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THE
SANITARY JOURNAL,

DEVOTED TO

PUBLIC HEALTH.

EDITED BY

EDWARD PLAYTER, M.D.

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(PUBLIC HYGIENE AND STATISTICS.)

Vol. V.

TORONTO, SEPTEMBER, 1880.

No. 1.

AIR AND HEALTH.

Air is the first essential of life and health, as everybody knows, and the Creator has provided an absolutely unlimited supply for the use of His creatures. Water, which may be regarded as the next essential, is very abundant, but less so than air: while food is much less plentifully supplied. It may be because of its very abundance that man so commonly overlooks or disregards the great value of air; and in the higher civilization which he creates, and which carries him onward and upward, he neglects frequently to seek, in the first place, localities in which it is naturally most pure, and most favorable to health and life; or by surrounding himself with elegant but almost impervious walls, he shuts out the pure air and breathes over and over again the small measure he has so closely imprisoned; or he makes foul that near his dwelling, by waste excremental matters, chiefly from his own body, or by the products or refuse of the occupations by which he lives.

That most eminent Sanitarian Dr. Parkes says: "It might be inferred from the physiological evidence of the paramount importance of proper aeration of the blood, that the breathing of air, rendered impure from any cause, is hurtful, and that the highest degree of health is only possible when to the other conditions is added that of a proper supply of pure air. Experience

strengthens this inference. Statistical inquiries on mortality prove beyond a doubt that of the causes of death which are usually in action, impurity of the air is the most important. Individual observations confirm this. No one who has paid any attention to the condition of health, and the recovery from disease of those persons who fall under his observation, can doubt that impurity of the air marvellously affects the first, and influences and sometimes even regulates the second.

The subject of air in its relations to health and life is a very wide one, and constitutes indeed a very large proportion of the entire subject of hygiene. It involves the consideration of climatology, locality, drainage, and the situation and general construction of dwellings and all buildings intended for habitations, of ventilation and warming, the removal or disposal of all waste or excremental matters—sewage, etc., and disinfection. For example, dampness of soil, or want of drainage, renders the air above damp, misty and cold, which condition of it is believed to predispose the system to rheumatism, neuralgia and catarrh; the diseases arising from badly located and badly constructed habitations, are for the most part the diseases of impure air, from too great humidity of the air, from damp walls or from want of ventilation; while all collections of excremental or waste matters soon contaminate and poison the air in the vicinity.

The habitations and works of man

furnish the most important impurities in the air: such as the products of respiration and perspiration, and of lighting and warming, effluvia from excremental waste matters—sewer gases—and emanations from work in various shops and factories.

It is more than probable that the breathing of air vitiated by the products of respiration and perspiration—in dwellings, schools, shops, from want of free ventilation—gives rise to more cases of serious sickness than any other cause of disease. Next to this, probably, comes air rendered foul by emanations from decomposing, waste excremental matters near habitations.

In a lecture before the Students of the College of Physicians and Surgeons of New York, Dr. Willard Parker, the lecturer, used the following suggestive illustration of the manner in which the air becomes contaminated by respiration: "If, gentlemen, instead of air, you suppose this room to be filled with pure, clear water, and that, instead of air, you were exhaling twenty times a minute a pint of milk, you can see how soon the water, at first sparkling, would become hazy and finally opaque, the milk diffusing itself rapidly through the water. You will thus be able to appreciate, also, how at each fresh inspiration you would be taking in a fluid that grew momentarily more impure. Were we able to see the air as we are the water, we could at once appreciate how thoroughly we are contaminating it, and that, unless there be some vent for the air thus vitiated, and some opening large enough to admit a free supply of this valuable material, we will be momentarily poisoning ourselves as surely as if we were taking sewage matter into our stomachs."

Of the diseases caused by re-breathing breathed air the most common are those of the lungs; and

of these, consumption is the most frequent. Much evidence has been brought forward, from various sources, which goes to prove that consumption is without doubt developed by respired air.

Baudelocque, a celebrated French physician, asserted long ago, that the repeated breathing of the same atmosphere is a primary and efficient cause of scrofula, consumption being one of its most common forms, and that hereditary predisposition, uncleanliness, want of proper food and clothing, cold and humid air, are by themselves non-effective. He says that invariably it will be found on examination, that a truly scrofulous disease is caused by breathing air vitiated by respiration, and that it is not always necessary that there should be a prolonged stay in such an atmosphere. Often, a few hours each day is sufficient; as sitting in a close school room, or sleeping in a confined bed room.

A medical health officer for several districts in Great Britain, J. Ward, M.D., in a paper in the Sanitary Record for July (last), writes:—On investigating the sanitary surroundings of ninety cases of diseases of the respiratory organs, other than pulmonary consumption, for the most part of an acute or sub-acute character, I observed, generally and with few exceptions, as before, undoubted defects of ventilation, as from absence of fireplace, or air-shaft in lieu thereof, in the bedroom; whereas, in some of the instances, this essential requisite of each inhabited apartment, when provided, was rendered inoperative, in consequence of being boarded, stuffed or papered over. In some instances the patient, a child, had been put to sleep with its parents—the bed, moreover, being placed in a recess or close corner of a small, over-crowded room—to breathe

their devitalized breath the live-long night.

A vast amount of similar evidence could be brought forth.

On the evil effects resulting from the proximity of privies, cess-pools, foul drains and pools of foul, stagnant water, stables, byres, pig-sties, and the like I need not enter into here; they are well known but not, alas, sufficiently heeded.

The two great preventives of foul air, then—the two great means for preventing foulness, are free ventilation and the removal far away from us of all waste, refuse, organic matters, all filth of every kind and description.

ROOM VENTILATION.

As the summer passes into autumn and the time comes when most people have their outside doors and windows kept tightly closed for months, except to open and shut the former for the purpose of egress and ingress, and perhaps to open windows a very little way for a short period once a day, it is very desirable that the subject of ventilation, of changing the air in occupied rooms, receive due consideration. Let every one see to it that a supply of pure fresh air reaches the nostrils, and hence the lungs, for every breath; and that he or she do not breathe, even the second time, the same air, and thus greatly increase the danger of contracting inflammation or some other disease of the lungs before the winter is past.

Those occupying rooms warmed by air from a furnace of any sort should see that the supply of air to the warm air chamber of the furnace is obtained from a pure source, and not from the damp, dark cellar—from the outside, at some elevation above the ground; see that the air is not overheated, or rendered too dry; and see that there is some pro-

vision for the escape of the breathed foul air from the room—some outlet, which is often not provided.

Those living in rooms warmed by a stove in the room or in the hall should provide an inlet for fresh air. A very good plan is to raise the lower sash of a window about two inches and fit a piece of board tightly beneath it so as to completely close the lower opening; allowing the fresh air to come in between the sashes at the centre of the window. With an open fireplace this gives good ventilation. Where there is no open fire place in the room an outlet for the foul air should be provided from the upper part of the room, communicating with the nearest chimney flue.

Ventilation, it is true, means or demands extra fuel; but even if a ton more of coal for the winter were required it would be better to provide it, cutting down on something else, for air is the *first* essential of health and life, remember, than to run the risk of serious illness before spring, and possibly death. Depend upon it, this matter of providing pure, fresh air is a serious one, as people are but beginning to learn; and don't think that because yourself and others have thus far escaped, while giving little heed to it, that you will always escape thus the ill effect of foul air, if you will expose yourself to it.

ON SOIL PIPES AND TRAPS, AND HOUSE DRAINS.

The opinion is now pretty generally received that the gases and vapors from sewers, which frequently find their way into houses, have not of themselves very injurious effects upon health, but that the injurious effects are produced by organic particles, living and dead; such as spores of fungi, bacteria and dead organic, partially decom-

posed particles of various sorts. Doubtless the breathing, for any long period, of air contaminated with sewer gases alone will give rise to headache, sickness, diarrhoea, sore throat, and a deteriorated condition of the blood, and a general lowering of the health and vital resistance to more serious diseases. But the substances which give rise to the infectious diseases, the substances which convey infection from the sick to the healthy, consist doubtless of minute masses of organic particles. These are, as Dr. Burdon Sanderson expresses it, particulate. Dr. Alfred Carpenter says: "All contagia are neither ætherial nor gaseous; they are in themselves particulate." But these particles, which emanate from the body of persons suffering from infectious diseases, not unfrequently enter houses with the sewer atmosphere, especially if there is the minutest hole in the soil pipe, and then the danger to health and life becomes very great.

A valuable contribution has recently been made to Sanitary Science, by Neil Carmichael, M.D., C.M., &c., Fellow of the Faculty of Physicians and Surgeons, of Glasgow, consisting of a paper, read at the Philosophical Society of Glasgow, on the "Experimental investigation into the Trap and Water Closet System, and the relation of the same to Sewage Products, Gaseous and other", an abstract of which has been published in a late number of the Glasgow "Sanitary Journal"; to which we are indebted for the same, and which bears directly on this subject.

Dr. Carmichael has proved that thorough immersion of the contagion or disease particles in water effectually imprisons them, and that they cannot be liberated from the water surface of a properly constructed trap, and not from any water sur-

face which is not violently disturbed, as by the ebullition of bubbles of gas from decomposition of excess of putrid matter.

He has shown still further, "that a moist soiled surface, such as exists when a solid is smeared with filth, as in the trunk and tray of an ordinary w. c., or in the surface of a pultaceous mass, of which the foul mud banks of a sewage polluted river are the best illustrations, affords the physical conditions most favourable to the production of an atmosphere laden with organized particles, whether of the germs of putrefaction or of specific disease."

"Every surface in the apparatus of water carriage which is only intermittently covered with a flowing current of water, gives off dangerous particles. Therefore, the engineer and plumber ought, by adapting the capacity of the sewer, the drain, or the pipe, to the amount of fluid to be conveyed, to reduce to the utmost the tidal range of the fluid, and the area of the exposed surface, besides constantly endeavouring to provide a surface as smooth and non-adhesive as materials will permit. The origin of the fatal elements of 'sewer gas' is not the flowing sewage, but the surface of the sewer above its level. Parkes and Sanderson observed that the crown of the Liverpool sewers was covered with slime. 'On microscopic examination it was found to consist of an immense amount of fungoid growth mixed with different kinds of animal life.' This is the condition of the surfaces of all conduits of foul water, large and small, which is not constantly immersed.

"But such germ cultivating surfaces are not peculiar to the water carriage system. They are to be found in much greater perfection and aggregate extent in our ashpits and privies, in our soil pans, and all soil shoots for the conveyance of

the raw material to receptacles at a lower level. No part of these structures is ever submerged in water, and therefore the biological particles are nowhere drowned and imprisoned. Wherever a court is found upon which the contents of a midden have been emptied; wherever a faecal deposit has been made and has been spread out by the scavenger with an imperfect use of water, there, too, is a manufactory of noxious emanations created. . .

"Water traps are, therefore, for the purpose for which they are employed, that is, for the exclusion from houses of injurious substances contained in the soil pipe, perfectly trustworthy. They exclude the soil pipe atmosphere to such an extent, that what escapes through the water is so little in amount, and so purified by filtration, as to be perfectly harmless; and they exclude entirely all germs and particles including, without doubt, the specific germs or contagia of disease, which, we have already seen, are, so far as known, distinctly particulate.

"But how comes it that the presence of a water closet, or of a kitchen sink in a house, produces, in many cases, such injurious influences on health, as has been acknowledged? Clearly, other sources of contamination than the trap must be looked to. Some of these we have already mentioned. As regards the trap itself, there are sources of danger from faulty construction; from misplacement; from accumulation of putrefying filth, in an imperfectly flushed trap; from syphoning or aspirating out of the water in the trap; from pressure in a soil pipe perfectly tight in all its joints, and perfectly unventilated, causing soil pipe air to bubble through. None of the dangers, however, belong essentially to the trap; they are all faults separable from an ordinary trap. In the pipe,

also, we may find some of the causes, which contribute to the contamination of houses with soil pipe atmosphere. There are found bad joints, cracks, and consequent leakages, perforations on upper surfaces made by the carbonic acid in the pipe, pointed out by Dr. Fergus, as already mentioned. A pin point hole in a soil pipe allows the passage of germs and other particles in considerable quantity, as has been demonstrated by the following experiments." He then describes the conclusive experiments; and in concluding his valuable paper adds:—"A hole, therefore, in the soil pipe, no larger than might be caused by a pin, is a source of danger vastly more than is a sound water trap. And if the perforations are large, we can readily understand how, especially when fires are actively burning in the house, large quantities of soil pipe atmosphere, with its particles, may be drawn into and contaminate the house. Such a source of danger is a serious and, unfortunately, a not very uncommon one."

"The principle just laid down concerning the water closet trap might be applied to all traps within a house—*i. e.*, they should be so arranged that they can be seen into to their deepest parts. A wash-hand basin could easily be sloped so as to have its trap constitute a portion of the basin, and to be in its portion in sight. So with sinks and baths. On these points I simply throw out the suggestion, asking you to bear in mind that what is wanted in each case is a sound water trap so arranged that it may be kept perfectly clean.

"The water closet apartment should never be situated in the centre of a building, but should, if possible, be in a separate brick shaft, shut off from the house and ventilated freely. The junction of the

closet with the lead portion of the soil pipe should be made perfectly secure, and as this is the only junction that should exist in the house, it can be made certain. This pipe should pass as directly as possible out of the house, and join the iron soil pipe outside, not in the wall.

"The soil pipe should discharge into a ventilated trap, and should be carried full bore above the house so as to be perfectly ventilated by a constant current of fresh air. The kitchen sink should discharge under an open grating or into the rain water pipe, which should be ventilated well at top and bottom. The principles, then, which ought to govern the regulation of house drainage are mainly as follows:—

"All filth and all organic waste matter which are liable to putrefy should be immediately and completely removed from the inside of the house.

"All pipes (water closet, bath, sink, or other) discharging such matters should, as far as at all possible, pass directly from the house apparatus to the outside of the house. Drains should not, if it can be avoided, pass under a house.

"A water tap to close the house end of every such pipe should be so arranged as to be thoroughly open to view to its deepest part, that it may insist on being kept clean.

"There should intervene between the trap and the house no cavity or surface, in or on which foul air or filth can accumulate.

"All discharge pipes, inside or out of the house, should be well ventilated by openings at top and bottom. In the case of pipes passing through the house for any great distance this is imperatively called for.

In reference to traps on main drains, between the house and sewer, Dr. Parkes, the eminent en-

gineers, Mr. Baldwin Latham, Mr. Rogers Field, and Mr. Henry Robinson, and also the late medical officer of the privy council (Great Britain), are all decidedly in favor of them.

The "Plumber and Sanitary Engineer," a valuable semi-monthly, published in New York, and edited by Chas. F. Wingate, has obtained the opinion of many eminent engineers in the United States on this point. Among others, Mr. Azel Ames, Jur. of Boston, writes to that paper as follows:—"While I think well of a trap, *provided always* it is well ventilated *below* the seal, I would not give much for it as compared with *good ventilation of the cesspool or sewer* into hot flues (preferably), or double channel conductors leading to safe heights; they certainly arrest gas, so that the trap ventilator has its chance. . . . In short, I always use a trap if available." . . .

Mr. A. L. Anderson, C.E., of Cincinnati, writes:—"Our firm considers the following features to be essential in a perfect system of house drainage, viz:—

First—A suitable trap between the main sewer and the house. *Second*—An inlet for fresh air on the house side of the trap and at the level of the ground, and usually adjoining the trap, so as to afford a means of inspecting it. *Third*—Soil pipes carried full size above the roof. *Fourth*—Local traps to all water closets, baths, etc., with ventilating pipes on the outlet side, close to said traps. There are, thus, no *dead ends*, but a current of air passing through all the pipes at all times.

"In our practice we endeavor to embody all of these features; but ignorance or parsimony, or both, often step in to prevent the execution of the plan in all its devices; *but the first requisite (that of an ex-*

ternal trap), we consider so essential, that we will not consent to connect our name with any plan from which it is omitted."

The eminent engineer, Mr. Rogers Field, in a lecture in March last, to members of the "Institution of Foremen Builders and Clerks of Works," said: "The first object of a perfect system of house drainage should be the immediate removal of all foul matter directly it was produced. To effect this the drains must be of impervious material, and well and uniformly laid with a good fall. The best material was glazed stoneware, and in some cases iron-stoneware pipes should be jointed with cement, not with clay. Clay joints were a great source of danger, especially when the drains were near or under houses. Everyone knows that cesspools must be avoided; but, unfortunately, there were a number of traps partaking of the nature of cesspools, which were very largely used."

"Various mechanical expedients have been suggested for supplanting traps, but the only reliable means to prevent the ingress of sewage gas into houses are thorough ventilation and disconnection. Efficient ventilation implies more than is generally supposed. It is not sufficient to afford relief of undue pressure, but a continuous current of fresh air must be created through the drains and pipes, to effect which two openings are necessary. This was illustrated by an experiment with smoke in a glass tube, when there was only one opening, the smoke would not escape from the tube; but when there were two openings it did.

"The most efficient means of all of preventing the ingress of sewage gas was 'disconnection,' or cutting off the direct communication between the sewer and the house drains. The lecturer then explained, by means of large diagrams, the

essential difference between direct communication and disconnection, and showed that when the house drains are in direct communication with the sewer, the air of the sewers is, as it were, laid on to houses; whereas, when efficient disconnection is used, the sewer air is 'cut off.' Nothing can be worse than connecting the waste pipes of sinks, baths, and overflow pipes of cisterns directly with soil-pipes and drains, as is so often done."

In this connection it will be well to draw attention to the plan proposed by Dr. Joseph Workman, late Superintendent Toronto Lunatic Asylum, in an early number of the *SANITARY JOURNAL* (No. 2, VOL. II, page 33). As the Dr. says, he has adopted this plan in his own house in this city; and the writer has had the privilege of examining it, and it appears highly satisfactory. With a "constantly acting chimney," it certainly is a very valuable plan, especially in connection with ventilation of the soil-pipe below the trap. If it could be arranged in connection with a pan having a trap which could be seen in its deepest parts, it would, it seems, render the water-closet system absolutely perfect.

The following is a description of the plan, in the author's own words; readers of the early numbers of the *JOURNAL* will pardon its re-insertion here: "No matter how expensively or handsomely any water-closet may be constructed, unless it is provided with an efficient means of ventilation DOWNWARDS through the pan, offensive smells will frequently be felt in the apartment. If instead of the foul air finding escape upwards out of the pan, it be carried away in another direction, and a constant flow of fresh air into the pan be secured, no disagreeable smell will ever be felt: on the contrary such an arrangement becomes an efficient

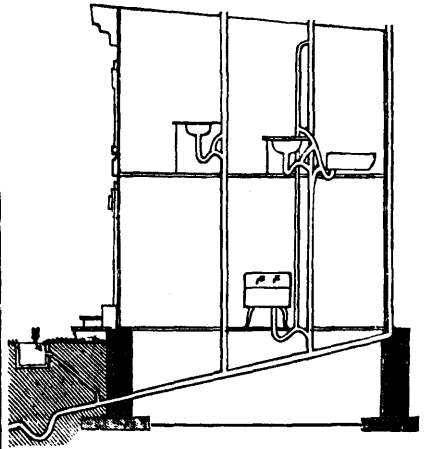
ventilating agency, not merely as regards this apartment, but also in relation to others adjacent.

"In the first place, a sufficient iron trap, with inlet not less than 4 inches, is to be inserted between the pan and the soil-pipe connecting with the sewer. The latter should be perfectly air-tight, and should never be conducted for any distance inside the basement of the house. The trap should be placed low enough to allow the surface of its contained water to stand $1\frac{1}{2}$ or 2 feet below the bottom of the pan, with which it is connected by a 4 inch down pipe. In this pipe 6 or 8 inches above the water level, is a circular opening of 3 or 4 inches in diameter, for reception of an air pipe, which is to be carried to the nearest CONSTANTLY ACTING CHIMNEY. This proximity to the requisite draft can always be secured in primary construction, by locating the closet, in private houses, contiguous to the kitchen chimney. In my own present residence, I have adopted this plan. The air pipe, of galvanised iron, is only of 2 inches diameter, and in all 16 or 17 feet in length, with two elbows. It enters the kitchen chimney just under the ceiling. No smell has ever been perceived in the closet, nor in fact ever can be perceived, for the downward draft is at all times strong. A short air-pipe is of course preferable to a long one, but if the chimney draft is strong, the pipe may be almost any length."

The great points, undoubtedly, in house drainage, are, thorough ventilation of the soil-pipes and drains; soil-pipes to be carried full bore to the roof, distant from dormer windows, if any, with no dead ends; to ventilate, there must be *inlets* and *outlets* for air; disconnection, especially of baths, sinks and basins; free flushing.

In the next number of this Journal

it is purposed to give an article on the various DRY methods of removing excreta—the Rochdale pail system, Goux system, use of coal ashes, dry earth, &c.



PLAN OF SOIL PIPE VENTILATION.

From "Healthy Homes for Rich and Poor"—reduced.

WATER SUPPLY.

Impure water from wells and other sources is a well known cause of disease, especially of fevers and diphtheria; and many physicians in country practice can recall instances in proof of this.

An epidemic of typhoid fever broke out a few weeks ago at Princeton College, New Jersey. It was found that the fever originated in a house where the water supply was drawn from a well about fifty feet deep, with a cesspool on both sides of it, about fifty feet distant, in a soil so porous that the contents had not been removed for several years, so that a large amount of soakage must have taken place. The water contained a large amount of poisonous organic matter.

This method of water supply is too common in many small towns

and villages, who would do well to profit by the calamity at Princeton, and remove the cause before valuable lives are sacrificed.

Privy vaults and manure heaps not unfrequently seriously contaminate well water at farm house.

Dr. Hopkins, of Bridgewater, Mass., U. S., writes July 6, 1880, to the Editor of the *Sanitary Engineer*, and enquires if the following cases which he gives can be true:—"A gentleman suspected that his well was polluted, and ordered a new one dug fifty feet further off from his cesspool. While the workmen were sinking the well, a stream of pure sewage began to run through an opening half-way down, and the work was abandoned." I lately saw stated in a health report, the following: "A well was tainted from some source. The privy was one-hundred feet distant. To test the possibility of the privy affecting the well, the former was cleaned out, and a barrel of salt water poured into it. In a day or two, the well water was found to have a decidedly saline taste."

The Editor replies as follows:—"We believe there have been numerous and authentic cases reported of wells having been polluted at distances exceeding one hundred feet, by cesspool or kitchen drainage leaking through a porous soil. In one case mentioned by Dr. Eldredge, of Rhode Island, brine from ice cream was conveyed 150 feet."

MEMPHIS RECLAIMED.—It is reported that Memphis is at last clean, and so far worthy of exemption from further epidemics of yellow fever. Thirty miles of sewers have been laid, and in addition, an equal number of miles of drain tile. Aside from sewerage and drainage, there has been a cleaning and filling of vaults, a demolition of hundreds of old buildings, a tearing up of Nicolson pavement, cleaning of cellars, and a general renovation of stores and dwellings.

THE PURIFYING POWER OF WATER.

A good deal has been written about large bodies of water, as of rivers and lakes (and the Toronto Bay for example), purifying themselves, as by oxydation of the impurities. A discussion recently took place touching this point, before the Chemical Society of London, Eng., Prof. Huxley took part in it, and said as follows:—"He would state briefly only what were demonstrable facts. Diseases caused by what people, not wisely, call germs, *e. g.*, splenic fever, pig typhoid, etc., are caused invariably by bodies of the nature of bacteria; they could be cultivated through twenty or thirty generations, and then when given to the ox or the pig would invariably give rise to the characteristic disease. We have no reason even to imagine that any body capable of causing disease by such means could be anything but a body having the nature of a bacterium. Now, bacteria are just as much plants as mushrooms or cabbages, or the *Wellingtonia gigantea*, so that we know under what conditions bacteria can live and what they will do. Bacteria can be sown in Pasteur's solution just as mustard and cress can be sown in the soil; in it they thrive, and the liquid becomes milky, and he would ask the president whether there was any known method by which, if one drop of this Pasteur's solution were placed in a gallon of water, its constituents could be estimated. (The president having answered that he thought it was doubtful, the speaker continued.) Every cubic inch of such water would contain 50,000 to 100,000 bacteria, and one drop of it would be capable of exciting a putrefactive fermentation in any substance capable of undergoing that fermentation. For purposes of public health, the human body may be

considered as such a substance, and we may conceive of a water containing such organisms, which may be as pure as can be as regards the chemical analysis, and yet be as regards the human body as deadly as prussic acid. I am aware that chemists may consider this as a terrible conclusion, but it is true, and if the public are guided by percentage alone, they may often be led astray. The real value of a determination of the quantity of organic impurity in a water is, that by it a very shrewd notion can be obtained as to what has had access to that water. If it be proved that sewage has been mixed with it, there is a very great chance that the excreta of some diseased person may be there also. On the other hand, water may be chemically gross and yet do no harm to any one, the whole source of damage being, in the belief of the speaker, in the diseased germs. As to the bursting of the envelopes by endosmosis, it was a question whether they had any; bacteria would be large if one-twenty-thousandth of an inch in diameter; moreover ordinary water was full of them, and in it they could be shaken for an indefinite period without harm. As long as bacteria had nutrition, there was no reason to suppose that oxidation or endosmosis would affect them. If however, they were deprived of nourishment and exposed to sunlight the case might be different.

TEST FOR ORGANIC IMPURITIES IN WATER.

If a five per cent. solution of pure tannin is made with distilled water and filtered, and five parts of this solution be added to one hundred of water to be tested, if organic matters be present, a pellicle or scum will rapidly form; this scum forma-

tion can be recognized by the immediate appearance of an iridescence or play of colors, and the growth of fungus vegetation can be detected without a microscope by the little bubbles of carbonic acid which collect around the edges of the surface. In every sample of water where this turbidity or scum is formed, or where a fungoid growth occurs soon after addition of the tannin solution, it is a sure sign that organic matters are present. When these organic matters have been destroyed by evaporating, heating, etc., no such turbidity or fungoid growth occurs on addition of the tannin solution.

ADVANTAGES OF SOFT WATER.

The great advantages of soft water over hard in cooking is well known; besides giving better results in cooking it is much more economical. In making soups, tea and coffee, more meat, more tea, more coffee are required to give an equal strength with hard than with soft water. Soft water makes much better bread. Hard water shrivels peas and beans in the boiling.

We purpose giving in the next number of this JOURNAL some hints as to how soft water may be collected and saved in an absolutely pure state, in a practical and inexpensive way, for cooking purposes, especially.

FOOD—TEMPER—CHARACTER.

It has been said that the character and standing of a nation may be judged of by the nature of its foods. We have no conception of how much our temper, and our character through life are influenced by the foods we habitually consume. An exchange says, "How much the success or failure of our lives depends upon the food we eat, we

little comprehend. No science is so neglected and so little understood. Man would not dare to treat a valuable horse with the same recklessness with which he treats himself. For with care he selects food for his horse, few if any changes being allowed, and he procures a competent groom to look after and care for the animal, that he may be capable of fleetness and endurance; while with himself he sits down to his table, groaning under its burden of variety and richness, and, without regard to the requirements of his system or the affinity the food may possess, fills himself to the utmost capacity of his stomach, regardless of consequences.

AMOUNT OF FOOD REQUIRED; EFFECTS OF EXCESS.

It is not all that is *eaten*, but only that which is *digested* and *absorbed*, which nourishes the body. Some people eat a good deal who are yet badly nourished. The amount of food required by individuals depends much on the degree of completeness with which it is digested, and absorbed into the blood. In one who habitually eats much more than the system requires, only a certain portion, or about what the system does require, is digested and absorbed, be the functions of digestion and absorption ever so good; the rest is wasted, and much more than this, as will be noticed further on. Now if such an one suddenly and largely reduces the quantity of food eaten to about what the system requires, the system is weakened and flesh is lost, because from sheer habit of digestion and absorption, only a certain portion of the reduced diet is assimilated. But, by gradually reducing the quantity eaten, the assimilative organs will gradually acquire the habit and power of utilizing all that is eaten, the

strength and weight of the body will be kept up, there will not be anything wasted nor any partially digested food to act as a cause of disease.

The celebrated Dr. Abernethy said that, on an average, of the amount of food people eat, one fourth is sufficient for the support of life and health, while the other three fourths are taken at the risk of health and life. It is usually estimated that a man in full work requires from one and a half to two pounds or more of solid water-free food per day. Most people eat more. Nearly everybody has heard of Cornero, the man who lived forty years on twelve ounces of solid food per day, and thereby it appears built up a shattered constitution into a healthy vigorous old age. The Rev. John Wesley lived on about the same quantity of food.

According to our contemporary, "Good Health," the Philadelphia *Press* gives the following experiment in "dieting." There exists in that city a charitable society, known as the Fifteenth Ward Society, for organized charity. This society furnishes to each adult dependent upon it for support, three pounds of flour, half a pound of cornmeal, half a pound of beans, a quarter of a pound each of oatmeal, rice, and sugar, and one ounce of tea, which is the supply of food for a week. As quite a number of the members of the society, including the president, Mrs. H. P. Baker, claimed that this amount of food was entirely inadequate to maintain the body in a healthy condition, Mrs. Baker and her daughter, at the suggestion of the latter, tried the experiment themselves of purchasing the above-named quantity of food at the store of the society and preparing it separately at each meal. The result is thus stated by Mrs. Baker: "At the end of the week we had material

left, and during the week I never felt better in my life. Every day I was out visiting the sick, and certainly felt as strong as if I had partaken of our usual food. The bill of fare made up from the articles mentioned was entirely of a vegetable character, and with the exception of tea, would not be objected to by the most radical food reformer. The average amount of food provided each day by the list of articles named would be about eleven ounces, about ten ounces of which would be actual nourishment."

Some of our readers will remember the letter of "Scribbler," of this city, in the *SANITARY JOURNAL* for November, 1878, in which he says:

"I was a sufferer from chronic dyspepsia for two or three years, until I adopted the plan of living on from fourteen to sixteen ounces of solid food daily, weighed carefully with the scales. The result of a few months' adherence to this regimen was a marvellous increase in the tone and digestive power of the stomach, and a practical cure of the dyspepsia. My life was an ordinarily sedentary one, with a moderate amount of exercise. I could perceive no decrease of either mental or bodily vigor during the severe prescription—as I thought it."

Dr. T. L. Nichols, of Malvern, England, who says "the diet question is at the root of disease," experimented upon himself some two years ago (*Michigan Medical News*), and lived on from eight to nine ounces of solid food per day for a long time. "He had taken this diet without stimulants, and had experienced constant increase of health and strength and power to work, and his weight had remained at about 170 lbs."

Immoderation in eating is prejudicial in many ways. It is regarded by Hufeland as "the first shortener of life." The abstemious man is the

healthy, clear headed and long-lived man. An excess of food interferes with the perfect digestion of any part of it, and the results are, besides overworked digestive organs, inferior fluids generally, and fermented crudities in the alimentary canal, and general derangement of the entire organism. The continued strain on the stomach in digesting superfluous matter, and on the excretories in the successful effort to rid the system both of its normal waste and of its surcharge of nutriment, is not only a constantly operating cause of disease in these organs, but also wears them out prematurely. Nature does not contemplate any additional effort of the system to that requisite to the throwing off the effete products of decay, and just in so far as she is called upon to perform this additional labor is she over taxed. The experience of any physician will convince him that the great bulk of his practice grows out of the eating and drinking usages of society."

F. L. Oswald, M.D., A.M., formerly Director City Hospital, Vera Cruz, Mexico, writes to the *New York Medical Journal* on "The Relation of Diet to Yellow Fever," and says:—"Among native Spanish Americans, from the mouth of the Rio Grande to the delta of the La Plata, neither physicians nor laymen entertain the slightest doubt about the origin of all idiopathic fevers, but refer them to dietetic abuses as unhesitatingly as we would ascribe dyspepsia to the same cause." The dietetic abuses refers chiefly to eating too much fatty or heat producing food.

"The destructive and widespread plagues of 537 and 1374 spared the frugal inhabitants of Northwestern Africa and the abstemious Hindoos; and, during our last epidemic, Italians, Jews, and Spanish Creoles experienced the same good luck, if

we should prefer that expression. But, if we could ascertain the antecedents of those families or classes of our population who furnished the largest quota of typhus and yellow-fever patients, and of those who enjoyed the most conspicuous immunity, the comparison of their respective dietetic records would convince us that the contagious principle discriminates in the choice of its victims, and that there is no such thing as a *pandemic* disease."

FASTING.

Fasting is, as the *Michigan Medical News* says, salutary, especially when practised by the gourmand or the habitually high liver. As a religious observance it has always been regarded as necessary by the church, but there is reason to believe that Moses instituted it rather as a hygienic measure. The system becomes overloaded with material in excess of what it can eliminate, and vital processes are interfered with; thus it is well at regular intervals to shut down on the supply, until the excess has either been consumed or otherwise gotten rid of. Regular and persistent moderation or moderate abstinence is undoubtedly better than alternate excesses and fastings; but for occasional excesses, when they will occur, there is no remedy so good as fasting;—omitting a meal or two.

In reference to the Tanner fast, a New York correspondent of the above named journal writes to it as follows:—"There remains little room for doubt that the fast has been genuine. He has been closely watched by honest watchers, and the possibility of his having been nourished surreptitiously is hardly to be entertained. His accomplishment has been sufficient to cause physiologists to revise their statements regarding the length of time

which it is possible for a man to exist without food. In sickness, the activity of the organs being held in abeyance, authentic instances are recorded in which the patient has lived longer than this. The Welsh fasting girl who excited so much attention some ten years ago lived just eight days after she was closely watched. She had before that in all probability been secretly nourished. Instances are recorded in which persons have subsisted for over forty days without eating, but the fact that they were not watched makes them unauthentic."

Dr. Tanner, it appears had gone forty days on a previous occasion without eating. This he did in the interest of religion, an infidel having advanced as an argument against the authenticity of the New Testament the statement that Christ fasted forty days and forty nights. Now it appears he is fasting in the interest of science. Tanner's fast might rather be called a starvation than a fasting feat, and must be injurious to his constitution.

ON COOKERY.

We purpose giving in each number of the JOURNAL reliable items on cooking foods, and formulas for preparing plain, nutritious, digestible dishes.

The purpose of cookery is to render foods more digestible and at the same time to develop their flavor. Bad cookery is a common cause of disease, especially of indigestion and dyspepsia, while it is destructive of the nutrient properties of foods, and is therefore a cause of much waste. As mankind use such a great variety of prepared foods, the art of cookery is one of much importance, and should receive more attention than it does. It often happens that foods which, when taken alone, are digestible and

wholesome, are mixed and cooked together, and thereby rendered digestible and irritating to the stomach, and also less nutritious. Many puddings, most pastry, and, especially, rich cake, are unwholesome and innutritious, chiefly on account of containing so many ingredients cooked together.

Two important points to bear in mind in preparing and cooking foods are the following: First, to avoid the mixing and cooking together of a number of food-stuffs; and, second, to see that the heat employed in cooking is applied properly, for the most part, moderately and regularly. (Elem. Hyg.)

We shall continue to urge, as we have done, the necessity for cookery being taught in schools. The principles at least of good cooking should be taught in the public schools.

STOCK.—An exchange says: It is undeniably economical to constantly have soup at one's meals if neither bones nor meat are bought to make it. No carefully conducted household should be without a two-gallon "stock-pot," the cost of which is only four-and-sixpence. Into this every bone should be cast, and allowed to remain so long as any nourishment exists. The stock-pot should be always kept three parts full, and remain beside the fire night and day. Whenever soup is required, the stock should be well skimmed, and then placed in a clean saucepan; the pot inspected, all soft bones removed, and fresh ones, if any, added, then re-filled three parts full of water, and returned to the kitchen.

APPLE CHARLOTTE.—(In *Sanitarian*, from *Caterer*.)—Instead of using slices of thin bread and butter, as in the best known recipes, the following will be found more delicate: Well butter a medium-sized pie dish, sprinkle sifted sugar over the butter, and then put a layer of slices

of apple, a good sprinkling of sugar, a few grains of nutmeg, and then a layer of very finely sifted bread-crumbs. Over this drop some tiny pieces of butter, and then take apple, sugar, nutmeg, and bread-crumbs as before. When the dish is full, beat up two or three eggs (according to the size of the pudding) and pour the liquor over the top, put pieces of butter all over the pudding and bake it thoroughly in a hot oven. A medium-sized pudding will take from an hour to an hour and a quarter, as the apples ought to be thoroughly cooked and the whole well browned. When it is done, turn it out whole on to a hot dish, sprinkle finely sifted sugar over it and serve. Lemon flavoring can be added if desired. The juice of a lemon can be sprinkled over the bread-crumbs, or be beaten up with the eggs, but many people prefer to have only nutmeg with the apples. [We have had this made for our own table and can bear witness as to its excellence.—ED. S. J.]

NOXIOUS INFLUENCE OF TOBACCO.

In an address on Tobacco, by T. B. Spalding, M. D., before the Madison County (Ill.) Medical Society, the writer after entering at considerable length upon the action of the poison—its alkaloid and oil upon the human body, concludes as follows:

"It is affirmed by eminent authority that tobacco is the most prolific, if not, indeed, the only source of delirium tremens.

"The ancients were entirely unacquainted with these terrible terrors of the inebriate, and the records beyond the discovery of tobacco (1560) reveal no case of *mania a potu*.

"The normal action of tobacco is the production of tremens, and the most frightful forms of delirium

tremens are daily produced by the use of tobacco alone.

"It is rarely possible to find an inebriate who does not use also tobacco, and careful inquiry will confirm the statement that, with 90 per cent of such cases, the tobacco habit was first formed. Its influence deranged the nervous centres, an initial tremens was entailed upon the nervous system, which suggested to the morbid taste of the sufferer the soothing, sedative action of alcohol, and thus the allied agents forge for each other and fasten more firmly the chains of the servilest slavery.

"I have employed professional science to loosen the pillars of tobacco's position, and with authority and with argument have carefully criticised its action and influence on the functions of organic life. Earnestly in this direction I invoke the sober judgment of scientific medicine, and when you shall have ordered tobacco to abdicate, then only will it fall from popular use and favor, and with that will end the ruin it has wrought.

"In view of these truths, scientific and self-evident, in the name of science that classifies all knowledge, in the name of science that seeks the essential nature of things, in the name of science that truthfully interprets the teachings of nature, issue the edict of your eminent authority and drive from popular use and favor this poisonous plague."

We have repeatedly given it as our opinion that, as Dr. Spalding states, a large proportion of inebriates were induced to become such by first acquiring a habit of smoking or chewing this poison.

On this the New York *Witness* says that, it "has always taken the ground that smoking was an incentive to drinking; and that many apparently reformed men had fallen away again, owing to their indul-

gence in tobacco. This is undoubtedly true in the great majority of cases." The *Witness* then cites a peculiarly sad case in proof of the correctness of this assertion.

LEARNING TO SMOKE.

Parents should be on their guard and endeavor to prevent their boys learning to smoke. The habit is now usually acquired in boyhood, and many boys are addicted to it.

An Englishman, fond of smoking, said once to Neal Dow:—"Men never acquire the habit, or very rarely, and then under exceptional circumstances. It's boys who learn, because they think it manly to use tobacco. They steal away into secret places; they hide behind the barn or creep under the wood-shed, out of sight, because they're ashamed, and there they smoke and vomit. That's the way in which ninety-nine of every hundred tobacco users have acquired the habit."

As to the effects of tobacco on pupils or students, Yale College furnishes the following statistics:—"Each class is graded in divisions according to scholarship, the best scholars being in the first, and so on down to the fourth, where they are, in the slang of the campus, 'not too good' scholars, but 'just good enough' to keep hanging by the eyelids. In the Junior Class it was found that only 10 out of 40 in the first division were addicted to smoking; 18 out of 37 in the second; 20 out of 27 in the third; and 22 out of 26 in the fourth. The proportion of smokers, it will be observed, increases in regular ratio with the falling off in scholarship." In reference to this, it may be that dull or stupid boys are more disposed to smoking.

Amaurosis (loss of sight), and heart disease are among the most common effects of using tobacco, especially in young persons.

CONSUMPTION A CONTAGIOUS DISEASE.

Nineteen hundred and ninety-nine deaths from consumption were registered in Ontario in 1878, as shown in the death returns in the Department of the Registrar-General. As a good many deaths take place which are not registered, the number dying from this disease in this Province doubtless exceeds this. Considerably over two thousand were registered in each of the two previous years, 1876-77.

Now, there appears to be no reasonable doubt about consumption being a contagious disease, and that it may be, and often is, communicated from animals even (as cows) to man, especially to children and delicate persons. In so far then it is a preventable disease. But besides, it may further be observed here, it is a preventable disease as regards most of its other causes, such as re-breathing breathed air in unventilated rooms—a most common cause—defective nourishment from improper food, and exposure.

“To-day after ten years of experimental observations by Villeman, Viscar, Klebs, Zurn, Bollinger, Leisering, Chanveau, Bagg, Semmer, Guenther, Harms, Biffi, Virgad, Gerlach, Buhl, Tilbury, Fox, Burden Sanderson, and a host of others, it has been definitely established: 1st, that the tuberculosis can be transmitted from animal to animal, from man to animals, and presumably from animals to man, by inoculation, or by the accidental contact of tuberculous matter with a raw or abraded surface; 2d, that the raw tuberculous matter taken from man and animals and eaten by other animals may determine tuberculosis in the latter; 3d, that even the flesh of tuberculous animals will sometimes produce tuberculosis in animals that consume it, though with less certainty than if the tubercle

itself were taken; 4th, that the milk of tuberculous animals will at times produce tuberculosis in susceptible subjects, and above all where the morbid deposit has taken place in the udder; 5th, that cooking of the tuberculous matter gives no guarantee of protection, as flesh is a poor conductor of heat, and tubercle that had been boiled from a quarter to half an hour has readily infected a number of animals that partook of it; 6th, that tuberculous matter mixed with water and thrown into the air from an atomizer causes with great regularity the development of tubercles in the lungs of animals respiring such air. (J. Shaw, V.S., Prof. Vet. Med., Cornell Univ., in U. S. *National Board of Health Bulletin*.)

Cohnheim—assisted in his experiments by Scломonsen—has recently reported the result of his investigations to the Leipsic Faculty of Medicine. The following are extracts from an abstract of his report, in the *Michigan Medical News*:

“They found that if the smallest particle of tuberculous matter be carried through a lineal incision of the cornea into the aqueous chamber of the eye of a rabbit, there appears, after a period of incubation of about six weeks, an eruption upon the iris of minute nodules, which increase to a certain size and then undergo caseous degeneration, to be followed in the course of months by a more or less general tuberculosis of the lungs, peritoneum and various other organs.

“Of the greatest significance is the fact that this result occurs regularly, but only when real tuberculous matter has been inoculated. This inoculability may, therefore, be utilized as a diagnostic criterion of tuberculous products, a fact which is so much the more important in that the anatomico-morphological character of tuberculosis

does not suffice in all cases to differentiate this affection with certainty from syphilitic products on the one hand, and on the other from other non-specific, but simply chronic irritative conditions. . . .

"The tuberculous virus reaches the body in the great majority of cases through the inspired air. Thus arises first tuberculosis of the lungs, which may then develop tuberculosis of the pleura, of the bronchial glands and of the great air passages. In some rare cases, the tuberculosis may originate in the larynx. Later the virus is carried by the sputa into the alimentary canal. Thence develops the so frequent classic picture of pulmonary-intestinal tuberculosis.

"On the other hand, the virus may first enter the digestive canal, an occurrence observed most frequently in children, and dependent upon the ingestion of milk from tuberculous cows, that is, of cows suffering from the fecal disease. Thus arises phthisis meseuterica.

"But so far as regards the phthisical habit, it has nothing to do with the susceptibility to tuberculosis. It is a product of tuberculosis. Such individuals are already tuberculous, and are tuberculous mostly by heredity. Tuberculous virus can pass into the products of generation, into the semen and ovum. The disease is thus present in the new-born child, but may break out only after a lateral stage of many years, just like hereditary syphilis, in which, however, the latest stage is usually shorter. But during the latest stage, the virus present in the body so affects the development of the body as to give rise to phthisical habits."

"Several medical men of prominence, both here and in England, have lately maintained that tuberculosis is often imparted to human

subjects by milk from diseased cows, and Prof. Otto Bellingher, of the Munich University, one of the highest authorities in Germany, has sustained their position, in a paper recently read in that city. He said that repeated experiments show that the milk of tuberculous beasts has a very decided contagious influence, and reproduces the disease in various animals, and that its noxious properties cannot be expelled even by boiling. While the tuberculosis of man is not completely identical with that of the cow, it is exactly similar; hence there is constant danger to any community where milk is freely used. The Professor enjoins upon farmers the necessity of taking the strictest care of their stock, and upon people generally the greatest care as to the quality of milk they use. Rigid measures should be adopted everywhere to exclude distempered cattle from dairies. This has been done in the associated dairy established recently in Munich, and will have, it is believed, excellent hygienic effect. All cows are there kept under the closest medical supervision, and at the slightest symptom of tuberculosis are immediately removed."

Mr. J. Shaw, V. S., &c., in *National Health Bulletin*, writes: "In a case that recently came under my notice in Brooklyn, N. Y., a family cow was found in an advanced state of tuberculosis, and the owner (William Martin) and his wife were evidently rapidly sinking under the same malady. In another case reported to me by Dr. Corlies, of New Jersey, a family cow supposed to be suffering from the lung plague was found to be afflicted with tuberculosis instead, and the owner's wife (a consumptive), who had been making free use of the milk warm from the cow, was persuaded to give it up, and underwent

an immediate and decided improvement. It is for infants and adults who are somewhat infirm or out of health, or whose surroundings are not of the most salubrious kind, that the danger is greatest, but this embraces such an extended class that the moral interests involved are almost illimitable. The destruction of infancy and wasting of manhood from this cause is unquestionably far greater than has been heretofore realized; and on the moral ground alone this subject demands the watchful attention of a board of health."

There are few physicians of long experience who cannot bring to mind cases which have come within their observation in which this disease was induced by contagion through long and intimate association between a consumptive and one previously entirely free from the disease.

DUTY OF PHYSICIANS.

We are not going to preach a sermon for physicians, nor at them, but we believe there are but few in the profession who will not agree with us when we say, as we have before now repeatedly said in this JOURNAL, that a large part, and the noblest part, of the duty of medical practitioners lies in efforts to prevent disease. But we should be glad to see more practical manifestations of the exercise of this important duty.

If there are any of us in the profession who would say, "We are paid only, or almost only, for CURING disease, and often little enough for that. The public would not appreciate or thank us, much less pay us, for our efforts to PREVENT disease. There is often little enough work for us to do in our field of cure. Why should we exercise our skill in prevention?" Let any such seek for an answer to this question

in their own conscience—in their own hope of future happiness and peace of mind proceeding from well doing.

But furthermore, to meet and satisfy the ever predominant instinct of self-preservation, it may be said that we believe it to be an invariable rule, that in always endeavouring to do what is best for our fellow-creatures, we shall do what in the end will prove to have been best for ourselves.

The public might soon be taught, by united efforts on our part, to pay physicians for preventing disease. And the public could afford to pay much more liberally for prevention than for cure; while the practice of the profession would be easier and pleasanter, and its influence would become greater.

The following extract from the *St. Louis Courier of Medicine*, published by the Medical Journal Association of Missouri, has a ring about it with which we are much pleased.

"We have thought constantly, since the last meeting of the State Association, of how much we owe ourselves and our fellow-citizens and our successors, and how sadly deficient is our influence; and this ought not to be so. . . . The health of the people is the supreme law, and this should be, must be enforced.

"We (the profession) are in a condition to undertake the initiation of a movement that, if we commence in the right mode and unceasingly and unitedly endeavour to advance, will in time attain a force which I feel satisfied will overcome all the obstacles which now frown so threateningly in opposition—obstacles of custom, obstacles of ignorance, obstacles of prejudice, obstacles of intention.

"We must 'take up arms against this sea of troubles, and by opposing, end them.'

"In this journal we purpose that one of the chief departments shall be devoted to matters relating directly and practically to public hygiene, urging the importance of the formation of local societies and boards of health, and this department will give constantly the latest results of the effect of attention to local causes of disease in this and foreign countries, and, in connection with this, instructive essays—simple, so plain and easy that he who runs may read and comprehend; often of so popular a character that the secular journals, the daily and weekly newspapers, shall copy them, and so commence the education of all people who read. We feel sure they will be read.

"Farmers and villagers are concerned in understanding drainage, the neglect of which has wrought sad disaster in our country. A ditch is cheap, and ditches are cut on every farm, but they need to be cut intelligently, and every country doctor ought to be able to tell his patients where one is needed, and where it had best lead.

"Wells are dug to form depots for drainage from cess-pools, when a little needed knowledge would as easily avoid the lurking danger, that is only concealed by ignorance.

"Infected bedding and clothing have carried illness and death, by reason of expensive economy or death-dealing charity, because the infectiousness of filth or disease has been unknown, or the value of time as a purifier, ignorantly estimated to be great.

"Oh, that we could vaccinate against wilful ignorance!"

A SECOND ATTACK OF MEASLES is reported by the Brooklyn physicians as having occurred in 210 instances under their charge, and a third attack in seven cases.

PROFESSOR LANKESTER ON GERMS.

Professor Ray Lankester, F. R. S., *Medical Times and Gazette*, delivered the last week's drawing-room lecture under the auspices of the National Health Society, and took for his subject "Germs: Unseen Enemies." Commencing with the simplest description of germs, as observed in growing plants, the lecturer described the principles of fermentative processes, both those associated with the production of alcohol and acetic acid, and also those peculiar influences which are connected with the decay of animal and vegetable life, the various forms assumed by the vibrios, with the important facts of their growth and multiplication, were demonstrated by diagram, and also shown microscopically. It was pointed out that heat is a certain destroyer of all germs, if it be of long continuance and of sufficient degree; that boiling is an undoubted means of effectually "sterilising" all vibrios; and a solution of carbolic acid (one in twenty) will, if it be brought thoroughly into contact with germs, at once render them inert. The lecturer described three varieties of these "unseen enemies," namely, those producing colored products without odour, and those recognised as disease-producing germs. All bad smells, except those arising from chemical works and their products, were, he stated, due to the presence of vibrios; and, as an interesting illustration, the audience were informed that the flavour of cheese merely depended upon the presence of some of these germs, although both the odorous and colour-producing vibrios are harmless, and therefore do not need any precautions to be taken against them. With regard to the disease-producing varieties, Professor Lankester stated that it was yet quite a matter

of doubt whether, with the exception of two diseases (malignant pustule and splenic fever), the presence of the particular form of bacteria caused the disease, or whether it was not merely associated with the condition of the patient and the debilitated state of the system generally. In the course of his lecture, the Professor suggested that it would be profitable, in the best sense, to establish laboratories for prosecuting original scientific research by competent professors into the many wide and important questions associated with the subject of the presence of unseen enemies in the daily life of our population.

EFFECTS OF STARVATION AND SOME DISEASES ON THE BLOOD.

According to that valuable periodical, the *Scientific American*:—During the last hour of Dr. Tanner's forty days' fast, some of his blood was withdrawn from the hand and subjected to a careful microscopic examination. It was found to be entirely different from healthy blood. The corpuscles—otherwise smooth and round flat disks, with a depression in the centre, and of an average diameter of 1-3600th part of an inch—were found to be ragged, irregular, and shrunk to the average of about 1-5000th part of an inch in diameter, and their rough appearance was generally caused by points projecting from their surface, and looking like a fungoid growth which covered them, while in many the growth appeared to be taking place at the expense of the corpuscle itself and living on its substance, as the corpuscles most densely covered were the smallest and most irregular in shape; in fact some of them appeared to be breaking up.

It is a common law observed in organic substances that when a breaking up of a structure is im-

pending, foreign living organisms springs up, and are sustained at the expense of the decaying organic body. Mould, and all kinds of fungoid growth, originate according to this law. It appears that such growth is not confined to large masses, but is even found on the surface of such small objects as the corpuscles of the blood; this in fact has been recently investigated by microscopists, especially Korel, and such growth was found upon the blood corpuscles of patients when suffering from various malarious diseases, such as typhoid fever, etc., also in the last stages of consumption: and they agree that this growth exerts a destructive influence upon the body in which it takes root. The appearance of Dr. Tanner's blood verifies this opinion.

The effect on the blood was very perceptible twenty-four hours after breaking the fast. The fungoid spores had disappeared from a great many of the blood corpuscles, or, rather, perhaps, fresh ones had been evolved in the system, as they looked as smooth and fresh as if they were entirely new. At the second day about half of the blood had become normal, while on the third day most all the corpuscles were restored.

TRUE TEMPERANCE.

We have repeatedly urged in this JOURNAL the importance of sanitary work in connection with "temperance" work. Men are driven to intemperance by insanitary surroundings at home, and the want of good vigorous health caused thereby.

An esteemed contemporary, *Good Health*, Battle Creek, Michigan, observes: "We are glad to see that our temperance workers, or at least some of them, are beginning to recognize the fact that true temperance is something more than

abstinence from alcoholic drinks; that it really includes almost everything that contributes to the maintenance of health, or the avoidance of everything that tends to the impairment of health. What many drunkards need to make them sober, temperate men, is a restoration to physical health. Every drinking man is a diseased man."

An eminent English physician recently said, "He was under the impression that when workingmen had better cooked food they would go less to the public-house. He advocated more vegetables and less meat." All feeling an interest in the cause of true temperance will aid it by assisting in distributing health knowledge broadcast amongst the people.

THE HEALTH OF PRINTERS.

An exchange gives the following: "In the course of a lecture on the Effects of Occupation upon Health, recently delivered at Leipsic by Dr. Heubner, he drew attention to the frequency of lead-poisoning among type-founders, compositors, and pressmen. In Leipsic itself, the great metropolis of the German book trade, 77 per cent. of all who are thus affected belong to the trades enumerated. Type-founders are poisoned by inhaling the fumes of the metal, while compositors and pressmen inhale minute particles of the same material. Fraught with still greater danger is, however, the frequent practice of compositors of bringing their type-stained hands in contact with their lips, or keeping eatables in composing rooms, etc. The great preventive against all chronic poisoning are cleanliness, both of person and in the work-room, and ample ventilation by the frequent opening of windows, etc. With regard to lung diseases, too, printers compare unfavorably with

other trades, the proportion of deaths from this cause being exceptionally large. The one safeguard against this danger also is ventilation, which, as we all know, is sadly neglected in printing-offices generally, by reason of the almost universal dread of draughts.

THE PUBLIC HEALTH FOR JUNE; —ALL OVER THE WORLD.

The following shows the number of deaths per annum per 1,000 of population in the various cities named, according to returns for the month of June, 1880:

Toronto.....	17'5
New York.....	23'5
Concord, N.H.....	26'0
New Bedford, Mass.....	37'7
Plainfield, N. J.....	26'0
Wilmington, Del.....	26'6
Baltimore, Md.....	25'7
Cincinnati, O.....	24'7
District of Columbia.....	29'4
Norfolk, Va.....	29'4
Charleston, S. C.....	32'0
Savannah, Ga.....	31'4
Augusta, Ga.....	29'0
Selma, Ala.....	42'2
New Orleans, La.....	37'2
Brownsville, Texas.....	28'4
Nashville, Tenn.....	32'4
Clarksville, Tenn.....	43'4
London, Eng.....	18'5
Liverpool.....	23'4
Berlin.....	26'6
Hamburg.....	25'4
Vienna.....	25'8
Buda-Pesth.....	41'1
Copenhagen.....	25'8
Stockholm.....	35'9
Geneva.....	25'0
Amsterdam.....	28'5
Rotterdam.....	29'8
Cadiz.....	32'9
Havannah.....	43'5
Shanghai (foreign settlement).....	104'4
Kobe (Japan).....	34'9

VITAL STATISTICS.

The value of vital statistics becomes daily more and more apparent. It is most desirable that some means be devised by which complete returns may be obtained for the entire Dominion. Something is required

to awaken a general public interest in them, as in England; where the secular newspapers give regular reports of vital statistics, and which are generally read and considered.

The collection and publication of health statistics is a most important work of health organization, too.

A faithful register of births, marriages, deaths, and sickness is now wished for and being provided for in all enlightened and advanced countries. Why will Canada delay?

PUBLIC HEALTH IN ONTARIO.

At the late meeting of the Ontario Medical Council, July, 1880, in Toronto, Dr. Grant offered the following resolutions:

1. That the members of this Council are of opinion that there is no subject of greater importance to the well-being and prosperity of the Dominion than that of public hygiene.

2. That in order to keep pace with the scientific progress of the age, and give greater evidence of an earnest desire to promote sanitary measures, this Council is of opinion that a Central Bureau of Health should be established at the Capital, under the control of the Federal Government.

3. That as a Central Bureau of Health meets with the unanimous voice of our profession in Canada, it deserves the well-timed consideration of the Federal Government.

4. It having recently transpired that a grand Congress of Hygiene will assemble in September next at Turin, and an invitation having been extended to all Governments to send a representative, that Sir Charles Tupper, at present in England, be requested, on the part of our profession, to attend that meeting, and thus give evidence of our desire to promote the advocacy of the best possible means to lessen mortality and guard public health.

The mover considered that the subject of public health was one of great interest to the profession and the public throughout the Dominion, and he had prepared resolutions with a view of impressing upon the Government the importance of adopting some legislation in reference to it.

Dr. Brouse said the subject had engaged the attention of other Governments, as France, Germany, England and the United States. In the latter country, at a recent meeting, the Federal Government was called upon to legislate on this subject. A Bureau of Sanitary Science had been established at Washington, and quite a sum of money (\$500,000) had been devoted to the purpose of carrying out its object. Medical men were not simply satisfied with having a Bureau, but they demanded that there should be a Department of Health, as in Germany, England and other countries. In England since 1844 no less than 48 public health Bills has been passed in Parliament, and it was shown by the returns through the establishment of hygienic laws the death rate in London alone had been reduced from 42 to 21. He thought the Ontario Government also should take steps to legislate on this question. It was the great question of the age, and its importance would be urged with greater force upon the attention of legislative bodies in the future.

The Chairman concurred in the views expressed, and the resolutions were carried unanimously.

Later in the session, Dr. Clark proposed the following resolution:

"That in the opinion of this Council, while it is very desirable that a Central Bureau of Health for this Dominion should be established at Ottawa, the Provincial Government of Ontario should make some provision at an early day for promoting the public health in this Province by providing for some central organized body, such as the Government may deem best, with functions similar to the Imperial Boards of Health of most European countries, and the State Boards of Health of most of the United States, chiefly for the purpose of educating the people in health matters, obtaining information in reference to the public health, and for perfecting, as far as possible, the returns of vital statistics." Carried unanimously.

THE MICHIGAN STATE BOARD OF HEALTH.

(Abstract of report made for the CANADA HEALTH JOURNAL.)

At the regular quarterly meeting of this Board, held at their rooms, at Lansing, on July 13, Dr. Lyster called the attention of the Board to Syphilis, a disease which causes much sickness and many deaths in this State. He was requested to prepare a paper on the subject.

* * * * *

The secretary presented a communication from F. G. Russell, city attorney of Detroit, suggesting that the state board address a letter to the mayor and aldermen of that city, recommending organization of a board of health, and the appointment of a health officer.

SICKNESS AND PAUPERISM. — A communication was presented from Hon. H. W. Lord, Secretary of the State Board of Corrections and Charities, relative to pauperism as result of sickness. After some discussion relative to the amount of pauperism caused by sickness, a committee was appointed to investigate the subject.

The remainder of the forenoon session was principally occupied with perfecting details in reference to the examinations of candidates for certificates of competency as to qualifications to act as health officers in Michigan—a new feature of the board.

A paper on "Unsanitary Conditions in our Public Schools," by G. E. Corbin, M. D., of St. Johns, was read, consisting of details of overcrowding, bad ventilation, and the sickness resulting therefrom, which came under his personal observation. Two valuable papers on "Ozone," and "Periodic Fevers," were presented.

Dr. Kedzie said the adulteration

of sugar with glucose was increasing rapidly, and was being done skilfully. That adulteration with pure glucose did not endanger health but the sugar was not so sweet. The manufactured glucose, however, was unhealthful to take into the stomach, because of poisonous substances which were always associated with it. Dr. Lyster said a prominent candy dealer had informed him that all candies, excepting rock-candies, were composed in part of glucose. Dr. Kedzie said nearly all syrups were made from glucose.

PUBLIC HEALTH.

Under this heading, and taking for its text a notice of the meeting of the International Medical Congress of Hygiene, to be commenced on 6th September, at Turin, to which all countries are desired to send delegates, the *Ottawa Citizen* says:

"From this important statement, we can form some idea of the place the science of Hygiene, which guards public health, is taking in some of the most important centres in Europe. No subject can possibly be of greater interest to the State than that which enables it to stay the progress of disease and lessen mortality. In the United States a Bureau of Public Health has been established by the Central Government at Washington, and already much good has been accomplished, in a sanitary point of view. Nearly every State, too, has now its State Board of Health. In our Dominion all such matters are in their infancy It is high time more energetic means were adopted by a central authority if possible. . . . The importance of the subject is so great that ere long it must call forth more energetic action than has so far been adopted.

PROFITS OF SANITARY WORK.

The *Montreal Witness* says, New York City is a notable example of what may be done by efficient sanitary government in improving the health of cities. About ten years ago the present Board of Health was organized and immediately set to work, though obliged to contend with much ignorant and selfish opposition, to enforce the sanitary laws which have proved so beneficial. Four years after the Board was organized, in New York, such preventable diseases as scarlet fever and diphtheria decreased fully seventy-five per cent. Destructive diseases that before were epidemic are now unknown. The general mortality is steadily declining, while the population is constantly increasing. At least three thousand lives are now annually saved that before perished for lack of sanitary prevention. Not long since, one of its most solid merchants declared in a public meeting that the cash value of the Board of Health to the branch of business in which he was engaged (trading in hides and rags, which could not, previous to the action of the Board, be carried on in the summer) cannot be estimated at less than \$100,000,000.

"EAT SLOWER."

A respectable, elderly lady patient went to London to consult the very highest medical authority about her dyspepsia and its accompanying ailments. She waited patiently for her turn, entered the awful presence, told her pitiful story, put out her furred and creased tongue.

The doctor listened, and said, "Um! Ah! Yes! Just so!" Then he looked profoundly, awfully wise.

"Now, doctor, what shall I do? I have tried everything, and nothing does me any good. Can you do anything to help me?"

"Yes, madam, you must eat slower."

She waited for her prescription, but the doctor did not write; and was evidently expecting her to go. He thought she might be hard of hearing, and spoke louder: "Eat slower!"

By an involuntary, but slight movement of his right hand she saw there was nothing to do but pay the fee. The two guineas dropped, and she sadly left the presence.

Two guineas for two words! But they are richly worth the money. "Eat slower" is very wise and very important counsel. There is a time for everything—and as eating is one of the most important things of our mortal life, the time we take to do it rightly is of very great importance.

NATURE'S CURE AND THE DOCTOR.

Mrs. Rogers lay in her bed,
Bandaged and blistered from foot to head,
Bandaged and blistered from head to toe.
Mrs. Rogers was very low.
I opened the blinds; the day was bright,
And Nature gave Mrs. Rogers light.
I opened the window; the day was fair,
And Nature gave Mrs. Rogers air.
Bottles and blisters, powders and pills,
Catnip, boneset, syrup and squills;
Drugs and medicines high and low,
I threw them as far as I could throw,
Deacon Rogers he came to me;
"Wife is a comin' round," said he.
"Your wife," said I, "had Nature's care,
And its remedies—light and water and air.
All the doctors, beyond a doubt,
Couldn't have cured Mrs. Rogers without."
The deacon smiled, and bowed his head;
"Then your bill is nothing," he said;
"Nature has cured her, as you say; [day!]"
Heaven bless you, doctor; good day! good
If ever I doctor that woman again,
I'll give her some medicine made by men.

"HA, how are you? Where have you been this month past?" "I've been laid up sick—not been outside of my bedroom door for more'n three weeks." "Dear me; and what was the matter with you? Something serious, it must have been." "Oh, no, it was a very little thing; but then I was treated by a very big doctor."

Book Notices.

VENEREAL DISEASES, By E. L. Keyes, A. M., M. D., Adj. Prof. of Dermatology in Bellevue Hospital Med. Coll., etc

A TREATISE ON FOREIGN BODIES IN SURGICAL PRACTICE; two vols. By Alfred Poulet, M. D., Adj. Surgeon Major, Inspector of the School for Military Med. at Val-de-Grace. Translated from the French.

A HANDBOOK OF PHYSICAL DIAGNOSIS; Comprising the Throat, Thorax, and Abdomen. By Dr. Paul Guttman, Privat-Dozent in Medicine, University of Berlin. Translated from the third German edition by Alex. Napier, M. D. F. F. P. S., Glasgow.

The above are the titles of the four first volumes received of Wood's admirable library series of Standard Medical Authors for 1880. Each of the four volumes contains about 300 or more large octavo pages, on good paper, is well illustrated and well bound. They are in a short handsome volumes, outside and in; both material and work being first-class. They are designed for the general practitioner, and are perfect marvels of cheapness; and merit the warmest approval of the profession. The series are regarded as the cheapest medical literature ever published; being sold at the rate of \$1.25 per vol.—or 12 vols., for 1880 (1 vol. per month), about 4,000 pages, for \$15. Sold only by Subscription. New York: Wm. Wood & Co.; Toronto: Willing & Williamson.

Of the 1st vol.: Prof. Keyes holds strong views upon the principal points of the subject. He claims there is no proof of prevention of constitutional symptoms by excision of the local disease. To the unprofessional the disease is a "mysterious horror of nastiness; to the quack a "glorious harvest" He does not regard it as of such a very serious character (in which probably not a few will differ with him); and his views as to its future seem to be sanguine and peculiar.

The two volumes on foreign bodies, &c., were certainly needed. They form, it appears, the only extended treatise on the subject. We cannot conceive that any prati-

tioner, having examined them carefully, would consent to do without them in practice. What physician has not found himself greatly embarrassed by a case of the simplest foreign body?

The Hand-book of Diagnosis has been translated in French, Italian, Russian, Spanish, and Polish, as well as into English, and hence has evidently been a work that was needed. Its scope is broad and includes the skin and subcutaneous tissue. It treats of auscultation, percussion, inspection, palpitation, the thermometer, spirometer, pneumatometer, sphygmograph, and examinations of the blood, secretions and excretions. It will prove a great help to both the student and practitioner.

We have to acknowledge the receipt also of Savage's admirable work on the Female Pelvic Organs, a treatise on Therapeutics, 2 vols., and other books, which will receive further notice in our next.

Correspondence.

CAUSES OF DIPHTHERIA.

To the Editor of the CANADA HEALTH JOURNAL.

SIR—Some time ago I had two cases of diphtheria, a short distance from this city. The following were the surroundings; the floor of the dwelling, a farm house, was low, almost on a level with the ground of the yard. The barn and stables were on slightly higher ground, and the washings from these gradually "soaked" toward the house, passing the well in their course. The well was not deep nor well protected at top, and the water was used by the family. I did not have the water chemically tested, but I have no doubt, from its condition, that it contained chlorides in considerable abundance. Close to the back door, the house slops had long been thrown, and the air near here was unpleasant, sourish. There was a dark, dank cellar under a back building, the door of which opened near the back door of the house.

Is it surprising that diphtheria made its appearance?

The mother suffered first, a moderately severe attack; the baby soon took it and died. One more child, running about out of door escaped. There had been no known exposure to the disease, in anyway; and I have no doubt whatever that it arose *de novo* from the insanitary condition of the surroundings. Make any use of this you see fit.—Yours truly,
M. D.
Toronto, August 21st, 1880.

IN MEMORIAM.

Just as the last issue of this JOURNAL was in press, death visited the family of the Editor, taking away, in the prime of life and usefulness, a faithful, loving wife and affectionate mother.

The deceased, *née* Charlotte Arnold, was the second daughter of Col. Abner Arnold, of Thornhill (head of one of the oldest families in the County of York). Her disposition was naturally bright, cheerful, and unselfish; and she was ever ready to assist others, and to labour for the advancement of the good and the true. Her loss is deeply felt not alone in the now sorrowing home circle, on which for the past twenty years her many virtues shed their gentle light.

After a brief, though severe, attack of peritoneal inflammation, she departed this life on the eighth of June last, at the age of forty five-years, in the sweet and blessed hope of a glorious resurrection.

"Happy soul, thy days are ended,
All thy mournig days below :
Go, by angel guards attended,
To the sight of Jesus, go!"

S J. S.

The fair, wise brow is icy cold,
The truthful eyes—Divinely bright,
Illumed by soul of heavenly mould—
Are dimm'd and still'd, this dread to-night.

Why do we live, when HER life's gone ?
When SHE lies cold in winding-sheet ?
Why do our hearts throb on and on,
When HER true heart has ceased to beat ?

Why stay our souls in bonds of clay,
When HER's is free, before God's throne ?
Why must we wait—how long the day!—
And tread our hapless way alone ?

HER HUSBAND.

Editor's Special Corner.

THIS LITTLE JOURNAL has now struggled through four volumes of its existence, and survived a period of more than six years of "dull times," from its commencement—July 1874. Great changes in the life of many have taken place in that time, and not a few of its early patrons have passed away from earth. The delay of three months in the appearance of this number is chiefly owing to a sad and terrible change in the domestic life of the editor.

We have ever endeavored to make improvements in the JOURNAL from time to time, and we believe it will be admitted by our readers that this number—the first of vol. V, is an improvement on all previous numbers. The double column will be found very easy to read, while it affords other advantages.

In future numbers we purpose giving, as in this one, instead of lengthy selected or original articles, only the most important and essential parts of them—the pith—with sometimes brief comments thereon; hence most articles will be in a measure original. A larger amount of valuable information will thus be given in a smaller space. We would like to make the CANADA HEALTH JOURNAL indispensable to every intelligent family in the Dominion, and it shall be our endeavor and aim to do so.

NO ONE NOW DOUBTS that a large proportion of the sickness which prevails everywhere is self-originated, and consequently preventable, and that there are many premature deaths. It is our aim, and should be the aim of everyone, to seek to remedy this state of things, by distributing amongst the people information on all matters pertaining to health and life. A recent writer well says, "Man is a free will being, and while he cannot compass providential dispensation, . . . untimely deaths, in middle life, in youth, childhood and infancy, now too often occur, and that it is rather His pleasure that the souls which enter into the life to come shall be those whose race is fully run, whose work is all done. Perfection of body, perfection of life, the religious and

physical blended together, make men more fitted for the indwelling of the Divine."

UNDER THE VERY SUGGESTIVE HEADING of "Drinkable Sewage" the editor of the *Canada Lancet* sharply and somewhat facetiously lectures the "Toronto City Fathers" in reference to the sanitary condition of the city. He says—"It would be a very interesting hydrostatic calculation to determine the degree of dilution which the sewage of this city, loaded with all the putrescent excreta of 70,000 human beings, copiously supplemented by those of an equal number of quadrupedal, bipedal and other dirt elaborators, undergoes in the big currentless pond," the bay. We beg to suggest that the "fathers" read the remarks of Prof. Huxley on the "purifying power of water" in another page of this JOURNAL. The editor again says, "No larger contribution can you make to the financial benefits of city physicians, than by persistence in your present indifference to the sanitary well-being of your constituents." He asks them to "descend a peg or two from your lofty perch." He ought to have added, "this is sarcasm;" they may not understand it. While we, too, would not be unjust to a "respectable minority" of the fathers, we think it criminal that these matters should be in the hands of men who manifest utter ignorance even of the difference between drainage and sewerage.

IN THIS CONNECTION we would beg to suggest that, at the next election, some one of the medical men of Toronto, who possess means and might bestow the necessary time and attention, be elected as mayor, and, if possible, two or three others as aldermen. Montreal was thoroughly awakened to a sense of its sanitary requirements when Dr. Hingston was mayor some years ago.

OUR ESTEEMED FRIEND, the indefatigable health officer of Montreal, must have gotten statistical matters a little "mixed up" when he argued from a table showing that that city had fewer deaths in proportion to the total number of deaths over five years than a number of other cities named, that it "had fewer deaths over five years in proportion to its population," than the others. The usual

ly high death-rate of Montreal is due however it appears to deaths of those under five years.

PIM'S ROYAL PRINTOGRAPH is really a most useful thing. We have used other similar articles but find this much superior in many respects. It gives brighter, clearer and more perfect copies; and we have read the testimonials of many as to its superior value. It is manufactured by Pim & Holt, King St., Toronto.

LAUNDRIES AND CONTAGION.—People should exercise care in sending out clothes to be washed. There have been people thoughtless enough to send infected clothing to a laundry from which the infection might be spread to other clothes, and hence to other families. We have made enquiries, and believe much caution and care is exercised in this regard at the Toronto Steam Laundry, 54 & 56 Wellington St., and can recommend this establishment to the readers of this JOURNAL.

FOR THE PREVENTION OF CRIME there is a society in New York, which appears to be very useful in aiding the authorities in the punishment and suppression of crime.

OLD Mrs. Rothschild, when 97, once said to her physician, "Doctor, you must keep me up for three years more at least; it would be discreditable for a Rothschild to go off under par."

PREVENTION OF CRUELTY TO CHILDREN.—For this purpose there are in the United States twenty societies. One in New York not long ago issued its fifth annual report which shows that the society has done much good work.

SANITARY MATTERS IN BRAZIL.—It appears that there is a Sanitary Institute, under government patronage, in Brazil; established some years ago. Canada is about the most inactive civilized country in the world in public health work.

DIPHTHERIA IN RUSSIA.—A London (Eng.) exchange (of April, 1880) says that in consequence of the increasing ravages of diphtheria in the province of Kharkoff, nineteen different sanitary detachments of doctors and nurses have been sent there to combat the disease.

AN EMINENT PHYSICIAN in England, Dr. Ferguson, has found that children who used habitually tea and coffee as a part of their dietary grow on an average only four pounds per year, between the ages of 13 and 16 years, while those who had milk night and morning instead of tea grow 15 pounds each year.

SANITARY MATTERS IN JAPAN.—According to a report furnished to the National Board of Health at Washington, and published in their Bulletin, a Sanitary Bureau was established in Japan in 1873, and is in active and useful operation under Government auspices.

A FATAL DIPHTHERIA EPIDEMIC has caused a number of deaths among the people in Jerusalem, Queen's county, New Brunswick. Within three weeks no less than fourteen children victims to its fatal influence in two or three families. Four children died in each with a few days of each other.

HEALTH IS A TALENT.—Says R. Paramore, M. R. C. S. Eng., in a lecture entitled Hints on Health, for which we shall have to give an account. There is an inexorable law in nature, 'Whatsoever a man sows, that will he reap.' Most of our evils can be traced to thoughtlessness, inattention, and carelessness.

A PREVENTIVE for damp, cold feet from perspiration has been invented, in the form of a "boot and shoe ventilator." It consists of a small spiral coil of brass wire laid in a groove around the under side of the insole with holes punched at close intervals over the coil. It is said to form a complete automatic air pump continually drawing in pure air and throwing off foul heated air.

FRONT AND BACK YARDS.—A writer in the *N. E. Farmer* says, "It is a very correct observation that the front yard is an index of the home and the home life." We are of opinion that the back yard is a better index of this. And we urge, as we have on former occasions, that while the front yard should be beautified, the back yard should be made equally beautiful. Its influence upon children and home life would be invaluable.

CAUSES OF SICKNESS IN MICHIGAN.—Reports to the State Board of Health, Lansing, for the week ending July 17th, 1880, by 65 observers of disease in different parts of the State, show that, intermittent fever was the most widely distributed disease in 89 per cent. of the localities; next to this, diarrhoea; next, cholera-morbus, 71 per cent; then follows consumption, rheumatism, and remittent-fever.

"HONESTY THE BEST POLICY."—Country Practitioner (*surprised at the visit of a notorious quack and pill vendor*): "Well! What brings you here?" Quack (*evidently suffering from disturbed peristaltic action*): "Well, sir, the fact is, I feel rather queer, and—" Country Practitioner: "Then why don't you take one of your 'Pearls of Health?'" Quack: "That's just it, sir. I think I've swallowed one—by mistake!"

AN INTERNATIONAL SANITARY CONVENTION is likely to be held in Washington (U.S.)

1st January 1881, and circulars are being issued by the Secretary of State inviting delegates from powers having jurisdiction of ports likely to be infected with cholera or yellow fever, to devise means for preventing the spread of which diseases is, it appears, to be the chief object of the convention.

NEW CURE FOR DRUNKENNESS.—The municipal authorities of Medford, Massachusetts, have voted that the names of all persons who have been convicted of drunkenness during the past six months, and all persons convicted thereof in the future, shall be posted in every licensed place, and the proprietors notified not to sell liquor to them under penalty of revocation of license.

POISONOUS WALL-PAPER.—The *Medical Times and Gazette* recently records the case of a child who was attacked with serious illness. The symptoms indicated poisoning by arsenic. The paper on the nursery walls was examined by an analyst, and found to be "unfit for use." It was heavily loaded with arsenic, which the medical attendant suspected. It is stated that the child "will probably escape with its life, but with impaired health and constitution."

AN INSTANCE in which tight lacing was the direct cause of death is reported in the *Medical Times and Gazette*. A young woman, 19 years of age, died suddenly. She had been out, and on returning became suddenly ill, and died in a few minutes. A *post-mortem* was made, and the woman's waist was found to be exceedingly small. One of the ventricles of the heart was so small as to impede the circulation.

HOW TO GO UP-STAIRS EASILY.—Elderly or delicate persons should never hurry up-stairs. A correspondent tells the *Evening Post* how to climb stairs without fatigue. Always go up, he says, while inspiring or drawing in the air; never while expiring. At the first step begin to inspire; at the fourth or fifth step, stop long enough to respire; and to begin inspiring before starting again. By this means the fatigue is reduced to a minimum.

STEAM BOILER EXPLOSIONS.—In Manchester (Eng.) there is a Steam Users Association, established not for profit, but for the public good, to prevent the sacrifice of human life from steam boiler explosions, and it appears that by the periodical inspection adopted its members enjoy practical immunity from explosions. After noticing the large number of explosions and deaths thereby in the country the *Medical Times and Gazette* says, such a result is a strong recommendation in favour of compulsory inspection under Government authority by competent persons duly authorised and registered.

THE BEARING-REIN ON HORSES.—The increasing disuse by medical men of the bearing-rein is very satisfactory, says the *Medical Times and Gazette*, London Eng., and may be furthered by the following declaration on the subject, to which the signatures of nearly six hundred veterinary surgeons in different parts of the country are appended:—"We, the undersigned veterinary surgeons, are of opinion that the use of the bearing-rein, when tightly applied, is painful and irritating to horses, is directly or indirectly productive of disease when regularly worn, and by its mechanical action greatly hinders horses from employing their full strength. For the above reasons, on the plea of utility as of humanity, its use should be discontinued."

THE OPIUM HABIT.—An antidote, and apparently a very successful one, has been found in the fluid extract of cocoa. The opium is withdrawn and the cocoa given instead.

FLORICULTURE.—A correspondent writes from Cannington and says he thinks a page or two devoted to Floriculture—the plants and shrubs best adapted to indoor and garden culture, their influence on health &c., would be appreciated by the many readers of the Journal. We are much obliged for the suggestion and shall endeavor to act upon it, in a limited way, at least. Below is an item on flowers and ozone touching this subject.

FLOWERS AND OZONE.—Investigations on the action of Flowers in the Production of Atmospheric Ozone, natures great disinfectant, demonstrate that the disciples of Empedocles were not in error when they planted aromatic and balsamic herbs as preventives of pestilence. Herodian has recorded that "in a plague which devastated Italy in the second century, strangers crowding into Rome were directed by the physicians to retreat to Laurentum, now San Lorenzo, that, by a cooler atmosphere, and by the odour of laurel, they might escape the danger of infection." Mantegazza states that a large quantity of Ozone is discharged by odoriferous flowers, but that flowers destitute of perfume do not produce it. He found that in some plants Ozone is only developed by the direct rays of the sun, whilst in others the action, if commenced in solar light, continues in darkness. Cherry-laurel, clove, lavender, mint, lemon, fennel, etc., are plants which develop Ozone largely on exposure to the sun's rays. Amongst flowers, the narcissus, heliotrope, hyacinth and mignonette, are conspicuous.

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Annual Income, about			5,000,000.00
Paid to Policy Holders in Canada, over			1,000,000.00
Paid to Policy Holders in all countries			38,247,742.45
Deposited with Canadian Government and otherwise invested in Canada, nearly.....			800,000.00
Number Policies in force January 1, 1879, 56 542. Amount, nearly			\$30,000,000.00
Interest on Funds, received in 1877.....	\$1,527,307.70.	In 1879.....	\$ 1,617,784.91
Death Claims paid in 1877	1,121,083.73.	In 1878.....	1,091,268.63
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