

that the provision is defeated. The expired and vitiated air, as it leaves the chest, is heated to very near the temperature of the body, viz., 98°, and being expanded by the heat, is specifically lighter than the surrounding air at any ordinary temperature; it therefore ascends and escapes to a higher level, by the colder air pushing it up as it does a balloon. The place of this heated air is constantly supplied by the colder and denser air closing in on all sides. In the open air, the process is perfect, because there is nothing to prevent the escape of the vitiated air; but, in a close apartment, the hot air, rising up to the ceiling, is prevented from escaping; and gradually accumulating and becoming cooler, it descends and mingles with the fresh air, which occupies the lower level. We have thus to inhale an atmosphere which every moment becomes more and more impure and unfit for respiration; and the impurities become increased much more rapidly by night when lamps or candles, or gas, is burning, for flame is a rapid consumer of oxygen. Under these circumstances, our only chance of escape from suffocation is in the defective workmanship of the house-carpenter; the crevices in the window frames and doors allow the foul air a partial exit, as may be proved by holding the flame of a candle near the top of a closed door, in a hot room; it will be seen that the flame is powerfully drawn towards the door in the direction of the out-going current; and on holding the flame near the bottom of the door, it will be blown away from the door, showing the direction of the entering current. If we stop up these crevices, by putting list round the windows and doors, so as to make them fit accurately, we only increase the evil. The first effect is, that the fire will not *draw*, for want of sufficient draught; if the inmates can put up with a dull fire and a smoky atmosphere, they soon become restless and uncomfortable; young people get fretful and peevish, their elders irritable, respiration becomes impeded, a tight band appears to be drawn round the forehead, which some invisible hand seems to be drawing tighter and tighter every moment; the eye-balls ache and throb, a sense of languor succeeds to fits of restless impatience, yawning becomes general, for yawning is nothing more than an effort of nature to get more air into the lungs; under these circumstances the announcement of tea is a welcome sound, the opening and shutting of the door necessary to its preparation give a vent to the foul air, the stimulus of the meal mitigates the suffering for a time, but before the hour of rest, the same causes of discomfort have been again in active operation, and the family party retires for the night indisposed and out of humour.

But in the bedroom, the inmates are not free from the malignant influence. The closed doors, the curtained bed, and the well closed windows, are sentinels which jealously guard against the approach of fresh air. The unconscious sleepers, at each respiration vitiate a portion of air, which, in obedience to the laws of nature, rises to the ceiling, and would escape, if the means of escape were provided; but, in the absence of this, it soon shakes off those aerial wings which would have carried it away, and, becoming cooler and denser it descends, and again enters the lungs of the sleepers, who, unconsciously, inhale the poison. When the room has become surcharged with foul air, so that a portion must escape, then, and not till then, does it begin to escape up the chimney. Hence, many persons very properly object to sleeping in a room which is unprovided with a chimney; but it is evident that such a ventilator is situated too low down to be of much service. If there be no chimney in the room, a portion of the foul air escapes by forcing its way out of some of the cracks and crevices which serve to admit the fresh air.

That this sketch is not overdrawn, must be evident to any one who, after an early morning's walk, may have returned directly from the fresh morning air into the bedroom which he had left closely shut up an hour before. What is more disgusting than the odor of a bed-room in the morning? Why is it that so many persons get up without feeling refreshment from their sleep? Why do so many persons pass sleepless nights? The answers to these and many other similar questions may be frequently found in defective ventilation. How much disease and misery arises from this cause, it would be difficult to state with any approach to accuracy, because the causes of misery are very complicated.

Now, as no person would consent habitually to swallow a small portion of liquid poison, knowing it to be such, though diluted with a very large portion of pure water, so it is equally unwise to consent habitually to inhale a small portion of gaseous poison, knowing it to be such, though diluted with a very large portion of pure air; and yet this is what the majority of persons actually do who occupy apartments unprovided with proper ventilating apparatus.—*Tomlinson on Warning and Ventilation in Mass. Teacher.*

#### THE ENGLISH A COMPOSITE LANGUAGE.

In one of Mr. Trench's new lectures upon words, he treats of English as a composite language, and enumerates certain Hebrew, Arabic, Persian, Turkish, Indian, Italian, and Celtic words which are in general

use. Among Hebrew words we have "manna," "cherub," "sabbath," etc. Among Arabic words "algebra," "cypher," "zero," "zenith," with the chemical terms "alkali," "elixir," "alcohol," and the names of their articles of merchandise, as "giraffe," "saffron," "lemon," "orange," "sherbet," "mattress," "coffee," "sugar," "amber," and "jasmin." From the Persians we derive the words "bazaar," "lilac," "azure," "caravan," and "pagođa;" while from the Turks, "tulip," "dragoman," "turban," and "chouse," the word current among schoolboys. To the Indians we owe the words "tobacco," "maize," "potato," and "wigwam;" to the Italians, "bandit," "charlatan," "duenna," "pantaloon," "gazette," and "alligator;" while Celtic things are designated by truly Celtic words, as "bard," "clan," "kilt," "reel," "piroch," and "plaid." We are glad to observe that Mr. Trench does not depreciate either the Saxon or the Latin portion of the English language. "Both," he remarks, "are indispensable; and speaking generally without stopping to distinguish as to subject, both are *equally* indispensable. Pathos, in situations which are homely, or at all connected with domestic affections, naturally moves by Saxon words."

#### PAPER AND PAPER DUTIES.

In 1721, it is supposed that there were but about 300,000 reams of paper annually produced in Great Britain, which were equal merely to two thirds of the consumption. In 1780 the value of the paper manufactured in England alone amounted to £800,000, the duty on which was £16,867 9s. 9½d. At that time the duty was divided into seven distinct classes or rates of collection. Twenty years after, when the mode of assessment was reduced to three classes, the duty has risen to £315,802 4s. 8d; in 1830, fifteen years after, to £619,824 7s. 11d.; in 1835, to £38,822 12s. 4d., or, in weight, to 30,655,287 lbs., which was again in fifteen years nearly doubled. The quantity of paper charged with excise duty in the United Kingdom in 1850 was no less than 141,032,474 lbs., and last year (1854) the enormous weight of 179,896,222 lbs.—*Herring on Paper and Paper Making.*

#### THE NEW PALACE AT WESTMINSTER.

In connection with the New Palace there are three towers which forms its most prominent features, and which, in consequence of their great height may be seen from almost every portion of the metropolis. The one at the south end of the building is the magnificent Victoria Tower, which forms the entrance of her Majesty on the occasion of her visits to the House of Lords. It has a square tower, richly decorated in the Gothic style, and when completed will be 340 feet in height, or 94 less than the height to the cross of St. Paul's. The sides of the tower are 75 feet in length. The central tower is one that covers the grand central hall between the Houses of Lords and Commons. It is circular in form, 60 feet in diameter, and the top of the lantern which surmounts the dome is 300 feet above high water mark. The tower at the north end close to Westminster Bridge, is the Clock Tower, which when completed will be 320 feet high. Like the Victoria Tower, this tower is square in its construction, each side being forty feet in length, but it will differ from the larger tower in being surmounted by a beautifully perforated belfry spire. The tower has now reached an elevation of about 200 feet, there yet remaining 125 feet to complete the work. There are five stories in the tower beneath that in which the clock will be placed. An air shaft 20 feet in diameter at the top, runs down the entire length of the tower, through which the supply of pure air is proposed to be drawn by Dr. Reid into these subterranean chambers where it is warmed, cooled, or mixed previous to being inhaled by hon. members and noble lords. The floor in which the clock is intended to rest is 165 feet 7 inches above high water mark, and the centre of the dial plate of the clock will therefore be 182 feet 7 inches. Above the clock there will be a small pointed tower rising from each of the angles 20 feet high, while the central tower will soar to the height of 70 feet, and will be surmounted by a tall vane.

#### SOCIAL ADVANTAGES OF FEMALE EDUCATION.

Due cultivation of the female mind would add greatly to the happiness of males, and still more to that of females. Time rolls on, and when youth and beauty vanish, a fine lady who never entertained a thought into which an admirer did not enter, finds in herself a lamentable void, occasioning discontent and peevishness. But a woman who has merit, improved by a virtuous and refined education, retains in her decline an influence over the men, more flattering even than that of beauty; she is the delight of her friends as formerly of her admirers. Admirable would be the effects of such refined education, contributing no less to public good than to private happiness. A man, who at present must degrade himself into a fop or a coxcomb in order to please the women, would soon discover that their favour is not to be gained but by exerting every manly talent in public and in private life: the two sexes, instead of corrupting each other would be rivals in the race of virtue: mutual esteem would be to each a school of