THE BOSTON MEDICAL AND SURGICAL JOURNAL.

VOL. LX.

THURSDAY, JUNE 23, 1859.

No. 21.

PURE AIR AND PURE FOOD—THEIR CONNECTION AND RELATIONSHIP AS AN ITEM IN DOMESTIC ECONOMY AND HYGIENE.

BY E. W. BLAKE, M.D.

[Communicated for the Boston Medical and Surgical Journal.]

THAT pure air and pure food are essential to health, no one will deny; but trite though it be, the dogma will bear repetition. Theoretically right on the importance of ventilation, is not our community still practically at fault in failing to bring to bear all the means and appliances for securing it? And after all there has been written on the "chemistry of food," and its practical application to cookery, has there been that advancement in this branch of "art" which the real interests of mankind require? Change is not always reform, nor is progress necessarily improvement. We would not indeed go back to the wide-mouthed chimney, down whose ample flues the stars gazed smilingly on the broad hearth, high piled with its load of blazing wood, whose sweeping draught of air sucked in so largely of the pure breath of heaven; but why, in our furnace-heated homes, need we, as is too often done, shut up the chimney's narrow throat, close every vent, and make the rooms air-tight? Pure air a blessing! And you believe it? Take down, then, those double windows, or remove those sand bags from over the narrow chink between the sashes; *unlist* those doors, and let Æolus and Boreas blow in with welcome.

Fuel-saving is a Christian virtue in the household creed, and where our mothers baked in huge brick ovens, nor spared the wood; or before the glowing embers in *tin-kitchens* did their roasting, we, wiser grown, discard the latter process, and bake our meats shut up in iron walls, and burn out their juices with the red-hot anthracite.* A range oven and the one of olden time—how wide the difference! Has progress been improvement here?—hygienically, we mean, of course.

* The latest patented "Double Oven Beauty Cooking Range" is advertised to "do the continuous cooking for the entire day with one hod of coal." True, it is not stated how large the hod must be.

We are here reminded of, and must refer to, an editorial in a late number of the JOURNAL, respecting "Sanitary Conventions." With the sentiments therein expressed we heartily sympathize, trusting that the "Sanitary Code for Cities" may here and elsewhere become the subject of municipal enactments. Its provisions are admirable, as you say, and "we may well rejoice that the spirit is at least born into our republican atmosphere, which has long lived, flourished and meted out justice among the people of older countries." Why should the freedom of our land give immunity in the matters of house drainage and public markets from police surveillance, if upon them depends in any degree the purity of the air we breathe, and of the food we eat? And this brings us back *à nos moutons*. With pure air in our dwellings, and pure food filling our larders, have we yet secured the best means of preserving it? Is not the former an important element to this end? We shall presently see. It is not the adulterator's art only we have to fear, for there are other sources of sophistication than those which human agencies adopt. Our climate, though we boast of its salubrity, tends during the heat of many weeks (and on that season we have just entered) to induce, by its hygrometric condition and elevated temperature, speedy decomposition. Decay, the universal law, comes into play, as the life principle ceases. It seizes all our esculents alike, differing only in degree and form. Fish, flesh and fowl soon "smell to heaven." Vegetables wither and decay; fermentation and mould attack our fruits; and last, but by no means least in importance, milk, "that model of what an alimentary substance ought to be," upon which so much depends—whether as an ingredient in the many luxuries of adult years, or of infancy the very *pabulum vitæ*—is subject to "changing," which carries disappointment into the dining room and dismay into the nursery. A condition of *agalacty* is at times a sore trial in the latter department, and any means of keeping this "prototype of nutritious matters in general," intact and pure, should be eagerly sought after. So many infants at the present day fail to derive a supply from the maternal source, that its preservation is hygienically important.

Our fathers sought *refrigeration* in the dark cellar and in the cool, deep well. Ice, though indigenous with us, has not been *cultivated* till these latter days, but has now become a universal luxury, and necessity as well. Refrigeration by its instrumentality is the great preserver, but, as now employed, does it not fail to secure, as regards length of time and contamination, the end in view, beyond the limit required by science and philosophy.

That modern device, the refrigerator, is now a household institution in our land. Without condemning it *in toto*, we would question the *salubrity* of the air-tight provision chamber common to most of them; we say air-tight, for this seems to be a point made prominent in commendation of some of them, or at least their ice.

preserving qualities are urged. Ice-saving is another cardinal virtue in the domestic creed. But may it not be an unwise economy? To make cool and keep it so, and shut up the body of air within it, is the aim; but beyond a certain point, or time, cold damp air (as this must be), thus confined, fails to preserve. An article of food of the temperature it would be in summer, deposited within, receives the moisture by precipitation on its surface, and this promotes decomposition.*

On the other hand, and here comes *our point*, a gentle and uniform current of dry and cool air passing through the provision chamber will ensure the prevention and even arrest of decomposition. *Ventilation*, then, should be the end sought in constructing a refrigerator, and this by no means involves a waste of ice. What though it may beget an increased consumption of this abundant article—its compensation for this will come in the shape of increased purity and flavor of food and fruits, and their consequent greater healthfulness. It is allowed by close observers, that provisions are rendered unwholesome by being kept in a receptacle in which the air is not constantly and effectually changed, and the health of individuals has no doubt suffered in consequence. Most refrigerators, though under the supervision of careful housewives, *do* acquire a musty and offensive smell, a pretty sure indication of their pernicious tendency. That these are facts, and appreciated as such, is manifest from the further fact that trials have been made to improve in their construction, by introducing the appearance, certainly, of an attempt at ventilation; some plausible, perhaps, and others sufficiently amusing.

In one, a perfect change of air involves too warm a temperature, and so an extravagant waste of ice.

Another, which has met with some success, in contradiction to natural laws, is based on the idea that cold air, introduced at the bottom of a chamber, will rise and pass off at the top, without rarefaction. An equilibrium is soon established in this machine, and ventilation ceases.

Another, with a hole in the top and no inlet for fresh air, depends on warm food to start the current, &c.

Still another, air-tight, has a scheme, by a peculiar arrangement of the ice, for keeping up a revolving current; not of fresh air, but of that already impregnated with the exhalations from the multifarious articles deposited within its food chamber. But the revolution of foul air ceases as soon as the temperature of the whole interior becomes uniform.

How, then, is ventilation to be obtained? how produced, a circulation entirely automatic, which shall secure a uniform temperature, with a constant and regulated supply of cold air, with escape

* Such an arrangement may answer when it is intended to keep food and luxuries from meal to meal only, but beyond this they fail, as your own experience must have taught you.

of the air which has become impure by contact with the provisions? Simply by the application of well-known natural laws.

There has recently been brought before the public a refrigerator which combines all the qualities to be desired, constructed on sound principles of philosophy, and practically as well as theoretically right. A diagram of it would exhibit a fine illustration of scientific ventilation, and as such it has been introduced by Prof. Silliman, Jr., into his new work on Natural Philosophy.* The air within the ice chamber, which is situated above that for provisions, becomes chilled, and its gravity consequently increased, by contact with the ice, and descends into the provision chamber. This is followed by fresh air from without (by means of a register properly arranged in the front wall of the ice apartment), which enters, is chilled and falls from the same cause. The weight of a column of chilled air within the refrigerator is consequently greater than that of a column of air of equal height outside the refrigerator. The communication with the outside air is effected in such a manner that the weight of the column of air between the provision chamber and the registers of escape (placed in the sides) is slightly less than that of the column in the chamber, and hence there is a constant pressure within, which causes the air which has been in contact with the provisions to escape gradually and continuously.

Thus much for the ventilation, and now as regards the *quality* of the air. The current of air once secured, and we have that other important preservative element, dryness. Warm air saturated with moisture, as it is in summer, on coming in contact with ice will deposit its moisture and become dry. Such air passing over moist meats or fruits will dry and thus preserve them, for in the absence of humidity, the changes which decay requires go forward slowly.

At 80°, the air has a capacity equal to over ten grains of water in each cubic foot; at 40°, this capacity is reduced to three grains, and at 45° it is only one third what it is at 80°† According to Silliman, the temperature of the food chamber in this refrigerator averaging 44° to 45°, it will be seen that it affords a "climate" in which all articles of provision will keep sweet in the warmest weather, and for an unusual period; for, as has been shown, we have *uniformity* in the cold, dry current, and this is important to prevent decay. Variations of temperature expand and contract the tissues and finally rupture them, and mingle together juices which tend to fermentation and decomposition.

It only remains for us, Messrs. Editors, to apologize for pre-

* Silliman's *First Principles of Philosophy*, 1859. See page 428. After describing the modus operandi of this refrigerator, he says of it as follows: In this way a gentle current of about 45° F. is steadily maintained as long as the ice lasts, and being dry, articles of food are preserved sweet and free from mould for a long time.

† The refrigerator alluded to, whose good qualities we so highly commend, having tested it in our own household, is Winship's (the name is suggestive of ventilation) Patent Upright Self-Ventilating Refrigerator. It is manufactured and sold in this city by Messrs. C. D. Kellogg & Co., No. 51 Water Street.

suming to ask so much space in your pages. For ourselves, we deem the matter of sufficient hygienic importance; how others may view it, we do not venture to suggest. Hygienically, the purity of food, and economically, its preservation, are points of universal interest. As guardians of the public health, the medical profession should be ever ready to promote it, by bringing to notice any process or means by which it can be advanced.

Boston, June 7, 1859.

SUCCESSFUL OPERATION FOR VESICO-VAGINAL FISTULA, BY
THE "BUTTON SUTURE," AT THE HOPITAL NECKER, PARIS.

BY WM. R. WHITEHEAD, OF VIRGINIA.

[Communicated for the Boston Medical and Surgical Journal.]

THE subject of vesico-vaginal fistula has, of late, been the object of important publications. It is not until recently that attention has been called, in France, to a peculiar mode of operation, which is of American origin, and which is destined to supersede the most reputed procedures hitherto known in Europe. M. Jobert de Lamballe had, until recently, been regarded by many surgeons on the continent, and is still regarded by the majority of French surgeons, as the most imposing authority upon this subject. M. Jobert still adheres to his own method of treatment, apparently unaware of more important and eminently more successful procedures, adopted and performed with the most satisfactory results in England, Germany and America. It is, however, gratifying to know that the American method is encouragingly received, and fully appreciated by a few of the most distinguished of French surgeons.

It is pleasing to learn that the subject of vesico-vaginal fistula has long since occupied the attention of American surgeons; and that finally America proudly offers to the old world an effectual cure for one of the most loathsome of infirmities.

The most important discoveries are not always the result of hazard; but frequently, on the contrary, the fruit of long, patient and painful study. Nor are they always exclusively attributable to the efforts of one person; often, many successive degrees of improvement, and the combined efforts of several, being necessary to produce a result. Such even appears to have been the case with regard to the history of vesico-vaginal fistula in the United States.

According to Dr. Bozeman, Dr. Mettauer, of Virginia, was the first to use metallic ligatures; employing interrupted sutures made of lead.* Dr. Hayward, of Boston, was the first, however, to give an impetus to the practical study of this subject. The important suggestions of Dieffenbach, Lallemand, and M. Laugier,

* Remarks on Vesico-Vaginal Fistula, p. 10.