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THE OVERHEAD VENTILATION OF SEWERS.

BY THE CHAIRMAN OF THE PROVINCIAL BOARD OF HEALTH, WILLIAM OLDRIGHT, A.M., M. D., OF TORONTO.—Read before the American Public Health Assoc. at Detroit, Mich., Nov., '83.

The object of the brief paper which I am about to read is to obtain a consideration by this association of the question whether it is preferable to discharge sewer-gases, as is now done in many of our cities, into our streets on the ground level, amongst wayfarers, who are continually passing over the street ventilators and on all sides of them, or to discharge them at points above the top of our houses; and in considering it we must bear in mind that in the latter case the gases are to be distributed through a large number of outlets at short distances apart, whereas in the former they are discharged through openings few and far between, and are, therefore, much more concentrated and injurious.

Let us leave out of consideration all side-issues, which, though germane to the subject, have no more bearing on one side than on the other of the particular question proposed. I know some will say: "Attack the main cause of trouble, the existence of decomposing matters in sewers." So we should; but there still remain gases in sewers, and the question now be-

fore us is, What shall we do with them? The numerous defects to be met with in house plumbing, and the means for preventing sewer-gases from passing into our abodes, through the drain-connections, have a very important relation to our subject; but, as these have been fully treated by various members of this association, and I have recently expressed my views on them in an address reported in the annual report of the state board of health of Michigan for 1882, and more fully in the latter half of a pamphlet on "The Disposal of Sewage," published a short time ago by the provincial board of health of Ontario, I do not intend to take them up at the present time, for it will be readily admitted by all that, so far as the interiors of our houses are concerned, the plan which should be adopted is that which will secure the greatest immunity from the presence in drains inside of houses of noxious gases in concentrated form.

Let us then address ourselves to the consideration of the question whether sewer-gases should discharge at the level of the road-bed, or into the air above the roofs of the houses. I do not think it will be necessary to spend time in impressing upon such an assemblage as this the fact that to inhale the gaseous contents of sewers is not conducive to health. Even if a system of sewerage be so well con-

ducted that the sewage is removed from it (changed) every twenty-four hours, I do not think we can say there is no danger from inhalation of gases from the excrementitious products and washings of persons ill with infectious diseases. I may, however, call to the attention of some who may not have noticed it, a report by Mr. Sedgwick Saunders, published some time ago in *The Lancet*. He attributes to sewer-gas, arising from the ventilators in the road-bed in some of the narrow streets of London, cases of typhoid fever and sore throats, and he "suggests an abatement of the evil by the closing of the street ventilating-gratings entirely and the erection of upright shafts, six inches in diameter, to be carried above the roofs of the adjacent houses." I am sure that it has occurred to many of us to notice the disagreeable odors that sometimes arise from the street gratings or from the unsealed traps of gullies. Sometimes, too, we are more than usually impressed with the reality of the exhalation of sewer-gas by the sight of columns of vapor arising from these gratings and gullies and rendered more visible by the condition of the atmosphere on a cold damp day; but we should bear in mind that gases proceed from the sewers even when they are not apparent to sight or smell, and that they are often accompanied by germs.

Some speak of the placing of charcoal-trays in the ventilators as a sufficient safeguard. Even were the charcoal constantly dry, sewer-gas at times makes its exit too rapidly for the charcoal to exert any action upon it. So that, however useful an adjunct charcoal may be, it cannot be considered a preventive to the injurious effects of sewer-gas.

But even were there no objections to the method of ventilating by gratings in the road-bed it is not to be relied upon in winter time. The gratings become clog-

ged or closed by ice and frozen mud.

Hence, it seems evident to me that the principle which is now being advised and adopted by leading sanitarians and architects for the safety of the individual householder in regard to his house drain ought to be advised and adopted by sanitarians and engineers for the safety of the whole community in regard to the street sewers. A four-inch pipe (C) should be carried from every house drain to the roof of the house which the drain is intended to serve, and should discharge the sewer-gas at a sufficient distance from all chimneys, windows, doors, or other openings into the house. Between this pipe and the sewer no trap should intrude. It would, in my opinion, be better to have a trap between the pipe and the house, provided that, in addition to the extension upwards from the soil-pipe (A), there is another four-inch pipe (B) forming a counter opening and allowing a current of air to circulate freely through the house-drain and its connections and vents, as described in the pamphlet before referred to and illustrated in the accompanying diagram.

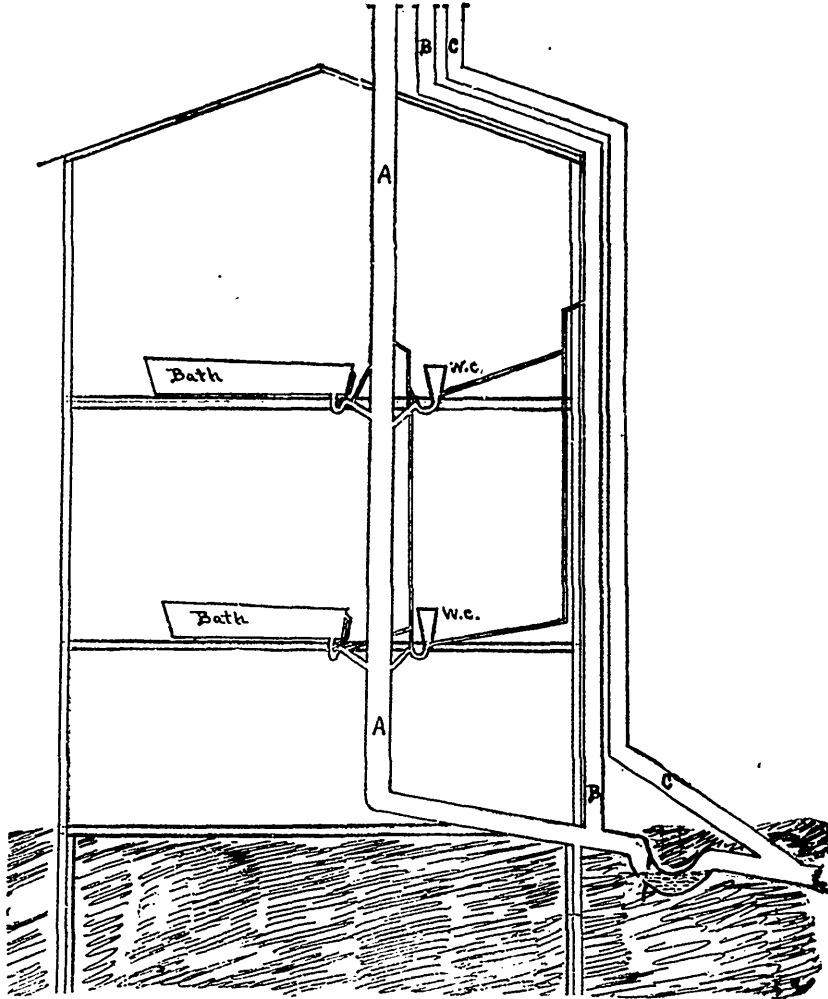
If the health authorities do not wish to risk the odium of thus forcing good health upon the inmates of houses at once, they ought themselves at least to place, at the expense of the corporation, pipes at distances proportionate to the spaces measured off by the sewer-gratings, and might pass a by-law requiring that a pipe shall be connected with every new drain, or other drain that shall require to be reopened, and that within a reasonable time all drains shall be provided with them.

The desirability of some such method of disposing of the gaseous contents of sewers seems so apparent that we feel as though we should call upon municipal authorities to show cause why they do not adopt it (if we may borrow a phrase from the courts of law). Let us examine some

of the pleas entered in opposition to the proposed reform.

1. One objection I have heard made by some civil engineers is that, inasmuch as house-drains do not usually enter the sewer at the highest point of the latter,

would care whether there is confined air there or not; if the pressure becomes very great the gases will be dislodged and will bubble off at a point higher up the line of sewers, where the drains are not water-locked and where they will find an escape.



there is a space in the crown of the street sewer that cannot be ventilated through the house-drain when the water in the sewer is higher than the mouth of the drain.

To this I would answer that as there is nobody in the crown of the sewer to be injured it would seem as though nobody

Most sewers allow for fluctuation of their contents, and it is only at times that the house-drains will be so full as not to allow of counter-currents and through-drafts.

But the ground of this objection furnishes a very strong argument for the overhead ventilation through house-drains for, when the water closes the mouth o

the house-drain, and that rises higher still in the house-drain (as well as in the sewer), what is to become of the gas imprisoned in the drain itself, if there be no vent between the sewer and the traps, the pressure being such as will force the latter? We know that a three-inch seal only offers a resistance of a quarter of a pound for each square inch of surface. The answer to this first objection is partly the answer to the second.

2. The second objection to which I shall refer is that it is not safe to carry sewer-gas through a pipe in such close proximity to the walls of a house, as some of the gas might escape from the pipe.

(a.) It is only safer to have it pass through a pipe outside the house than to have it forced in undiluted form into a pipe inside the house.

(b.) It must be remembered that, with the present system of half-clogged and infrequent openings, the contents are much more concentrated.

(c.) In further answer to this objection, I would add that the lower part of the pipe, from the drain to a point a few feet above the ground, should be of cast-iron dipped when hot into melted pitch, and above that, of galvanized iron, which, with a good coat of paint, will remain perfectly tight. But, even if a pin-hole had existed here and there, what would that amount to in comparison with the pleasures of gas wafted toward the unfortunate houses which happened to be situated opposite a street grating or untrapped gully?

3. Another objection made is that air will not enter the sewers down the long stand-pipes.

(a.) Now I would again answer that so long as the gas, when it does move, moves off overhead, we need not so very much mind its remaining in the sewer for awhile.

(b.) But, as a matter of fact, a careful considerator, of pneumatic laws and of

the forces acting in sewers will show that the objection does not hold. The columns of gas or air in opposite sides of the street, if they are of the same temperature and density, will counterbalance each other; but let the sun shine on the one side and immediately an ascensional action begins; or let a cold wind blow on the other, a cold dense column begins to descend.

(c.) Besides, the rising and falling of the liquid in the sewer will cause the gas to be expelled, or the air to be drawn in.

(d.) Again, the air will blow up the sewers from their mouths; and, for this reason, flaps should never be placed on the mouths,—free vents being made all along the course of the sewer.

(e.) The plea that the gratings are needed for inlets is met by the fact that we so often find them exhaling gases.

So far for objections. I need not refer to the various contrivances for propelling air into sewers and extracting gases from them, such as fans, pumps, steam-jets, and furnace chimneys. They are costly, and alone are insufficient and unsatisfactory. When plenty of free vents and good traps exist they are unnecessary, and when these do not exist they are dangerous, inasmuch as such propulsion will force traps, and such extraction will empty them by suction where free vents do not exist.

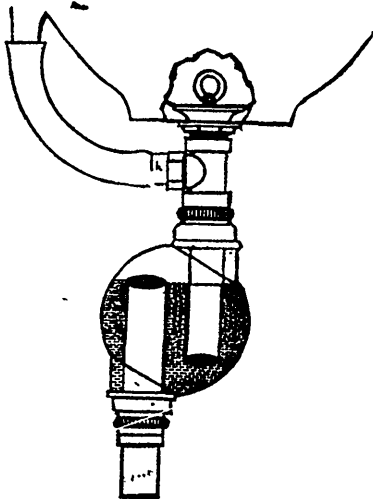
The true plan seems to be to make plenty of breathing holes, plenty of channels through which currents will continually pass, and which will discharge gases at a safe distance overhead.

I find that, in many of our larger cities, sewer ventilation is quite insufficient and faulty. I find, too, that much apathy—or rather a want of appreciation of correct principles—is found in regard thereto, even among men who are earnest and well versed in matters of sanitation generally. I have therefore thought it a subject which would receive consideration at this meeting.

ESSENTIAL FEATURES OF HOUSE DRAINAGE.

Below are some extracts of a practical character on essentials of house drainage, from a paper by Rudolph Hering, civil and sanitary engineer, of New York city, from a paper read at the late meeting of the American Public Health Association at Detroit. (For the large figure representing the drain, soil-pipes and connections we are indebted to the *Sanitary News*, of Chicago.

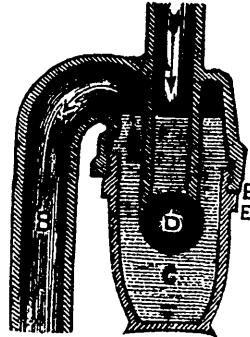
In a perfect system of house drainage, all traps should have a depth of seal in proportion to their liability to siphonage, a question which can be determined in each case, and varies from 1½ to 3 inches. Among all the many styles of traps, those consisting merely of a bent pipe, and having the same water section at every point, are the best, for they permit the quickest flow and the least possible retention of matter. At the same time they are the most readily siphoned and should have separate ventilation in almost every case. The desire to prevent siphonage



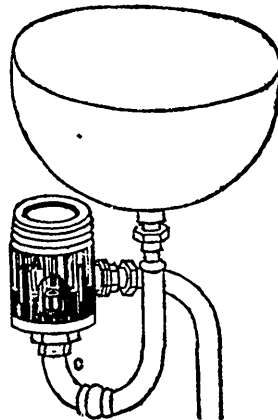
has brought about many devices more or less complicated. I shall only refer to a few of the most common.

The so-called D trap and the bottle

trap are objectionable on account of offering a good chance for deposit. The latter has the advantage, however, that it is hard to siphon when kept clean. When given a rounded bottom it is less apt to store deposit.



Bower's trap, where a floating rubber ball serves to close tightly against the receiving pipe, is a better device, but it also needs occasional cleaning. Its resistance against siphonage is not complete, and it requires ventilation where exposed to considerable suction.



MERCURY SEAL TRAP.

Cudell's trap operates on a similar principle, but a metal ball is used instead of a rubber one. It is more readily siphoned than Bower's trap.

A better anti-siphonage device however is Nicholson's trap, as it effectually main-

tains the seal, by means of a small quantity of mercury, even after all the water has been sucked away. Its expense is unfortunately too great to allow of an extensive application.

The Bell trap used for yard sinks is one of the most common, but also one of the worst, contrivances in use. It readily fills with deposit, maintains, at best, a shallow seal, which in summer evaporates and in winter freezes up. When it is cleaned by removing the bell, the seal moreover is completely broken. A deep trap should always be used in preference.

To recapitulate, I consider the siphon traps, viz.: the S. P. and running traps decidedly to be the best under all circumstances, provided they are properly vented. Without ventilation, Bower's trap is good where only a slight tendency exists to siphonage and Nicholson's mercury trap where there is a strong tendency.

The next question refers to the proper arrangement of the pipes which receive and carry away from the premises all the discharges of the receptacles, after they have passed the traps. These pipes necessarily contain more foul air and foul matter than the fixtures, and any fault in the arrangement or in the execution is likely to be fraught with more dangerous consequences.

In the first place, it is therefore advisable to maintain as much simplicity as possible, and therefore to have as few pipes as is consistent with safety. The receptacles on each floor should be concentrated at one or a few points, and be placed directly over each other in different floors, so that horizontal pipes running between or across the floor-beams are avoided. The comparatively small size of the pipes necessary in a building requires them to have a very good grade if they are to work satisfactorily, and this cannot be given them in the small space between the floor boards and ceiling laths.

Usually, it suffices to have one soil pipe for a building, and one or two waste-pipes connecting the wash-basins, bath-tubs, etc. In England, the common practice is to run the soil-pipes down on the outside of the house, as they are considered more dangerous than common waste-pipes, which are kept inside. In the colder countries of the continent, however, the soil-pipe is also inside in order to be protected against the action of frost. In our climate, we are likewise obliged to keep all pipes except rain-leaders inside of the walls. We also do not hold the English idea that waste-pipes from wash-basins, bath-tubs, etc., should not discharge into the soil-pipes, for we say that if the waste-pipes are well jointed and trapped against the escape of any interior air, which may be just as dangerous as the air in the soil-pipe when the bath and laundry water from a diseased person enters them, then there is no reason for any distinction. Waste-pipes should have exactly the same treatment as soil-pipes. All vertical pipes descending from the receptacles terminate in the main drain, which extends from the furthest pipe to the point of discharge or outfall. They should be placed on the inside of the wall of the house, and if they are boxed, it should be done in such a manner as to permit ready examination when necessary. The main drain is likewise best placed where it can be seen and where any defects can at once be discovered. It should therefore be run along the cellar wall and suspended or supported by brackets. If carried under the cellar floor, it should lie in a brick or stone trough, closed with removable covers, to permit examination.

The main requirements of discharge pipes, are that they carry away the waste matter as thoroughly as possible, without a cessation of flow or eddy, and that they are thoroughly ventilated. To accomplish

this end we must first enquire into their proper size. When water having matter in suspension half fills a pipe, it will be evident to every one that its momentum or force to carry such matter along is greater than when the stream is comparatively shallow and meanders along the bottom of the pipe. Therefore, the latter must not be larger than necessary, for if it is, the stream becomes shallow, it cannot keep the pipes as well flushed, and deposits will occur and accumulate. The foulness of an innumerable quantity of house drains and street sewers is due mainly to the oversight of this important fact.

The quantity of water used in an ordinary house, and which is often supplied by a service-pipe only one inch in diameter, even when concentrated by the flush of a water-closet or tank, and augmented by the roof water from a heavy rain, cannot more than fill a four-inch pipe laid at a good grade. It has therefore been urged that no greater size should be used. Many houses, especially in our country, have been supplied, within the last few years, with no larger main drains. While the above theoretical reasoning is quite correct, and while it is true that with proper strainers and with a water-closet trap only three inches in diameter no substances ought to enter a four-inch pipe that would not pass through it, experience proves that, practically, four-inch main drains do become stopped up in a greater proportion than ought reasonably to be expected. No doubt in cases, where the main pipes have a very good descent, say 1 in 5, where they get a regular cleansing from closets having a large tank flush, and where all the receptacles are carefully used and for no other purpose than that for which they are intended, it may never happen that a four-inch pipe fails a single time. But to establish this size for all buildings of a town must result, to say the

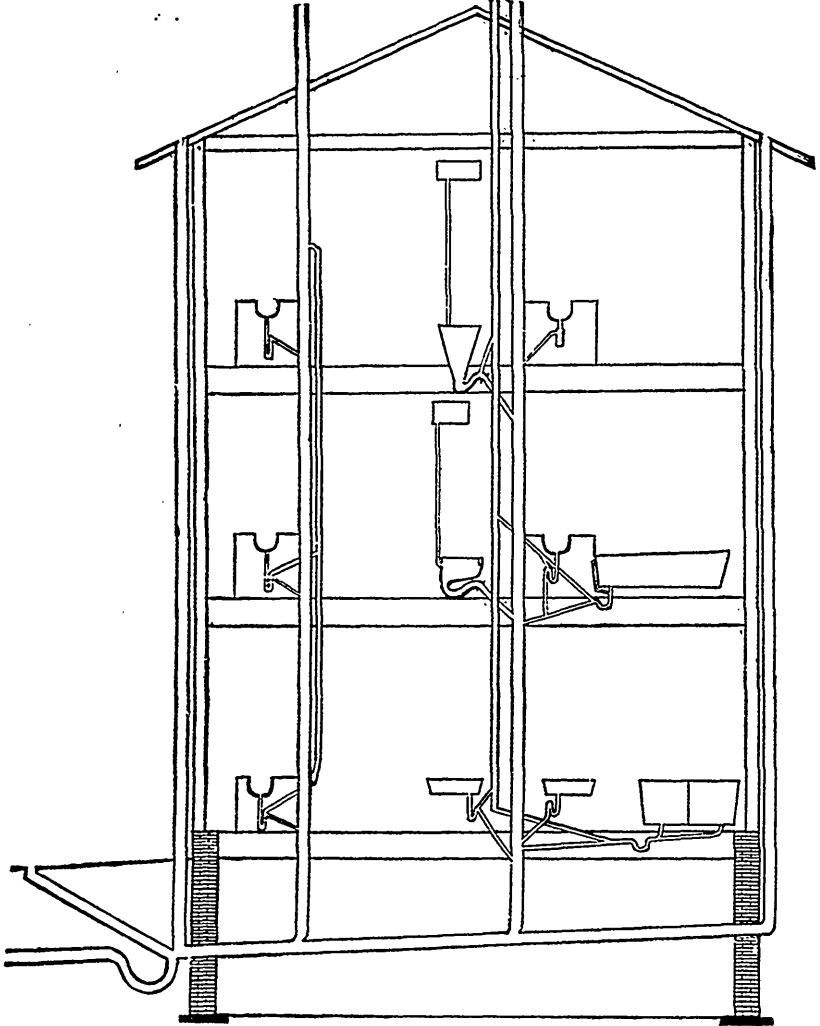
least, in much inconvenience. In Memphis, where the house-drains are limited in size to four inches, about one stoppage a day is reported.

It is said that a trouble occurring on one's own premises is clearly due to one's negligence and the penalty is placed where it belongs. The obstructing matter is prevented from reaching a street sewer where it might possibly cause an injury to many. This argument is apparently good. But, if we look upon sewers and drains as being placed in streets and houses for the purpose of offering the greatest possible convenience to householders consistent with a fair operation of the whole system; if we find in practice that a slight increase in size to five or six inches gives a far greater immunity against stoppages, without increasing those in the main drains, then we must be compelled to acknowledge that the rigid theory should be modified in practice. In England, long experience has decided against such small main house drains. In Germany, it is considered unwise to reduce the pipes less than six inches. My own experience has also convinced me that for a city in general, main drains should not be limited to less than five or six inches. For ordinary dwelling houses, if the pipes are laid evenly and the joints are carefully made, they need not be over five inches; if any sticks, bottles, forks or other long articles, ever get into the pipe through any of the traps or strainers, they are much less apt to get stuck than in a four-inch pipe. The question is, of course, very little affected by so trifling a difference of size, and the house-owners, as a rule, prefer to pay for still larger sizes, thinking they will be more efficient.

The vertical soil-pipes need never exceed four inches in diameter, except in very high buildings. Soil-pipes draining as many as six closets have been even successfully used with a diameter of only

three inches. Waste-pipes should generally be from $1\frac{1}{4}$ to 2 inches diameter; those from a single wash-basin should be $1\frac{1}{4}$ inches in diameter; from baths, kitchen-sinks and wash-tubs, $1\frac{1}{2}$ inches; from slop-sinks, $1\frac{3}{4}$ inches; smaller pipes should never be used.

should be as nearly straight as possible. The vertical pipes should enter those lying nearly horizontal by means of a bend which turns the stream gradually into the latter and prevents the resistance and deposits caused by the sudden check of flow. Pipes that are nearly horizontal can, how-



The second important consideration in designing the system of house-pipes is to give them an alignment so that the water entering them will meet with no serious obstructions. For this purpose, all pipes

ever, deliver into vertical pipes just as freely without a bend. Offsets should be avoided as they obstruct the passage of both water and air.

The grade of the pipes should always

be as great and as uniform as possible. The velocity of the sewage produced by it ought to be at least two feet per second, if the pipes are to be self-cleansing. Generally, however, it is desirable to give the grades a minimum pitch of one foot in fifty feet.

A third consideration is the securing of a free flow of air through all the pipes, not only to follow every sudden flush of water flowing down them and to clear the way before it, so that no traps may be unsealed, but also to provide them with a continual fresh supply of oxygen for purifying the foul matter which may have adhered to the sides. Among all of the principles to be considered in devising a proper house-drainage, this one of ventilation is most frequently ignored. Usually, no ventilation whatever is provided for the pipes, and in many cases we find one opening only obtained by carrying the pipe above the roof. A little reflection would show that, to establish a current of air in a pipe, two openings must be given, one for the air to enter, and one for it to escape, and to the neglect of this, no doubt, much of the troubles arising from the escape of sewer air into the rooms is due.

All authorities agree on this point, and insist on the discharge-pipes being open both at the top and at the bottom for the above reasons. The pipes must, for this purpose, be extended a few feet above the roof. They should not be covered with any cap or cowl, except, perhaps, a wire-basket, where leaves or sticks might get into the pipe, because all such obstructions only impair the ingress or egress of air, without doing any good. A better current can always be produced in them by increasing the diameter above the roof, and this is to be recommended principally for all the smaller waste-pipes, as the friction of air is comparatively much greater in them.

The bottom of the house-pipe, *i. e.*, the lower end of the system, should also be opened, and, as there is an occasional expulsion of drain air from it, be located away from the windows. These lower openings are called fresh-air inlets, because most of the time they supply air to satisfy an upward current in the warmer pipes. In the cities they should be placed at the curb line and covered with a grating. The constant circulation of fresh air through the house-pipes keeps them comparatively clean and the air expelled occasionally is not found offensive.

INSANITARY LIVERPOOL.—At a meeting of the Liverpool Medical Society, about a month ago, the following resolution was carried:—"That this institution views with great satisfaction the resolution of the Liverpool City Council to apply to the Local Government Board for permission to borrow £200,000 for the purpose of improving the insanitary dwellings of the working classes; and believes that the expenditure of the money for such a purpose will be followed by a great diminution in the disease and mortality of the city. It further desires to express the hope that advantage will be taken of every opportunity to acquire open spaces and to widen streets, so as to afford additional breathing-places to the population."

MILK AND SCARLET FEVER.—In Dundee, Scotland (*Sanitary News*) a dairyman used a portion of his unventilated, undrained house as a dairy, and, while a boy in his employment was sick with scarlet fever, he allowed his wife and servant who had care of the boy, to milk cows, handle milk vessels, and dispose of milk to customers. During four days seventeen persons in families supplied with milk from this dairy were attacked with the disease, four of whom died. The dairyman was arrested and fined five pounds.

DANGER IN CANNED FRUITS.

BY HENRY LEFFMAN, M. D., IN THE PHILADELPHIA MEDICAL TIMES.

The extended use of articles preserved in tins makes the question of contamination by poisonous metals an important one. In some of the reported cases lead has been identified as the offending substance, but in my experience, notably with canned peaches, *tin* has been the metal dissolved. It appears by a report recently made by A. Winter Blyth, Medical Officer of Health to Marylebone, London, that of twenty-one samples of preserved fruits—apricots, tomatoes, and pine-apples—every one contained a dangerous quantity of tin, the least quantity found amounting to one and a-half grain per pound, the largest to eleven grains per pound. The solution of the tin was, of course, due to the acid juices of the fruits. This solution, it may be observed, takes considerable time, and in the cases in which contamination has been found by me the fruits were more than a year old. Chemical tests were made on these samples, because they had caused some irritation of the stomach in persons who had partaken of them.

GENUINE WINES.

Those clinicians who are fond of extolling the merits of natural wines, and regard the artificial forms or simpler substitutes as not meeting indications, will be surprised to learn that, according to recent examination, natural wines are generally contaminated with substances of decidedly toxic qualities, as compared with ethylic alcohol. Some of these bodies—*i. e.*, amyl alcohol—are dangerous. The great regard which physicians generally have for the products of "nature's laboratory" is not always based on facts.

THE USE OF ANTISEPTICS AND GERMICIDES IN ARTICLES OF FOOD.

The discovery of the specific preservative power exerted by such bodies as boric and salicylic acids has given rise to frequent

use of them in various articles of food, and this fact renders important any enquiry as to the effect on the animal system of long-continued use of these preservatives. A report has recently been published in Paris, which gives decided opinions on the question of the use of salicylic acid. It appears that some three years ago a Commission had, after investigation, decided positively against allowing this article to be used. The reasons given were that it has toxic properties, that the maximum safe amount is not known, and that, even if it were, the processes for estimating the acid in complex mixtures are not accurate enough to permit chemists to keep control over the articles sold. The Commission recommended the prohibition of the use of the acid, which was done. Much opposition, of course, arose from those who were engaged in selling articles thus preserved, and lately the question was re-opened. It was pointed out, among other things, that new processes permitting of accurate determination have been discovered. The second Commission, however, after hearing all the arguments, refused to modify the original views. It still held to the views that the maximum quantity which could be taken was unknown, and that in many cases of disease, especially in affections of the liver and kidney, affections which are rather frequent, a contra-indication to salicylic acid exists. The prohibition against the use of this preservative is therefore continued.

The conclusions of the Paris Commission have an interest to us, because quite a number of preservatives and preserved articles are now in the market; the *rex magnus* which is being so extensively advertised is principally boric acid, but salicylic acid is also used, especially by brewers and bottlers.

The medical properties of boric acid and of its recent derivative boro-glyceride are little known, but the liberal use of these

substances as antiseptics is likely to be for some time popular, and their affect when taken continuously in small doses is a matter of hygienic moment.

POISONOUS FOOD.

Many cases are recorded in which dangerous and even fatal symptoms have been produced by articles of food in which subsequent analysis has failed to establish the presence of any known poison. Comparison of different cases has not led to any very satisfactory result, for although it was evident that the food had in some way suffered change, yet neither decomposition nor original disease appeared to be sufficient to render the substances poisonous. Many instances are noted in which putrefying flesh or flesh from diseased animals has been eaten without bad effects. The researches made in the last year or so on the products of putrefaction have given to us a clue, or at least the hope of one. The cadaveric alkaloids or ptomaines may very plausibly be regarded as the cause of poisonous effects. Some recent researches of Dr. L. Brieger, of Berlin, have an interesting relation to the question. In recording the recognition and isolation of new ptomaines, he points out that these products were only obtained in the earlier stages of the decay; as the process advanced the alkaloids were themselves destroyed. If this feature should be found to belong to all the ptomaines, we may certainly more easily understand the marked poisonous character of substances like sausage and cheese when in a state of staleness only, while similar articles are often eaten without effect when in even a marked condition of decomposition. Some years ago several deaths occurred in Philadelphia from eating old sausages. Specimens of the sausages were carefully tested, but no known poison could be found. They were not in a condition of active decay, but only markedly stale. It is not improbable that with the recently-acquired information on this

subject a more satisfactory analysis could now be made.

ARSENIC IN KINDERGARTEN PAPERS AND TEXTILE FABRICS.

This subject has lately received some attention in medical journals. It appears that quite a large proportion of the papers sold contain arsenical colors, although non-arsenical papers are also furnished. Green colors are, of course, suspected at once; but reds have also been shown to be largely contaminated. Blue and yellow colors are mostly made with ultramarine and chrome-yellow, substances that cannot be considered as actively poisonous. The glazed papers are the most objectionable, for in these the colors are easily detached by the moist hands. The grade of papers known as "engine-colored," in which the coloring-matter is mixed in the pulp, is far more safe, because the material cannot be dislodged by water. A few weeks ago I made examinations of several samples of green paper of various shades without finding arsenic. It is true, however, that these greens—which are possibly made of mixtures of chrome-yellow and Prussian blue—are not so handsome as the arsenic-greens, while they are more expensive. The temptation, therefore, to use the more dangerous colors is very strong.

The supposed injurious effects of arsenical dyes are often referred to. Not only do the much-used aniline colors generally contain some arsenic as a residue from the arsenic acid used in the manufacture, but many of the chemicals used in the dye-house, such as sulphuric acid and tin chloride, are liable to arsenical impurity. As far as regards the arsenic in the dyes themselves, my examinations indicate that most of it remains in the dye-vat, since aniline reds which gave distinct reactions with Reinsch's test failed to communicate to yarn dyed by them any definite arsenical reaction.

POISONOUS HAIR-DYE.

No greater humbugs are palmed off on

the community than quack medicines, and it is fortunate that many of them are frauds merely. Some of them are, however, decidedly dangerous, and among this class we find forms of hair-dye. An analysis of Air's Hair Vigor, recently made in the laboratory of the Philadelphia Polyclinic, shows that it contains about a hundred grains of sulphur and considerable sugar of lead. The sale of such a preparation under the deceiving title of a "hair-vigor" is a matter of moment in public hygiene. Cases of lead-paralysis from the local application of such dyes have been recorded, and the sale of these preparations ought to be prohibited by law. We have a poison-law in this State, which sets bounds on legitimate business; but the sale of any powerful poison is unrestricted if the name given to it is chosen to deceive.

THE EFFECTS OF TOBACCO.—According to Dr. Troitski, in *Annales d'Hygiène*, in non-smokers of average constitutions the mean temperature of the twenty-four hours amounts to about 98° Fahr., and the pulse-rate to 72.9°. In smokers the temperature reaches 98.6° Fahr., and the pulse-rate 89.9°. Tobacco-smoking, therefore, raises the temperature 0.6° C., and the pulse-rate 17°. In persons of feeble constitutions the temperature rises higher. Taking the mean, tobacco raises the temperature nearly 1° Fahr., and increases the cardiac pulsations by 12.7°. Representing the normal temperature at 1000 in non-smokers, in moderate smokers it rises to 1008; and whereas the pulse of the former may be taken at 1000, that of the smoker is 1180. It is by increasing cardiac pulsations that tobacco has such an injurious effect on some constitutions.

THE Dayton, Ohio, board of health, recognizing the necessity for a pure milk supply, have issued a series of regulations governing the dairy business there.

OVERCOMING AND ERADICATING HEREDITARY TAINTS AND DISEASES.

It is very well known that constitutional defects are frequently transmitted from parent to offspring; that chronic diseases, either in their usual manifest form or simply as a morbid tendency, are transmissible. Acquired accidental deformities may be transmitted. "The effects on the offspring of dissipation in the parent are well known. Dr. Bowditch has stated that 200,000 human beings die every year in Massachusetts from hereditary diseases."

But the subject of heredity in relation to disease has a bright side as well as a dark one. Perverted processes, deviations, disease, are subject to limitation in transmission, and there is a tendency to revert to natural perfect type under improved and favorable conditions. Furthermore, the type may be improved. Who can know of the limit to which man's physical and mental organization may be developed under proper culture yet partly to be learned? The influence, for good or for evil, of one generation over the next which is to follow, and the next, is not considered as it should be. We, of this generation hold in our hands, as it were, the well-being of those that follow. It rests with those of the present one whether future generations of Canadians shall be effeminate, diseased, deformed, manifesting want of intellect, and a superabundance of insane, or, physically and mentally vigorous, well developed, healthy and progressive."

The history given below of a family containing five children, from a communication in the *Southern Dental journal*, furnishes a good illustration of what improved diet and habits will accomplish in improving the condition of the teeth

Other hereditary defects and diseases may be quite as easily overcome.

On the *paternal* side, the grandfather of the five children had fair average teeth, but lost them all before the age of fifty, while the grandmother lost all of hers before the age of thirty. The father, himself a dentist, appreciating the value of his teeth, kept them in good condition by the most watchful care, but has numerous large fillings. Of his two sisters, (he had no brothers) one wears an artificial denture; the other—much younger—has most of her own teeth yet, but they are very frail, and consist more of filling material than tooth substance.

On the *maternal* side, the grandfather was toothless from the earliest recollection of his children, and the grandmother lost all of her teeth before the birth of any of the grandchildren to be mentioned. The mother wore a full upper and lower set before the conception of her first child; her oldest sister wore six upper front teeth on pivots before the age of fourteen, and a full set before she was twenty; the second has very frail teeth, and only retains them by the greatest care, all of them having fillings; the third has but a few ragged remnants of teeth left and only waits for courage to have them extracted to wear a full set. No brothers.

With these facts in view, what might be expected of the teeth of the third generation, especially in a part of the country where cistern water is used exclusively for cooking and drinking purposes, and where the soil and vegetation are most lamentably deficient in the mineral elements necessary to form sound, strong teeth?

Bearing all this in mind, and having given the subject much study, the father early endeavored to impress upon his wife

his views of her responsibility in the matter.

He laid before her his theories of tooth culture by fetal and infantile nutrition, and prescribed the diet and "drugs" by which he hoped to provide suitable nutritive elements, first to the embryo through the mother's nutrition, second to the babe through her milk, and third to the babe itself in its diet, exercise, etc.

But she responded but poorly to his efforts in the case of the first child. The prescribed diet was distasteful, with its brown bread, oatmeal porridge, etc.; the lime water and other prescriptions were unpalatable; in short, to use her own words, "other people's children had teeth, and she supposed hers would, too, and she was not going to subject herself to any such vagaries in support of mere scientific theories."

Being young and self-willed, and not long married, she had things pretty much her own way; but she had the mortification of finding that her baby had soft, chalky, defective teeth, which before its third birthday had already received thirteen fillings, besides which it early suffered the loss of a lower molar, thereby, to a critical eye, marring the perfect symmetry of the features.

Concluding that it might perhaps be wiser to test the matter, radical changes were made in the diet and habits of the first child, and the mother adopted the prescribed regime, partially for the second child, and pretty fully for the three which followed. Bearing children rapidly, the first child being but a little over four years old when the fourth was born, she was, however, unable to give that close personal attention to their teeth necessary to their absolute cleanliness and perfection.

Although five years elapsed between the birth of the fourth and fifth children, yet,

as she was an invalid for a year previous to the birth of the last child, and for subsequent years confined to her bed for months at a time, a helpless and hopeless invalid, the children were, therefore, deprived of her personal care and attention, at the most critical period of their dentition. Necessarily left much to the ministrations of ignorant and careless servants, their sixth-year old molars were neglected, while their diet, dress and exercise were often the very contrary to what they should have been, although the father, of course, gave them all the attention possible, in the little time that could be spared from his professional duties and the care of an invalid wife.

But, with all these drawbacks, let us see the results of even the partial following out of the theory of *embryonic and infantile dental nutrition* :

The oldest child had the soft, chalky baby teeth so hardened and reconstructed as to require no further fillings, after the thirteen put in before the third birthday, as already stated, and now, at the age of seventeen, with the exception of a slight irregularity resulting from the unfortunate early loss of the deciduous lower molar, as stated, has a perfect set of teeth, of fine structure and quality, with only very small fissure fillings in two of the sixth-year molars, which, in consequence of inherited defective fissures, required attention within a few months of their eruption ; all of her teeth are otherwise intact.

The second child, a boy of fifteen, has, as even and sound a set of teeth as can be found anywhere ; the upper cuspids only, being a little too prominent for absolute regularity.

The third, a girl of nearly fourteen, has thoroughly sound and perfect teeth, with

the exception of the fissure fillings as in the case of the first child, but is tardy in erupting the upper bicuspids.

The fourth child, with the exception of the same slight fissure fillings, has absolutely no imperfection whatever in her teeth, either in size, color, quality or position.

There was every reason to expect very defective teeth for the last child, owing to the state of the mother's health for months preceding and years subsequent to his birth, and his consequent relegation to dry nurses and servants.

It is too early yet to pronounce judgment of his permanent teeth, as he is but seven years old ; but as his deciduous teeth have remained intact with the exception of minute approximal fillings in the upper central incisors, which are now replaced by permanent teeth of fine quality, and as his sixth-year molars are of good texture, I think it may be fairly claimed that *heredity* has been overcome to a remarkable extent.

Were there but one, or even two children in this case, it might be regarded as mere coincidence ; but when five successive children, under the same treatment and with the same antecedents, show the same results, without a single exception, it cannot be considered in any other light than that of *cause and effect*, and the matter of embryonic and infantile nutrition becomes worthy of more serious attention than would be accorded a mere *theory* unsupported by *facts*.

LITTLE GEORGE, at the hotel table : " I want a cake ! I want a ca—a—ke ! " Nurse : " Hush ! " you've had four or five already." Little Georgie : " I don't care. Them ain't the ones I want."

BOARDS OF HEALTH.

From time to time and often from its beginning, this JOURNAL has advocated and urged the establishment for the Dominion, of a complete sanitary organization to look after the public health; the organization to consist of a central federal health board or bureau, largely of a statistical character, a provincial sub-department or board in each of the provinces, and a local board in every municipality, each with powers adapted to its special function. In Ontario, where the Journal has chiefly exercised its influence, a provincial board has been organized and has now for many months been doing good and profitable work, in instructing the people, and in awakening more general interest, in public health matters.

One great want now in the interests of the public health is an efficient federal organization, associated with one of the departments at Ottawa, as that of Agriculture, under the control of which might be placed matters relating to mortuary statistics and health reports, to quarantines, the adulteration of foods and inspection of factories, and which should have power and means at its disposal for making investigations into the causes or source of outbreaks of epidemics of infectious diseases, and for diffusing general sanitary information. Elsewhere reference is made to the advantages such a centre, with the other parts of the sanitary system, would be as bearing upon the standing of the country with well-to-do emigrants from Great Britain and the Continent of Europe, and attracting them to this Dominion.

Another great want is an active local health board in every municipality, where the practical sanitary work is to be done. The general interest which has been awakened in this work, and the general

knowledge of the practical advantages of it, are such now that the people, especially in Ontario, are, we are persuaded, prepared for legislation which would compel every municipality to provide for and organize a board of health therein, and appoint a medical health officer in connection therewith. It is therefore very desirable that at the next session of the Legislature in Toronto, an Act be passed in this behalf. This is something which so closely concerns the well-being of the people, that it ought not to be deferred. As the Provincial Board have been active in showing the necessity for such legislation, we trust the Government may see its way to sanction and encourage a measure for the purpose indicated. Such action on the part of Ontario would form an example which we should hope would soon be followed by the other provinces, until the system were universal in Canada. We therefore strongly urge the readers of this Journal in Ontario to use their influence with legislators on all possible occasions with the view of inducing them to support legislation of this kind. The publishers of local papers too, might do much in this way. The one great want of the day is an active, efficient board of health in every municipality. We trust every one who feels an interest in the future welfare of Canada will aid, by the exercise of his influence, in having this want supplied.

CHLOROFORM IN SLEEP.—According to the *New York Medical Record*, it would appear, from accumulated evidence, that it is quite possible to bring a sleeping patient profoundly under the influence of chloroform without first causing a period of consciousness. This is more especially true of children. In adults, chloroform-narcosis during sleep is, apparently, not so easy, and in many instances it probably cannot be accomplished at all. But that in certain cases it is possible, particularly where careful judgment and skill are exercised in the administration of the drug.

THE MUNICIPAL HEALTH BOARD -
HOW FORMED.

The Secretary of the Provincial Board of Health, Dr. Bryce, at the late Sanitary Convention in London, sketched out what he considered should be the method of formation, and the nature of a Municipal Board of Health, with which in the main we fully agree. It is as follows :

After referring to the educational system of the province, he argued that Health Boards should be appointed in the same manner as School Boards, and receive the aid from the same sources. Union boards thus arranged should have health officers and health inspectors appointed by the Board. Having been once appointed such officers ought not to be removed except for good cause. The consequence would be that they would act independent of local influences. The Damocles' sword ever pendent over the heads of municipal officers would be removed since his position would be secure until the Provincial Board, on investigation, had found that the charges against him were well founded. The next point, that of ways and means. Municipalities had never been noted for liberality, and the doctor's short experience had found this true. Boards of trustees are perfectly distinct from other municipal officers, even having the power of taxing for school purposes ; and are in many cases men who have been selected on account of special fitness for the position. So in like manner he should expect that township, village and town officers mentioned would be, along with the elective members, such as are best fitted for acting in regard to health matters. The last and strongest reasons for appointing boards in the way indicated are that there would be with them, (1) independence of action ; (2) comprehensive views and united action,

and finally, (3) work begun one year on an extended scale could be developed and completed under its originators, and the money spent would, in three years, have had time to bear legitimate fruit, and credit would be given and blame laid in all cases on the right shoulders. The Board should be appointed for three years, one retiring each year at the usual time of municipal elections. Of such a board the Mayor or Reeve, we suppose, should be chairman, and become the link between the money-granting Council and the Board. In all matters involving the expenditure of large sums, he would submit a by-law to the people.

At present, as most are aware, the local board when it exists is a committee of the Council, and hence, like it, a panorama of ever-shifting views, one year's Council often renouncing the policy of the previous. The consequence has always been that such committees being interested in other municipal matters, have in all cases neglected matters of interest to health. These two reasons Dr. Bryce naturally thinks ought to be enough cause for divorcing the Health Board from its present relations to the Council. Several examples, indeed, are not wanting already where a helpless board has had no by-laws enacted at the arbitrary decision of the Council. Who then, he asks, are likely to be its most efficient Health Officers ? To him the following seem to be the natural health guardians of a township, viz. :—The Reeve, the Clerk, while in addition to these there ought to be elected from amongst the rate-payers for three years, one teacher, one clergyman, and one private citizen to act with them. In this way we have not only every interest represented, but we have just those men who are likely to take the most comprehensive view of, and at the

same time the most active part in, all pertaining to the public weal. Such, with slight alteration, would be, too, the complexion of a board, where two or more municipalities united to have a single board. A similar arrangement might be made for smaller villages. In cities and towns with more than 4,000 inhabitants he would have in accordance with British experience, where more difficult questions and larger interests are at stake, a somewhat larger board elected. With a Provincial Board having oversight in every municipality, we should then expect to see every village, town, and city have its own local board, meeting weekly, monthly, or quarterly, as necessity demanded. Such a board should be organized at the beginning of the year, present an annual report to the Provincial Board, at the close of the year, of the general state of health during the whole period; and of what infectious diseases had broken out, their extent, and virulence. As in most cases the municipal clerk must be the secretary, in this way the same official would be aided in his other work of registrar in getting better registration returns than has hitherto been possible.

* * * Without going further into details he would say that efficiency in the matter of public health is primarily dependent upon the formation in every municipality or group of municipalities of a local health board; that under it should be appointed a Medical Health Officer, or at least a sanitary inspector; that the latter should be the executive officer of the Board, as the teacher is of the trustees; that he should report to the Board; and that the latter should thus establish nationally intimate relations with all, but would be the advisor in, and promotor of, sanitary improvements, and should advise under Government sanction the expenditure of public money for such purposes.

Such is Dr. Bryce's view of what a health board should be. It would doubtless be well to go further as regards the constitution of the board. Complete medical knowledge is essential to a perfect health board, and there should in all cases be a well trained physician either on the board proper, or as the executive officer. There is probably not a municipality in Ontario in which there is not one medical practitioner at least, and one whose knowledge would always be available in this behalf. We trust that the health bill which we learn is to be laid before the legislature will provide that a medical man be associated with every board.

ESSENTIALS OF GOOD SEWERAGE— LEGISLATIVE REGULATION IN PLUMBING.

At the recent Sanitary Convention in London, the Chairman of the Provincial Board of Health, Dr. Oldright, of Toronto, pointed out the desiderata of a good system of sewerage, as follows: 1st, to remove all the waste products of the household that are liable to become injurious by decomposing and giving off gases injurious to health, or it may be germs of disease, even before decomposition; 2nd, to remove them completely, not to allow any to remain behind; 3rd, to remove them before they can decompose, and to disinfect according to the best authorities, so that nothing should remain over twenty-four hours in the pipes of the system; 4th, to remove them to a place where they cannot by their subsequent presence do harm; 5th, in their method of removal to take care that the gases which they produce are not allowed to accumulate, but that there be a free ventilation through service drain, soil pipes, and waste pipes; 6th, that means be provided to direct the escape of the gaseous contents of the sewers to points where they cannot come

in contact with human beings, and to prevent all escape at points where they may come so in contact.

The Doctor urged action by the people themselves in supporting legislation for obtaining regulations for plumbing. This is a very important subject, which should engage the early attention of the legislatures of the different provinces. If people will have the luxuries of water closets, baths, sinks, &c., in direct communication with sewers, it is of the utmost importance that the plumbing in connection therewith be of the most perfect description. Anything else than this is always dangerous to human life. Incompetent plumbers cannot make a perfect job, and they should not be permitted to attempt it. Legislative or municipal interference is an absolute necessity.

NEW SYSTEM OF DRYING WALLS, AND DISINFECTING.

HERR STANISLAUS VON COSINSKI, of Warsaw, has (according to the *Builder*, in the *Sanitary Record*) patented an apparatus for the above purpose. It is in two parts: first, and heating chamber, which can be transported upon wheels, like a portable engine, and is placed in the room which is to be dried or disinfected; and, second, a ventilator, which is placed outside the room, and is connected with the air-heating appliance by means of pipes, which are carried through suitably-arranged openings in the door or window. The air thus obtained is introduced from beneath into the chamber, where it is heated on heating surfaces, about 108 square feet in extent. It is then directed by means of a radiating pipe upon the wall or other object to be subjected to its influence. The siccative effects of the appliance act in three ways. 1. In the mechanical renewal of the air at the rate of about 1,000 cubic feet per minute. 2. In the action of the radiating warmth of

the heating appliance. 3. In the relative dilution of the air.

In addition to the rapid extraction of large quantities of moisture by the use of this apparatus, it is remarked that the temperature of this air, being easily brought by it to 660° F., its powerful disinfectant action is evident. The inventor has applied it to the arrangement of large dissecting chamber in which the rapidity with which the air passes through the objects to be treated combines with the high temperature in bringing about desired result.

By means of this appliance the rapid warming of buildings, churches, barracks, &c., can be effected, as well as the removal of vapour and moisture which may have accumulated in crowded rooms. The *Deutsche Bauzeitung* refers to its utility in many matters in connection with building, and records several facts in connection with its employment at Warsaw. The building of a picture gallery was commenced in the autumn of 1881, and the edifice was ready for use in Jan. 1882. This result, it is asserted, could only have been attained by the use of such an apparatus as has been described. The picture-gallery contained rooms measuring 100,000 cubic feet. Experiments carried out in Warsaw under the inspection of an official commission showed that in a private house, the building of which was commenced in May 1882, rooms measuring more than 7,000 cubic feet and the ground floor and first story were completely dried in fourteen days by means of this system. After a sanitary inspection had been held, these rooms were declared ready for habitation on Oct. 1, at which time workmen were still engaged upon the upper rooms and the roof.

THE MAN who stood for hours in front of his glass trying to get the right shade on his moustache, said he was just dyeing to see his girl.

THE ECONOMICS OF SANITATION.

In an article in French Journal, according to the *Sanitary Record*, M. Rochard, in earnest and glowing language, refutes the arguments of those who maintained that the thorough sanitary reform of Paris would involve an enormous and intolerable expense, by showing, as Mr. Chadwick did at the Congress of 1878, that there is no false economy than that which is carried out at the expense of human life and health, and that money spent in sanitary work is, in fact financially productive.

In 1882 typhoid fever caused in Paris alone 3,276 deaths, or 1,156 more than in 1881. Of these 1,442 died in the hospitals and 1,827 at their houses. The 9,361 cases treated in hospital for 240,083 days, at 3 10 francs per day, cost 744,257 francs, to which must be 563,660 days of work lost during illness and convalescence at 2 francs per day, a low estimate, making a total of 1,871,570 francs. The deaths at home represented probably 11,830 cases of sickness, and a loss of earnings of 2,360,157 francs, which, taken with the former, gives a loss of 4,231,727 francs. Estimating at 6,000 francs only each of the lives sacrificed, and adding the product of 19,656,000 to the preceding, M. Rochard arrives at a grand total of not less than 23,887,727 francs as the loss inflicted by the epidemic of typhoid within the year.

If this sum has been laid out in sanitary improvement, and should merely reduce the general mortality to what it was ten years ago, an annual saving of 67 millions francs would have been effected; a loan of 600 millions would be a good bargain, and one of 330 millions would be practically invested at 10 per cent.

He then proceeds to indicate the nature of the improvements most urgently called for, viz, the erection of workmen's dwellings in the suburbs, a better water supply, an improved system of sewerage, and the

removal of unhealthy manufactures from the city to the outlying district.

HOUSE FURNISHING AND DECORATING.

Martha Howe-Davidson writes some good things on this subject in the *Sanitary News*. In a late number we find this:—“When the interest in æsthetic decoration and furnishing first became general, it seemed as if the way had been opened for the expression of individual taste, which should give a stronger personality to each home. But, where this interest has degenerated into a fashion, it has worked its own undoing by a confusion of heterogenous ornaments, beneath which the idea of honest use has been almost wholly lost. A general prevailing style will always be found both in furnishing and dress, but it should be so flexible that it can be adapted to the requirements of each individual of the household. In no other way can beauty and healthfulness in everyday living be attained. William Morris, who has struck some ringing blows at wastefulness and pretence, says: “I believe there are two virtues much needed in modern life, if it is ever to become sweet. These virtues are honesty and simplicity of life. Though simplicity in art may be costly, as well as uncostly, at least it is not wasteful, and nothing is more destructive to art than the want of it. I have never been in any rich man's house which would not have looked the better for having a bonfire made outside of it of nine-tenths of all that it held.” The last assertion is rather sweeping, but one calls to mind many houses of the rich, and of those who are sacrificing liberty and comfort to copy the follies of the rich, in furnishings and decorations of inferior quality, where such a bonfire would greatly advance the interests of true art and healthfulness, and, at the same time, free the losers from the bondage of luxury and envy.”

Matters Recent and Current.

POISONED IN A PRIVY-WELL.—A case of poisoning of a strong healthy man, who went into a privy-well, for the purpose of cleaning it, is reported in the *Philadelphia Medical Times*. Before going in, a light had been lowered, but it was not extinguished, which important fact should be remembered. The poisonous gas in this case was, probably, either sulphureted hydrogen or sulphide of ammonia, or a mixture of the two. Insensibility was produced, and his condition was such, for several hours, that death seemed inevitable. He was saved by successive heroic injections of aqua ammonia into the veins of the fore-arm, used only as a last resort.

NOT OVERTURNED YET.—Dr. Gregg recently read a paper before the Buffalo Microscopical Society entitled "The Bacterian or Germ Theory of Disease Overturned," in which he said: "I have controverted the theory of the bacterists for years, and contended that all their so-called bacteria of disease were nothing more or less than so many different forms of fibrine." The committee of the society to whom the paper was referred, report as follows: "It will be seen that the doctor disregards all methods of identification save one, namely: appearances in a dry film of albuminous material, seen under circumstances about as conclusive as that of taking the topography of a country from a balloon through a fog. * * The committee have separately and collectively made experiments to test the identity of fibrinous forms with bacteria, and it may be positively stated that the results are in every case negative. In no single instance was fibrine found to imitate bacteria in its behavior toward the various re-agents and chemical tests that are used in the study of bacterian forms."

QUININE AND INSANITY.—A paper was recently read at the Chicago Medical Society on this subject. It was based on

three cases only, but the evidence in each was fairly conclusive. The first man took three doses of three grains in the course of one day, and was then seized by a violent attack of frenzy, with hallucinations of hearing and dimness of vision; the second fell into a state of extreme dementia after only ten grains of quinine, and the third became destructive and violent after one dose of twenty grains. In all three cases there was the strongest possible family history of insanity. The result was that when the use of quinine was pleaded as an excuse for crime it would be fair to administer further doses to test the validity of this claim.

DE NOVO ORIGIN OF TYPHOID FEVER.—The weekly lecture at the Parkes Museum early in December was given by Dr. Kelly, the King's College Professor of Hygiene, Dr. Kelly, long medical health officer of West Sussex, brought to the study of hygiene a wider medical culture and a higher standard of ability than is common amongst health officers in Great Britain, able as many of them are. He inclines to the belief that enteric fever may develop *de novo*, a revived departure, supported by much practical experience, as well as by the later developments of the germ theory. "If the poison may develop afresh, then it is equally, if not more, important to remove the predisposing causes of such development than to disinfect every typhoid stool; and attention must be paid quite as much to what is allowed to remain in the sewers or in the ground as to what is discharged into them. If sewage is allowed to remain and decompose in the sewers, we may, on this view, be liable at any time to outbreaks of typhoid, but in a properly constructed sewerage system every particle of fecal matter ought to have left the sewers within a few hours of its entry into them. Thus the care of the sewers—a hitherto much-neglected subject—becomes one of the most pressing duties of the hygienist."

RECREATION.—A novel and interesting experiment (*Sanitary Record*) has recently been tried at Birkenhead, (Eng.) in the establishment, by the health authorities, of a public bowling and quoiting ground in the park. The ground was opened in May, and was well attended all through the summer and autumn. No charge is made for admittance to the ground, but a small fee is charged for the use of the bowls or quoits. The receipts now show that 3,226 players had used the bowls and 4,004 the quoits; and there is thus excellent evidence that the efforts to provide the means of healthy open-air recreation have been successful. Probably a very large proportion of the men thus exercising their muscles and improving their physique would, but for the Committee's action, have been wasting their time and their money in the public-house.

DIPHTHERIA AND SCARLET FEVER.—

Dr. Parsons, health officer of the Thorne district, reports to the local Government Board that diphtheria was found to have prevailed in the district concurrently with scarlet fever, and the two diseases seemed to be interchangeable, as if the one had been capable of giving rise to the other: several instances were met with in which persons who had had former attacks of scarlet fever had recently suffered from diphtheria; and it appeared to Dr. Parsons that scarlet fever had tended more to assume a diphtheritic character in houses where there were local insanitary conditions, such as defective and untrapped drains, and foul privy middens.

IMMIGRATION AND PUBLIC HEALTH ORGANIZATION.—It is, doubtless, very desirable to have a large number of immigrants come into the Dominion, but it is well to consider the quality of the immigrants. Men with some means who will take up land and improve and cultivate it are much needed; but if a few hundreds or thousands of families with independent, though, perhaps, only moderate, incomes could be

induced to settle in Canada, where the moderate incomes would "go further," it would be of great advantage to the country. No one thing, perhaps, would tend more strongly to attract intending emigrants of this class than a good Sanitary organization, with active Health Boards, for the Dominion. While, quite aside from this, in the interests of the people now here, there could not possibly be a better investment for the small amount of money required for such an organization. Those who can afford to live where they please do not desire to live in a country where but little attention is paid to the public health.

VENTILATION AND DOUBLE WINDOWS.

—The chief object of the double window is, of course, to provide an open space for warmer air than that outside, the same for which double walls are constructed—air being a bad conductor of heat. With a single window, the air in a room is more or less constantly coming in contact with the cold glass, and is thus rapidly cooled, keeping the room colder without the benefit of fresh air, or any change of air. To get the full benefit of a second glazed sash, it should fit very closely, in order to exclude as much of the outer air as possible from the space between it and the inner sash, that the air in the space may be kept partially warmed. For ventilating purposes, instead of an opening through the outer sash, to be opened or shut at will, there should be a sort of short tube, the size of the opening, leading from the outer through the inner sash, so that the fresh air coming in shall not get into the space but be conveyed directly into the room. This should be left constantly more or less open, and should properly be at the upper instead of the lower part of the window. Besides this, for occasional freer ventilation, as in bedrooms, the outer sash, or a part of it, should be provided with hinges, that it may be opened widely while the lower of the two inner sash is well raised.

WHAT WILL BE DONE WITH THE SEWAGE? is a question which is puzzling sanitarians. It is clear enough that it should be either utilized in the soil in some way, or destroyed, and not sent by way of our beautiful inland streams from one town to another. It is a marvel, indeed, that civilized people are opposed to incurring a little expense in order to have it properly and safely disposed of.

HOW TO KEEP SEWER GASES OUT of our houses is another puzzling problem. It is possible, doubtless, to keep them out by means of free and perfect ventilation of soil pipes, drains and sewers, with good traps, and withal, absolutely perfect plumbing. A large portion of this number of the JOURNAL is devoted to instruction in this behalf. But very few, indeed no "landlords" who have houses built to rent, we are safe in stating, will incur the little extra cost which the complying with such indications involves. We trust there will soon be legislation for compelling all who build houses to build them in such a way that they shall not be little short of death-traps, or probable direct causes of sickness.

THE CORSET QUESTION.—This is, doubtless, a question of no little importance. There are fanatics who will object simply to the *name* of anything, but no reasonable man nor woman will object more to corsets than to any other article of dress if they are made to readily yield to the movements of the body, especially to those of respiration, and are not put on too tightly. And nearly every woman will wear corsets, and when properly constructed and worn they tend to promote a graceful form and can do no possible harm. "Ball's health preserving corsets" meet all objections; they yield readily to the movements of breathing, and it is impossible to lace very tightly with them. Had corsets been made in the first place on the principle on which these are made, the great objection to this part of a lady's dress pro-

bably never would have been thought of. They are the only corsets we know of which fully meet the objections to this much abused article.

THE DOMINION SANITARY ASSOCIATION.—Where is it? What is it doing? "Many a time and oft" such questions have been asked of late. On account of the great distance between the different members of the Executive, and the consequent difficulties in the way of meetings, much was left to the worthy and enthusiastic Secretary; from whose sanguine anticipations a good deal—a goodly accession of members, had been anticipated. We wrote to him over a month ago for information as to what progress had been or is being made, but have not yet received an answer. If a few hundreds of circulars, explaining the objects of the association, with rules of membership, &c., &c., had been printed and judiciously distributed to the press and prominent individuals throughout the Dominion, who have an abiding interest in the welfare of the public, would it not have helped a good deal to advance the interests of the Association and promote the objects for which the Association was formed? We believe if the Secretary had done this, many members might have been obtained thereby. It is not too late yet. There are doubtless funds enough for the purpose.

THE HUMBER (TORONTO) SLAUGHTER.—When the life of a large number of people is suddenly crushed out, the public are naturally greatly shocked, and stand aghast. Yet this same sensitive public can view calmly enough the six or eight or more deaths at least equally, if not more preventable, though not so sudden, which take place on an average every day in the year in this Dominion, from typhoid fever and diphtheria. Where, the exclamations of horror, the street discussions, the public gatherings and public funerals, for the

hundreds of lives cut short after days and weeks of torture, raging fever and wild delirium, every year in this fair young Canada. Lives—most frequently the best, most vigorous lives, cut short by reason of bad drainage, bad sewerage, bad plumbing—by reason of foul premises, harboured filth—by reason, often, of the criminal neglect, ignorance and rapacity of landlords and house builders. Where, the general and deep sympathy, the public meetings, the generous subscriptions, on behalf of the widows and orphaned darlings of the hundreds of men who every year fall victims to these preventable diseases. Inconsistent man. Aghast at the sudden crushing to death of a quarter of a hundred fellow-creatures by the meeting of two trains through the criminal thoughtlessness or forgetfulness of one man (backed up, it may be, by too much indifference to the health and life of the travelling public on the part of a railway company), calmly viewing the slow and torturing death of many hundreds of their other fellow-creatures by the products of foul excremental matters, not by reason of the chance thoughtlessness or forgetfulness of an hour, but of days and years of careless indifference and neglect. All must feel commiseration for the unfortunate man whose confessed forgetfulness hurried so suddenly to death so many human beings, and already his punishment must have been great, especially if he be of a deeply sensitive nature; but from the most humane view, for the protection of life on railways and elsewhere, as a warning to others who may not be of very sensitive nature, who, it is to be feared, are sometimes too indifferent to their great responsibility, and in whose keeping are often the life of hundreds, a greater punishment than the conscience would be likely to inflict, should not be withheld from one who, it appears, failed to be thoughtful enough to exercise that ordinary care which would have prevented so terrible a catastrophe. If there are others also blameworthy, if his

instructions were not plain and unmistakable, if he was overworked, as it appears many of the Grand Trunk employees are, if he was an underpaid inferior hand, it is to be hoped that the enquiry being made will bring it all to light, and that just punishment will be inflicted upon those alone who are deserving of it.

A NEW HEALTH BILL FOR ONTARIO.—We learn that a new health bill, prepared by the provincial board, is to be laid before the Ontario legislature at this year's session. We suppose one object of it will be to consolidate, so far as possible, all public health acts now in existence. The bill will doubtless provide that a local health board shall be formed in every municipality, or in some (we should say only exceptional) cases, group of municipalities. Elsewhere we refer to what the nature of this proposed board may be. The bill will properly provide for the submission of plans of drainage and plumbing, and we hope, of methods of ventilation, of all new dwelling houses, to the local board of health, for approval and for the registration of the same; and also provide for the registration of all plumbers now in business, and for some sort of examination, as to competency for the work, of all new ones, or who propose to act as plumbers.

We trust the legislature will take a liberal view of the new bill, and not act under too great fear of their constituents—of encroaching upon individual rights. No parent has a "right" to construct a dwelling for wife and children in which their health and life will be endangered; no municipality has a "right" to neglect the health of the ignorant, the indifferent, or the poor, who live within its boundaries.

"BLOWING OUT" THE GAS—A GOOD SUGGESTION.—In referring to the latest recorded death from the effects of gas escaped from an unclosed jet in a bedroom (the late sad death of the young man from Winnipeg, at the Revere house in Toronto),

a lady, a resident of Northern Toronto, made the wise suggestion, which we do not remember ever having heard before, that a printed notice or warning in plain letters be attached to the gas jets in all bedrooms for travellers at hotels, directing that the gas be *turned off* and *not blown out*, and how to turn it off. Some lodgers might not observe nor read such notice, but many would, and it would probably be the means of saving lives which otherwise might be lost in this way. What member of the legislature will bring in a bill for the purpose of having this suggestion carried into effect? So many deaths have occurred of late from the escape of gas in this way, often through ignorance, that there should be some special legislation with the view of lessening the frequency of such fatalities. There are some very unsafe forms of burners, the use of which should be prohibited.

SCHOOL HYGIENE is attracting a good deal of attention in both Europe and America. The provincial board of health of Ontario are not behind in taking it up, and we hope soon to see practical results. It may be regarded as consisting of two parts; one relating to the structure and condition of the school rooms, the other to the teaching of the subject of hygiene to the pupils. In either there is a broad field, requiring consideration and practical undelayed work. Years ago the late Minister of Education, Mr. Crooks, promised that he would endeavor to have this important subject taught much more generally in the public schools. We trust and believe that the new minister will take more decided action in this behalf; and we respectfully urge upon him the importance of giving the earliest possible attention to the subject. In this connection we would suggest the construction of

A MODEL SCHOOL HOUSE in Toronto, say. We should like to see the educational department, the provincial board of health, and the city school board, unite in the con-

struction of a public school building on the most approved scientific plan, as to lighting, warming and ventilating, its drainage, plumbing, &c. It would be well to have it comparatively small, in order that it might the more directly serve as a model for school buildings in towns and villages. Such united effort for such an important object would not be impossible nor impracticable. There are several medical practitioners on the Toronto school board, which of them will bring up the matter for the consideration of the board? The department or government might very properly grant a suitable sum to aid in its construction, while the board of health, with or without the co-operation of other medical men, and engineers and architects, could see that the whole structure be built and furnished on the most approved hygienic principles.

PATENT MEDICINES are doing a vast amount of harm. The quantities of them consumed are beyond general conception. Think of the sales required to pay for the advertising of them alone, when one can hardly read a column in any newspaper without valuable time being wasted in stumbling unawares two or three lines into a puff, more or less disgusting, of some cure-all concoction. Medical men do not like to be strong in their utterances against the nostrums, thinking that their remarks would be attributed to feelings of jealousy. They know well though that their practice is increased through these same nostrums. They nearly all contain alcohol, and legislation will soon be required to control their sale.

PHYSIOLOGY IN SCHOOLS—A CHANGED VIEW.—When Dr. "Playter's Physiology and Hygiene" for schools first appeared, in a review of it by the *Medical Times and Gazette*, of London, England, that Journal stated that if the first part, the physiology, had been omitted, though it was "clearly and simply dealt with," "there could have been nothing but praise for a very practical and useful compilation on matters con-

nected with hygiene." The *Gazette* then at considerable length gave its reasons why physiology should not be taught in schools: "A little knowledge is a dangerous thing," it stated; it would create a morbid feeling of anxiety in trivial ailments, or engender "misplaced confidence under grave conditions." The author of the little book above named wrote a lengthy communication to the *Medical Times and Gazette*, which was published in that journal, giving many reasons why physiology should be a subject of ordinary study in the schools. In the last number received of that medical weekly, (Dec. 22, '83) is a long editorial showing a decided change of opinion on this subject. In it, amongst many other arguments in favor of a wide-spread knowledge of physiology, are the following sensible lines: "Every doctor who is not an Educational Tory has probably taken it as an axiom that the best way to make people good citizens and sensible patients is to give them a knowledge of their own bodies and of the laws that govern them." "In March, 1853, the Privy Council issued a document, signed by sixty-six of the leading medical men of the day, in which it was strongly maintained that it would greatly tend to prevent sickness, and to promote soundness of body and mind, were the elements of Physiology, in its application to the preservation of Health, made a part of general education. Such instruction could be made most interesting to the young, and might be communicated to them with the utmost facility and propriety in the ordinary schools, by properly instructed schoolmasters. Thus heartily recommended by the medical profession to the public, Physiology has up to the present time assumed a constantly increasing importance in general education. That it has not done all that was promised of it—that, in spite of all instruction in the laws of life and health, the masses still overwhelm us with their incurable dirtiness, stupidity, and superstition—may be readily

admitted; but this has been reasonably put down to the inefficiency and limited extension of physiological teaching." "Faulty observation is at the root of most fallacies, and we contend that a boy would cultivate his faculties much more usefully by looking at his tongue in a mirror and describing it in words, than by learning the dates of all the kings that ever lived. Compared with the history and geography that have hitherto formed the staple of elementary education, the broad outlines of physiology can hardly be called complex; and, if properly taught, could, we believe, be made to interest children more than the most thrilling and best-remembered facts in the history-primer."

Did not our big, elder brother know all this long ago when it as strongly condemned the teaching of this subject in the public schools? And will it ever change its views in regard to vaccination?

MODIFIABILITY OF DISEASE-GERMS.—
Dr. W. B. Carpenter addressed a letter a few weeks ago to the President of the Carlisle Microscopical Society, in which is the following: "I need scarcely point out to a body including many medical men, what a wide field there now is in the study of disease-germs. As a qualification for that study, I should suggest the determination of the life-history of the yeast-plant. For there is a strong reason to believe that what we know under this form is only an aberrant stage in the life of an ordinary mucor; its cell-germs developing themselves in a very different mode, in a saccharo-albuminous liquid, from that in which they vegetate on an ordinary mould-producing surface. And while, on the one hand, it was long since observed by Mr. Berkeley that a mucor may develop itself in a confervoid form in ordinary water, it is still an open question whether, if growing in an organic fluid, the same mucor may not become the 'vinegar plant.' I have always, myself, been a believer in the great polymorphism of the 'saprophytic' fungi; and I recently argued that the extension of the same

idea to disease-germs will account for many clinical facts observed by able practitioners of medicine, which have hitherto received, in my opinion, far too little attention—I mean, the occurrence of what have been called hybrid varieties of exanthemata, or of forms of fever intermediate between typhus and typhoid, or the conversion of an endemic malarious remittent into a contagious fever.”

A LADIES' SANITARY ASSOCIATION in Dublin aims at (1) providing means of instruction in sanitary knowledge for all classes, and (2) improving the physical condition of the poor by direct personal effort. Lectures are given annually in accordance with the syllabus of the Association, which is as follows:—(1) Lecture on breathing, including air and respiration; (2) lecture on digestion, including food and cooking; (3) lecture on beverages, including water, the action, uses, and abuses of tea, coffee and alcoholic liquors; (4) lecture on light, sleep and exercise; (5) lecture on the house and its surroundings; (6) lecture on the prevention of disease. Since the work of district-visiting commenced in 1881, 200 families have competed for prizes, 1470 visits have been paid and thirty-five women have obtained prizes varying in value from 5s. to £1.

THE INTERNATIONAL HEALTH EXHIBITION.—The Executive Council are now meeting regularly twice a week, and a large general committee is also in course of formation. The following sub-committees have been appointed:—1. The Dwelling; 2. Workshop and Factory Sanitation; 3. Food (raw materials); 4. Food and Cookery; 5. Heat; 6. School and Education; 7. Ambulance; 8. India; 9. Colonial.

DEVELOPMENT OF THE GERM THEORY.—Ziegler's researches have satisfied him of a specific micrococcus producing erysipelas. Dr. Fehleisen has isolated and cultivated these micrococci through fourteen generations, producing erysipelas in rabbits and men by inoculation. Klebs

has been investigating a bacillus found in connection with syphilis, and Klebs and Tommasi-Crudeli have announced a *bacillus malarie*, although their experiments are imperfect and open to criticism. Neisser and Hausen have found a *bacillus lepræ* in all the leprous nodules they examined. Klebs, Eberth and Koch have found abundant bacilli in the lesions of typhoid fever. Obermeyer discovered the *spirillum* of relapsing fever in 1873, and its constant presence in this disease has been since abundantly shown. In certain forms of heart and kidney disease, in small-pox and vaccinia, in acute yellow atrophy of the liver, croupous and catarrhal pneumonia (inflammation of the lungs) in diphtheria, scarlatina and measles, micrococci have been detected, although their exact significance is still doubtful. More recently Koch's *bacillus tuberculosis* has set the medical world to investigating the germ origin of this disease. Recent investigations into septicæmia and pyæmia have greatly modified our pathology and revolutionized our treatment.

HYDROPHOBIA.—An “Animal Sanitary Institution” under the government of the University of London, has issued a notice, in which it is stated that hydrophobia occurs in dogs of all ages, and at any season of the year. It is recognized by a change of demeanor of the dog, which becomes dejected, morose, inclined to roam, and anxious to hide itself. The animal gnaws at wood, stones, etc., snaps at imaginary objects, and becomes unusually excited by strange or sudden noises. It rubs its throat with its paws, as if striving to get rid of some object lodged there; at the same time there is a more or less abundant flow of saliva from the mouth. The dog will attack its master, or animals of any kind; but it is most easily roused to fury by the presence of other dogs. There is throughout the disease no dread of water. In one form of the disease, called “dumb madness,” there is paralysis of the jaw, and therefore inability to bite.

CHARCOAL AS A FOOD.—According to *Farm and Home*, pure charcoal given with the food will increase the quantity of fat and the weight, as recently proved by taking the live weights of two lots of sheep, and simply separating them by an ordinary net, the artificial food, corn and cake, being carefully weighed out to each lot alike daily, one pint of charcoal being added to one lot only. When re-weighed prior to selling to the butcher, the increase in weight was in favor of charcoal by 16 1-4 per cent. One pint of charcoal to every twenty-five head of sheep or lambs is recommended.

PUBLIC SANITATION IN A NUT SHELL.—There are three leading points in public health work, which were aptly brought out by Dr. Rae of Oshawa, member of the Provincial Board of Health, at the recent Sanitary Convention in London Ont. They are the following: the keeping of the air of dwellings pure by free ventilation; the removal of all filth from premises and yards by the most perfect scavenging and efficient systems of sewerage; and the complete isolation and disinfection of all cases of infectious disease.

ESCALLOPED OYSTERS.—*The Caterer* recommends two quarts of oysters, half a cupful of butter, half a cupful of cream or milk, four teaspoonfuls of salt, half a teaspoonful of pepper, two quarts of stale bread-crumbs, and spice, if you choose. Butter the escollop dishes and put in a layer of crumbs, and then one of the oysters. Dredge with the salt and pepper, and put small pieces of butter here and there in the dish. Now have another layer of oysters, seasoning as before; then add the milk, and, finally, a thick layer of crumbs, which dot with butter. Bake twenty minutes in a rather quick oven. The crumbs must be light and flaky. The quantity given above is enough to fill two dishes.

RESOLVE TO BE WELL.—Dr. Jackson writes the following truths: A man who is physically sick cannot have spiritual health, only so far as through the power of his spirit he antagonizes his disease. If he is to be rid of it he must first of all cultivate in himself a spiritual dislike to it. All the responsible forces of his nature must war against its existence. If the disease exists by his consent, then he cannot be spiritually on any higher plane of truth than his bodily health indicates. Tens of thousands of persons are sick when they might be well would they only antagonize their diseases, taking thoroughly opposing ground to them, forming a purpose to overcome them, and resolving to do anything necessary to accomplish this. Thus, when a man is subject to headache, if he wishes to be rid of it, one of the best things he can do toward such ridance is to resolve that he will not have it. Such resolution may demand of him that he alter his bodily standing. He may have to stop eating certain foods, stop drinking certain beverages, stop doing certain things. He may have to break up existing habits as they are in combination, and reorganize them in different forms and relations, in order to conquer his headache. But so long as there is no antagonistic purpose *in his mind* to its existence, so long will his spiritual level exactly correspond to that of his body.

LARGE AND SMALL HEADS.—The popular notion, says an exchange, has been that men of great intellectual powers have large and massive heads. An examination of busts, pictures, medallions, intaglios &c., of the world's famous celebrities almost tends the other way. In the earlier paintings, it is true, men are distinguished by their large heads, but this is attributed to the painters, who agreed with the general opinion, and misl to flatter their sitters. Instances are cited of great intellectual power of men with small heads. Contrary to the popular notion,

there may be great men without big heads ; in other words, a Geneva watch is capable of keeping as good time as an eight-day clock.

THE DOCTOR'S WIFE.—Dr. Holmes, in an address recently given at the Harvard Medical School, said : “ I have often wished that disease could be hunted by professional antagonists in couples—a doctor and a doctor's quick-witted wife making a joint visit and attacking the patient, I mean the patient's malady, of course—with their united capacities. For I am quite sure that there is a natural clairvoyance in a woman which would make her as much the superior of man in some particulars of diagnosis as she certainly is in distinguishing shades of color. Many a suicide would have been prevented if the doctor's wife had visited the victim the day before it happened. She would have seen in the merchant's face his impending bankruptcy, while her stupid husband was prescribing for his dyspepsia and endorsing his note ; she would recognize the love-lorn maiden by an ill-adjusted ribbon—a line in the features—a droop in the attitude,—a tone in the voice,—which mean nothing to him, and so the brook must be dragged to-morrow. The dual arrangement of which I have spoken is, I suppose impracticable, but a woman's voice I suspect often determines her husband's prescriptions. She will find the right end of a case to get hold of, and take the snarls out as she would out of a skein of thread or a ball of worsted which he would speedily have reduced to a hopeless tangle.”

THE HAIR.—This is best preserved and strengthened, and its growth is best promoted, by good general health, and carefully, keeping the scalp clean and healthy by washing it from time to time with pure soft water, and occasionally with soap. Nothing more. As an exchange truly has it, the hair is, of all parts of the human body, the most abused in its relations to healthfulness and growth. Pulled, twisted,

torn, burned into a friz, and besmeared by all sorts of unguents and lotions, it is a wonder that baldness is not really the rule instead of the exception among those who most prize its beauty—the female sex

EFFECTS OF BREATHED AIR.—Holmes says (*Detroit Lancet*) that when lecturing to a class in a room whose air had been already breathed by a former class, as he has seen one head after another declining and one pair of eyes after another closing, he has said to himself inaudibly with the considerate self-restraint of Musidora's rural lover : “ Sleep on, dear youth ; this does not mean that you are indolent, or that I am dull ; it is the partial coma of commencing asphyxia.”

HOT MILK, the *Louisville Medical News* believes to be a most valuable restorative. “ No one fatigued by over-exertion of body or mind who has ever experienced the reviving influence of a tumbler of this beverage as hot as it can be sipped, will willingly forego a resort to it.” “ The promptness with which its cordial influence is felt is indeed surprising. Some portions seem to be digested and appropriated almost immediately ; and many who fancy that they need alcoholic stimulants when exhausted by labor of brain or body, will find in this simple draught an equivalent that will be as abundantly satisfying and more enduring in its effects.”

WITH OUR SCHOOL CHILDREN wearing glasses (*N. Y. Med. Times*) their patched teeth, their ankles supported with iron, their shoulders held back with braces, it seems to some as if nature had really failed in her effort at creation, but to the physiologist the whole matter is as plain as possible.

DINING.—Professor Blackie considers that we have made a distinct advance in the art of dining, though he admits there are still “ fools and beasts in high places.” who are a disgrace to humanity, and we have vastly improved on the habits of our ancestors in the matter of post-prandial drinking

Literary and Scientific.



LOUIS PASTEUR.

In the January number of the *Century*, amongst many other most interesting subjects, are a portrait and brief biographical sketch of Pasteur, who has contributed so much toward the success of preventive medicine. Pasteur worked his own way up. He began as an usher in the lyceum of Besancon, and aimed for the brevet of a University Professor. A pupil lent him a microscope with which he studied plants and insects before he was twenty. The idea that animalcules were the origin of contagious diseases was suggested to him by an apothecary at Dole, who got it from Raspail, a quack of genius. Pasteur won his university gown and obtained a chair in the faculty of Strasburg, where he came in contact with German thinkers, and had almost an European reputation as a geologist and chemist, when he was appointed scientific director of the *École Normale* by the Emperor Napoleon III. He owed his nomination to the head master, Nisard, under whom he studied, and who, being a devout Catholic, liked him for his attachment to his religious principles. Pasteur may be known at the Academy by his absent air, and eyes in which there is, to judge by their look, no visual power. They are too habituated to the microscope

to have any ordinary human focus, and they see as through a fog. He is free from conceit and loves what he thinks is true. He has a rugged temper and a crabbed style as a writer, and is undemonstrative. Perseverance is his dominant quality. He has been freed from the cares of life by his country. The present Chamber of Deputies has doubled the yearly pension of 12,000 francs which the Versailles Assembly granted to him. For the past three or four years he has had placed at his disposal, each year, by the French Minister of Agriculture, 50,000 francs for the purpose of scientific investigation. "The scientist proved that the Lilliputians could, and often did, get the better of Gulliver. In binding him down they took the names of small pox, scarlatina, yellow fever, cholera morbus, tuberculosis, glanders, murrain, hydrophobia, and other fell plagues. Lilliput transformed grape-juice into wine and dough into leavened bread. He then studied the laws of existence of the infinitesimal creatures, and while it is certain that his 'vaccines' are efficacious, it is also to be feared that they break down health and weaken defenses against other morbid agencies."

SCHOOL SCIENCE.—Below are the conclusions of C. F. Lunday, A.M., M.D., prof. of diseases of the eye, ear and throat, Mich., Col. of Med., Detroit, in a lengthy and evidently well considered paper, read at the late meeting in that city, of the American public health association: 1. Avoid the cramming process in education, and the nervous excitement due to the spirit of rivalry; 2. Reduce the number of subjects in the curriculum, and shorten the periods of study; 3. Ventilate the school-rooms in accordance with the most approved methods; 4. Regulate the temperature of the school-room—an atmosphere which is too warm debilitates the

system ; 5. Provide properly constructed and arranged seats and desks ; 6. Instruct pupils to sit erect, and to hold the book or paper at least 12 inches from the eye ; 7. Provide highly myopic pupils with proper spectacles, which will enable them to read at the natural distance of 12 inches ; 8. Furnish pupils with well printed books ; 9. Furnish abundance of light, without producing glare. Let it come from the left side if the room is narrow, from both sides if the room is wide ; 10. Provide for the physical education of school children, and teach them the importance of outdoor exercise.

THE TUBERCLE BACILLUS.—It has been stated in *Breathwaite*, that a saturated watery solution of carbolic acid acting fifteen minutes, is not sufficient to arrest the development of the tubercle bacilli. Dr. T. W. Poole, of Lindsay, sends the following to the *Canada Lancet*, Jan., 1884.

What say you, Koch, can this be true ?
(The very statement seems to chill us ;)
Is there, then, nothing we can do
Against this terrible bacillus ?

A molecule, brandishing fell darts,
Arm'd in the air, to meet and kill us ;
Or burrowing in our vital parts,
Oh dread invincible bacillus !

Monster ! in microscopic space,
Who doth with seeds of death instil us ;
Hast thou no vulnerable place,
No heel like that of old Achilles ?

Has science nought for such a foe,
(Just as new hope began to thrill us ?)
Come ! who will strike a mortal blow
And vanquish the renowned bacillus ?

THE WEEK, Toronto, sharply criticises Thibault's biography of Sir Charles Tupper, and concludes thus: "As for Sir Charles, we could wish to see his forceful and brilliant career recorded in some other," and we suppose better, "description of volume."

AFTER A YEAR'S EXPERIENCE the *Sanitarian*, of New York, returns to its old form of a monthly. It is now a 96 page octavo, published at \$4 a year. We wish it a great degree of success.

POPULATION AND TEMPERATURE.—From the Census returns of the United States, it is found that 89 per cent. of the population live where there is a maximum temperature of between 95° and 105°, while 95 per cent. live where there is a minimum of 35° below and 10° above zero for extreme cold. It will be seen, therefore, that nine-tenths of the population there live where there are great ranges between the extremes of heat and cold, and where an "equable climate" is unknown.

Too SLOW.—Dr. Gairdner says it took two centuries for Great Britain to appreciate in a practical manner the means for the prevention of scurvy. Hence let the apostles of sanitary and other reforms be not weary because their ideas are long in being adopted by the public at large. So says the *Detroit Lancet*.

THE PUBLIC HEALTH IN ONTARIO has been reported during the whole of the past six months as being unusually good throughout the province. The blank forms for the local reports having been all used, we cannot give special reports this month, not having been able to get more ready in time.

QUITE A NUMBER OF MUNICIPALITIES have now subscribed for copies—three or four or more—of this JOURNAL for the Councilmen. We should like to "hear" from many more of them, and hope the clerks, to whom many specimen copies have been sent, will kindly bring the matter before the Council of their respective municipalities from time to time. All in responsible positions ought to keep well posted in public health matters, and this is the only Journal in the Dominion devoted to the public health.

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Our machinery and process for the production of BEEF PEPTONIDS are perfectly adapted to the *elimination* of all inert portions of the Beef, and the *retention* of all the nutritive constituents.

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The favour our preparation of BEEF PEPTONIDS received at the hands of Drs. AGNEW, HAMILTON, BLISS, REYBURN, WOODWARD, BARNES, etc., the corps of eminent physicians who employed the preparation with so much advantage in the treatment of the late PRESIDENT GARFIELD proves conclusively its great value as a food.

Great care is exercised in selecting the Beeves, and none except the most healthy and suitable are employed in making our BEEF PEPTONIDS.

DIRECTIONS FOR USE.

FOR AN ADULT.—*From a teaspoonful to a desert-spoonful, added to a cupful of boiling water, and salt to the taste. Children in proportion.*

It may be given as often as required, say three to six times a day. If preferred, it may be added to soups or other liquid food. In the event of the patient's stomach being in a weak condition a larger quantity of water should be added to the BEEF PEPTONIDS, and administered in teaspoonful doses.

For further particulars please address our Canadian Branch.

Very respectfully,

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OTTAWA LADIES' COLLEGE

—AND—

CONSERVATORY OF MUSIC.

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Assisting these in the different Departments will be found a well-trained corps of thorough and efficient teachers.

The school rooms are large, well-lighted and well-ventilated, and the building occupies one of the loftiest positions in Ottawa, thus securing perfect drainage.

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Pupils may enter at any time, and are charged from date of entrance.

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JOHN DICKIE.

NOTICES OF BOOKS, &c., RECEIVED.

THE MEDICAL STUDENT'S MANUAL OF CHEMISTRY. By R. A. Witthaus, A.M., M.D., Prof. of Chemistry and Toxicology in the Universities of Vermont and Buffalo; Prof. of Physiological Chemistry in the University of New York. New York: Wm. Wood & Co.

This a special work, not one of the regular series, and was much needed. The author has in it given his attention chiefly to those portions of special chemistry which are useful to the practical physician. It will doubtless be appreciated by medical students. It is very conveniently arranged.

THE TREATMENT OF WOUNDS—ITS PRINCIPLES AND PRACTICE, General and Special. By Lewis S. Pilcher, A.M., M.D., Member of the New York Surg. Soc. With one hundred and sixteen wood engravings. New York: Wm. Wood & Co.

This is one of Wood's regular series of monthly issues, and is an admirable one. It is written by one well known to the medical profession, especially in the domain of Surgery. It is well and conveniently arranged, and copiously illustrated.

A MANUAL OF PRACTICAL HYGIENE. By Edmund A. Parkes, M. D., F. R. S., late Prof. of Military Hygiene in the Army Med. School; Mem. of the Gen. Coun. of Med. Education; Fel. of the Senate of Lond. University; Emeritus F. of. of Clin. Med. Col., Lon.; edited by F. S. B. F. De Chaumont, M. D., F. R. S., Fel. and Chairman Coun. of the Sanitary Institution of Great Britain. Prof. of Military Hygiene, Army School. Sixth edition, with an Appendix, giving the American practice in matters relating to Hygiene. Prepared by and under the supervision of Frederick N. Owen, civil and sanitary engineer; Vol. I. New York, Wm. Wood & Co.

It is enough to announce the appearance of a new edition of this work, and from these well known publishers. Since the first edition of the book it has been almost universally recognized as the best

authority on the subject of sanitary science, and we are much pleased to welcome the first volume of the sixth edition of it.

THE MILK SUPPLY.—We should like to learn of some general legislative provision in reference to the inspection of the source of the milk supply in cities and towns—the dairies—and we hope the time is not far distant when a general act may be passed bearing upon the water supply, especially that from wells.

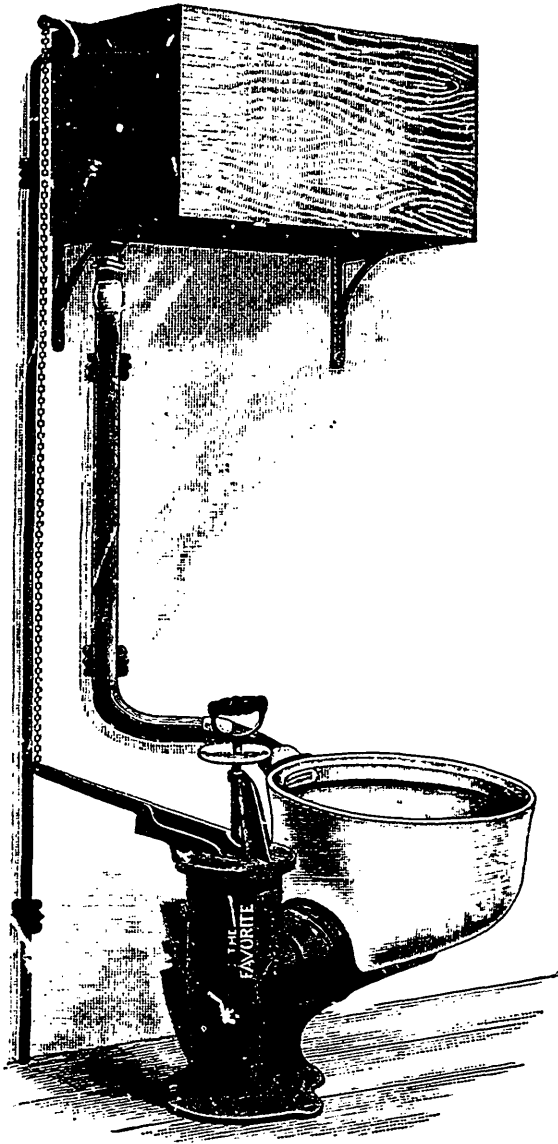
COURAGE AND DISEASE.—M. de Lesseps has deliberately averred that he never knew a fearless man to die of cholera. He was himself in the midst of it in Egypt in 1831, and turned his house, in which he continued to live, into a hospital. Yet the plague never touched him.

FAMILY LIFE.—Home is sometimes thought flat and dull, and too often made so, just for the want of recognizing what it stands for. The relations of life that go to form the household are the sources not only of life's richest joys and most sacred memories, but also of some of the finest and noblest characteristics of man. The love, the fidelity, the forbearance, the self-sacrifice that are nourished by family life, are among the richest possessions of humanity. It can never become wearisome or commonplace, save to those who fail to comprehend its meaning or refuse to act in harmony with it.

NO MAN CAN be brave who considers pain the greatest evil of life; nor temperate who considers pleasure to be the highest good.

AN OLD MISER, having listened to a powerful discourse on charity, said, "That sermon so strongly proves the necessity of almsgiving that I've almost a mind to beg."

"THERE'S MUSIC in the heir," was a fond father's remark, as he paced the floor at midnight with his crying son in his arms.



SMALL-POX IN BARRIE—
MISTAKEN KINDNESS.—From the *Orillia Packet* we learn that recently a young man was brought by stage to Gravenhurst from Rosseau. On Friday he went to Barrie by train, and stopped over night at an hotel. On Saturday he was taken to his father's home in Oro. While in Barrie a clergyman was called to see him, and in mistaken kindness gave him prescriptions which he used till Monday, when a physician was called to see him, and found him in his twelfth day with small pox. Of course the physician isolated him at once, and used every means to prevent the spread of the disease; but many may have received the germs of it from him in his long trip from Rosseau. It would be profitable and interesting to know the facts bearing upon this point. The case is worthy of an investigation, and we trust the Provincial Board of Health will cause one to be made.

WAEFELAER'S PATENT side outlet cistern water-closet, an illustration of which is here given, is flushed suddenly with two gallons of water through a patent fan, which thoroughly cleanses the bowl, and the large body of water flushes completely the soil-pipe at each service. The plunger that holds the water in the closet is constructed on the *Bower trap principle* (see pag: 105). The trap in the plunger is flushed at each service and sealed with the ball.