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THE  
SANITARY JOURNAL.

DEVOTED TO

PUBLIC HEALTH.

EDITED BY

EDWARD PLAYTER, M.D.

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VOLUME II. 1876-7.

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*SALUS POPULI SUPREMA EST. LEX.*

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*Original Communications.*

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A DESCRIPTION OF THE PESTILENT CONDITION OF  
THE TORONTO LUNATIC ASYLUM IN 1853, AND  
THE MEANS ADOPTED TO REMOVE IT.

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BY JOSEPH WORKMAN, M.D., LATE MEDICAL SUPERINTENDENT.

If "by others' faults wise men correct their own," there must be "some soul of goodness in things evil." In every department of life we are perhaps more indebted, for rational progress and success, to the errors and failures of our predecessors or neighbours, than to our own unadmonished capabilities. A coast dotted with wrecks is safer to the vigilant navigator, than one whose hidden rocks and unsounded shoals, lying outside the courses of adventurous commerce, present to him no warning of their dangerous proximity. It assuredly cannot be said that the cultivators of sanitary science have not, from the ignorance and errors of past ages, if not also to a lamentable extent from the unquestioning servility of later times, been most amply furnished with wreck-marked charts, and memorial pages "rich with the spoils of time."

To what sources, mainly, are traceable, when thoroughly enquired into, the greater number, if not the whole, of the plagues and pestilences which have fallen upon our race, from the earliest days to the present time? The tergeminous sisterhood, "poverty, hunger, and dirt," have ever been their progenitors. It unfortunately devolves on the sanitary scientist or philanthropist, to combat the last of these "fatal

sisters," unsupported in the conflict by the potent alliance of legislative and moral reformers; consequently his efforts to ameliorate the physical condition of his fellow-men have so largely been doomed to failure.

But just as (may we not say *providentially*?) the affliction of insanity fell upon one of England's most venerated kings, and brought home to the consideration and sympathy of the rich and noble, the long neglected and sadly maltreated thousands of sufferers under this malady; and so again whilst all deplored that calamitous visitation which bereaved our beloved Queen of one of the best of husbands, and her children of the best of fathers, no cultivator of sanitary science failed to recognise in this demonstration of the deadly influence of defective sewerage and ventilation, a salutary arousalment in high quarters, to the serious practical consideration of sanitary reform.

True, indeed, the nation had, long before, been duly admonished, in several visitations of malignant cholera, and in the continuous incubations of typhus and other decimating diseases, of the close affinity between dirt and death; but so long as the destroyers appeared to select their victims only from the poorer classes, little heed was given by the rich to their sufferings. So long as beneath and around the mansions of the affluent, the pestilence crept unseen, "wasting at noon-day" only the hovels of the poor, legislators and statesmen seemed to turn a deaf ear to the warnings given by sagacious and far-seeing members of the medical profession; but the death of the Prince Consort, and the late narrow escape of the heir to the throne, have spoken thunder-toned to the enlightened portion of the community, declaring the pestiferous action of sewer and cess-pool gases.

Perhaps in Canada no more notable (though very sparsely noted) illustration was ever afforded, of the sad consequences of defective sewerage, than was realised by the writer of this article in the Toronto Lunatic Asylum on his assumption of the duties of medical superintendent, in the summer of 1853. In the early part of the preceding winter, the institution was visited by an outbreak of cholera, which was regarded as of the genuine Asiatic type. A number of the inmates died. The disease had presented in the city in two or three cases; but it was not possible to trace any connexion between these and the asylum cases. Several had occurred shortly before at Quebec.

The Medical Superintendent and the Board of Directors were puzzled to conjecture the source of the malady. They had recourse to the sapient experiment of bottling up some

samples of the air of various parts of the house, and subjecting it to analysis by a very able chemist. His verdict was *not guilty*.

In January 1853, on an intensely cold day, a conglomeration of sages, yclept a grand jury, inspected the establishment. They explored the basement of the building, or said they so did, and drew up a sample of surface underlying water, which they pronounced clear and odorless. We shall see, anon, how seriously the coldness of the clay must have dimmed their eyesight and blunted their noses.

For more than two years previous to the invasion of cholera erysipelas and very destructive dysenteries and diarrhoeas had been contended with. These continued throughout the summer of 1853, and the succeeding winter.

Shortly after my entrance, I made a close and extensive personal examination of the whole basement. The result was the discovery of the most foul and enormous cess-pool that perhaps ever existed under any large building. The depth of this pestilent reservoir, in the eastern end, was from three to four feet, and its consistence varied from that of strong infusion of black tea, to viscid soft soap. In the western end, owing to a gradual slope left in the ground from west to east, the depth was less, but in every part the abomination was present. Such was the limpid Pierian spring, from which the January grand muses drew their inspiration.

To infer that this accumulation of filth proceeded from some defect in the sewerage, whether consisting in primary misconstruction, or subsequent obstruction, required no witchcraft endowment. The person who had served as clerk of works, was sent for, to explain the sewerage arrangements, for no plans were to be found in the institution. He at once began to denounce the cooks and laundry girls, who, he affirmed, had choked the basement drains with dirty dishcloths. This explanation appeared to me apocryphal, but for the present we had to accept it as all he was able to give.

It would have been nothing short of sanitary lunacy to set about the cleansing process before cool weather should set in. The work was therefore deferred until October, and a tedious, tiresome, and sickening work it was, to empty the huge hulk of its fetid contents. The thick admixture of kitchen grease, dirty suds, (the laundry was then within the house) *et hoc genus omne*, which had all been deposited in high temperature, and gave forth, when exposed, volumes of stinking steam, had to be baled up and carried out by the workers, to two openings made in the main sewer, which runs parallel to the south front of the building. When at length sufficient clear-

ance was made to enable us to probe and search, the discovery made was much less astounding to me than to the mortified clerk of works. We found no dishcloth chokings, nor any other sort of obstructions ascribable to the cooks or laundresses; but we did discover a very curious oversight in construction—a most fatal deviation from the architect's arrangements—to the proper understanding of which some preliminary explanations are necessary.

The contracts for the building were awarded to two different tenderers. To one was given the stone-work of the basement; to another the whole of the superstructure, of cut-stone, brickwork, carpentry, &c., &c., &c. The construction of the main sewer from the house to the Lake, a distance of nearly a mile, was given to a third. No better work was ever done by contractors than the whole of the above mentioned; but it would perhaps have been more fortunate to the destined inmates of the asylum, had the entire work been awarded to one person.

The builder of the basement correctly constructed all the interior drains. The contractor for the main sewer did his prescribed part well. The specified water-closet and other outlets from all parts of the superstructure were properly constructed; but yet there was a "missing link" and a very vital one it was. *The connection of the basement drains with the main sewer.*

Of whose contract this formed a part, I have never been able to learn. My belief is it belonged to that naughty fellow, nobody, who is so constantly detected in evil doings. Fifteen and eighteen feet, respectively, at each end of the house, of solid hard clay, between the two basement drains and the main sewer, was a more formidable obstruction than a ton of dish-cloths, (had their escape even been possible,) could ever have become. The problem which an able chemist, and a keen nosed grand jury, had failed to solve, was now clearly demonstrated, and the hard-worked lunatics who had deported so many hundred hogsheads of reeking filth, well might exclaim, *eureka*.

Such was the defect, oversight, blunder, or whatever else we may call it, which converted the largest, and not least important, public building in Western Canada into a charnel house.

The first sanitary requirement was obviously to insert the two missing links into the sewerage. This was done speedily; but when it is considered that the surface soil of the entire basement, covering an area of nearly 600 feet in length, by an average of 60 feet in width, was saturated, to an unknown

depth, by the foul fluids of four years accumulation, it must be apparent that the work of purification was but commenced. This *manure* was removed, to the amount of some hundreds of cart loads, and it was replaced by a layer of fresh gravel. Under the centre of the long corridor a tile drain, with proper outlet, was laid to receive and carry off all surface water which might in time to come ooze into the basement. The floors of the kitchen and various other parts, amounting in all to not less than fifteen thousand feet, were entirely rotten, and of course required relaying. The under surface of these presented in some parts the most gorgeous fungoid growths ever beheld; one of these rivaled the antlers of an elk.

No provision had been made for sub-ventilation, without which no basement whatever can be healthful, nor its timbers lasting. We found, indeed, that apparent precaution *against* the free circulation of air beneath the floors had been taken, by building up the stone walls of every compartment to the door sills, or very near them, and no external openings had been made for entrance of fresh air.

These walls, underneath every door, were removed, and the jambs properly built, so that a sub-atmospheric community was established throughout the entire extent. In the eastern half, where the surface is deep below the flooring, a year old heifer might now play hide-and-go-seek from one compartment to another.

The next step was the opening of some five and twenty air shafts, from the basement compartments, sloping upwards to the outside, which they reach at the underside of the cutstone heavy plinth. These openings are protected against entrance of rats by strong close-barred iron gratings. By means of these shafts, which are fifteen to eighteen inches in diameter, every fresh breeze finds ingress and egress, and thus keeps up a constant change of air. But in the winter these openings are closed, to prevent the entrance of very cold air. It was therefore necessary to introduce some form of vicarious sub-ventilation. The building is abundantly provided with fires and chimneys of powerful draft. To utilise these chimneys, by converting them into air-pumps, drawing their supply from beneath the basement floors, it was merely necessary to cut round holes in the floors, in the corners or at the sides of the chimney pieces, or in other contiguous parts, and place over them seven or eight feet of stove-pipe, with an elbow entering the nearest flue. Sixteen of these cheap pumps were set to work. Their efficiency was well demonstrated by placing in one a revolving valve, working on an axle, to one end of which, outside, was fitted an index resembling the needle

of a surveyor's theodolite. This little tell-tale flew round with such rapidity as to present the aspect of a continuous disc. If all our city houses were provided with this simple and inexpensive means of sub-ventilation, we should hear of fewer cases of typhoid fever than we now do. Seven or eight lengths of even old stove-pipe, painted black for look's sake, and longer wear, set over a round hole in the floor, an inch less in diameter, and let into a hole in the chimney three or four feet above the fire-place arch, is the whole apparatus; but it is too cheap and too simple to please the rich or the ignorant. In the winter time, when supply of air from outside is cut off, it performs the double office of pumping out bad air from beneath, and drawing down, through crevices, the cold air of the apartment, which is always lowest down, consequently it economises heat, instead of wasting it.

The result on the general health of the inmates of the asylum, both sane and insane, from the improvements and alterations above detailed, soon became manifest. Erysipelas utterly vanished, and has not reappeared, except in a few cases of late years, in the new wings, in which a most wayward and serious blunder was, despite my protests, made by the architect, and the plumber who did the work of the water-closets. This subject will be noticed hereafter. Perforating dysenteries, intractable diarrhoeas, and the whole typhoid family of deadly complications, ceased to perplex the medical staff. Still much remained to be done before the establishment, within and without, could be regarded as a comfortable and safe residence; but I fear the present article exceeds the limits awardable, therefore I defer till a future opportunity, the further consideration of the subject.—J. W.

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## THE IMPORTANCE OF SANITARY SCIENCE.

(To the Editor of the SANITARY JOURNAL.)

DEAR SIR,—

While I profess to considerable enthusiasm in curative medicine, I am no less deeply interested in the science for which your admirable Journal so ably contends. I assume it to be the inevitable tendency of every young practitioner in medicine, who so recently during his college course has studiously waded his way through the labyrinth of theories as to the nature and etiology of diseases; and who, in his own experience (limited though it may be) has frequently witnessed the inefficacy of the measure based on these theories to

mitigate the sufferings of his patient, is to drift with the tide of modern medicine towards a collateral branch of our art which has for its object the prevention of disease. Every student of medicine will have observed this tendency of the medical world to-day; as if the hydra-headed monster, "disease," having proved more than a match for his indefatigable opponents and zealots of our profession, we were now willing to retrace our steps as it were, and imitate more effectually the example afforded us by the ancient Greek methods of physical development, and strict sanitary legislation;—to turn our attention more to the science of prevention. It has been well observed, that for an individual to be successful he must possess "a sound mind in a sound body"—a problem to the solution of which the attention of scientists will most assuredly in the future, be more earnestly directed. I do not wish, however, for your readers to conclude, that by these remarks, I wish to throw any discount, or depreciate in any degree whatever, the labors of many earnest workers in the profession and the valuable contributions to medical literature which have resulted therefrom: on the contrary, I hold that we have every reason to congratulate ourselves on the rapid strides which have been made of late years both in medicine and surgery; sufficient indeed to make us sanguine of a future state of comparative perfection in the science. Still, while this is the case, it cannot be expected that with the large amount of crude material which is at present at the student's disposal, in the shape of unsatisfactory explanations of observed clinical phenomena,—mere hypotheses of the way in which certain remedies act in controlling the same, the contradictory evidence adduced from very eminent authorities of the action of certain drugs on the animal economy—that amidst this chaos of scientific investigations and deductions, both pro and con, so adverse in their nature, he can be censured for recognizing more fully the truth of the old proverb,— "prevention is better than cure." By way of illustration let us take the drug alcohol. I believe it to be generally taught in our colleges at the present day, that this substance is a generator of nerve force: a *stimulus*; accelerating for a time at least the vital activity of the nervo-muscular parts of the body, a calorific agent, in consequence of its union with the oxygen of the tissues; that it quickens the pulse and respiration, and only a minute quantity is eliminated from the body through the secretion. These at least seem to be the conclusion of Dr. B. W. Richardson, who based his opinion on the careful researches of Dr. Anstie, Dupre and others. Commenting on these investigations this eminent writer says, "If

it will burn in the organism it will supply force ; for it enters as the bearer of so much potential energy."

Quite recently however, Dr. Kinnie of New York who has written a very able prize essay on the subject, "claims that alcohol is in no case a stimulant, that its well-known effects, such for instance as a quickened pulse, a flushed face, and a heated surface, are due to its action as a paralyzing force, and that its well-known therapeutic value, must be accounted for upon entirely different physiological principles." So I might continue almost *ad infinitum*, quoting instances in which such conflicting testimony exists on subjects of almost vital importance.

With this state of things, it is evident that much discord and unpleasant criticism will unfortunately too frequently enter into the practical application of our science, according as the views of one or other author are entertained. I conceive it to be the invariable conclusion of every medical man, it matters not how extensive his reading or how elaborate his researches, or how varied his experience, that if we take a healthy individual, who does not in an especial degree inherit any of the constitutional diseases, and surround him by perfect sanitary conditions, such for instance as in Dr. Richardson's model City, Hygeia, and let him be regular and temperate in all things, then *ceterus parabus*, he would trouble us and our drugs but very little.

Again, the daily experience of almost any medical practitioner will furnish ample illustration of the great importance of imparting to the youth in our schools, sound physiological and hygienic principles ; and of the necessity for all teaching bodies and persons of influence to cultivate more interest in the subject ; together with the Legislature enacting such measures as may appear most conducive to the task of educating the public in the solution of the great problem, "How to be healthy."

I have already occupied more of your valuable space than I intended, wishing your Journal continued success.

I am,

Yours respectfully,

T. GRANVILLE HOCKRIDGE, M.D.,

Newmarket, 20th Dec., 1875.

## PRACTICAL NOTES AND EXTRACTS ON HYGIENE.

BY THE EDITOR.

*The Air—Ventilation—Cubic Space.*

The cubic space or air space should be large enough to permit the passage of 3,000 cubic feet of air per head per hour, *without producing perceptible draughts*; this being the fixed amount of fresh air necessary for each healthy adult, as shown in the last number of the Journal, according to Parks and others. Before noticing methods for moving this air, it will be necessary to consider the minimum size of the air space for each person; and this must depend on the rate at which air can be taken through the space without perceptible movement, the size of the space being of consequence chiefly as it effects this condition. The smaller the cubic space the greater the necessity for frequent renewal of air and the greater the chances of draught. Thus, to give 3,000 cubic feet of air in a space of 100 cubic feet, its air must be changed 30 times in an hour, while with 1000 cubic feet of space, the air need only be changed three times in an hour.

With perfect mechanical means, without regard of cost, the air of a small air space may be changed sufficiently often without draught, but with natural ventilation, the difficulties are considerable, caused chiefly by the rate of movement at the openings where the fresh air must come in rapidly, causing currents. In Pettenkofer's room at Munich, according to Parkes, the cubic or air space is 424 cubic feet, and 2640 cubic feet can be drawn through per hour or the air changed about 6 times, by a steam engine without perceptible movement.

Upon this subject, Dr. De Chaumont, Staff-Surgeon Major, Assistant Prof. of Military Hygiene, Army Medical School, Netley, in a recent paper on "Habitations," observes:—"We must not only supply enough of air, but we must also do this, in such a way, as that no unpleasant draughts shall be perceptible by the inmate. Bearing in mind that a velocity of one and a half to two feet per second is appreciable by most persons, and, probably, even less if the air be very cold, we should try to arrange so that at no part of the air space in the neighbourhood of the inmate the rate should be much above this. For this purpose the sectional area of the ventilators must be sufficiently large, whilst the cubic space must be sufficiently great to render it unnecessary to change the whole air more than a certain number of times an hour. Now these two quantities are interdependent, and we may lay it down as a general principle that the sectional area of the ventilators

should be inversely as the cubic space, so that, if the latter be diminished, the former ought to be increased in proper proportion. If the cubic space be small, it is almost impossible to keep it pure unless the incoming air be warmed, for cold air will produce such draughts as will be quickly resented; whilst, on the other hand, if the cubic space be inconveniently large, the warming becomes a matter of expense, and the change of air is difficult to accomplish uniformly and continuously. It is unadvisable to change the air of any inhabited space oftener than three times an hour on an average, unless the air be specially warmed, when it may be done oftener; therefore, to give 3,000 cubic feet of air per hour, a space of at least 1,000 cubic feet per head would have to be provided. If, however, this be (as sometimes must be) impossible, then means should be taken to raise the incoming air to a temperature as near as possible to that of the air space. A velocity of unwarmed air amounting to five feet per second is as rapid as is advisable at the point of entry, so that on this basis an air space of 1,000 cubic feet ought to have about one square inch for every 40 cubic feet of space, or 25 square inches of total inlet area, and of course an equal amount of outlet area; this would provide for a movement in both directions of a little over 3,000 cubic feet per hour. If now a greater space be given, a greater velocity at the points of entry, and exit might be borne, but if the space be diminished so must the velocity, and the two extremes may be considered to meet; for if the space be infinitely increased, the ventilation may be infinitely diminished, whilst if the space be reduced to the amount a man requires to stand up, the ventilators would have to be so much increased that the containing surface would be to all intents and purposes done away with; so that in both cases he might be considered to be in the open air. I think a fairly safe rule would be to add on five square inches of total inlet and outlet area for every 100 cubic feet of space less than 1,000—so that we should have the following scale:

Cubic space.	Total sectional area of inlet and outlet.
1,000 cubic feet . . .	50 square inches.
900 . . . . .	55 . . . . .
800 . . . . .	60 . . . . .
700 . . . . .	65 . . . . .
600 . . . . .	70 . . . . .
500 . . . . .	75 . . . . .
400 . . . . .	80 . . . . .
300 . . . . .	85 . . . . .
200 . . . . .	90 . . . . .
100 . . . . .	95 . . . . .

A greater amount than 1,000 cubic feet per head is seldom likely to be provided, but, if it were, a diminution in the sectional area might be admitted, but not in the same proportion; for instance, 25 square inches would probably be enough for 2,000 cubic feet, but it would not be advisable to go much below this, however great the cubic space might be—both because the friction would be much increased, and because the risk of stoppage at any moment would be greater.

“A further limit requires to be put to the question of cubic space, and that is, that the space laterally must bear a due proportion to height. It has been an error, not uncommon, to suppose that, by raising the roof of an air space, and so giving nominally the proper amount of cubic space, the want of room laterally was compensated for, and that the inmates might in this way be crowded together to any extent. Nothing could be more erroneous, and its absurdity becomes at once manifest if we suppose a man put at the bottom of a deep well or pit; the space above is illimitable, but he has a strong chance of perishing for want of air. So also cases have been known of persons being suffocated in a crowd in the open air where there was nothing between the tops of their heads, and the outer limits of the homogeneous atmosphere. It is therefore necessary to lay some limiting rule, and I think we may safely say that nothing over 12 feet in height ought to be reckoned in estimating cubic space for ventilating purposes. This, with a total of 1,000 cubic feet, would give about 84 square feet of floor-space, or 12 feet by 7. When the cubic space is much diminished below 1,000, the lateral space ought, if possible to bear a greater proportion, so that the limit of height might with propriety be placed at 10 feet for spaces of 500 cubic feet and under.”

In measuring cubic space, solid masses of furniture, as cupboards, wardrobes, etc., should be taken into account. In hospitals, ten cubic feet are allowed for a bed—mattress, pillow, bedding, etc. The bodies of persons on an average each take the place of about three cubic feet of air.

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## SUGGESTIONS FOR THE BETTER CONSTRUCTION OF DWELLING-HOUSES.

By GEORGE ROSS, M.D., Medical Officer of Health for St. 'Giles' District.

THE subsoil of every area, intended for the erection of dwelling-houses thereon, should be properly drained before the buildings are begun.

If the soil be clay, it should be burnt, and a layer laid down to improve the drainage and purify foul waters.

The entire site of every dwelling-house should be covered with concrete, Portland cement or other impermeable material.

The footings of every house should stand upon concrete.

Every wall should have a damp-proof course of slate, asphalt, or otherwise.

No staircase should be less than 3 ft. wide with proper openings for ventilation, and should be always external to the rooms.

No habitable room should be less than 9 ft. in height, or less than 150 ft. superficial area. It should be provided with a window at least 16 square feet in size, and a fire-place.

Every room in a basement, having an external wall and provided with a window and fire-place, should have an open area from 6 in. below the flooring along the whole length of the external wall, and at least 4 ft. wide. The ceiling of such room should be at least two-thirds of the height of the room above the top of the area wall, or surface of pavement of street. The surface of the said area should be covered with cement concrete.

Every house intended for human habitation, unless every room can be lighted and ventilated from a street or open space, should have an open space in the rear thereof of at least 150 square ft. in area, and never less than 10 ft. in width in any part. Such space to belong exclusively to the house.

All block buildings, meaning thereby buildings intended for the occupation of numerous families, and more than 25 ft. wide in their largest frontage, should have staircases and passages external to the walls of the house, to provide ready escape in case of fire, and to prevent the spread of disease.

A suite of rooms in such houses intended for the occupation of a separate family should have no communication with other rooms; and each suite of rooms should be entered directly from the street or outer staircase. The houses and rooms should be so arranged that thorough ventilation is secured.

In the case of block buildings, at least half of the superficial area should be left open, for ventilation, and a space of at least 30 ft. in depth should be left between the wall of each block, or of one block and of any other house, back and front.

The water-closet, or other contrivance for the like purpose should be always detached from the house, or so situated that there should be space for a current of air between the house and the closet.

The water supply for drinking, cooking, &c., should be separate from the closet, and should be constant.

No house drain should be carried under the basement of a house, but have a fall to a sewer in the rear.

The inverts of sewers should be made of Portland cement or of other impermeable substance.

In all new neighbourhoods the paving of the roads and foot pavements should be completed before the houses are permitted to be occupied.

No new house should be allowed to be occupied without a certificate from a medical officer of health or a surveyor that the regulations have been complied with, and that it is fit for human habitation.—*Public Health, London, England.*

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## “TAKING COLD.”

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BY J. R. BLACK, M.D., NEWARK, OHIO, U.S.A.

Of all the erroneous notions pertaining to the preservation of health, none is fraught with more mischief than that about taking cold. According to the popular, and I may also say to some extent professional view, taking cold is the greatest disease and death producer in the world. Fully 80 per cent. of those who consult physicians premise by saying they have taken cold. If a relapse occurs during convalescence, ten to one the blame is laid on the action of cold. “My pain is greater, I must have taken cold;” “My cough is worse, I must have taken cold;” “I do not feel as well this morning, I think I have taken cold, but I don’t see how,” are expressions which the physician hears a dozen times a day. The latter is thereby often led to the reflection that if it were not for death-dealing colds he would have little to do, and convalescence would seldom be interrupted. But if the physician takes the trouble to think a little more upon this subject, he will be convinced that to his own craft is due this stereotyped and never-ending complaint of his patients about taking cold. The sick and their friends nearly always take their cue about disease and its causes from the trusted family doctor; and he accounts very often indeed for an aggravation of the symptoms of those under his charge (the cause of which aggravation by the way may be, and often is, very difficult to detect) by the easy and satisfying explanation of having taken cold. In this way he gets over the trouble of attempting to make plain to untutored minds what is often a puzzling problem to the most trained intellect, and at the same time shifts the responsibility for the relapse on the uncomplaining and much-abused weather. So it is that men and women have been led

to regard climatic changes as the greatest enemy to their health; if it were not for them, their health would be next to perfect from the beginning to the end of the year. Thousands of consumptives, especially in the first and second stages of the disease, are firmly of the opinion that if they could only escape the malign influence of one cold after another, their recovery would be assured. To this end precautions of the most thorough character are scrupulously observed, and yet cold after cold is taken; the patient, mother, or nurse knows not how.

To the physician, the taking of cold means the suppression to a greater or smaller degree of the sensible or insensible perspiration, and a temporary diversion of the blood from the capillaries of the surface to some internal part. There is, however, reason to believe that the characteristic effects of what is known as a cold in the head may be unattended with any interference of a proper functional activity of the skin. The respiration of very cold and damp air may produce direct derangement in the action of the lining membrane of the nostrils, throat, and windpipe. More especially is such an effect liable to arise from breathing for hours a very warm, dry, house air, of a temperature of  $60^{\circ}$  or upwards, and then in less than a second of time, the cold, damp air outside, of a temperature at zero, or even far below it. In my estimation this is the main cause of that exceedingly prevalent complaint chronic catarrh of the head. The capillaries and follicles of the mucous membrane of the nostrils are every day repeatedly swollen and engorged with blood by highly heated air—so much so as to arrest for a time the usual mucous excretion—and then shrunk and chilled with cold. This sudden and oft repeated alternation is too much for the vital harmony of the part; it becomes irritated, deranged, and diseased; just as even the tough skin of the hand will become irritated and inflamed by being repeatedly plunged in cold and then in hot water. In primitive times, when houses were more open, and consequently of a temperature more nearly that of the ambient air, such a thing as ozœna was almost unknown.

It has long been a familiar fact that cold as a disease-producing agent gives rise to no uniform results. Let a wave of cold air sweep over a continent, and how diverse the results upon the inhabitants? Upon some the result is a cold in the head, upon others an attack of rheumatism, upon others an attack of neuralgia, or of pleurisy, or of ague, or of lung fever, but upon the larger majority the effect is the very opposite of a diseased condition; that is, the cold air braces, tones, and enlivens the whole body. Why such diverse effects, why

should an external condition be the source of disease to one and of increased health to another? If cold is *per se* necessarily antagonistic to health and life, why should the larger part of mankind feel better and stronger under its influence? One of the plainest rules of logic is that a cause cannot produce opposite effects, or that putrid pus injected into the blood of two living animals will not produce increased health in one and disease in the other. The absence of uniformity in the effects of cold upon the body, either in the production of a characteristic disease, or in the presence or absence of this state, indicates that it is not necessarily a cause of disease, and that when it becomes so the effect properly arises from some special abnormal condition of the body. In other words, a cold is simply a developer of a diseased condition, which may have been latent or requiring only some favoring condition to burst it into the flame of disease. That this is usually the correct view of cold as a disease-producing agent under all ordinary circumstances may be made plain by reflection upon personal experience even to the most ordinary understanding. When the human body is at its prime—with youth, vigour, purity, and a good constitution on its side, no degree of ordinary exposure to cold gives rise to any unpleasant effects. All the ordinary precautions against colds, coughs, and rheumatic pains may be disregarded and no ill effects ensue. But let the blood become impure, let the body become deranged from any acquired disorder, or let the vigor begin to wane, and the infirmities of age be felt by occasional derangements in some vital part, either from inherited or acquired abuses, and the action of cold will excite more or less disorder of some kind, and the form of this disorder, or the disease which will ensue, will be determined by the kind of pre-existing blood impurity, or the pre-existing fault of the organic processes. If the pre-existing fault be in a different excretion of lactic or uric acids by the kidneys and skin, the disease developed by the cold will be rheumatic; if the lungs be at fault, either by acquired or inherited abuses, inflammation will be likely to ensue; or if there be conjoined with the pulmonary fault an impure condition of the blood from the long-continued re-breathing of breathed air, consumption will not unlikely show itself. In no other way can the influence of cold in the development of diverse diseases be accounted for; developing this disease in one, and that disease in another; this disease at one time in a person, and another disease at another time; while at other times and seasons, great and prolonged exposure to cold is harmless.

It follows from these facts and considerations that the secret

of avoiding the unpleasant consequences thought to spring wholly from the action of cold upon the body has very little dependence upon exposure, but a great deal upon an impure and weak condition of the vital processes. In other words, with an average or superior constitution and an intelligent observance of the laws of health, men and women could not take cold if they wanted to; they might be exposed to the action of cold to a degree equal to the beast of the field, and with like impunity. But in the case of persons with feeble constitution, and who disregard knowingly or otherwise, and most frequently otherwise, the conditions of healthy existence, no degree of care will prevent the taking of cold, as it is termed. They may live in houses regulated with all the precision of a hot-house—they may cover themselves with the most highly protective clothing the market provides, and yet they will take cold. I do not think the consumptive person lives, or ever will live, even if kept in a temperature absolutely uniform, and clothed in a wholly faultless manner, in whom the well-known signs of one cold after another will not be apparent. But, on the other hand, there are those who, like the late Sir Henry Holland, of good constitutions and living in accordance with the laws of health, may travel as he did from the tropics to the arctics again and again, clad only in an ordinary dress coat, and yet scarcely know what it is to have a cold or sickness of any kind. The truth is, that in order to avoid taking cold from ordinary, or even extraordinary exposure, the vital processes of the body must be made strong enough to rise above the untoward influence of external conditions. If the body is not thus superior, if it is so weak that it can only act harmoniously under the most favourable conditions, a continued state of health is not among the possibilities. No more will a weak body maintain itself without harm amid great external disturbances than will the weak machinery of a steam vessel maintain itself without injury amid a severe storm. The avoidance of elemental disturbances are not possible in the one case any more than in the other, yet it is precisely what persons by the ten thousand are to-day seeking to accomplish in the preservation of their health. The study is not how to make their blood purer, their bodies stronger, but how to dodge the ugly weather.

The conclusion from all this is, that neglecting the conditions upon which strength of constitution and purity of blood depend, and then striving to avoid in a sedulously careful manner the evil influence of cold upon the body, is like neglecting the substance for the shadow of health; or, more properly, it is like one who starves his body, and then strives

to keep quiet in order that his strength may not be exhausted. Let food be taken and the exhaustion from exercise will not ensue; let all the conditions of health be observed, and then the natural changes of the weather will fall harmlessly on the healthy functions of the body.—*Public Health, London, Eng.*

POWER OF IMAGINATION.—The following story is told of Alexander Dumas, at a time when he was writing a serial novel for a Paris daily journal:—One day the Marquis de P—— called on him. “Dumas,” said he, “have you composed the end of the story now being published in the ——?” “Of course.” “Does the heroine die at the end?” “Of course—dies of consumption. After such symptoms as I have described, how could she live?” “You must make her live. You must change the catastrophe.” “I cannot.” “Yes, you must; for on your heroine’s life depends my daughter’s.” “Your daughter’s?” “Yes; she has all the various symptoms of consumption which you have described, and watches mournfully for every number of your novel, reading her own fate in that of your heroine. Now if you make your heroine live, my daughter, whose imagination has been very deeply impressed, will live, too. Come! a life to save is a temptation—” “Not to be resisted.” Dumas changed his last chapter. His heroine recovered and was happy.

THE POWER OF PLANTS TO PRODUCE OZONE.—In addition to the pleasure that may be derived from floriculture, the sanitary value of flowers and plants is a feature of the subject so important as to call for special mention. One of the most important of the late discoveries in chemistry is that made by Professor Mantogazza, of Pavia, to the effect that ozone is generated in immense quantities by all plants and flowers possessing green leaves and aromatic odours. Hyacinths, mignonette, heliotrope, lemon, mint, lavender, narcissus, cherry-laurel, and the like, all throw off ozone largely on exposure to the sun’s rays; and so powerful is this great atmospheric purifier, that it is the belief of chemists that whole districts can be redeemed from the deadly malaria which infests them, by simply covering them with aromatic-vegetation. The bearing of this upon flower culture in our large cities is also very important. Experiments have proved that the air of cities contains less ozone than that of the surrounding country, and the thickly inhabited parts of cities less than the more sparsely built, or than the parks and open squares. Plants, and flowers, and green trees can alone restore the balance; so that every little flower-pot is not merely a thing of beauty, while it lasts, but has a direct and beneficial influence upon the health of the neighborhood in which it is found.—*Sanitary Record.*

**THE DANGERS OF OPERATING UPON HABITUAL DRINKERS.**—Sir James Paget, in his recently published *Clinical Lectures*, says, "One does, indeed, sometimes meet with habitual drunkards who pass safely through the perils of great operations; but these are rare exceptions to the rule, according to which one may reckon that the risks of all operations increase with the increasing degrees of habitual intemperance. I think you will find that a habit of slight intemperance is much worse than occasional great excesses; that regular soaking is worse than irregular carousing; probably because of the steady impairment of the blood and of all the textures to which the soaking leads. Of course you will keep your hands off notorious drunkards, unless you are driven by the stress of strangulated hernia, or a stopped windpipe, or something leaving you as little choice as they do. But you must be on your guard to detect a good deal of drunkenness of the soaking kind, which is not notorious and not confessed. Be rather afraid of operating on those, of whatever class, who think they need stimulants before they work; who cannot dine till after wine and bitters; who always have sherry on the sideboard; or who are always sipping brandy-and-water; or are rather proud that, because they can eat so little, they must often take some wine. Many people who pass for highly respectable, and who mean no harm, are thus daily damaging their health, and making themselves unfit to bear any of the storms of life."

**SUNFLOWERS AS DISINFECTANTS.**—Mr. T. Serle Jerold writes to point out the great merits which sunflowers possess as disinfectants. He states that the subject received some attention about three years ago by General Sherman, who utilised this plant in the purification of the pestilential marshes around Rome. The General said, "To make such places healthy, we just sow them with common sun-flower, and that does it." My own experience points to the same conclusion. Taking up the cultivation of the sunflower a few years ago, my attention was forcibly drawn to the subject of its extensive cultivation having a markedly beneficial effect on the surrounding atmosphere, by the fact that one season the village near which I resided was visited by a severe epidemic of scarlet fever and typhus; many children died, one in a cottage where the whole family was prostrate at one time, not a hundred yards from my own house. All my family escaped without a touch of sickness. I had at that time about sixty very large sunflower plants in my garden surrounding the house, many of them being twelve feet high. My personal experience of the efficiency of the cultivation of the sunflower as a preventive of meas-

matic fever has been fully borne out by other and worthier authorities, of whom General Sherman is one. A landowner on the banks of the Scheldt sowed the sunflower extensively on his property near the river, with such effect that there has not been a single case of miasmatic fever among his tenants for years, although the disease continues to prevail in the neighborhood. The *sarants* of France, Italy, and Germany, believe the cultivation of the sunflower to be effectual in removing the sources of disease.—*Sanitary Record*.

TYPHOID FEVER.—That this disease may be defied in almost every instance by observing proper precautions, there is no doubt at all. All admit that it has its origin in decaying animal or vegetable matter; probably the former, possibly both. This fact was forcibly impressed on our mind during a late trip in the country. In a remarkably healthy neighborhood we found two families quite a distance apart, too, both having several members down with this disease. One glance at the location of each, instantly told why they were thus attacked while their immediate neighbors escaped. The houses in both instances were old and decaying, and stood in such a position that all water which fell near, and all refuse from the houses, flowed directly to them, and were absorbed by the soil underneath. Here the accumulations of years, perhaps, were rotting; both places had a damp, foul smell about them, and the cause of the fever was at once apparent. Farmers are too apt to think that drainage is all well enough for large cities, but of no use about a farmhouse whatever. This is all wrong; and the first desideratum in choosing a location for a dwelling ought to be that there shall be sufficient slope or elevation to secure good drainage. By allowing no animal or vegetable matter to decay around the house, and by keeping the ground dry by proper drainage, with such other little sanitary precautions as will suggest themselves to the ordinary thinking mind, this dreaded, lingering, prostrating disease might almost be banished from the land.—*Mining and Scientific Press*.

THE SUBJECT OF DENTAL SURGERY in the U. S. army and navy has been under the discussion of Congress for several years. A paper upon the subject was read at the late session of the Academy of Dental Surgery in New York, urging the importance of a staff of Dentists at the Military and Naval Academies, as a means of preserving the digestive organs, and through them the health and vigour of the men. Many leading medical men are supporting the movement.

**VEHICLES OF INFECTION.**—A number of cases of the transmission of contagious diseases by means of clothing, articles of furniture, and other objects that had been in contact with persons stricken by such diseases, are brought together by a writer in *Chamber's Journal*, in order to show the great importance of thoroughly disinfecting such vehicles of infection, before making use of them again. The author, Mr. William Chambers, in the first place quotes Sir James Simpson's remedy for hospital-infection, namely, building such establishments of cast-iron, and casting them anew when contaminated. A certain girl in Morayshire died of scarlet fever. Her clothing was sent back to her parents, but *en route* the box lay over for a few days at a railway-station. On reaching its destination, the contents of the box were dispersed among friends and neighbours. The children of the station-master, who had played around the box, and every recipient of the infected clothing, were stricken with the fever. Again, the clothing of a soldier who had died of cholera was sent home to his friends. While the garments were "in the wash," a man was employed on the roof of the cottage, repairing the thatch. He inhaled the poisonous fumes of the washing, and died of cholera. Scarlet fever of a malignant type appeared in a family at Carlisle, and two of the children died. In this case, the carrier of the infection was a retriever-pup, which had been reared in a house where scarlatina was present. It is stated in a pamphlet of Dr. McCall Anderson, of Glasgow, that a peculiar disease was introduced into a family in that town under the following circumstances: Some mice, caught in a trap, were seen to have on the head and front legs crusts of a sombre yellow tint, of circular form, and more or less elevated above the level of the neighbouring healthy parts. A depression was noticed in the centre of each crust, and the parts where these had fallen off were ulcerated, and the skin appeared to be destroyed throughout the whole thickness. These mice were given to a cat, which soon exhibited, above the eye, a crust similar to those on the mice. Later still, two young children of the family who played with the cat were successively affected with the same disease, yellow crusts making their appearance on several parts of the body, on the shoulder, face and thigh. Other instances are cited by Dr. Anderson, where mice, affected in the same way, had transmitted the disease to the human subject, both indirectly through cats, and directly through the mice themselves having been handled by children.—*Pop. Sci. Monthly*, Jan. 76.

EVILS FROM THE USE OF WHEATEN FLOUR\*.—In the *Transactions* of the New Hampshire Medical Society, Dr. Ephraim Cutter, of Cambridge, Mass., brings a heavy indictment against flour as food. His article aims to answer in the affirmative all the following questions:—

1. May it not be possible that the use of flour is a cause of the prevalence of diseases of the nervous system?
2. May it not be possible that the use of flour is a cause of the present lamentable and astounding prevalence of late erupting and decayed teeth?
3. May it not be possible that the use of flour is one cause of the present prevalence of weak and diseased eyes?
4. May it not be possible that the use of flour is one cause of the prevalence of baldness and premature gray hair?
5. May it not be possible, that the so-called change in the type of disease may, in some measure, be due to the use of flour, so universal for the past forty years?
6. May it not be possible that the use of flour is one cause of the prevalence of some of our chronic diseases, as catarrh and consumption?
7. May it not be possible that the use of flour is one cause of the numerical decline in our native population in New England?

He concludes that the universal and exclusive use of flour, as found at the present time among the nations of Christendom (as Liebig suggests), results in disaster to the human race in these particulars.—*Med. and Surg. Rept.*

SPREAD OF INFECTION IN HOSPITALS.—To diminish the possibility of this occurrence at St. Thomas' Hospital, the authorities at the hospital have issued regulations restricting house surgeons from making any *post mortem* examinations, and have appointed a qualified medical practitioner for that special duty.—*Public Health.*

MICROSCOPIC examination of the muscular tissue of a wild-boar lately shot in the woods of Saxony showed it to be full of trichinæ. This is the first case in which this parasite has been found in the wild-boar, it having been the general belief that only domesticated swine were affected.—*Pop. Sci. Mo.*

LORD BACON was of the opinion that it was essential to long life that the body should never abide long in one position. This rule is constantly violated by all kinds of mechanics; but by some to such an extent as to seriously affect the functions of the system.

\*Fine bolted flour is, of course, referred to.

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## CONTAGION AND INFECTION.

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As somewhat vague notions prevail regarding the nature of contagion, we propose to offer a few remarks with the view of giving information to those whose readings may not have led them to study the subject, and to refresh the minds of those who may some time past have given their attention to the subject.

By contagion, is commonly understood some principle which may be communicated from a person affected with a certain disease to another, which, being received into the system of the latter, begets the same disease. The term infection often used synonymously with contagion, means all that is contained in the word contagion and something more. Infection refers to the origin of contagious matter, and to places and articles in which and upon which the contagion may exist. A house, a locality may be infected, so that any person coming near will receive the virus and become diseased. The disease thus begotten may be confined to the person, or it may, from him spread to others. Again, articles, such as clothing, may be infected with virus either from a person or a place, and be carried hither and thither, ready to be deposited into fruitful soil. When we speak of either contagion or infection, we refer to something that may be communicated to man or animal, whereby results a disease, of a more or less serious nature, which in its turn is infectious or contagious.

One of the subjects of Sanitary Science is to investigate the nature of infection, to learn how it is generated, how it may be propagated, and what circumstances favor its growth and development. With a knowledge of these points it becomes a comparatively easy matter theoretically, to prevent

not only the spread of disease, but the generation of contagious matter.

If we recognize the fact that many contagious diseases arise from causes capable of explanation, and that the propagation of such diseases is in accordance with uniform laws, then it must be admitted that an important field of science presents itself for investigation and cultivation; and the standing of Public Hygiene or State medicine as a science is at once secured.

There are some diseases which seem to be due to contagion alone. The malady is transmitted from generation to generation, and from century to century, with slight modification, its birth being hidden in the unrecorded past. Then there are other infectious diseases which, under certain circumstances, will spring up as if a new creation had taken place. This new species may be endowed with such vitality and vigour as to obtain a prominent place among the diseases of the human family, or it may soon perish, having exhausted its power upon a few individuals. Sanitary Science has for its object the discovery of the various causes of a new disease creation, the circumstances necessary or favourable for its genesis, and the immediate factors. Also the science is intended to ascertain by what means a disease, whether of recent or ancient origin may be propagated. A knowledge of the origin, and the laws which govern, the growth and development, and the dissemination, of contagious diseases renders it possible to prevent and destroy the germs, and thus secure a great boon to mankind. That the science of Hygiene is capable of accomplishing such an important end, has been fully proved by the most ample testimony derived from statistics, which show a great decrease in the number of infectious diseases where sanitary laws have been put in force.

The nature of contagion it is not easy to determine; but there is good reason for believing that it consists of living invisible germs, which are cast off when the disease is mature, like fruit falls from the tree, to become the seed of future disease when placed in suitable soil. The period of sowing may be sooner or later. But it cannot be stated that the poison

always consists of germs. Doubtless, as a result of decomposition of organic matter, either of a dead body or that derived from exhalations of a living affected person, there is often deleterious and poisonous gases or *molecular* matter evolved, which may be the means of producing disease. But while this is admitted, it is more than likely that the virus called contagion is mainly in the form of low-degraded life, either animal or vegetable. These parasites possess great vitality and power of propagation, so that even a few comparatively when received into suitable soil will rapidly proliferate into innumerable similar organisms, until the system of an individual, constituting the soil, is literally overrun with them, and one or more of the organs of life become embarrassed, or incapacitated. There is a struggle for life between the natural cell elements of the body and a foreign foe, making incursions, and trying to drain the powers of life. This is called zymotic action. It may then be stated that there are three ways by which contagion may spread, namely, organisms possessing the characteristics of animal life, invisible vegetable parasites, and inanimate matter in the form of gases or molecules suspended in the air.

We purpose in the next issue of the JOURNAL to continue this subject.

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## THE TEMPERANCE QUESTION.

Of all the questions agitating the public mind in Ontario at the present time, that of "temperance," so-called, prohibition in the manufacture and sale of alcoholic beverages, is the most important. If a prohibitory liquor law were passed, possibly it might check in some degree the great evil. It would perhaps prove more effectual if it applied only to ardent spirits, as brandy, whiskey, and gin. In the present state of society, however, it seems that many will, in defiance of all law, resort to stimulants and narcotics of some sort. If they cannot get alcohol they will have opiates, or chloral, or perhaps *more* tobacco. On the whole probably alcohol is less objectionable than any other of these. The effects, physical and mental

of the habitual use of opium are well-known to be dreadful. And it has been asked, "after the opium habit has become firmly fixed, can it be relinquished by the exclusive efforts of the victim?" And "from the despairing multitude of opium-eaters comes the solemn answer—*never*." It may be quite possible by means of legislation to check the evils of intemperance in the use of spirits, but after all, it appears that the only remedy is to strike at the root instead of at the branches, and endeavour to so educate the masses, mentally and physically, as to develop to the highest degree the powers of self-control, especially in the young and rising generations. At the same time, while endeavour to do this, the sale of such beverages may be greatly restricted, and the temptation to indulge be thereby lessened. But, furthermore, the manufacture and sale of tobacco, the use of which usually precedes the abuse of alcoholic drinks, should also be restricted by legislative enactments. This poison, which seems to have no redeeming qualities, as has alcohol, and also opium, is certainly more revolting and obnoxious to the physical man than is alcohol, and it is greatly to be lamented that those who are waging war upon the latter do not also battle at the same time, and as vigorously, with the former. Will it not then be best and wisest to strive for the more effectual, ennobling, and permanent remedy for intemperance, and seek to build up generations of men and women, knowing the evil effects of indulging in intoxicants, and, knowing, possessing the will and power to shun them.

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DIPHTHERIA FROM FOUL AIR.—Dr. Brakenridge, F.R.C.P.E., in advocating the use of quinine gargles in diphtheritic and scarlatinal sore-throat, in the *Practitioner*, mentions the case of a lady who while passing an open drain remarked a bad smell, and said to a companion, "I am sure I have caught something." She complained of slight chills for four or five days, when she was prostrated by a most severe attack of diphtheria. She recovered, but the writer observes, that the intensity of the poison must have been great, for on the first day of the disease, a little girl residing in the house was sent away to be out of danger, and though she escaped herself, she carried the poison to a sister of the patient, who took the disease and died after six days' illness.

## Annotations.

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### MORTALITY IN TORONTO IN 1875.

The mortality in Toronto for the year 1875, as shown in the records of the three cemeteries in connection with the city, is 1,815; about the same as that for 1874. Taking it for granted that the population was greater in 1875 than in 1874, the rate of mortality was lower last year; though this does not prove that 1875 was a more healthy year, for there is very good evidence to prove, on the contrary, that the death-rate in a locality does not bear an approximate ratio to the amount of sickness there.

Taking the population of Toronto at 70,000, and it is probable it did not exceed this on an average for the year, the rate of mortality was nearly 26 per 1,000. This is higher certainly than it should be; that of the city of London, with three and a half millions of inhabitants, is only about 22 per 1,000. If what Mr. Simon says of England is true of Toronto, that the deaths which occur are "fully a third more numerous than they would be if our existing knowledge of the chief causes of disease were reasonably well applied," over 600 deaths take place in this city which might be prevented, besides an incalculable amount of sickness, not ending in death. It may here be asked, does the "temperance" question, all important as it undoubtedly is, approach in importance that of Public Health? Where one dies from the effects of drinks, probably a dozen or two, or more, die from the effects of—stinks, in the air or water.

We find that of the total number of deaths, 630, considerably over one-third, were of children under one year. This is startling enough to awaken inquiry. "Why this waste of infant life? Is it inevitable, or is it preventable?" Such "slaughtering of the innocents." If it were found that one-third of the sheep in the country died under the same relative age, two or three months, would not conventions be held, the causes investigated and preventive measures employed at any cost, and without delay?

Considerably over one-fifth of the whole number of deaths, 370, are from diseases of the lungs, if we include bronchitis, excepting whooping cough: 176 being from consumption, and 151 from inflammation and congestion. While climate may be rather largely responsible for these, inattention to individual

hygiene no doubt greatly swells the number of deaths from these causes.

Under the unsatisfactory heading of debility, we find 209 deaths, mostly infants. Diarrhœa carries off 160, chiefly in July, August, and September. Typhoid fever, which seems to have been very prevalent, has caused only 42 deaths; showing probably that the death-rate, as above mentioned, bears no approximate ratio to the amount of sickness. Under the head of fever however are 15 deaths, some of which may have been typhoid. From scarlatina there were 23 deaths; from measles, 17; from diphtheria, 10; erysipelas, 9; and small-pox, 10. The large number of 78 were from diseases of the brain; of the whole, alas! only 97, 18.7 per cent, died of old age.

Altogether the classification is not of course satisfactory; though we hope next year to have more satisfactory details, and for the whole province.

#### SEWERS AND THE DRY EARTH SYSTEM.

In an original paper on traps and soil pipes by Dr. Fergus, President of the Col. of P. and S., Glasgow, &c., &c., in a late number of the *Sanitary Record*, valuable evidence is given in favor of the dry earth system of disposing of excrement. This system has been strongly advocated in these pages on several occasions, and we are persuaded it should, and trust it eventually will, supercede the simple water carriage system. It is the most natural system; it disposes of and destroys at once that which appears to be chiefly instrumental in spreading, and probably in developing, the contagium of typhoid fever, diphtheria, diarrhœa, and kindred diseases. Dr. Fergus has been for some years investigating excremental pollution diseases. At a late meeting of the British Medical Association he exhibited decayed lead pipes, and brought forward evidence to prove the decay was caused by sewer gas. Furthermore, he has examined several varieties of traps and cesspools, and has invariably found that fæces lodge on the house side, and cannot pass on till they dissolve. During this process, he says, "a certain amount of decomposition must take place." "I have, day after day, flushed the same cesspools and traps, and as the only result of the greatest possible flow of water, found that the floating fæces were simply kept whirling round in it." In the *Edinburgh Med. Jour.*, and in *Social Sci. Trans.*, for 1874, Dr. Fergus published a table, compiled from the Registrar General's returns from 1838 till 1871, showing clearly the increase of excremental pollution disease. "The average per annum of the first five years, he says, viz., from

1838 to 1842, is 298 deaths per million of the population from the diarrhoeal group of diseases.

“For the last five years, viz., from 1867 to 1871, the average amounts to 1,161 deaths per million. I may mention that during neither period was there the disturbing influence of a cholera epidemic.

“Of diphtheria there is not a single case recorded till 1851, at which period we have two deaths per million of the population. In a few years, viz., in 1859, the deaths reached their maximum, viz. 487 per million of the population.

“If we take the total number of deaths from zymotics and from other causes we find in the first five years above alluded to that the numbers are:—

From 1838 to 1842.		From 1867 to 1871.	
Zymotics	3,770	Zymotics	4,282
Other causes	18,308	Other causes	18,059

“The increase in the one group of diarrhoeal diseases, viz., 863, more than accounts for the total increase of deaths in the latter period. There was a decrease in the deaths from other causes not traceable to excremental pollution.

“In the papers already referred to, I have related cases showing the production of typhoid, diphtheria, etc., from decayed lead pipes, and defective house drainage. I have also stated that after years of study the only conclusion I could come to was that the true sanitary remedy was that no excremental matter should be allowed to enter the sewers, or any water course or river, and that provision should be made by which all such matter should, within twenty-four hours of being voided, be subjected to chemical or other action, rendering decomposition impossible.”

After giving some valuable hints by which the present water-carriage system might be improved, some of which are quite like those given in this journal, by Dr. Oldright, Dr. Fergus says, however, in conclusion: “I now ask if it is true that cholera, diphtheria, typhoid fever, and diarrhoea are traceable to the taking into our systems by air or water the results of decomposition of human excreta; if it is true that these diseases, and others from the same cause, swell our death-rates and carry off some of the most valuable of our population; if this is really the case, then I affirm that the only true sanitary solution of our difficulty is, that all excreta shall either be returned to the earth, or subjected to chemical action, rendering decomposition impossible, and I am furthermore sure that if a tithe of the time, skill, and ingenuity, and one thousandth part of the money which have been devoted to water carriage had been spent in investigations in this direction, the problem of the sewage question would have been solved long ago.”

**COLOR AND HEAT.**—It is well known that dark-colored surfaces or grounds exposed to a body radiating heat, first absorb and then give off more heat than white surfaces. This principle has an important bearing on the question of public health, and may be applied to the surface of cities and towns. “The relative proportions of dark-coloured area, whether foliage, grass, earth, or black-slate roofing, and of light-coloured surfaces, such as stone pavements, macadamised or chalky roads, will determine the heat absorbed from the sun’s rays by day, and the radiant heat given off by night. But more than this, there can be no doubt that just as the comparative heat of tropical and cold regions is one cause of winds—the cold air rushing in horizontal currents from the cooler to the warmer districts of the earth’s surface—so, in a smaller but not unimportant degree, the displacement of the lowermost strata of the atmosphere, and the consequent ventilation of streets and houses, is affected by the colour of large tracts of surface in and around our great cities. Large green parks in cities have therefore an affect on the public health besides that of affording pleasure ground.

**RESULTS OF OVERWORK AND MENTAL ANXIETY.**—Dr. Johnson, F.R.S., Prof. of Med., King’s College, &c., &c., in a recent lecture on “Nervous Disorders that Result from Overwork and Mental Anxiety,” and referring especially to Epilepsy, mentions the histories of 37 cases of this terrible malady, which came under his observation. On analysing these, 28 appeared to be the result of mental influences. Of these 28, 11 resulted from great terror or excessive or sudden grief, and 17 from excessive mental work or continuous grief and anxiety. In these latter cases the full development of the disease is usually, he says, preceded by a train of nervous symptoms; and it is during this incubating period, varying in length from a few days to many months, that “preventive measures may be resorted to with a reasonable hope of success.” The symptoms of this period are “terrific dreams and visions, starting, struggling, talking, moaning, and sometimes screaming, during sleep;” a sense of fatigue in the morning, pain, weight, or constriction in the head, disordered digestion and general weakness.

**THE FATALITY** from septic diseases had been for some time “alarmingly great” in the surgical wards of Bellevue Hospital, N.Y., until a few weeks ago, when they were thoroughly disinfected by chlorine gas and ozone, generated on a most extensive scale; since which time there has been but one case of pyæmia, and that even a very doubtful one.

EDUCATION AND HYGIENE.—In an article on “The public and Preventive Medicine,” the *Medical Press and Circular* makes the following very pertinent remarks: “We may have discovered the best means of curing or preventing a disease, but we cannot force either the individual or the community to employ them. The State can, and undoubtedly does a great deal to rectify this anomaly in our social economy, but it is evident there are many things materially influencing the health of the public with which no Government will ever be able to interfere. The education of the public must go hand in hand with the efforts both the State and the profession are making to improve the general health of the community. But by education we do not mean the mere teaching of the three R's. We mean the impressing on the young mind such facts as may induce them, in after-life, to appreciate and to further those measures and those habits which are most conducive to their own and the public health. For it is a remarkable fact that ordinary education, however advanced it may be, has very little if any influence in guarding men from those practices which are prejudicial to their health. If, in addition to their ordinary curriculum of study, the rising generation were taught something about the structure of their own bodies—if they formed some acquaintance with the constitution of man, with the laws of health, with the more common causes of disease, and with the best means of preventing it—there can be no doubt that they would not only in after-life pay more attention those hygienic conditions which the State has more or less under its control, but to those equally important sanitary conditions upon which their own individual health depends, and over which the State cannot, and never will, have any control.”

A SERIOUS EPIDEMIC of typhoid fever broke out at Portsmouth in November last, and another in a Boarding School at Uppingham, breaking up the school; both epidemics being clearly tracable to sewage pollution of the drinking water. While there is now no doubt that the late severe epidemic of typhoid on board the “Cornwall” School-ship was due to the same cause.

THE *Medical Times and Gazette*, London, notices the deaths of three children, recently, in three different families, from too much “anodyne cordial” to “quiet” the children.—The *Gazette* says, the frequent deaths from this cause “call for legislative interference” as regards the sale of such medicines.

**MEDICAL MEN AND PUBLIC HEALTH.**—At nearly the same time that the paper on “the Relations of the Medical Profession to Public Health,” (published in the November number of the *SANITARY JOURNAL*) was read before the York Medical Association, Prof. Corfield, in his introductory lecture at University College, London, England, made the following remarks on the same subject: “As medical men know more of diseases than others do, they necessarily know much about the ways in which they arise and spread, and much, therefore, about the methods by which they may be prevented. Are they not, then, bound to use their knowledge for the good of mankind, and to make that knowledge as perfect as they can? And have not medical men always recognised this from the time of Hippocrates, the father of preventive as well as of curative medicine, to our own day? Sir William Jenner says, ‘No one acquainted with the present state of the science and art of medicine will for a moment question that to prevent disease is its first and most important aim.’ Weigh well these words of your great teacher and mine, and place beside them those of Sir William Gull—‘It is enough for us that diseases prevail to stimulate our best efforts for their prevention without our asking a question beyond.’ . . . *Another reason why medical men are bound to study hygiene is that it affords important aids to cure; fresh air, exercise, and a proper diet being often more important to a patient than drugs.* The italicizing is ours.

**DR. MAX VON PETTENKOFER**, Prof. of Hygiene, University of Munich, in a popular lecture delivered in that city, on the Value of Health, says, “Mere chance will not explain the fact that, in the history of human civilization, it has always been unmistakably those nations that have shown the greatest care for the health of their citizens that have exerted the most useful and the most powerful influence in the world.”

**TENACIOUS.**—Prof. Yeissl, of Vienna, is reported to have recently said at his clinic, “Some think, when a patient has for some time enjoyed immunity from manifestation of syphilis, that he is cured; but I tell you, gentlemen, that if a man contract syphilis he will die syphilitic, and at the day of judgment his ghost will have syphilis.”

**THE MEDICAL OFFICER OF HEALTH**, Marylebone, has been analyzing the coloring matter of some bright green colored tarlatan, and found it “contained arsenic in considerable quantities.” He reported that he had been induced to make the analysis on account of a report that two young ladies had suffered from symptoms of arsenical poisoning in consequence of having worn dresses of this description at an evening party.

**THE WILL AS A PROPHYLACTIC AND THERAPEUTIC.**—M. Jolly has (*Brit. Med. Jour.*) recently read a paper to the Paris Academie des Sciences, on "The Will Considered as a Moral Power and a Therapeutic Means," which has attracted in the medical world of Paris, a good deal of attention. We recollect reading many years ago of a gentleman who was troubled greatly at night with a cough, and who was advised by a friend with whom he roomed to try the power of the will over it. Acting upon this advice, he soon succeeded in entirely "overcoming" the cough. M. Jolly says it is possible to struggle more or less successfully against fits of coughing. English medical men cure hooping-cough by distracting the attention. Children affected with this disease will remain for hours together without coughing when completely pre-occupied with their play, though troubled with constant recurring paroxysms during repose. The will, it is said, has a salutary influence in preventing the paroxysms of asthma. M. Jolly relates the history of a man who arrested his paroxysms of this affection at will by lighting a candle and distracting his mind by examining the furniture in his room; and mentions another who could accomplish the same desirable end, by commencing the processes of mastication and deglutition—chewing and swallowing some solid food.

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TO CORRESPONDENTS.

**ENQUIRER.**—Zymotic diseases are all preventable, in a greater or less degree. The principal are small-pox, scarlet fever, measles, fevers, (including typhoid, or enteric, typhus, and simple continued fever), diarrhoea, diphtheria, and whooping cough.

**A. S. E.**—Carbolic acid may be diluted to a point at which it ceases to act as a disinfectant, though it may still act as an anti-septic. For disinfecting it is said the carbolic acid should constitute about one per cent. of the mixture.—A mixture of iron and zinc salts is said to be superior to either used alone.

**W. L.**—The chief clauses of the Act touching the matter referred to—Removal of Nuisances—you will find in the **SANITARY JOURNAL** for September last, p. 277.

**SANITARIAN.**—Your letter on petitioning the Legislature for more effectual Public Health Laws, or for the establishment of a Provincial Board of Health received. Such petitions would certainly seem to be more essential, consistent, and reasonable than those for "Prohibition."

**A.P., W.M., R.S. and B.D.**—Thanks for the copies of number five sent, as requested. Each will be credited with the price of an extra number.

## THE SANITARY JOURNAL.

WE HAVE just learned that Dr. LaRue's Bill has passed the Quebec Legislature, "Respecting Compilation of Statistics of Births, Marriages and Deaths, and Causes of Deaths, in the Province of Quebec." In Ontario, our readers are doubtless aware, the Hon. S. C. Wood's Bill for a like purpose has passed. We trust the Acts in both Provinces will be effectually carried out.

SUBSCRIPTIONS HAVE BEEN received, since first Dec. 1875, from Dr. C. Tupper, Dr. J. Workman; Dr. C. J. Barrick; Dr. Jas. Hamilton; E. Woodhouse; Hon. R. J. Cartwright; Wm. McDougall, M.P.; Dr. Dunbar; Dr. A. Harvey; Dr. J. Thorburn; Dr. Diamond; Dr. Zimmerman; J. I. Flynn; Militia Department; Jos. Collins; D. B. Chisholm, M.P.; Dr. Strother, U.S.; Clerk Legislative Assembly; E. Coatsworth; W. R. Strickland, C.E.; J. Gillespie; J. H. Mason; Jas. McClennan, M.P.; Hon. Donald McDonald; Wm. Alexander; D. Blain, M.P.; Hon. Wm. McMaster; Hon. Justice Draper; Jos. Cawthra.

The Publisher of the SANITARY JOURNAL owes an apology to its readers for its late appearance this month, owing to uncontrollable circumstances. Possibly the improvements may compensate.

THE ARTICLE on the milk supply of Toronto, partly promised in our last, has not been prepared, but will appear soon.

For \$4, Vol. 1, neatly bound, and vol. 2, for the current year, will be sent, postage paid to any address.

THE LONDON AGENCY OF THE SANITARY JOURNAL is at the office of "*Public Health*," London, Eng., 9s. stg., per an., free of postage.

Please see next page for commendatory letters and opinions of the Press.

SUBSCRIPTIONS RECEIVED at the office of the SANITARY JOURNAL for *Public Health*, London, Eng., noticed elsewhere, and which is the organ of the Public Health Service.

PLEASE BEAR IN MIND that 1875 has passed away, and the publishers of the SANITARY JOURNAL have incurred great expense, which must be met by the subscriptions of the friends of the journal. They will confer a favor by remitting at *earliest possible convenience*.

THE WAKEFIELD EARTH CLOSETS are said to be the best made, simple, and yet complete. We hope to have an agency established in Toronto for the sale of these. See advertisement of them with description, etc., further on.

MANITOU, COLORADO, U.S.A., its mineral waters and climate, by S. E. Solly, M.R.C.S.E., &c., &c. An interesting pamphlet of about 40 pages: St. Louis, McKittrick & Co.

VICK'S FLORAL GUIDE, for the first quarter of 1876: a handsome, illustrated quarterly, published by James Vick, Rochester, N.Y. See advertisement on another page.

## COMMENDATORY LETTERS TO SANITARY JOURNAL.

The following are copies of, and extracts from, a few of the many letters to the Editor from medical men and others, regarding the SANITARY JOURNAL, received by the Editor from time to time; unsolicited, of course, and, with two or three exceptions, the writers being personally quite unknown to the editor:

TORONTO, December 7th, 1875.

DEAR DR. PLAYTER:— . . . Please send me your receipt for the enclosed two dollars, for your valuable Journal. I wish all in the profession valued it as I do. . . .

Very truly,  
JOSEPH WORKMAN, M.D.  
(Late Supt. Toronto Lunatic Asylum.)

BOWMANVILLE, June, 1875.

DEAR SIR:—I am much pleased with your Journal . . . I look upon it as one of the most useful periodicals with which I am acquainted, and especially to the medical practitioner, who wishes to keep pace with the advancements of science.

Yours truly,  
W. ALISON, M.D.  
(Member Medical Council, Ont.)

GLANFORD, ONT., November 22nd, 1875.

DEAR SIR:—Enclosed you will find \$2, to be applied to SANITARY JOURNAL. . . . I think your journal is doing a good work, and that such a magazine was much needed in Ontario. Wishing it every success,

I remain, yours truly,  
ALEX. BETHUNE, M.D.  
(Member Medical Council, Ontario.)

DUNDAS, September 10th, 1875.

MY DEAR SIR:—Please receive the enclosed \$2 for the SANITARY JOURNAL. Your moderately-priced monthly contains much that is of interest to the reading public of all classes. . . . Much valuable information as well fitted for the general reader as for the professional student. It ought to receive a large measure of support, and I heartily wish it every success.

I am, my dear sir, yours truly,  
JAMES HAMILTON, M.D.,  
(Late Member Medical Council, Ont.)

TORONTO, December 13th, 1875.

Dr. PLAYTER—*Dear Sir*:—Enclosed find amount of subscription to the SANITARY JOURNAL. I am much pleased with it, and feel that I cannot say too much in its behalf. . . . I hope the publication will receive the support its merits deserve; it should be carefully studied by every man, woman and child.

Yours very truly,  
DONALD McDONALD,  
(Senator Dom. Can.)

OAKVILLE, March 18th, 1875.

MY DEAR DOCTOR:—Enclosed please find one dollar for your really valuable Journal. . . . Accept my best wishes for the success of your new enterprise.

Yours faithfully,  
D. D. WRIGHT, M.D.

LANSING, MICH., August, 12th, 1875.

DEAR DOCTOR:—I am much pleased with your Journal. . . . I read it with interest, and satisfaction, and sincerely hope its circulation may be increased, believing, as I do, that the interests of public health will be advanced thereby.

Very respectfully,  
H. B. BAER, M.D.  
(Sec'y Michigan State Board of Health.)

NEWMARKET, January 5th, 1875.

DEAR SIR:—I have received, with much pleasure, two numbers of the SANITARY JOURNAL. I congratulate you on the start, and wish you every success in the progress of this important branch of medicine. Will do all I can to forward its interest.

Yours respectfully,  
J. GRANVILLE HOCKRIDGE, M.D.