

In hospitals the want of due attention to this important branch of hygienic science has too often led to the aggravation of disease and the destruction of human life. It is recorded of one hospital that the deaths, which before the ventilation were one in six, were after the ventilation reduced to one in twenty.

Mr. Rawlinson, the sanitary commissioner, when testifying to the marvelous results of the introduction of sanitary measures in the Crimea, says, "The first requisite in all cases was improved ventilation." The opinion of Miss Nightingale on this, as well as on other points which come within the scope of our inquiry, are so well known that a frequent reference to them might be deemed superfluous. I cannot, however, withhold a quotation from such eminent authority, which strengthens my general argument. Alluding to the enormous mortality of children, Miss Nightingale says, "The causes are perfectly well known: they are chiefly want of cleanliness, want of ventilation, want of whitewashing—in one word, defective hygiene."

The cubical space required to keep a healthy man in full vigor is a question of much importance, and one on which very different opinions have been expressed. Experience gained in poorhouse dormitories, prisons, &c., has led to the conclusion that from 450 to 500 cubic feet are requisite, and that the ventilation should be such as will cause an entire renewal in the air about once in the hour. Observations made at the model lodging-house in George street, St. Giles', which is a confined situation, satisfy me that the cubical space of 535 feet, which is provided in the dormitories of that building for each inmate, is, with proper ventilation, abundantly sufficient to render them healthy; such was proved to be the case even when the cholera raged in the neighborhood, and had not a single victim out of the 104 men who lodged within its walls. From this fact, I think it reasonable to infer that the cause of unhealthiness in the Wellington barracks, where the cubical space per man allowed in the dormitories is stated to be 500 feet, must be caused, not by want of space, but by some other existing evils, particularly defective ventilation, pointed out in the report made to the general board of health by the commission on warming and ventilation.

All dwellings should be so constructed as that they may be everywhere accessible to pure air, and free from stagnation in any part.

The state of the surrounding air has necessarily much influence on that within the dwelling, and the renewal of the latter should always be sought from the purest source, instead of the supply being drawn, as it often is, from a low, damp situation, or a confined internal court.

The main practical question is, in what way the air which has become vitiated can be renewed with a supply of pure fresh air, without the creation of a draught injurious to the health? To do this the air must enter copiously, but almost imperceptibly, and when used its exit should be both complete and continuous.

HOW TO VENTILATE.

Ventilation is of two kinds, natural and artificial; the former being effected by means of windows and doors, with the crevices round them, as well as by chimneys and fireplaces, which are important agents in natural ventilation, and may also by scientific arrangements, be made conducive to an efficient system of artificial ventilation, peculiarly applicable to dwelling houses.

It must be obvious that improvements easily adopted in new are not always applicable to old buildings, but as far as circumstances allow they should be carried out, from a conviction that pure air is indispensable to a healthy state of body and mind.

Windows, properly constructed, made to open at the top as well as below, and suitably placed, afford the most ready means for the natural ventilation of dwellings, besides which are the contrivances of louvers, of perforated glass, zinc, tin, &c.

Whenever a fire is lighted in a room the lower stratum of air is immediately set in movement, a current of air is established from the crevices round the doors and windows, or from any other openings, toward the chimney, whereby much of the vitiated air is carried off. This process of ventilation takes place in a slight degree when there is no fire in the chimney, and therefore bed-rooms are much more healthy with a chimney than without.

An independent supply of fresh air may be introduced into most rooms which have a fireplace, by conveying it through a pipe or channel formed under the floor, or in the wall, to an air chamber constructed at the back or sides of the stove, in order that it should be there warmed before entering the room. The same, or separate pipe or channel, may also be used for feeding the fire with air, independent of that in the room, for which purpose it should pass out at the cheeks of the stove, rather than beneath the grate, which is liable to cause a diffusion of dust in the room. Such an independent supply is calculated to keep the chimney from smoking, as well as cold draughts passing from the windows and doors to the fire. It also renders chimney ventilating valves more certain in their action than they often are, owing, generally, to an insufficient draught in the chimney, which causes an emission of smoke into the room. These valves would be invaluable for the discharge of vitiated air, which is their intended purpose, were it not for this occasional ingress of smoke. The most effective means of avoiding that evil is the carrying up an independent flue in close contact with the smoke flue constantly in use; the air within it is by that

means rarified, and the action of the valve rendered more efficient. Tubular flues, made double for this express purpose, are found to answer well, and have the advantage of occupying but little space.

In reference to fire-grates generally, I would recommend, as one of the most useful modern improvements, the forming of the back and linings with fire-brick instead of iron.

The intimate connection between warming and ventilation has led to a digression, in returning from which I would remark, that the greatest difficulty to be overcome in all arrangements for natural ventilation, which provide an exit for the vitiated air, separate from that by which fresh air is introduced, is the securing that it should always thus act, and not become the medium of ingress for cold air, as is often the case, on a change of temperature in the apartment, when no artificial means to prevent it are provided.

Gas is sometimes used for this purpose, in order to rarify the air. I have successfully applied it within a shaft or tube of wood, placed behind a square of glass. The air enters through perforated zinc, having a fall down hopper before it. The apartment, or rather series of dormitories, one above the other, thus receive from the same quarter the combined benefit of light and ventilation.

Tubes of wood, perforated with holes, or having chinks at the angles, may with advantage be fixed for ventilation in the angles of the ceilings to common rooms, or be carried across the ceiling, in which latter case, they have occasionally been used for admitting fresh air, as well as for the exit of vitiated air. These tubes distribute the air more generally, and are not liable to be closed, as is the case with Sheringham's, or the cottage ventilator made by Hart. Where, however, tubes are not used, the most simple way of introducing fresh air, apart from a window ventilator, is by fixing one of the ventilators just named in an external wall near the ceiling, with an air-brick outside. In small rooms with a fireplace, this addition to the usual means of changing the air, generally suffices to keep them in a healthy state. At the same time, it is desirable that there should be an opening for the escape of vitiated air near the ceiling. This is most indispensable in small bed-rooms without a fireplace. In some instances it may be effectively done by means of a pipe carried through the roof and bent at the top; in other cases, an opening may be made over the door, with perforated zinc fitted in. Perforated or ventilating glass may, in some situations, be used, and it should be remembered that where openings can be formed on the opposite sides of rooms, the air will be most speedily and effectually changed.

Amongst various devices for effecting ventilation without artificial aid, is that of Mr. McKinnell, which has been much used in Glasgow, and lately in England. It combines the admission of fresh air by an outer tube, surrounding an inner tube, through which the vitiated air should constantly ascend and make its escape. The tubes are fixed in the centre of the ceiling or roof, and by a broad flange or fan, extending from the inner tube, below the level of the ceiling, and reaching beyond the outer tube, the pure air is diffused as it enters. The certainty of a uniform action is required to render this ventilator perfect, but that is probably unobtainable without some such artificial appliances as I have now to speak of.

WARMING.

Artificial ventilation is ordinarily effected by the action of valves, fans, pumps, screw furnaces, stoves, or other artificial heat, including gas, and a variety of contrivances, whereby air is either drawn out or forced into the apartment. In the one case the space occupied by the vitiated air which is withdrawn, is replaced by an admission of pure fresh air; and in the other the pure air forced into the apartment causes a displacement of the vitiated air, for the escape of which due provision must be made. In both cases a just proportion between the volume of air which ought to enter, and that which should be expelled, is necessary, and in order that the fresh air may be adapted for use at all seasons of the year, means must be provided for warming it, prior to its distribution in the apartment. The best means for effecting this, is by bringing it in contact with heated firebrick, suitably arranged in stoves or furnaces. When heated iron is used for this purpose, the air is liable to be deteriorated, or, as is commonly said, is burnt. Hot water, which is similarly employed, has not this injurious effect.

Nothing can be more inconsistent with a healthy system of warming than those arrangements which provide only for raising the temperature of the air already in the apartment, vitiated as it may be. Such is mostly the case when the German hot air stove is used, and also when hot water is circulated through the apartments. But either may be used with impunity as an auxiliary to an open fire.

When fresh air is forced into an apartment through suitably placed openings, it becomes more generally diffused than it does when its entrance is dependent on the withdrawal of the vitiated air by means of suction, the tendency of which is to draw the fresh air toward the point of exit, instead of leaving it to disperse and circulate freely. Suction involves the further disadvantage of setting in movement whatever noxious vapors may be within its reach.

My object in giving these latter details, which are mainly applicable to artificial ventilation, will be misunderstood if it were inferred that I would, under any circumstances, dispense with an ample provision for natural ventilation in dwellings—at all events, until the

science be more thoroughly mastered, and its practical application more simplified than the report of the government commissioners on warming and ventilation, before referred to, would prove it to be.

FOREIGN NEWS.

The latest dates from Europe, by last mail, are to December 2d. There is nothing particularly new from that quarter of the world, but what was considered as possessing any degree of interest, has been selected from exchanges, and may be found in the following epitome:

ENGLAND.

The Arctic exploring yacht Fox, had returned home from the coasts of the Faroe Islands, Iceland and Greenland, where she has been engaged surveying the route of the proposed North Atlantic Telegraph. She succeeded in examining and sounding the fords on the south coast of Greenland, and proving their practicability for the reception of a cable. She also coasted down a considerable extent of the east coast, hitherto supposed to be inaccessible. The severity of the season in the northern regions is reported to have been greater this year than for twenty years past.

The report was confirmed, that the Queen would confer the vacant "Garter" on the Duke of Newcastle.

The Empress of the French continued in Scotland. She had quitted Edinburgh for Perth. Her reception at all points was quite cordial.

In politics, there were signs of returning animation. Lord Palmerston had given a grand banquet to the members of the Cabinet, and on the 22d ult., the Queen held a cabinet council, at which all the ministers were in attendance.

The commanders and several of the officers of the Hero and Ariadne, had received promotion, on the safe return of the Prince of Wales.

The official inquiry into the loss of the Galway steamer, Connaught, was in progress at the Greenwich police-court.

At Southampton, November 24th, the royal mail company's steamer, La Plata, took fire between one and two o'clock in the morning, in the outer dock. The flames raged with great fury, although about twelve engines and two steam tugs were speedily got in readiness, and commenced pouring vast quantities of water into the ship. The La Plata was one of the finest steamers, and the loss sustained was very serious.

The Times says: American railway securities showed increased flatness.

FRANCE.

The *Moniteur* publishes a convention between the governments of Sardinia and France, arranging several questions in reference to the annexation of Savoy and Nice. It was determined that the portion of the Sardinian debt chargeable to Savoy and Nice, should be 4,500,000 of Sardinian rent—which the French government will remit to Sardinia. The charges incurred by Sardinia on account of Savoy and Nice, will be transferred to France.

It was reported in Paris that the Emperor intends paying a flying visit to Windsor in the course of a few weeks, to meet the Empress.

The Archbishop of Paris has issued a circular, advocating the collection of "Peter's Pence," notwithstanding the impediments thrown in the way by the government.

It was reported in Paris that some changes in the constitution, in a liberal sense, were projected.

The plan of a naval reserve had been adopted by the Emperor. This would afford a large number of regularly trained seamen. Another iron plated frigate had been laid down at Rochefort.

There were rumors that Counts Persigny and Walewski would both enter the ministry.

It was said that, according to ancient precedent, if the Emperor could find three Prelates sufficiently docile to join in the imposition of hands, the Pope's assent to Episcopal appointments, would be regarded as unnecessary.

The *France Contrale*, of Blois, has been suspended for two months for "violent attacks on the constitution, and attempting to excite political passions, under pretence of defending the interests of religion."

The following Imperial decree had been published: Desiring to afford to the great bodies of the State a more direct participation in the general policy of our government, and a marked proof of our confidence, we decree that the senate and the corps legislative shall annually vote an address in reply to our speech at the opening of the chambers. This address will be discussed in the presence of the government commissioners, who will give the necessary explanations on the interior and exterior policy of the empire. Regulatory measures will be taken, in order to facilitate to the corps legislative the expression of its opinions, and the publicity of its debates. During the session, the Emperor will nominate ministers without portfolios, in order to defend, conjointly with the council of State, the government projects of law before the chambers. The ministry of the Emperor's household will be repressed, and its functions united with those of the marshal of the palace. The ministry of Algeria and the colonies is suppressed. The administration of the colonies is united with the ministry of marine. The decree also orders some changes in the functions of the ministries of public instruction, works, agriculture and commerce.

Chasseloup Laubat has been appointed marine and colonial minister. Marshal Pelissier has been appointed governor chancellor of the legion of honor. That part of the public service which is not directly connected with public instruction, as well as the special establishment of the university, is transferred from the ministry to that of the State."

ITALY.

There had been a change in the Neapolitan ministry, and it was considered certain that a State council would be convoked. This council is only convoked on very important occasions.

King Victor Emanuel was expected to quit Naples for Palermo, on the 25th. He had received a deputation from Umbria and the Marches, which presented to him the result of the plebiscite in those provinces.

Garibaldi had replied to an address from the committees of assistance, which organized the expedition to Sicily. He says:—"What you have done for Naples and Sicily, you must also accomplish for Rome and Venice. Do not separate; do not leave your undertaking incomplete. The end must be attained. You will see me ever ready to hasten to the spot where the standard of Italy and Victor Emanuel shall be raised."

The Piedmontese Parliament was to be convoked and forthwith dissolved, in order to be replaced by an Italian Parliament. There was a strong party desirous of the election of a constituent assembly of the whole nation, in order to establish the constitution of the new Italian State.

The municipality of Ancona, had opened a subscription for the construction of a war vessel, which the marine of the provinces would offer to the marine of the State, in commemoration of the annexation of those provinces to Sardinia.

The garrison of Gaeta had made a sortie, and were repulsed with great loss.

Victor Emanuel had deferred taking the title of King of Italy, until he should be declared such, by the Italian Parliament.

CHINA.

The latest news from China, is to September 22d.

The following telegrams are published:

HEADQUARTERS, eight miles from Pekin, }
Sept. 23. }

Mr. Boulby, the *Times*' correspondent, Mr. Loch, secretary to Lord Elgin, Mr. Parkes, Messrs. De Nouman and Anderson, of Fane's Horse, and Captain Brabazon, have been made prisoners whilst engaged in choosing camping grounds. They have been taken to Pekin, where they are well treated.

Engagements were fought on the 18th and 21st September, at Chang-Kia-Wau and Jang Chan. On both occasions 20,000 Tartar cavalry advanced, and were completely routed by the allies. 2,000 Tartars were killed and 50 guns taken. The allies had only 8 wounded.

The Chinese have sent in a flag of truce, with the provisions for a treaty. Lord Elgin demanded the release of the prisoners before negotiating.

The Emperor's brother has been appointed chief commissioner to make peace.

Tea to the value of £250,000 sterling, was taken at Chang-Kia-Wau.

SHANGHAI, Oct. 4.—All is quiet. The rebels are threatening Houng Chan.

JAVA, Oct. 14.—The Dutch troops at Banjermassing, have been thrice repulsed by the rebels.

POINT DE GALLE, Nov. 1.—Sir Charles McCarthy assumed the government of Ceylon, on the 22d of October.

The latest government dispatch announces that on the 23d of September, the allies were within six miles of Pekin.

Married:

On the 31st of December, 1860, in Mill Creek Ward, by Elder John F. Suedaker, Mr. DANIEL G. BRYAN, late of Pennsylvania, and Miss MARTHA E. ASHWORTH, formerly of England. [Mill. Star please copy.]

New Advertisements.

CAME TO MY INCLOSURE
IN April last, one black OX, branded X, lined back, tip of the tail white. The owner can have it by proving property, and paying charges.

WM. HOWARD,
Big Cottonwood Ward.

LOST.
TWO HORSES, one of roan color and branded M on the left thigh; the other black with white stripe on its face and on one hind leg. Whoever will bring the same to Charles W. Stayner (near the Arsenal, G. S. L. City), or to John White, Farmington, will be liberally rewarded.
45-1

UNION ESTRAY POUND.
I HAVE in my Pen Three CALVES, swallow slit in the right ear. The owner will please call and pay lawful expenses and take them away.
45
JAMES C. WALKER, Poundkeeper.

FETCH IT AWAY.
THAT lost Heifer CALF, red and white, about five months old, was taken up by the subscriber, in the 16th Ward, Nov. 25th, 1860. The owner is requested to prove property, pay charges and take it away.
45-1
WM. WOLSTENHOLME.

TAKEN UP.
A Red and White OX, about six years old, with crop A off left ear, and a brand on the left hip illegible. The above ox is in my possession, having broke into my inclosure the latter part of last month. The owner is requested to take him away. Information can be obtained from Angus M. Cannon, at 7th Ward Pottery.
45-1
FRANCIS RAYMOND.

ESTRAY CALF.
A Red and White STEER CALF, fine back, black legs, white belly and white tail. The owner is requested to prove property, pay charges and take him away.
45-1
JOSEPH HARDMAN, 17th Ward.