal to infants in small doses. The verdict of "Death from misadventure" was returned.—*Alliance News.*

A Lady writes of her experience with flies: For three years I have lived in a town, and during that time my sitting-room has been free from flies, three or four only walking about my breakfast table, while all my neighbors' rooms were crowded. I often congratulated myself on my escape, but never knew the reason of it until a few days ago. I then had occasion to move my goods to another house, while I remained for a few days longer. Among other things moved were two boxes of geraniums and calceolarias, which stood in my windows, being always open to their full extent, top and bottom. The boxes were not gone half an hour before my room was as full of flies as those around me. This, to me, is a new discovery, and perhaps it may serve to encourage others in that which is always a source of pleasure, viz: window gardening. Mignonette planted in long, shallow boxes, placed on the window sill, will be found excellent for this purpose.

To Prevent sleeplessness.—The following convenient, and to most persons safe, remedy for insomnia, has been discovered by a lady in New Jersey: Wet half a towel, apply it to the back of the neck, pressing it up toward the base of the brain, and fasten the dry half of the towel over so as to prevent the too rapid exhalation. The effect is prompt and charming, cooling the brain and inducing calmer, sweeter sleep than any narcotic. Warm water may be used, though most persons will prefer it cold. To those suffering from over excitement of the brain, whether the result of brain-work or of pressing anxiety, this simple remedy is an especial boon. A gentleman whose business responsibilities are numerous and heavy, told me that he had fallen into the habit of waking before day, when his business cares crowed his mind and no more sleep could be had. But the wet towel applied to the neck secures another freshing nap till daylight.

According to the *Deutsche Allgemeine Zeitung*, a German, named Karl Steinbach, has made an important discovery in photography. After years of study and experiment, he has succeeded in obtaining a chemical composition by means of which a mirror image may be fixed and sold as a photograph. With this composition the mirror surface is painted, and the back part of the mirror receives also a coating of oil. The mirror thus prepared is held before the person who is to be photographed. The oil coating evaporates, and the likeness of the person remains in natural colors on the light surface. The image, so fixed, is brought in to a bath, and is exposed half an hour to sunlight, before delivery. A rich capitalist in Peru, it is said, has acquired this invention for $400,000, and large establieshments are to be formed in North and South America for carrying it out.

The Scientific American says, if a bottle of the oil of pennyroyal is left uncorked in a room at night, not a mosquito, or any other bloodsucker, will be found there in the morning. Mix potash with powdered meal, and throw it into the rat-holes of a cellar, and the rats will depart. If a rat or mouse gets into your pantry, stuff in its hole a rag saturated with a solution of cayenne pepper, and no rat or mouse will touch the rag for the purpose of opening communication with a depot of supplies.

The aniline colors are not permanent. We have heard of the labels of boxes which were marked with aniline inks becoming entirely white, no vestige of a letter remaining, upon exposure to the sunshine in the transit, to the manifest inconvenience of the express-man. The writer having occasion to use some charts, made them partly with ordinary black ink and partly with crimson. In course of time the crimson faded away, leaving the black characters rather meaningless by themselves; and this in a position where no direct sun rays ever reached.

DOMESTIC.

To Remove Glass from old sashes, a mixture of three parts of potash with one part of unslacked lime, laid on both sides with a stick and allowed to remain for twenty-four hours, will soften the putty enough to cut out easily. This mixture will also take off paint and even tar.

Charcoal is one of the best deodorants, absorbing large volumes of gases. May be used in powder, mixed with lime or gypsum, and sprinkled freely in malodorous localities. Suspended in a basket, in cisterns, meat safes, dairies, etc., it tends to keep the contents from absorbing foul odors. Charcoal should be frequently reheated to drive off the absorbed gases and renew its efficiency.

Potato Cakes.—Take potatoes—mashed ones are best, boiled ones can be mashed—immediately after dinner, before getting cold, and about the same amount of flour and a small piece of butter, roll out and cut as if for biscuit, not too thick, and bake in rather quick oven. When done to a light brown, cut open, butter and eat warm.

Pickle Peaches.—Seven pounds of fruit; three pounds of white sugar; one quart of cider vinegar, not too strong; five cents worth each of cloves and cinnamon; boil and pour over your fruit once each day, for two days, then the third day set jar and all in water, and boil for one hour.

Canning Peaches.—Pare White Heath Clings and keep them covered in a deep jar until ready to use. Put one pint of water and four tablespoonfuls of pure white sugar (granulated I prefer) in the kettle; when dissolved, add three pints of seeded peaches. Cook them a few minutes, or until a silver fork will enter them easily, but not enough for the fruit to break; then put in cans and seal immediately. This fills a one-quart can. Pare only enough for four cans, unless two or three are assisting, as the peaches discolor by exposure to the air.

Fruit as Food.—The liberal use of the various fruits as food is conducive to good health. Fruit is not a solid and lasting aliment like beef and bread, as it is composed largely of water, and contains very little nitrogen. It does not give strength to any great extent, and cannot be used for a long time alone. But fruits contain those acids which both refresh and give tone to the system during the season when it is most needed; are agreeable to the palate, and valuable in their cooling and health-giving effects. During warm weather eat plenty of fruit, provided of course, that it is always thoroughly ripe and as freshly gathered as is possible.

A Good Beef Dumpling.—Take a basin with one pound and a half of flour, quarter pound of fresh suet, a pinch of soda, and a pinch of salt; mix it well, and make up a paste with the rolling-pin; spread the paste out into a bowl with a floured cloth below; then take three-quarters of a pound of stewing steak and chop it fine, add one or two onions, a little pepper, and salt; put half a cupful of lukewarm water in, and close it up. Take away the bowl, tie up the cloth, and put into boiling water sufficient to cover the dumpling. Let it boil for two hours and a half, with a flat plate under it to keep it from burning. This pudding, with potatoes, will suffice for five or six persons.

Cooking Beans.—Sir Henry Thompson says, in the *Nineteenth Century*, that to cook beans properly they must be treated thus: Soak, say, a quart of the dried haricots in cold water for about twelve hours, after which place them in a saucepan, with two quarts of cold water and a little salt, on the fire; when boiling remove to the corner and simmer slowly until the beans are tender, the time required being about two or three hours. This quantity will fill a large dish, and may be eaten with salt and pepper. It will be greatly improved at small cost by the addition of a bit of butter, or of melted butter with parsley, or if an onion or two have been sliced and stewed with the haricots. A better dish still may be made by putting all or part, after boiling, into a shallow frying-pan, and lightly frying for a few minutes with a little lard and some sliced onions; with a few slices of bacon added, a comparatively luxurious and highly nutritive meal may be made. But there is still in the saucepan, after boiling, a residue of value, which the French peasant's wife, who turns everything to account, utilizes in a manner quite incomprehensible to the Englishwoman, The water in which dried haricots have stewed, and also that in which green French beans have been boiled, contains a proportion of nutritious matter. The French woman always preserves this liquor carefully, cuts and fries some onions, adds these and some thick slices of bread, a little salt and pepper, with a pot-herb or two from the corner of the garden, and thus serves hot an agreeable and useful *croute au pot.*