

besides the pressure from its depth in the water;—a basin of water with a live fish in it, when placed under the receiver of the air-pump and exhausted, the air-bladder expands, and the fish turns on its back.

Children may easily be made to understand that the atmosphere is an æiform fluid surrounding the globe, acted on like other bodies by the force of gravity, consisting principally of two airs or gases, varying in weight, and partly of a third, heavier than either of the others, but if placed upon each other in the order of their specific gravities, the heaviest nearest the surface of the earth, next heaviest in the middle, and the lightest at the top, that they would not remain in this order of superposition, as, for instance, the three fluids, quicksilver, water, and oil, would do; but the heavy one at the bottom would rise up and travel through the pores of the other, and the lighter one would descend, this being a property peculiar to bodies of this nature, and called the diffusion of gases. That, in addition to this, there is an atmosphere of vapour of water, arising from evaporation from the surface of the earth and of water, and which is in itself lighter than dry atmospheric air; a cubic inch of water at the common atmospheric pressure forming about 1700 cubic inches of vapour; therefore a cubic inch of vapour of water is about 1/1700 of the weight of a cubic inch of water—a cubic inch of common atmospheric air about 1/800.

Having called their attention to the fact that a substance lighter than water will, if plunged into it, rise to the top; that of two fluids the lighter will rest upon the heavier; arranging themselves according to their specific gravities—as water upon mercury—oil upon water—cream upon milk—they will easily understand why bodies lighter than air ascend in it, as the smoke from their chimneys—tell them to watch it, particularly on a still calm day—why it stands still and does not rise higher; the principle on which a balloon ascends, a soap-bubble, etc.

Again, why there is a draught up the chimney;—the air rarefied, how this takes place;—why a current of air under the door and towards the fire—and another perhaps out of the room at the top of the door?

The kind of resistance offered by the air to a falling body—this increases with the density—that, under the receiver of an air-pump, a guinea and a feather would fall at the same time.

As a simple experiment, showing the effect of rarefaction of air, the teacher might light a piece of paper, and while burning, place it in a tea-cup, and invert the cup in a saucer of water—the water will immediately be driven into the cup with a gurgling noise.

Again, in the practice which cooks have of putting an inverted tea-cup in a fruit pie, as they think with a view to prevent the syrup running over as the pie bakes, the air in the cup becomes rarefied, and is driven into the pie-dish, through the crust, into the atmosphere—when taken out of the oven it cools, the rarefied air in the cup is condensed, but as the mouth of the cup is surrounded with the juices of the pie, air cannot get into it, but it forces the liquid up.

The teacher explains why the resistance of the air in moving along is so little felt—some of the consequences of its being disturbed, and causes of its being put in motion—a breeze, a hurricane, etc.; he would also speak of the forces of these at different velocities—the force varying as the square of the velocity. This short table might be the subject of a lesson:

Velocity of the wind in miles per hour.	Perpendicular force on one square foot in pounds.	—
5	.123	Gentle wind.
10	.492	Brisk gale.
20	1.968	Very brisk.
40	7.872	High wind.
80	31.488	Hurricane.

It will be easy to calculate the force of the wind acting on a given surface, doing so in particular cases will be instructive.

By Precept and Example Too.

"It's nobody's business *where* or *how* a teacher spends his time out of school." So remarked a member of a school committee, in my hearing, not long since.

Many teachers evidently think likewise, if their doings out of school are any criterion by which we may judge.

It is not enough that the teacher be faithful in imparting instructions during the regular school hours; nor is it sufficient that he exhort his pupils, in season and out of season, to avoid bad habits, or that he "preach" to them concerning the importance of good manners. A loose example, or an instance of moral obliquity on his part, will render much sage counsel of little effect for good. However just the maxim—"The wise man considers the advice, not the source of it," we are not apt to do so; neither do children.

With what consistency can a teacher charge his pupils to refrain from those vices in which he habitually indulges? Some years ago, I knew a gentleman who had an impediment in his speech. At length his little son, either from sympathy, or by imitation, began to stammer also. The father expostulated in vain, and, as a last resort, he had recourse to the birch.

After applying it awhile vigorously, he paused for breath, when Billy looked up reproachfully—"Fif—fit—father, I say it's too bub—bub—bud, to f—lick me for *what you di—do yourself*?"

Some doubtless look upon manners and morals as being of minor importance; still, many whose opinions are entitled to respect, do not deem a teacher who whistles "Jordan am a hard road to trammel" through the streets, on Sunday, a proper instructor for their children. "You apparently enjoy the privileges of a good school," I remarked to a parent. "Y—e—s sir, I suppose the scholars are doing well enough in their *studies*," but before Lucy went to school she used to say "Please ma'am," "Yes sir," and "No sir," but now it's nothing but "*what*," "*yes*," "*no*."

It is in vain that Teachers close their eyes to their own inconsistencies, and flatter themselves that *others* do not see them. Children will observe, and they readily draw inferences from what they see. As an apt illustration of this point, I select the following:

"I met," says a gentleman, "one of our scholars—a ragged little fellow, with a pipe in his mouth, smoking. I stopped, and began to talk to him about the filthy and foolish habit he was getting into. He instantly turned upon me and said:—"

"Why, some of the teachers smoke!"

"I should think not," I answered. "What makes you think they do?"

"Because I seed one of 'em"—at the same time describing him—"one day, go into a cigar store an' buy a cigar."

"But very likely you were mistaken; for the other day I myself was in a public house on business, and when I came out there stood a little way off two of our boys who, if they saw me, would perhaps think I had been drinking, but I had not; and I had a great mind to go and tell them so, for fear they might get a bad example from me."

"O! no, I wasn't mistaken," answered the boy, with an arch and confident look, "for I stood an' watched 'im, and seed him come out with it lighted, in his mouth; and I think he seed me, too, for he turned his head t'other way, and looked kind o' shyish like."—*New York Teacher.*

Talk not Much nor Loud.

It is a very common error with young teachers, that they talk too much and too loud;—and wherever you meet with one of these garrulous and noisy teachers, you will be sure to find a disorderly school. Let us call at two schools and notice the difference. Here is a school of fifty pupils, kept by Miss Matilda Captious Fussy. The pupils are nearly all untidy in appearance, inattentive to lessons, disorderly, and noisy,—whispering, and constantly asking unimportant questions of the teacher. It is a sort of "Bedlam let loose." But the children are not the only actors. Listen to the teacher, who, in loud and petulant tones, and in rapid succession, thus speaks:—"We must have less noise, scholars. 'You are the worst set of children I ever saw.' 'Sit down, Mary.' 'John, did n't I tell you not to whisper?' 'Susan, what are you doing?' 'Sarah, I've told you twenty times that you must n't look out of the window, and you don't mind one word I say.' 'Peter, did n't I tell you I should punish you if you did that again? You'll get it by and by.' 'Thomas, what are you out of your seat for? If you don't mind better, I shall punish you.' And thus it continues through the livelong day,—the teacher noisily issuing meaningless orders and threats, the pupils hearing them as they would the whistling winds. The room is unswept and in disorder; the teacher, slovenly and forbidding in look and manner. All is discord, no discipline, no true teaching, no good habits. The classes are called upon to recite without any seeming regard to time or manner;