warmer, they are lighter in consequence (as will be explained presently), and therefore have a constant tendency to ascend—being compelled by the force of gravity—till, after cooling little by little, they reach a layer of their own temperature. Upon the same principle an inflated balloon ascends and a cork immersed in water constantly tends to rise to the surface. As the coefficient of expansion for gases equals about $\frac{1}{273}$—i. e., they increase about $\frac{1}{273}$ of their bulk for every degree centigrade increase in temperature, *thus becoming lighter in proportion to their volume*, and are compelled by gravitation to ascend. It is important that the pipe or flue in rooms heated by stoves or grates should be vertical or nearly so; also, that it be not too wide, otherwise downward currents will be produced, and these interfere with the draught and cause the gases of combustion to escape into the room. In a stove-pipe the elbows should be as few in number as possible, and rounded rather than acute; for a sharp or abrupt bend materially diminishes the velocity of the draught. Two or more pipes opening into the same chimney should have *separate flues;* when they open into the same flue, the pipe that draws best will interfere with the draught in the others, and set up downward currents.

The air consumed by combustion escapes by the chimney, and tends to create a vacuum in the room; but it is steadily replaced by the atmosphere which rushes in at every available opening. This rush is strongest at the lowest openings (those nearest the earth), and here the whole amount enters if the space is sufficient. On the other hand, and for the reasons before given, the warmer (lighter) and fouled air within has a constant tendency to escape at the highest points; and it is here, therefore, that ventilators should be placed to allow its exit. Thus it is that, when a door is opened, the warmer (foul) air escapes in a current at the top, and the colder (fresh) from the outside rushes in at the bottom. This may be shown by a lighted taper in these situations—the flame in each case taking the direction of the current. When the outside air is the warmer, and per consequence the lighter, as on a very warm summer day, the direction of the currents, other things being the same, will be reversed—the fresh air coming in above, and the cool air within escaping below. But, owing to the large amount of heat radiated from the pupils—the normal temperature of the human body averaging 37.5° Cent., or 99° Fahr.—the lighter air is nearly always within. Therefore, if on the sheltered side a window is lowered at the top, or on any side if the air be calm, the foul air will escape above it; if raised from below, fresh air will enter beneath. But, ordinarily, it is sufficient to fully provide for the escape of the fouled air—the fresh, as a rule, will not need so much attention; yet it is better to make ample provision also for this. The best method is by ventilators in the walls—say of a foot square in section, or thereabout—raised but a few inches above the floor below, and lowered but a few inches below the ceiling above; or otherwise at the highest points of the ceiling itself. In this way the currents that are likely to blow on the children's shoulders when the windows are raised are avoided, a matter of importance; for a draught of cold air blowing upon the shoulders *from behind*, arrests the action of the skin — probably through the spinal sensory nerves—and causes what is commonly known as a "cold." Even when windows are lowered at the top, draughts will occasionally blow upon the pupils; and the lower the windows are set in the wall, the stronger and more uncomfortable and injurious is the draught. In order to prevent these draughts, the windows should be set