

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/  
Couverture de couleur

Coloured pages/  
Pages de couleur

Covers damaged/  
Couverture endommagée

Pages damaged/  
Pages endommagées

Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées

Cover title missing/  
Le titre de couverture manque

Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées

Coloured maps/  
Cartes géographiques en couleur

Pages detached/  
Pages détachées

Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/  
Transparence

Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur

Quality of print varies/  
Qualité inégale de l'impression

Bound with other material/  
Relié avec d'autres documents

Continuous pagination/  
Pagination continue

Tight binding may cause shadows or distortion along interior margin/  
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/  
Comprend un (des) index

Title on header taken from:/  
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/  
Page de titre de la livraison

Caption of issue/  
Titre de départ de la livraison

Masthead/  
Générique (périodiques) de la livraison

Additional comments:/  
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/  
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X



# CANADA HEALTH JOURNAL,

A MONTHLY MAGAZINE OF  
PREVENTIVE MEDICINE,

—EDITED BY—

EDWARD PLAYTER, M.D.

Public Health and National Strength and Wealth.

### CONTENTS:

Theory and Practice as to Disinfection.....	137-147	—New Factor in Athletism—Contagious-	
Summary of the Requirements of the Dairies,		ness of Consumption, &c., &c.....	151-157
Cowsheds and Milkshops Orders of 1855		The Public Health for May.....	158
and 1857 in Scotland.....	147-148	Mortuary Statistics—Returns for May.....	159
Summer Care of Infants.....	149-150	Where to Go and Stay.....	160
Teething Time.....	150	Ordinances of the HEALTH JOURNAL.....	160
Miscellaneous Notes and Selections—Summer		Editor's Special Corner—Prohibition Question	
Diseases—Tests for Arsenic in Paper Hang-		—Reports of the Local Boards of Health,	
ing—Arsenical Wall Papers—Chemical		&c.....	161-163
Composition of Man—Compulsory Sanita-		Observations and Annotations.....	163-166
tion of Houses—Home Life and Longevity		Notes on Current Literature .....	166

Subscription Price, \$2.00 per year; Single Copy, 20 Cents.

ADDRESS ALL COMMUNICATIONS,

“HEALTH JOURNAL, Ottawa.”

**HENRY WATTERS,**  
**Chemist and Druggist,**  
 214-216 Sparks St., Ottawa.

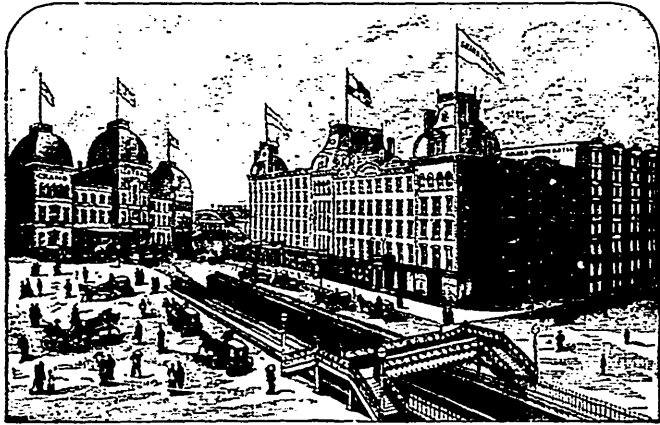
Special attention given to the Compound-  
 ing of Physicians' Prescriptions.

**N. PEARSON, DENTIST,** formerly  
 N. of Newmarket, corner of King  
 and Yonge Streets, Toronto.

**ROBINSON & KENT, BARRISTERS,**  
 ETC. Office: Victoria Chambers,  
 9 Victoria Street, Toronto.

N. G. ROBERTSON. H. A. E. KENT.

**MONEY** to be made Cut this out and  
 return to us, and we will send  
 you free, something of great  
 value and importance to you, that will start you  
 in business which will bring you in more money  
 right away than anything else in this world. Any  
 one can do the work and live at home. Either  
 sex: all ages. Something new, that just coins  
 money for all workers. We will start you; capital  
 not needed. This is one of the genuine, im-  
 portant chances of a lifetime. Those who are  
 ambitious and enterprising will not delay. Grand  
 outfit free Address T. W. & Co., Augusta, Maine.



**THE GRAND UNION HOTEL,**

*Opposite the Grand Central Depot, New York City,*

Offers travellers and families arriving or leaving the city to visit Saratoga, Long Branch, White Mountains, or other  
 Summer Resorts, superior accommodations. All improvements, European plan, over 600 elegantly furnished  
 rooms, fitted up at an expense of a Million Dollars. \$1.00 and upwards per day.

Richly furnished suites for families, and elegantly furnished rooms for dinner parties for ten and upwards.  
 Cuisine and wines of superior merit. The Restaurant, Cafe and Wine Rooms supplied with the best at moderate  
 price. Toilet and Baggage Rooms, for ladies and gents, where coats, valises and parcels can be left free.

**W. D. GARRISON, Manager.**

*Guests' Baggage taken to and from the depot free, and \$3.00 cab hire saved by stopping at this Hotel.  
 Be sure and try the Grand Union Hotel.*

**TORONTO SHOE COMPANY,**

146 and 148 King St. East, Cor. Jarvis St.



We Invite your Confidence and Patronage.

**148 Old Headquarters.**

**146 New Ladies' Parlor.**

**The Great and only One Price Cash Boot and Shoe House in Toronto.**

# THE CANADA HEALTH JOURNAL.

VOL. 9.

JUNE, 1887.

No. 6.

## THEORY AND PRACTICE AS TO DISINFECTION.

BY ALFRED CARPENTER, M. D., M. R. C. P., VICE-PRESIDENT BRITISH MEDICAL ASSOCIATION, ETC., ETC.

READ BEFORE THE ASSOCIATION OF SANITARY INSPECTORS, APRIL 2ND, 1887.

**W**HAT are the matters which have to be disinfected? In the foremost rank we have the infective particles given off from cases of infective diseases. We have the excreta and the fomites—the latter term having reference to the morbid matter which may be contained in clothes and habitations. Then we have the sewers of the district, which may have been infected by excreta and by washings.

Next we have the conditions which in themselves may promote the rise of infectious disease, such as heaps of excreta kept in the neighbourhood of dwelling-houses; decomposing fish, flesh, and vegetables; the condition of the markets in which such things are exposed for sale; the state of the shops and premises of those who expose them for sale; and also the state of the streets, courts, alleys, and private premises of the town.

Then there are the chances of infection from diseased animals; for their influence upon the health of man is becoming an established axiom at last, although I recollect the time when it was limited in men's minds to the effects of glanders and hydrophobia. They were fain to think that there was a great gulf between men and animals over which disease was not likely to pass. That day has gone by, and it

seems now that the health of domestic animals is as important to a country as is the health of the masses themselves.

Then we have noxious trades which have to be carried on, and which may be safely carried on under proper regulations; but as such regulations usually involve an expense to the trader, they are shirked if you do not do your proper duty.

Lastly, there is the condition of the water supply, which may be fouled by the action of individuals or communities. You require to keep your eyes open and hasten to report the possibilities of such to your authority as quickly as possible. With all these duties disinfection may be more or less brought into action.

DEODORIZATION IS NOT DISINFECTION—  
REASON, NOT ROUTINE.

There is something much more to be thought of than simply pouring a solution of chloride of lime into a sewer, or solution of green copperas into a cess-pool, or putting clothes into a hot oven. If the work is to be done properly it must be by reasoning out the grounds of the application, and not by a blind and instinctive obedience to some written or verbal order. If disinfectants are to do their work properly

they must be used with a definite object and for a definite purpose. What is that object, and what is that purpose? I recollect in my student days our chemical lecturer, to whom alone was deputed the duty of dealing with disinfectants, told us that the usual object of such was to make so much stink in the house that you were obliged to open the windows and ventilate the place for the purpose of getting rid of your agent. He thought as much good might be done by ventilation without the stink as with it, and advised accordingly. Indeed, in those days, the first and only use of disinfecting agents was to get rid of nasty smells; and in the eyes and noses of the vulgar and ignorant that is still thought to be the main duty which inspectors of nuisances have to perform. It is, however, the least important part of your duty. A very powerful stink is seldom of serious consequence beyond the fact of its being a nuisance. The very nauseousness of it prevents it doing much harm.

Some pleasant agents may be used to destroy smell, to which I will allude later on; but now I may say that disinfecting agents, by checking putrefaction, remove the cause of the smell by preventing the production of the gases upon which the smell depends. These gases may have their origin in a purely chemical action, or in the changes produced by living creatures, such as bacteria and other kacozymes, whose province appears to be to break up organic matter into its simpler elements. These bacteria or kacozymes are most active agents in the work; and if your disinfectant is to be of any use it must destroy the life of these creatures, and of the perverted protoplasm in which their germs or eggs may continue to preserve their vitality.

#### THE EGGS OF BACTERIA.

Here is the great difficulty of correct disinfection. You may destroy the bacteria, you may destroy the living creatures, but they are full of eggs, as a herring may be full of roe; they are so minute as to be out of the field of vision; and if you leave these germs untouched you only postpone to a future day the mischief which is now so manifest. For, unlike the roe of the herring, they may retain their vitality in a dormant state for long periods of time. Indeed it has, and does daily happen that the very measures you are taking for the destruction of bacterial life are at the same time preserving their ova from destruction, and wrapping them up in material which prevents their decay, so that in due course the disease breaks out again as soon as your disinfecting agent is itself changed and conditions arise by means of which the vitality of the ova is preserved, and they pass from a dormant to an active stage, and new forcing beds are provided for your preserved germs. This is one of the problems we have to solve, and it is a difficult nut to crack. For I have seen such ova covered by carbolic acid which has arrested further change, and when the carbolic acid was peeled off, the preserved ova threw off their dormant nature and set to work again in the production of a new outbreak of disease.

#### NATURE OF THE INFECTIVE GERMS.

Let me show you your difficulties in a simple case of small-pox. First, there is your case in its feverish stage. It has been produced always by a germ, derived, at least in historic times, from some previous one. . . .

The germs or living protoplasm in which this power to infect resides are excessively minute. I am accustomed

to regard them as similar—that is, analogous—to sprouting barley in a malt-house. If the sprouting barley is taken out, planted in proper soil, it will grow very rapidly; but if it be kept in a dry heat for a short time, as in the kiln, or placed in a dry place, or put in the hot sun for a short time, it loses its vitality and will not fructify. So the germs of living protoplasm contained in the breath of a feverish small-pox patient will take root if immediately transplanted to the mucous membrane of a susceptible person; but if floated about in the air for a hundred yards they will lose their vitality and abort, for they cannot bear the influence of exposure to light and air, and especially to the action of ozone. Hence isolation and ventilation as rapidly as possible is necessary for such cases, so that the growing living germs contained in the breath given off by the patient may be destroyed before they can have the opportunity of saving their own lives by infecting some other person. The conveyance of such cases through crowded streets is adding to the danger of those living in the neighbourhood of large small-pox hospitals, especially if such are situated in crowded districts. In moving cases, therefore, the greatest care must be taken to prevent the spread of infection by such means, and the air of the ambulance in which they are moved should be treated in some way by the production of ozone in the ambulance by means of iodine, carbolic acid, creasote, sanitas, or some other chemical which is capable of assisting in the production of that agent; and I should recommend that such patients should, if they could bear it, use a few folds of antiseptic gauze, as a respirator, which has been soaked with solution of carbolic acid or sanitas, or else employ a layer

of thinly-pressed cotton-wool, so that the infecting agents contained in the breath may be retained and then destroyed. But the germs multiplying infective disease are not limited to these sprouting particles. These are living, growing at the time of the separation from their human host, and cannot live for many seconds in isolated existence, any more than the corpuscles contained in the human blood can retain their vitality under similar transference from one human body to another; but this is not the case with the matters thrown off during subsequent stages of the disease. It is probable that the growing germ is more allied to the vegetable kingdom than to the animal, and that it follows a little way upon the same lines as the algae or seaweeds do, in lakes and seas. The pustules of small-pox which form upon the skin as the disease progresses are clusters of seeds which are not sprouting, which have a vitality of their own just as the grain of barley has which is kept in a dry and cool place—retaining vitality under such circumstances for almost any number of years, provided air and organic life is kept away from it. It may be carried any distance, and when it meets with its favorite nidus, or manure heap, it develops into another plant; and so the disease spreads from case to case, from district to district, and from generation to generation, without much chance of our being able to destroy it utterly out of the land, unless we make everybody unsusceptible of its influence by changing the character of their moist tissues by means of vaccination. It is probable also that the germs of small-pox, like to those of algal vegetation, consist of two different kinds of spores—the growing and the resting. The growing, like to those which come from

the breath of the patient, soon find a new home, or they abort or die; but the resting spore, if kept as I have described, will retain its vitality for a very long time.

I was staying some years ago at Oban, in the Western Highlands, when I was informed by a medical gentleman then resident at that place that he had several cases of small-pox on the Island of Mull which were very curious in their origin. 'I had,' he said, 'a case of small-pox at the same place on the south-west coast of the Island three years before—some distance of course from Tobermory. The young person died, and the friends of the dead person left the cottage. It became untenanted, and went to ruin. The roof fell in, and it was fully exposed to the Atlantic gales; but last summer the estate passed into other hands. The new landlord arranged to have some new cottages built at the spot formerly occupied by the ruined shanty. A gang of men were sent from Tobermory to pull down the old place; they did so, and now seven of them have the small-pox.' It is supposed that they disturbed an old mattress upon which the former patient had died, and which had been left in the shanty, and in it some of the resting spores of the case had been kept in a state of dormant vitality for three years. There was no other case in the Island of Mull, or upon the mainland of Scotland anywhere near to Oban, to the knowledge of my informant, at that time. This case was a most interesting one to me, and I placed it on record in the Proceedings of the Royal Commission on Infectious Hospitals, upon which I had the privilege of sitting as a member. In detailing this case to you, I am anxious to impress upon you the necessity for destroying all those matters in

which such resting spores may be hidden, so that you may not be unwittingly the means of creating an outbreak of infectious disease even after you may have retired from the scene of your labours.

#### THREE KINDS OF DISEASE GERMS.

I wish to impress upon your minds that, in cases of small-pox, and from analogy, I would say that in all cases of infectious disease, more or less, you have three kinds of disease germs to deal with; that the destruction of the one does not necessarily involve the destruction of the other; that ventilation will probably be sufficient to remove the incidence of the evil which follows from the breath of a single patient; but that if you multiply these, and bring some hundreds together, you will do what in another way we are doing with regard to London fogs—the smoke of a great number of chimneys is intensifying an evil which is very small with one chimney; or as is happening when one small sewer loses into a large river—the sewage is soon oxidised; but if many go in, after a time oxidation is no longer possible, and the vitality of the disease germs may be preserved for much longer periods, to the imminent danger of the neighbourhood in which such an aggregation takes place; for sewage in water, smoke-fog in the air, or the excessive aggregation of disease germs take up all the available oxygen, or whatever else it may be which causes the chemical action, and the change we wish to promote cannot take place.

Besides the growing germ there are the spores just ready to hatch, and which will, and even must, hatch just as the spores of algæ will develop if they are allowed the opportunity. If this is not afforded, the vitality of the germ is soon destroyed, and there

would be an end of the race if it were not for the resting spores in which vitality is existing but in which it is dormant. The conditions which belong to potato-rot seem to belong to those disease germs which attack the human frame, and certainly are parts of their behaviour in small-pox and diphtheria.

Analogy also gives us the right to assume that similar characters attach more or less to all infectious diseases. In some the tendency is strongest in one direction, as in the case of small-pox, in which the spores hatched in the mucous membrane of the air-passages are the most virulent; whilst in others these are all but *nil*, the most dangerous class being the spores from the alimentary canal, discharged with the excreta, and which require some kind of faecal fermentation to bring about their dangerous activity, as in the case of the excreta of a typhoid fever patient. In others the greatest danger is from those which are thrown out by the skin, as with scarlatina germs, and so on. They all vary in their stages of activity, but are all moulded on the same lines, and if there is failure to recognise this faculty there is danger that your efforts to stamp out the disease may not be entirely successful. Ventilation alone is not enough, as small-pox too frequently tells us. Disinfectants which arrest fermentation only act as such for a time—that is, until the disinfectants are themselves chemically altered. They do not destroy the resting spore, though they may destroy or stop the production of smell by destroying the living growing bacteria upon which the production of smell depends. You must go further and go deeper than that, and see that no resting spore remains, or at least that there is no seed-bed or forcing-box

in which such spores might be hatched and brought into activity, so that the disease may not again be propagated in some future time more or less distant.

#### THE THREE DISTINCT OPERATIONS.

You will gather from these observations that no process of disinfection will be complete which does not provide for three distinct operations.

1st. Ventilation both at the beginning and at the end of your work, and which is for the purpose of oxidising living, growing disease protoplasm—a material to which sunlight, fresh air and motion are completely antagonistic introduce these as a matter of course wherever disease is or has been prevalent.

2nd. Destruction of bacterial and fungal life, upon which the chemical changes produced by ferments depend. These living creatures cannot increase and multiply unless they have food to assist them in growing. You have, therefore, two things to do: first, to destroy the living creatures themselves, and then by using up the pabulum upon which they grow, or removing it to some less dangerous neighbourhood, where it may be changed to a more satisfactory and beneficial purpose. There is, therefore, in this second part, the destruction of parasitical life, which involves a knowledge of the natural history of the creatures we propose to destroy, for they have ways of their own: some cannot live without atmospheric air, and others cannot exist if free oxygen is present. Each kind requires a different treatment for satisfactory removal.

3rd. You have to destroy the resting spore upon which the future production of the disease may depend. Some years ago I engaged myself in studying the effects of potato blight, and I found that boiling for a short time did not



destroy the resting spore—that the haulms of the diseased plant might be plunged into boiling water, kept there for some minutes, and then allowed to rot, yet if that material was dried up and then made up into powder, and, in the following year thrown broadcast over a plot of potatoes, at a favourable time the disease would develop itself in the new haulms, and apparently in consequence of the growth of the resting spores which remained in the rotten but dried powder of the old haulms, provided it had been kept out of the reach of sunlight during the preceding season. This experiment taught me much of the habits of such diseases as small-pox and diphtheria. I learnt that it was not enough to remove smell and to disinfect the morbid matter, but that you must destroy the resting spores by some agent which could alter their constituent parts. You might destroy the growing germ, you might destroy the hatched or sprouting seed; but if you did not also destroy the unhatched ovum, or the undeveloped seed, you did not prevent the recurrence of the disease. We have the analogy afforded by natural history before us, displaying numerous instances in which insects and other living organisms exist in many different forms, all tending to come round sooner or later to the same point again. I conclude from results that the lower forms of life are more multiform than even the better known classes of insects.

There is another way of looking at it. If we examine a few specimens of cell-life, such as the protoplasm, which goes to form nerve-cell, or muscle-cell, or the cellular tissue of any other organ, they are utterly undistinguishable to our finite powers in their earlier development. It is probable that many kinds of disease germs

are positively similar as to form as far as we can see, and yet are capable of developing distinct diseases. It is also certain that a careful study does reveal certain differences, so that the expert is able to differentiate the diphtheria micro-organism from that which sets up anthrax, or from that which produces the chicken cholera. It may be that some of the forms may be easily capable of destruction at one time and not at another, because they are passing through a different kind of change, and are then fully able to resist the action of the agent which is supposed to be capable of acting as a germicide, so that now and again the vaunted agent fails and goes out of favour. If you are to deal successfully with the eradication of disease germs out of the land you must know something of their life-history, and the pertinacity with which they resist the influences of chemical re-agents and other disinfecting powers, which are sometimes thought to be beyond doubt. This fact will explain to you why your chloride acid has not prevented the recurrence of disease, why ventilation has not been enough; and, in the minds of some sanitarians, nothing remained to be done but to destroy the offending matter by fire. Such is the conclusion which many sanitarians have come to; but it is not a satisfactory one. It seems to me to be a wicked waste to destroy a commodity which may be valuable if it be transferred to its proper place.

#### VEGETATION AS A DISINFECTANT.

There is a means by which security against evil consequences is provided viz. the powerful aid of vegetation. The vegetable kingdom has been placed on the earth to counteract the influence of animal life by taking the daily poison of CO out of the air; the stomata, or

breathing pores, which are so abundant upon every green leaf, having to perform this duty. The spongioles of a large portion of the rootlets of the Graminaceæ, at least, and probably of other families besides, are able to appropriate the living organic matter upon which the spread of infective disease may depend; to fix the material in its own tissue in a form which makes it valuable, instead of being, as is too often thought by unthinking people, injurious to man. If such be washed away and conveyed to agricultural land, there is an end of its infective power, as certainly as there is an end of the infective power of the living germs which escape from a feverish small-pox patient if they be exposed to sunlight and fresh air for two or three minutes, provided the germs or resting spores are themselves brought into contact with the spongioles of the crop. But, whilst urging this view, I am not antagonistic to the necessity for destroying all the living growing germs of the first and second class as quickly as possible, so as to prevent the arrest in transit, which may arise in any sewer, in any place, either by accident or design.

We see, therefore, what we have to do. We have to cleanse the air by aerial disinfection. We have to destroy living germs in excreta or fomites, and to remove resting spores from places in which they may continue to rest until some power raises them from a dormant state into active existence. We have, therefore, aerial disinfection for the destruction of the most active forms; we have germicides for the destruction of living germs.

Lastly, we have to consider the best means of dealing with the resting spores, for, to my mind, very few of the most vaunted disinfectants are able to touch them.

#### AERIAL DISINFECTION.

The first place is to be given to ventilation and sunlight. It is probable that even the resting spore cannot resist the influence of sunlight if it be continuous for a sufficient length of time, especially if the air itself be free from excess of carbonic acid; I have an idea that the vitality of the disease germ is most pronounced in an atmosphere which contains more than four parts of  $\text{CO}_2$  in ten thousand of ordinary atmospheric air. One of the advantages which arises from lime-whiting is the reduction to a minimum of  $\text{CO}_2$  from the air of the chamber which is so treated; and it is probable that this reduction is more effectual than is the action of the lime itself upon the organic matter with which it comes in contact.

I need not describe to you in detail the method of producing chlorine or sulphurous acid, or the measures which are to be taken if you use either of those aerial disinfectants, except to observe that if they are used at all it must be an adequate use; that the chambers treated by those gases must be filled with an air quite irrespirable, and completely closed up for at least twelve hours, whilst at the same time you must be careful to avoid suffocating any of the neighbors by escapes of your gas through cracks and chinks in floor or ceiling. This accident might happen very easily in thickly inhabited districts or blocks of houses. It would be rather awkward to be convicted of manslaughter because you failed to recognise the possibility of such a result. One great advantage of aerial disinfection of the kind named is the destruction of insect life which is also effected by it in some kinds of habitation, and the fact that the gases do, if sufficient are used for the purpose, get

into the chinks and crevices inhabited by insect life and into which nothing else will penetrate. Such a plan of treatment is always the most advantageous in small-pox, diphtheria, and scarlet fever. It is probably unnecessary in any other kind of disease. But aerial disinfection alone is never enough; the place must be well lime-whited after the walls have been scraped, and the scrapings should be at once put into a furnace, and not into the dust-bin; and it would be advantageous if the floor of the infected rooms could be afterwards washed over with a solution of bichloride of mercury. It is a rather dangerous means to use unless the greatest judgment and dexterity are employed; but carbolic acid is dangerous, and chloride of zinc is a fatal agent sometimes; whilst neither are anything like so effectual as the use of a solution of corrosive sublimate. Its greatest objection is its expense. It is the only known disinfectant which without any previous moistening destroys the most persistent micrococci in a few minutes by means of a highly dilute solution. It is rapid in its action; a solution of one part in 5,000 of water will in one quarter of an hour destroy every living thing or germ, dormant or otherwise, with which it comes into contact. This statement has been thoroughly proved by actual experiment on living organisms. The cracks in a floor should be always so treated in rooms in which small-pox patients have resided. But the floor must be well washed before the mercuric chloride is used; otherwise so much more of the reagent will be necessary to overcome the reaction induced by the presence of albumen or of sulphuretted hydrogen, both of which render the corrosive sublimate inert. I do not recommend the use of mercuric chloride

in any other cases, or any other places, because of its highly poisonous nature

Chlorine gas is not of much use except in the presence of moisture; but it is easily obtained. The rooms require to be steamed well when chlorine is used. Rooms must be saturated with it; it should be continued for some hours, and then the place well ventilated. But the chlorine has not touched the dormant germs, though every other thing objectionable has been destroyed which depended upon oxygen for its power to live. Such also is the result with sulphurous acid. The vapors are easily diffused, but without other means they are not sufficient. The other means being anterior to the use of the gases—viz., scraping down and burning the scraped matter in the fire; freely lime-whiting after the gas has been used, and treating the floor with corrosive sublimate solution if the case has been one of small-pox, scarlatina or diphtheria. Some other agents are sometimes used, such as nitrous acid, bromine, and iodine; but their use is expensive, and more difficult than either chlorine or  $\text{SO}_2$ , and it is not necessary that I should describe their action.

#### THE BEDDING ETC., AND STEAM.

But there are the contents of the house—the furniture and the hangings, the carpets, the bedding, and the clothing. What is to be done with these?

The heavy wooden furniture need not be removed from the room; the bedstead should be treated in a manner similar to that recommended for the floor, if it has been slept upon by a small-pox patient. The carpets and hangings may be exposed to the sunlight if there should be a chance of obtaining it for some consecutive time. If not, steam heat or hot air in a proper hot-air chamber should be used. The use of steam is superior to all

other means; it is very rapid in its action and penetrating in its effects. Complete disinfection is obtained in a short space of time, whilst the larger part of ordinary wearing apparel is not damaged by the process. The experiments of Dr. Koch, as carried on under the strictest lines, are my supporters of this view; and I have no doubt that this is the form which disinfection by heat will obtain in the future. Hot-air apparatus is complicated and expensive if it be effectual, especially if the objects are carpets or hangings. Exposure to a current of steam at the full boiling point of  $212^{\circ}$  is certain, is simple, and is rapid, and involves very little injury to the articles which are in ordinary use; but the things so acted upon must be *dry* to begin with. Those things which have been contaminated with filth, especially excreta—such as vomit or fæces—and which are not worth much, should be destroyed by fire, whilst metallic articles should be covered with some greasy coating, or with vaseline, before exposure to the steam.

The use of chlorine, as is sometimes recommended, is not satisfactory, even if it does not destroy the articles exposed to its influence; but the majority of articles of clothing are irretrievably damaged by its action, so that it can only be used with indestructible material.

It is possible that some germs, such as those producing potato-rot, may escape the action of steam, retaining their vitality in spite of a heat of  $212^{\circ}$ . I do not think that this will apply to those germs which spread in the blood of human beings. It does apply to some which may be called cold-blooded, or which attack vegetable life; but the germs which produce small-pox, diphtheria, scarlatina, and some others, as

anthrax, chicken cholera, etc., are completely destroyed by a steam heat of  $212^{\circ}$ ; so that it is not necessary to apply it under pressure, or to raise the temperature to  $300^{\circ}$ , as has been recommended.

I advise all local authorities to provide themselves with a disinfecting apparatus which will enable them to apply steam heat, as without it they cannot completely perform the work which the law requires them to do. I have said nothing about carbolic acid. I will now explain my reasons for omitting it from the list. It will at once strike you that if the contagion particles are particulate—that is, if they have a material existence—they can only be destroyed by actual contact with the disinfecting agent, and that if one germ escapes from such contact the regeneration of the malady is possible. It is found by experiment that the quantity of vapour of carbolic acid must be very considerable indeed to effect this contact with certainty. It has appeared to me that the effect of carbolic acid is to arrest oxidation, to stay the process of fermentation, to even take the life of growing germs, to destroy some kind of living, moving bacteria, but to have no effect at all on unhatched or dormant spores. It is only useful, therefore, in those cases in which the first class of spores may be operative; it assists to hasten the destruction of the living germs which are given off by feverish patients, but that is all. This fact was fully impressed upon my mind nearly thirty years ago.

It is advantageous to keep an atmosphere which is loaded with carbolic vapour, or the vapour of Sanitas or others of the same kind, in the passages leading to the room in which a small-pox or scarlatina patient may be iso-

lated. It will be advantageous that the room itself should reek with such vapour, and by that means assist to arrest the immediate spread of mischief. But whilst it does that, and even destroys the growing seed, it preserves the dormant germ from decay. You will see, therefore, that to trust to carbolic acid as a means for destroying the progress of infectious disease is to trust to a broken reed. Spores have been kept for weeks in a five per cent. solution of carbolic oil, and have then been found capable of vigorous growth when transplanted to a favourable soil.

The same result has followed when they have been stored in alcohol. The use of spirituous liquors as a protection against the evils of impure water is no protection at all, and the scoff at total abstainers, that they risk their health by using water instead of alcohol and water, is based upon a fiction, not a fact.

The same arguments apply to some extent to sulphurous acid; though in a minor degree, there is an action following the application of this gas by which the chemical composition of albuminoid matter is more certainly changed. Oxygen is absorbed from the germ as well as from the air, and the growth of the germ is to some extent impaired; but  $\text{SO}_2$  is irrespirable, whilst an active quantity of carbolic acid may be borne without injury.

#### HOTBEDS—"FORCING PITS."

I think I may now leave the treatment of infectious diseases, so far as they come within your cognisance, and pass on to the forcing pits in which they find their most active development—viz., the filth collection of human congregation. Your duties have reference to the removal of these, and to their active disinfection, as well

as to that connected with the cases of actual disease. It has been thought that disease germs would lose their vitality if suspended in water; but anthrax spores have been kept in solution for months and have not been destroyed. If they are in motion, if they are encouraged to grow, and if whilst so growing they come in contact with oxygen just escaping from its combination with carbon, as occurs in this disengagement by the vegetable kingdom, there is death to the spore; but they may not grow—they may be laid and preserved. The most certain death is that which arises from its being brought into immediate intercourse with the spongioles of plant life. Wash down, and let the spore find its way to the sewage farm, and there is an end of your trouble, provided the farmer is made to grow so many tons of produce for so many tons of sewage. But it is not always possible to wash away the evil; and as sewers are at present constructed—viz., as a standing disgrace to the constructing engineer—whilst they are sewers of deposit only, whilst they are not much better than elongated cess-pools, and not self-cleansing sewers in which deposit shall not take place, it seems to be absolutely necessary that disease germs should be destroyed before they find their way into the sewers at all. Hence all excreta from infectious cases should be disinfected before they enter the sewers. The best disinfectant for this purpose is the sulphate of iron—green copperas, as it is sometimes called. It is useless suggesting re-agents which are too expensive for the purpose. Sulphate of iron is cheap, and it is effectual provided sufficient is used. Next to that we have chloride of lime, in which the development of chlorine

is brought about by decomposition of the salt, or of carbolate of lime, and various powders which to be effectual must be used very freely. The quantities which are ordinarily used are utterly insufficient to effect the object we have in view. They are only pretences, and might just as well be omitted from the programme altogether. Those articles as applied remove smell, and so add to comfort; they are deodorisers; but not as ordinarily used are they germicides in any strict sense of the case.....Two pounds of sulphate of iron should be dissolved in nine gallons of water, and portions of this thoroughly mixed with the excreta, and then the whole washed away; and if they be solid they should be covered with at least one-sixth the weight of carbolate or chloride of lime, and then washed away with abundance of water; but if an authority uses copperas in one street and chloride of lime in another they will be blowing hot and cold, and destroying some of their beneficial work before it is completed, for the chlorine will destroy the beneficial action of the iron in the sewage when they mix together. Infected ditches should be well washed out with the iron solution, sewers should be

well flushed with carbolate or chloride of lime in sufficient quantity to entirely fill its calibre for many yards of its course, so that the invert of the arch may be washed with strong solutions as well as the floor of the sewer.

I trust that I have said enough to show the main basis upon which disinfection should be carried out. The points are—

1. Ventilation.
2. Aerial disinfection by  $\text{So}_3$ , or chlorine, and steam.
3. Lime-whiting.
4. Washing floors and furniture with solution of mercuric chloride (or corrosive sublimate).
5. Steam heat for clothing, furniture, &c.
6. Sulphate of iron or chloride of lime (for flushing).
7. The wonderful agency of vegetable life.

If these means are effectually applied, infective diseases would be completely banished from our midst, and any local authority which allows of their continuance is doing defective work. It is difficult, of course, to meet disease at all points; but very much may be done by persuasion and example.

---

#### SUMMARY OF THE REQUIREMENTS OF THE DAIRIES; COW-SHEDS, AND MILKSHOPS ORDERS OF 1885 AND 1887, IN SCOTLAND.

**M**R. G. A. D. Mackay, Sanitary Inspector, Paisley, Scotland, gives the following in the *Sanitary Journal*:—

1. Every cowkeeper, dairyman, or purveyor of milk within the district of the Local Authority must be registered as such.

2. Every Local Authority must keep a Register, which is to be revised from time to time.

3. The Local Authority must register every applicant, irrespective of the state of his premises. But this does not in any way preclude the Local Authority from instituting proceedings against the person registered for any non-compliance with, or violation of, the provisions of the Order.

Two classes are exempted from registration—viz., (1) Those whose business

is restricted to the making and selling of butter or cheese; and (2) those who sell milk of their own cows in small quantities to their workmen or neighbours for their accommodation.

4. The Local Authority is from time to time required to give *public notice* that registration is imperative.

5. Every person who wishes to begin to occupy any building as a dairy or cowshed must first give *one month's* notice, in writing, to the Local Authority of his intention, and he must make provision to the satisfaction of the Local Authority for the lighting, ventilation (including air space), cleansing, drainage, and water supply of the building, before it is occupied as such.

6. The lighting, ventilation (including air space), cleansing, drainage and water supply of all dairies and cowsheds are required to be such as are necessary or proper for:—(a) The health and good condition of the cattle therein; (b) the cleanliness of milk vessels used therein for containing milk for sale, and (c) the protection of the milk therein against infection or contamination.

7. No one who is suffering from a dangerous infectious disorder, or who has recently been in contact with a person so suffering, is allowed to milk cows or to handle milk vessels, or to take part in any way in the production, storage, or distribution of milk, until all danger from such disease has ceased.

8. If any water-closet, earth-closet, privy, cesspool, or urinal, be within, communicate directly with, or ventilate into any dairy, or any room used as a milk store or milk shop, it shall not be lawful for any one to occupy such dairy, room, store, or shop, after the receipt of notice of not less than one month from the Local Authority

calling the attention of the occupier thereto.

9. No milk store or milk shop can be used as a sleeping apartment, or for any purpose incompatible with the proper preservation of the cleanliness thereof, and of the milk vessels and the milk therein, or in any manner likely to cause contamination of the milk therein.

10. Swine are not to be kept in any cowshed, milk store, or other place used for the keeping of milk for sale.

11. The Local Authority may from time to time make regulations for the following purposes:—(a) The inspection of cattle in dairies; (b) prescribing and regulating the lighting, ventilation, cleansing, drainage, and water supply of dairies and cowsheds; (c) securing the cleanliness of milk stores, milk shops, and of milk vessels; (d) prescribing precautions to be taken by purveyors of milk against infection or contamination of milk.

Such Regulations must be published by advertisement in a newspaper circulating in the district of the Local Authority, and a copy thereof must be sent to the Board of Supervision not less than one month before the date named therein for the same to come into force. The Board are empowered to revoke any regulation which they deem to be of too restrictive a character or otherwise objectionable.

13. The milk of a diseased cow is not to be mixed with other milk, or sold or used for human food; but it may be used for the food of swine or other animals after it has been boiled.

The penalties to be imposed are not to exceed £5 for each offence, and they may be sued for summarily under the Summary Jurisdiction Acts of 1864 and 1881.

## SUMMER CARE OF INFANTS.

THE warm weather of summer, with its relaxing effects upon the human body, and the rapid development of all sorts of disease germs, from the decomposition of organic matter, to which the warmth gives rise, is found to be especially fatal to infantile life; and this especially in cities where there is usually much the larger proportion of organic excremental matter undergoing decomposition. There are many points to consider in endeavours to prevent disease in the young, and outranking everything else, are the air which the child must breathe and the food which it must consume.

As Marion Harland, a well known writer on the care of infants very sensibly writes, "At this season, if ever, the mother must resist the disposition to fatalism. Recognizing, like a brave, sensible woman, that summer is fraught with peculiar perils, let her acquaint herself with the nature of them and station her guards. Do not change the child's food so long as his present dietary agrees with and nourishes him. One of Mr. Lincoln's homely saws, advising against a horse trade while crossing a creek, is sharply pertinent here. Green fruit has slain its thousands, but the Herodian murderer of babes from two years old and under is the mother's vicarious hankering after variety in the nursery bill of fare. When you wean your child seek out one really excellent kind of food, and, having established the fact that it suits him better than any other, cleave unto it while he relishes and thrives upon it, remaining proof against temptations to depart from it until the ugly creek of the second summer has been forded. The milk that enters into the composition

of porridge, or whatever may make up his modest menu, must be sweet and fresh; the cereal with which it is combined the best of its kind and the mixture never be oversweetened. Eschew experiments as you would labeled poison. Do not let him drink iced milk or ice water and avoid the other extreme. Cold checks digestion and really hot drinks have a tendency to weaken the bowels. Keep wholesome respect for the "intestinal changes" before your eyes and do not interfere with them. Finally should baby languish in spite of wise regimen, give him immediate change of air."

It is not so much the "change of air," so often spoken of, as it is a "purer air." If in the city take the child to the country. If this is impossible, take it out even to the suburbs—out as much as possible, to the parks and open spaces, away as far as you can from the densely peopled part of the town. Take it out daily; all day, if possible; even camp out with it at night.

Look well to the clothing. "Make changes—notably in flannels—cautiously. A woolen garment, covering the chest and abdomen, should be worn next the skin all summer long, at least until the child has completed his second year. It need not be heavy or thick. Exchange that worn in winter for one of moderate weight, and, at the heat increases, this for one still thinner."

Keep the skin clear and active by a daily bath with cool, but not too cold water, with gentle friction after it. And do not allow the young child to get over heated.

Frequent sips of cold, not iced, pure water most infants like in warm



weather, and they are of immense value in cooling the stomach and bowels, cleansing them and checking fermentations. A few teaspoonfuls of

pure cold water often repeated is like an inward bath, frequently much needed.

### TEETHING TIME.

IF the teething time comes during the summer, it makes it much harder on the little one; although, all other things being equal, the teething child as a rule will suffer more in cold than in warm weather. The following remarks are from Dr. Johnson's little work on children teething:—

Dentition is a healthy and natural process, and in a healthy child is effected without trouble or suffering of any kind. The appearance of teeth is a necessary consequence of growth, and it is inconceivable that nature should attach pain and suffering to this simple organic act. One cannot understand why the cutting of a tooth should be more painful than the growth of a foot or a finger. And we find, on reflection, that nature is by no means guilty of this inconsistency or injustice. To the folly and excesses of man are due the suffering so frequently attending infant dentition.

Children suffer because they inherit from their parents diseased frames, or because they are reared in disobedience to the laws of health. Children who have been nurtured upon improper food, or in an unwholesome atmosphere, or who have been dosed with calomel and gray powder, are certain to experience a difficult dentition. On the other hand, the children of Nature, as the offspring of the North American Indians, will pass through this ordeal without cause for complaint. Dentition is commonly more severe in winter than in summer. It is more

severe in the city than in the country, and the badly nourished children of the poor pass through it with more pain than do the well-nourished children of the rich. The treatment should be mostly preventive. Fresh air, not medicine, is needed. If the child lives in the city it should be taken to the parks or squares very much of the time, when the weather permits. The rooms in which it lives should be so well ventilated as to be always supplied with as pure air as possible. Pure food is equally essential.

The habit of stuffing a child with food, salted and seasoned, is almost sure to derange the whole digestive canal, and through this medium so affect the child's health as to make teething a serious affair. If not weaned, and the mother's or nurse's milk is abundant and good, this should constitute its sole food. If cow's milk is used, care should be taken to see that the cow is healthy and properly fed. If the child is weaned, bread and milk, good potatoes, boiled rice, oat-meal gruel or barley gruel and a little ripe fruit will all be excellent. Fed regularly, but not oftener than once in four hours, with pure air and wholesome food, equal circulation and a proper distribution of the nervous energies are insured. The bowels must be free, not by physic, but by the right food, and, if necessary, an injection. Constipated children always suffer more from teething than those whose bowels are free.

## MISCELLANEOUS NOTES AND SELECTIONS.

**SUMMER DISEASES.**—The advent of summer says the *American Lancet*, brings to the front a special class of diseases. In some way these are related to heat. This in some cases acts directly upon the organism, producing a class of affections known as heat diseases, sun-stroke, etc. In varying degrees it is possible that this cause is more common than is generally supposed. But the heat of summer is indirectly the means of causing many diseases, as cholera infantum, cholera morbus, diarrhœa, dysentry, etc. This is due to the influence of heat in promoting decomposition, either by acting to break up organic compounds, or by causing the infinite multiplication of the organic germs which induce such decomposition. The ways by which the human body may be damaged or destroyed through the activities of this agent are simply infinite. Great light has of late years been cast upon this subject, but still our knowledge remains very meagre. We already have outlined the antiseptic treatment of summer diarrhœa. More or less the idea of preventing putrefactive processes enters largely into our ideas of the management of many kinds of cases. It is along this line that lies the most hopeful study of summer diseases.

**TESTS FOR ARSENIC IN PAPERHANGINGS.**—A few months ago we gave, from the *British Medical Journal*, what was said to be reliable tests for arsenic in papers. Wm. Woollans & Co. (paperstainers) have since written to that journal for publication the following: Having made the subject of arsenic in paperhangings a matter of close study for many years, we read with great interest the description of

the test devised by Mr. Grenstedt, as published in the *British Medical Journal* of Saturday, December 11th. We hoped some rough, ready, and reliable test for arsenic had been at last discovered, but in the result we were disappointed. The method proposed would answer in most cases where "considerable quantities" of arsenic are present, so far as Tests 1 and 2 are concerned; but there are still a large number of papers made and coloured with arsenical pigments which would exhibit no recognisable reactions of the kind described; and there are many others highly arsenical, but free from copper, which would yield no such reactions as those described as "Tests 3 and 4." Of the former, the red and the light coloured papers enclosed are examples, while sample A, B and C (containing arsenic) are quite free from copper, the blue C being highly arsenical.

**AN EXPERIENCE** of over a quarter of a century in the manufacture of non-arsenical papers, and a knowledge of many methods, both empirical and scientific, of ascertaining the presence, or what is sometimes more difficult, determining the absence of arsenic in a suspected paper or other fabric, embolden us [Woollans & Co., paperstainers] to ask your permission to point out to your medical readers that it would be essentially injudicious, where the health of a patient is at stake, for any of them to rely upon any test, such as that now referred to, to determine the absence of arsenic; and that the only way in which such a conclusion can be safely arrived at, is to submit a sample of the paper to a competent analytical authority for careful examination. A superficial, or

even an exhaustive examination of the visible paper is often deceptive, since it is frequently found that a perfectly harmless paper is hung over an old arsenical one, and where it is suspected that illness arises from arsenical poisoning, the medical adviser should not be content with anything less than a sample of the paper or papers stripped off clean to the plaster. This can generally be done without disfiguring the room by taking it from behind the bed or some other heavy piece of furniture. We have seen as many as twelve coats stripped off in one mass, of which perhaps half would be arsenical.

THE first American contribution to medical literature was "A Brief Rule, to Guide the Common People in Small-pox and Measels, 1674," by the Rev. Thomas Thacher, first minister at the old South Church in Boston. So says Dr. Francis Bacon, in "Some Account of the Medical Profession in New Haven."

THE CHEMICAL COMPOSITION OF MAN.—From a chemical point of view, says *Le Practicien*, man is composed of thirteen elements, of which five are [ordinarily] gases and eight are solids. If we consider the chemical composition of a man of the average weight of 154 pounds, we will find that he is composed in large part of *oxygen*, which is in a state of extreme compression. In fact, a man weighing 154 pounds contains ninety-seven pounds of oxygen, the volume of which, at ordinary temperature, would exceed 980 cubic feet. The *hydrogen* is much less in quantity, there being less than fifteen pounds, but which, in a free state, would occupy a volume of 2800 cubic feet. The three other gases are *nitrogen*, nearly four pounds; *chlorine*, about twenty-six ounces, and *fourihe*, three and a quarter ounces.

Of the solids, *carbon* stands at the head of the metalloids, there being forty-eight pounds. Next comes *phosphorus*, twenty-six ounces, and *sulphur*, three and a quarter ounces. The most abundant metal is *calcium*, more than three pounds; next *potassium*, two and a half ounces; *sodium*, two and a quarter ounces; and, lastly, *iron*, one and a quarter ounces. It is needless to say that the various combinations made by these thirteen elements are almost innumerable.

THE COMPULSORY SANITATION OF HOUSES.—According to the *London Times*, Mr. Dixon-Hartland's bill proposing a new Sanitary Board for London, now before Parliament, provides, in effect, for the compulsory sanitary inspection and registration of all buildings of whatever nature. The metropolis is, according to the scheme, to be divided into seventy districts, each of which is to be "under the control" of a sanitary surveyor. On giving a week's notice this officer and his assistants—the present sanitary inspectors—may enter a building and inspect all sanitary appliances, fittings, and drains; and should he find the building not in a sanitary condition he will point out the defects, and require them to be amended within three months. But should the building be found to be in a sanitary condition the surveyor will, if desired, certify this for a fee of a guinea. And without such a certificate no house is in future to be let. Apparently, however, the certificate would be valid for this purpose for as many as six years. A further provision is that no sanitary work is to be commenced until the plans have been approved by the surveyor; nor is any drainage work to be covered up until it has been examined, tested, and

passed by him. As to new buildings none are to be begun until complete plans of the drainage have been deposited with the sanitary surveyor of the district. These plans, and also copies of sanitary certificates, are to be accessible to the public at his office on payment of a fee of one shilling.

**HOME LIFE AND LONGEVITY.**—The influence of the domestic circle is most potent for good in all that makes life worth the living. This is well portrayed by a writer in the *Philadelphia Times* who says: I can count upon my fingers more than a score of men, brilliant writers and earnest workers, who died all too soon. Erratic as many of them were—wayward even some of them—they were almost without exception men of deep sympathies and tender friendships. Bohemians in fact as well as in name, their lives became a sacrifice, not to dissipation, as the world is apt to suppose, but to the homelessness that is inherent in Bohemianism. These young men, over whose graves I stood, one after the other, as the years rolled by, should be living still, in the prime of life and enjoying the health and happiness of a vigorous manhood. The world has lost of its best in losing them. They are dead, not because the world was careless of their talents, not because the tempter's wreathed and flowing bowl allured them. Death sought them out and came to them all too early because for them there were no hearthstones—because their lexicons of youth were robbed of the words home, love, sisterly sympathy, motherly tenderness and care.

**OXYGENATED WATERS.**—Dr. Willian says, The Brin freres of Paris have bought out a successful process for procuring oxygen gas in unlimited quantities from the atmosphere. They

have made available to all Europe an oxygenated water which bids fair to eclipse, in good results and popularity, every table water in the market. It has received the qualified sanction of the French scientists and doctors, and it is claimed that it is a certain protection from cholera, diphtheria, dysentery and all infectious and zymotic diseases. It also relieves gout, rheumatism, and dyspepsia, as well as various kidney diseases. A patent has recently been issued in this country for a "compound oxygen" water which is said to be even better than the French preparation. Hence we shall soon be enabled to renew our youth without leaving our own soil! Strangest and perhaps most important of all, it is said to materially diminish the appetite for alcoholic stimulants. If the claims set up for it are one-half true, the race ought to be on the eve of a benefit beside which all ordinary blessing will seem trivial enough.

**A NEWFACTOR IN ATHLETISM—WONDERS OF OXYGEN.**—Dr. Willian, of New York, writes in the *Annals of Hygiene* on some wonderful effects of Oxygen: Given, any two athletes, with all conditions essentially the same, except that one shall be thus scientifically and thoroughly *oxygen-fortified*, the other not, the one thus prepared is as sure to win in the contest before them, no matter what its nature, whether wrestling, rowing, batting, running or swimming, whether in the field or on the forum, as the morrow's sun to shine. It is easy to compass a practical test. Let the skeptic apply to some one of the now numerous dealers who advertise "pure oxygen gas for medicinal purposes," bearing in mind, however, that much of that so announced is none too pure, and having first tested by the watch his

normal ability to hold his breath, then proceed to inhale the gas, properly diluted, for the space of fifteen or twenty minutes. While thus permeated, or so to speak, saturated, with oxygen, let him again test his augmented ability in the same direction. If the test be fairly made he will find that in this induced state of super-oxygenation he can abstain from breathing, or hold the breath, three times as long as he could do prior to its use. In the direction of scientific research we are far behind the East. In France, Pasteur has demonstrated that the hog cholera and some other forms of germ diseases are possible only when there is a lack of oxygen (anærobism). The treatment of sloughing ulcers has undergone a revolution. Poisoning by opium, belladonna and other deadly narcotics, is being successfully met by the free use of the gas; the drowned are resuscitated; cholera and epidemic dysentery are combatted; and Russian physicians assert that hydrophobia itself, otherwise admittedly incurable, has been made to yield to this searching antidote.

**CONTAGIOUSNESS OF CONSUMPTION AND CLIMATE.**—Medical Inspector A. A. Hoehling's report upon the Flag-ship Pensacola, Mediterranean Station, states (in *Sanitarian*) that "Among the native poor of Madeira consumption is on the increase. This is attributed to the use of the cast-off clothing of patients who come here to die, and to the mode of living of the natives. "As the bacillus of tubercle requires a high temperature for cultivation in the laboratory—at least 90°—may not a continuously warm climate favor its liability at Madeira, where it is being added to almost daily by fresh importations. The spreading of the disease among the natives; and the

fact that the climate does not seem to arrest the disease in patients who come from abroad, seem to furnish some grounds for an affirmative answer. If this hypothesis is ever proven it will give us good reason for sending consumptives to a cold climate, like Minnesota affords, where the bacillus is not favored with a high temperature to increase and multiply. Experience already appears to furnish good arguments to sustain this view also, for patients who are not too far advanced do better in Minnesota than in Madeira and like climates. Of course the advanced stages of the disease do badly everywhere, and suffer less in a mild climate; so for euthanasia we may continue to recommend the latter."

**AGAINST WET NURSING AGAIN.**—The *N. Y. Medical Times* says that, in a paper read before the New York Academy of Medicine, (in *Med. Rec.*) Dr. Winters argues with much clearness and force, that every attempt to depart from maternal suckling, even when a hired breast is resorted to, increases infant mortality. His concluding paragraphs are as follows: The lives of nine-tenths of the wet-nursed children are purchased at the expense of the lives of other children. The practice, therefore, of placing children to dry-nurse, either in families or in institutions, in order that the mother may go as wet-nurse, is iniquitous. It is inexcusable and indefensible under any circumstances. It is the deliberate starvation of one child that another may live. It is lamentable that a system so pernicious and injurious to the best interests of society should be tolerated, and even encouraged, by the most eminent and honorable members of the medical profession. Briefly, then, we usually select a hireling to perform the mother's, most sacred

duty; one who occupies the lowest place in the social scale, and in whom there is an absence of the moral qualities.

SOME of the most successful and popular patent nostrums, says *Good Health*, are, upon analysis, found to be wholly inert, except as they are made potent by an attractive name or reputed efficiency. A recent analysis of one of the most popular of Russian patent medicines, to which most remarkable virtues have been ascribed, showed the only constituent to be water from the river Neva.

AN elaborate system of experiments, says the *N. Y. Medical Times*, has established the fact that no milk below 1029 specific gravity can come from cows in a state of health. Any milk which falls below this standard is either diluted or unhealthy, or is the product of cows in an advanced state of pregnancy, in which condition the milk is unfit for human consumption.

IN A SKETCH contributed to the *New York Medical Journal* by Dr. Wylie, on the life and works of the late Dr. J. Marion Sims, many interesting facts and incidents are given. He was truly master of himself. Vices he had none, not even of the smallest kind. The animal in him was completely under control. His habits and his appetites were always guided by his reason. I have known him day after day and month after month, rise at seven, take a simple breakfast, consisting of a glass of milk and Southern hominy, bread and butter, and sometimes an egg. At eight enter his carriage and make a few morning calls on severe cases. At nine return to his office and see patients till one or one-thirty, and take a simple lunch of steak, potatoes, etc. At two enter his carriage, visit patients, operate, etc.,

returning home usually about five or six, write letters, and at seven take a plain dinner of one kind of meat and vegetables. He never took wine, nor coffee, nor tea, nor condiments of any kind. At the table he was usually talkative and playful, talking about the topics of the day and the theatre, of which he was very fond. After dinner he usually wrote letters and did light work, reading journals, etc., or passed his time with his family or friends in the drawing-room. About nine-thirty he would usually go to his bed-room, where he read or wrote, sometimes lying in bed, until midnight, when he would retire for the night. It was always marvelous to see him so continuously and persistently intent upon his work. He had a habit of writing down ideas at night, by means of a pamphlet, the edge being placed on paper so as to guide his pencil without a light. When one was familiar with his capacity for endurance, his power of concentration, his unbounded enthusiasm, his deliberate, persistent, painstaking work, backed up by his unselfishness and undaunted moral courage, it was not surprising to witness his success. His motto as a boy was: "Duty before pleasure." Later in life he needed no motto; it had become a habit for him to do what he thought was right. Difficulties, obstacles and trouble were as nothing to him when once he had made up his mind to act. He went directly at a thing, and he kept at it until it was mastered. It was this great painstaking and persistent work that made things so clear and so definite to him, and enabled him to express his ideas so lucidly. It was also this power that developed his self-reliance and his moral courage, and made his instruments and his methods of operating so nearly perfect.

Dr. W. O. Dawson, in *Knowledge*, has discussed the subject of diet in relation to age with a good deal of skill, and Mr. De Lacy Evans, as well as other writers, in recent investigations, have established some very interesting and valuable facts. It appears that the principal characteristic of old age is a deposition of fibrous, gelatinous and earthy deposits in the system. The slow but steady deposition of calcareous matter throughout the system is the change which produces old age, seen in the failure of the heart's action, the stiffened limbs, impaired digestion, and wasting mental and physical powers. The calcareous deposits in the heart and arteries, causing partial ossification of the heart valves and arterial tissue, impede the circulation, and by shutting off the supply of blood necessary to nutrition, produce mental and physical starvation and senile decay. The fibrinous and gelatinous accumulations of old age, the former being an oxide of albumen, and the latter an oxide of fibrine, deposited by the blood in the blood vessels and tissues, lessening the calibre of the vessels and diminishing their strength, leading to induration, are, it seems, chiefly traceable to the chemical action of atmospheric oxygen.

GOOD HEALTH gives the following on tea: Theine, the toxic principle of the common beverage, tea, is not less than two hundred times more powerful as a poison than is alcohol; that is, a few grains of theine will produce as deadly effects as two hundred times as much alcohol. A strong cup of tea has more intoxicating properties in it, than an equal quantity of beer. Notwithstanding the poet's eulogy, "The cup that cheers and not inebriates." An English writer tells of a party of London newspaper correspondents who meet

regularly on Saturday nights, and have a regular spree on tea. Some of them are generally found under the table in the morning. The London *Lancet* tells of a young lady who recently suffered with delirium tremens from chewing tea leaves. How much more evidence is needed to convince our skeptical, tea-loving friends.

"MAN AND HIS SHOES," as given in rhyme below, is worth passing around. We get it from *Technics*:

How much a man is like his shoes!  
 For instance, both a soul may lose;  
 Both have been tanned; both are made tight  
 By cobblers, both get left and right.  
 Both need a mate to be complete;  
 And both are made to go on feet.  
 They both need healing; oft are sold,  
 And both in time will turn to mould.  
 With shoes the last is first; with men  
 The first shall be the last; and when  
 The shoes wear out they're mended new;  
 When men wear out they're men dead too!  
 They both are tread upon, and both  
 Will tread on others, nothing loth.  
 Both have their ties, and both incline,  
 When polished, in the world to shine;  
 And both peg out. Now, would you choose,  
 To be a man or be his shoes?

MICROBES IN WATER.—In an article from *Zeitschrift für Hygiene* (in *Sanitary Record*), on the conditions of the existence of the different kinds of bacteria in drinking water, is the following. Microbes are found in every kind of waters, in the water from pumps, from artesian wells, in spring water, &c. After having drawn a considerable quantity of water from a well, a perceptible decrease of bacteria may be observed. This diminution justifies the conclusion that the subterranean water which feeds the wells is up to a certain distance free of bacteria, and that the layers of soil from which the water percolates form a filter impervious to bacteria. Other observations support this view. The practical con-

clusions arrived at from these facts are: in order that the water of a well may contain the least possible quantity of bacteria, the walls of the well must be of absolutely impermeable material; the well ought to be fed by deep subsoil water, and be continually and regularly used.

In the same article it is stated: In recapitulating the results of his investigations, Bolton arrives at the following practical conclusions: The infection of drinking-water by pathogenous bacteria originates more frequently during its percolation through the deeper strata and in subsoil water than from and at the surface of the ground. The bacteria do not infest and render dangerous the well for a long period, as they themselves perish after a few weeks. The spores of longer vitality can be eliminated by continuous emptying of the wells. The chemical condition of the water possesses no other importance than that of raising suspicion of the presence of pathogenous bacteria. The determination of the kind of bacterium is of higher importance in bacteriological analysis than the enumeration of the total quantity of bacteria contained in the water under examination. The bacteriological investigation of water submitted to analysis ought to be made immediately on account of the probable increase and the ultimate destruction of the bacteria.

A VERY bad and serious habit, which appears to be spreading, is arsenic eating by young women. The attention of the New York Board of Health has repeatedly been called to the promiscuous use by young women of arsenic wafers. Dr. J. T. Nagle recently received a letter from a lady in Harlem, who writes, My daughters for some time past have been eating arsenic

wafers. I understand that thousands of women are eating those wafers, and that as many more are resorting to other less expensive although more powerful poisons. This practice is not unknown in Canada, and a loud note of warning should be sounded by the press.

NOSTRUM VENDORS will have a hard time in Russia. A list of patent medicines, drawn up it appears by a committee of physicians, the importation of which the Russian Government has decided to prohibit, has recently been published. It consists of about eight hundred preparations of English, American, French and German origin. Pills, plasters, hair restorers, cough drops, medicated foods, ointments, and many miscellaneous preparations for a great variety of ailments, are all clasped together in one "long medical index expurgatorius."

A GREAT number of micro-organisms inhabit the mouth in the normal state; a still greater number may be found there accidentally introduced either by the food or by the inhaled air, and from want of cleanliness. M. Vignal (*Arch. de Pluys*) found in the buccal coating and in the dental tartar eighteen different species of micro-organisms, and from these he succeeded in isolating seventeen. Hence the importance of cleaning the mouth is obvious.

It is claimed that the popular drink of the future, says the *N. Y. Medical Times*, will be milk charged with carbonic acid. It is said that milk thus carbonated will keep an indefinite length of time.

DR. MARY WALKER earnestly recommends that measures be taken to induce people to leave money when they die to go into a fund for the suppression of the use of tobacco.



## THE PUBLIC HEALTH FOR MAY.

MORTUARY RETURNS FROM THE TWENTY-SIX CANADIAN CITIES AND TOWNS.

IN the death rate in May in the twenty-six principal cities and towns making monthly returns to the Department of Agriculture in Ottawa, there was a slight decline as compared with April. This fall in the mortality in May is usual in this climate, and is usually followed by a rise in June or July. The total number of deaths recorded for the month in the twenty-six cities and towns, comprising an assumed population of 680,000, was 1,323, the number in April being 1,377. This shows a mortality of about 24 per 1,000 for the month—on 1 per 1,000 lower than in April.

While in nearly all other cities the mortality was below the total average of 24 per 1,000, in Montreal, Quebec and Hull it was considerably above the average.

In the total mortality from zymotic diseases there was a slight decline during the month; although in Montreal, Toronto and Quebec there was an increase in this class.

Measles, which caused 32 deaths in the twenty-six centres in April, caused only 14 in May. Only one death was recorded from scarlet fever.

From diphtheria there were 80 deaths—an increase from 75 in April. Of these 80 deaths, 32 were in Montreal, 21 in Toronto and 12 in Quebec—making in these three cities 65 of the total of 80 deaths from this cause.

From diarrhoeal diseases and fevers the mortality in May was about the same as in April, while from rheumatism there was an increase.

From local diseases there was a

marked decline in the mortality, while from constitutional and developmental diseases there was an increase.

Withal there was but little notable change in the public health in May as compared with April.

It is said that the raw onion bruised and applied to the recent wound is a specific in the bite of venomous serpents and for the sting of bees, etc.

THE Michigan State Board of Health says the *Annals of Hygiene* has undertaken an important sanitary enterprise, which is nothing less than a house-to-house inspection of every city and incorporated village in the State. The work will be carried on through the local boards acting jointly with the State organization, and the results will be compiled and published in a single report. The magnitude of this undertaking and the vital importance of its purposes are such as must make its successful completion a highly valuable contribution to sanitary science.

THREE GREAT PHYSICIANS.—If you require any medicines, says the College of Salern, let them be these three, which are always at hand: "A bright and peaceful mind, a plain diet, and moderate exercise." Dumoulin also held the same opinion. This celebrated physician in his last hours, being surrounded by many physicians of Paris, who deplored his approaching end, said to them: "Gentleman, I leave behind me three great physicians." Each one in attendance, believing himself to be one of the three urged Dumoulin to name them, whereupon he replied. "Water, Exercise, and diet." —*Jour. D'Hygiene.*



## WHERE TO GO AND STAY.

## THE ST. LAWRENCE AND THE SAGUENAY.

Whither shall the weary flee? was asked in the May number of the JOURNAL. Hundreds of our Canadian readers and friends will within the next month or two seek rest and recreation, and change from the daily routine of work and worry which so largely make up the life of too many. For a large number in Western Ontario, a trip down the St. Lawrence to the Saguenay and up this wild and rugged river would afford a most delightful change and recreation—literally, a re-creation, in mental clearness and physical vigour. There is not probably in the world a route presenting so many attractions to the tourist or excursionist and affording at the same time such comfortable, indeed, luxurious accommodations, as this one, from the head of Lake Ontario, down the St. Lawrence to Tadousac and thence up to Ha! Ha! Bay, 60 miles up the Saguenay. The trip, to and fro, is almost equal to a "sea voyage" as to time, and although not affording the pure sea air, this to many is more than compensated for by the constant and delightful changes of scenery, to say nothing of the freedom from the turmoil and sickness so common on the ocean. To most people it proves to be a far nicer and more pleasing trip than one on the Northern Lakes. The Thousand Islands, the many "rapids," with the innumerable other points of natural interest, especially below Quebec, the many cities and towns and handsome villa residences, with the far famed Victoria Bridge, make this trip, for the majority of recreation seekers, the most desirable and charming on this continent. On the luxurious boats of the Richelieu and Ontario Navigation Company—the "Royal Mail Line," and only daily one, the tourist finds every accommodation which anyone can desire;—the best of wholesome, substantial food and most comfortable beds. Anyone taking this trip should endeavour to remain for a time at one or other of the "sea side" resorts, such as Murray Bay or Tadousac. Altogether too this is comparatively an inexpensive trip.

THE season at the ever popular "health resort," the Caledonia Springs, is now

fully opened. This is largely visited by those seeking rest and recreation or renovation as well as by rheumatics and dyspeptics. The hotel accommodations are hardly second to any on the continent. The waters for drinking and bathing are probably equal to any in America or even in Europe, as virtually proved indeed by the many who have experienced the benefits of these springs. The Springs are easy of access, by way of either Ottawa or Montreal, by the Ottawa river boats, the Empress and Prince of Wales, which afford every accommodation and comfort that anyone could desire, and are under excellent management.

The Queens Royal Hotel, at Niagara-on-the-lake, at the mouth of the Niagara River, about ten miles from the falls, is a branch of the "Queens," Toronto, and has the reputation of being a very attractive summer resort. There are Tennis and Croquet Lawns, as well as good fishing, bathing and boating. It is situated in a private park and is a most refined home-like family hotel.

## ORDINANCES OF THE CANADA HEALTH JOURNAL.

**Pure Air:** The complete destruction of all waste organic matter, by fire or otherwise; no collections any where of bodily excrement—perfect sewerage or daily disinfection or deodorization with frequent removal; through ventilation of all buildings, public and private; complete isolation and disinfection in all cases of infectious disease.

**Pure Water:** Strict prohibition of the pollution of all inland waters—rivers, lakes, streams—by sewage or other waste substances; thorough filtration of all public water supplies; closing of suspected wells.

**Pure Wholesome Food:** Prompt and severe punishment of all adulterators of food, with frequent and repeated analyses; thorough inspection of foods—meat, milk, flour, bread, fruits, &c., with punishment of all offering impure or bad food; improved methods of preparation and cooking food.

**Education of the Public in all Matters Pertaining to Health.**

# Canada Health Journal.

A MONTHLY MAGAZINE OF PREVENTIVE MEDICINE.

THIRTEENTH YEAR of Publication.

NINTH VOLUME.

Specialty for medical and other health officers, heads of families and all interested in promoting the public health. The only Health Journal in the English language published in Canada.

ITS AIM.—To prevent sickness and promote public and individual health.

Communications solicited on all sanitary subjects.

Local health officers would confer a favor by sending to the Editor copies of their reports, brief notices of their sanitary condition, improvements, or events in any way connected with health.

See Club Rates to Health Boards and others on advertising page.

All communications, with remittances or otherwise, should be addressed,

"Health Journal," Ottawa, Can.

A blue cross opposite this indicates that the subscriber to whom it is addressed is indebted for this year's subscription (from Jan. to Dec.), and all such will confer a favor by kindly remitting, for which we shall feel obliged.

We cannot undertake to make out accounts and send them by mail or otherwise and only charge \$1.50.

All not remitting during the early part of the year—the first month or two—must expect to pay \$2.00; we must insist on this in common fairness. Physicians pay \$3.00 for their Medical Journal, containing no more reading matter than this one.

\$1.50 now is worth more to us than \$2.00 many months hence, with cost of time, bills and postage.

Will all friends please think of this, and help us in the work by an early remittance.

ADVERTISEMENTS of unexceptionable character taken to a limited extent and at reasonable rates; advertisements of "patent medicines" not accepted.

## EDITORS' SPECIAL CORNER.

On the temperance question we are very desirous of not being misunderstood. We have bestowed a good deal of thought and some study upon the effects and value of alcoholic beverages, and also, on the other hand, upon the effects and alleged benefits of prohibition. An esteemed friend some months ago placed in our hands a number of copies of the *Medical Temperance Journal*, of London, England, in which are the strongest arguments against the value of alcohol as a food, yet we still think the weight of evidence is decidedly in favour of this substance possessing valuable food properties, and that it is a valuable natural product for which no other substance can well be substituted. As regards prohibition, if it could be successfully sustained, in order to break up the intemperate habits, inherited or acquired, of a large number of our fellow creatures who cannot use alcoholic beverages in safe moderation, we should certainly be disposed to vote for prohibition; but being convinced that it cannot be successfully carried out, and that these unfortunate beings whose powers of self-control in relation to alcohol are so defective that they will break almost any law, divine or human, in order to obtain their wonted stimulant, or a worse one, and cannot be restrained by Act of Parliament, but must have a remedy that will penetrate to greater depths, and as laws not fully approved of and sustained by almost the entire body of the people concerned, will be incessantly

broken and are worse than no law, we cannot conscientiously support the measure as heretofore proposed. We would favour prohibition in the manufacture and sale, for other than mechanical and medicinal purposes, of ardent spirits, and encourage the substitution of Canadian wines and beer. And we would favour great changes in the retail traffic in all alcoholic beverages:—impose a heavy license, make strict laws in relation to selling to minors and habitual drunkards, with heavy penalties, and easy facilities for sustaining actions for damages, in case of infraction of the law, and grant licenses only to persons of good moral standing, who had never transgressed the law. These measures, with religious, moral, mental and physical culture to strengthen the powers of self-control, would do much—indeed all that can be done, to promote the cause temperance.

THE valuable contribution on disinfection in this number of the JOURNAL, by Dr. Alfred Carpenter, one of the most eminent of English sanitarians, should be read by every one who takes an interest in the prevention of disease. It contains a great deal that must prove of interest to others besides physicians and health officers.

A WRAPPER should be ready to put on the body in cold summer evenings; a summer chill after the heat is sometimes followed by serious consequences.

THE REPORTS OF THE LOCAL BOARDS OF  
HEALTH.

In the annual reports for last year of the Local Boards of Health in Ontario, published by the Provincial Board, there are many useful hints and suggestions, which we purpose giving from time to time for the benefit of other health boards and health officers.

Dr. Tracy, Medical Health Officer of Belleville, states that, "during October I heard that a case of smallpox occurred in Trenton. I at once wrote to the Medical Health Officer at Trenton for particulars and asking him what precautions were taken. He wrote me that one case, that of a child, had broken out, and that it had been removed to the island, together with its mother and all those who had been in contact with it. I would suggest that the Council place a small sum to the credit of the Board to meet any case of this kind. Promptness in dealing with the first case would be the means of saving thousands of dollars to the city."

This last is a most useful suggestion and should be universally acted upon. A great deal is lost by health bodies not being prepared for the isolation of first cases. A physician now in this city, a member of parliament from an eastern province, has just informed us of the difficulties he laboured under and the loss sustained in the village in which he practices, from there being no provision of this kind on an outbreak of smallpox in the village last year. During the session of the House last year, Dr. Jenkins, M. P. from Charlottetown, P. E. I., also told us of like difficulties experienced in that city in the early part of last year. There, a very severe epidemic destroyed many lives: although when they were once organized and prepared for it they quickly stamped out the outbreak, as we have before noted.

Dr. Griffin, Medical Health Officer of Brantford, writes that, several times during the year there had been outbreaks of measles, scarlet fever and diphtheria in that city, but their extension he thought "had been in a good degree prevented by the rigid measures to exclude from the public schools all children coming from

any house" containing a case of infectious disease until all danger had passed.

The number of deaths from typhoid fever, Dr. Griffin writes, to date, was four exclusive of any that had occurred outside, of the city limits. He "regrets however, that this conveys no idea of the amount of sickness from that disease, which has been unusually large since about the middle of August." In the John H. Stratford Hospital alone there had been twenty-five cases during the three last months, and there were then ten cases there out of a total of 27 cases in the hospital. The mortality had been low: although the sickness rate was high. The cause of this state of things we refer to elsewhere.

The report states that the dairies, nearly all situated in the township, were all visited and thoroughly examined by the Sanitary Inspector, and full reports entered in a Milk Inspection book. "The importance of milk inspection is much greater in the winter months than in the summer; and it is intended to enforce the law with great strictness, not only as to the adulteration of milk, but as to the uncleanness of the byres, unhealthiness of the cattle, and as to the use of putrescent and other improper foods, and of impure water."

A great many buildings had been erected during the year, in nearly all of which the dry earth system had been adopted. "It had also been further extended in the public schools, connected with which it is intended next year, to abolish the last of the old closets which remain."

A sort of cess-pool had existed at the meat market, the only free exit for the foul gases of which was into the meat stalls. This pit with its drain was abolished and dry earth introduced.

"The violent opposition made to this most dangerous nuisance," the doctor says, "well illustrates the desirability of a wider diffusion of knowledge on sanitary matters."

Dr. Keating, Medical Officer of Guelph, states that, "For promoting the cleanliness and health of the city, as well as for the great convenience and comfort of all, one of the most urgent needs at present is an efficient means for the frequent removal of garbage.... The disposal of garbage in every well regulated household is a matter

of no small importance. From the inspector's report, I note with pleasure that the laudable practice of burning all solid kitchen refuse is being carried out by many. The removal of objectionable matter from the yards or outbuildings was enforced in all cases."

The Medical Health Officer of Kingston, Dr. Fee, states that, in that city dry earth closets had been instituted in many places, especially in small yards. 6,000 feet of sewers and drains had been erected during the year. Dr. Fee writes that, "the impetus given by sanitary reform has been marked in our city by the steady and constant attention paid by individuals to keeping their places clean. The number of cellars cleaned out, the many wells emptied, remodelled and put in better condition than they have been for many years. I go to prove that by constant attention to matters of cleanliness, etc., in the course of a short time the people will be educated in such a manner that we shall not have to wait until an epidemic appears amongst us to cause our citizens to awake to the necessity of a strict observance of the laws relating to health."

In London, Dr. Hutchinson, Medical Health Officer, states that, "much has been done to improve the condition of the city. Many unhealthy places have been visited by the Sanitary Inspector and myself, and many nuisances abated. Foul wells have been cleaned or filled up, and city water is gradually taking the place of impure well-water.... The Board has now under consideration the subject of divising means for the disposal of sewage, either by a process of destruction by chemicals or filtering. Several cities in the United States and one in Canada have adopted the latter process, and use the Hyatt Filter, made in Newark, New Jersey. This filter so far has answered the purpose well;—two or three of these filters put down at the intersection of the trunk lines, would be sufficient for the city."

In Chatham, Dr. Rutherford, Medical Officer, states, there were reported during the year ninety-three cases of contagious diseases by the town physicians, "who report willingly and cheerfully to the Inspector direct." The Doctor in his

report, urges, at considerable length, the desirability of the town providing for a pure public water supply. He concludes as follows: "I venture to say that, without burdening the people beyond their ability and willingness, the same could be made self-sustaining, and the people would be benefited at the expense of sickness, death and the doctors, and would have all the immunity from contagious diseases that such a system of good and pure water supply could alone give them. Just think of 200 tons of excreta and sewage, worth \$30 per ton, if used for fertilizing purposes, being allowed to percolate the porous soil of Chatham every year, to contaminate our wells and our present drinking water supply."

Dr. Sylvester, Medical Health Officer of Galt, in his report, regrets that the town is not in a position to adopt systems of water works and drainage, and urges the Council to provide a hospital for infectious diseases in order to be prepared in case of an outbreak of an epidemic. Vaccination had been very general during the previous year.

Dr. Burrows, Medical Health Officer of Lindsay, in a lengthy and interesting report, regrets, as many do, that the Public Health Acts do not provide for that independence of action of the Local Boards which is necessary for them to carry out their wishes. "The Local Boards of Health should be as entirely independent in every particular as are Boards of Education." It is to be hoped the time is not far distant when they will be so. The doctor writes strongly for a system of medical inspection of schools, one of our most important sanitary essentials.

These notes on the reports of the Local Boards will be continued in our next issue.

#### OBSERVATIONS AND ANNOTATIONS.

Japanese paper napkins, *Technics* thinks that, in view of the fact that disease may be, and doubtless often is, transmitted directly by linen used in the sick room, it is advisable whenever possible to use paper napkins for absorbing offensive discharges in place of sponges, handkerchiefs, linen napkins and towels. These are clean and attractive and can be burned as soon as

used, thus avoiding all danger of contagion. As an improvement on the linen napkin used in hotels and restaurants, presumably freshly laundered, but often merely dampened and mangled, these paper napkins would be welcome. There is a possibility, however remote that disease may be acquired, by the use, in rotation, of linen and other articles.

RUSKIN dislikes bicycles. He says: "I not only object, but am quite prepared to spend all my best 'bad language' in reprobation of bi-tri-and-4-5-6 or 7-cycles, and every other contrivance and invention for superseding human feet on God's ground. To walk, to run, to leap and to dance are virtues of the human body, and neither to stride on stilts, wriggle on wheels, or dangle on ropes, and nothing in the training of the human mind with the body will ever supersede the appointed God's ways of slow walking and hard working."

EXAMPLES of abortive treatment, by germicidal remedies, of scarlet fever and diphtheria, by the administration of the biniodide of mercury, are given by Dr. Illingsworth in the *London Medical Press*. "Those germs which have found an entrance to the circulation, and whose presence there is indicated by the scarlatinal rash and enlarged cervical and submaxillary glands, are rapidly followed and destroyed, with the grand result of rapid restoration to health and the prevention of those fearful sequelæ to which multitudes have fallen victims."

A VILE HABIT which one sees indulged in on street cars by people who certainly ought to know better, as an exchange strongly puts it, is that of putting coins in the mouth. "It is quite common among women, who under such circumstances never seem to have quite hands enough, and so they press their mouths into service to do what is not only a vulgar thing, but absolutely filthy." The coin may carry infectious disease.

THE fly season is upon us again. Do not be too severe on the flies. They doubtless do some good if they are a torment and sometimes convey contagion. Their particular office appears to be "the consumption of those dead minute animals whose decaying myriads would otherwise poison

the air." It was a remark of Linnaeus that three flies would consume a dead horse sooner than a lion could. He, of course, included the families of the three flies.

LIEBERT reports (*Deut. Med. Woch.*, in *New York Medical Times*) three cases of epilepsy, which all showed a remarkable aura: one beginning with a cramp or involuntary motions of the tongue, all three of which were promptly and permanently cured by the extraction of a decayed tooth, which, in every instance, had been the source of irritation.

BISHOP FOSTER, considering, on the one hand, the destitution that prevails, both at home, and especially in some of the countries where missionary effort is put forth so vigorously, and, on the other, the intimate dependance of man's intellectual and spiritual development upon his physical condition, urges that we may hope for the best culture of the christian graces in the hearts of men only in proportion as adequate nourishment of their bodies is provided for.

THE Calcutta Health Society is doing good work in drawing public attention to insanitary conditions (*Brit. Med. Journal*-April 23rd, 1887.) In a little publication issued by the Society it is pointed out that, during the last six years, cholera alone had claimed 24,000 victims in the city and its suburbs, and that this result is directly traceable to the filthy condition of certain plague-spots, to defects in the drainage system, to the want of proper control over the milk supply, and to the deficiency of the water-supply. Attention is drawn to the enormous infant-mortality, which is mainly due to the ignorant and superstitious practices of the native lying-in room. A meeting was lately held under the auspices of the Society, when the Lieutenant-Governor, who presided, urged the Municipality to spare no pains to remove the causes when rendered Calcutta the home of cholera and a standing menace to the health of the world.

As Chicago is proposing to construct a canal to avert its sewage toward the Mississippi, the *Sanitary Era*, in referring to the report of a commission upon it, says:—"Its upshot is the decided recommendation of an artificial water way to connect

lake Michigan with the Mississippi valley by way of the Des Plaines and Illinois rivers, thus draining the city and suburbs of Chicago to the Gulf of Mexico instead of the Gulf of St. Lawrence. "It remains to be seen whether the world has moved onward enough as yet to lead or drive Chicago to undertake the disposal of her own filth instead of pouring it down the throats of the smaller communities within reach. Probably the latter will have to submit, and if the result should be compulsory purification of the water supplies of the towns, from Joliet to Peoria, the scheme now dreaded will perhaps be a blessing in disguise."

A SINGULAR suggestion in the *Zymotechnic Magazine*, is that a new industry might be created in the raising of poultry and various domestic animals upon certain kinds of food which will impart to their flesh new and palatable flavors. It is well known that the excellent flavor of the canvas-back duck is due to the wild celery it feeds upon in the Southern marshes, and the delicious Congo chickens owe their superior excellence to the pineapples they eat. The grouse of the Western plains is aromatic with the wild sage; wild ducks and other sea-fowl have a fishy flavor; and the fish fed to swine may be almost said to be eaten over again by the consumer of the pork.

IN ZURICH, Switzerland, arrangements have been made for a great temperance meeting of an international character, in September. The main topics of discussion will be the regulation of the drink traffic, the alleged nutritive properties of alcoholic liquors, asylums for inebriates, and statistics of coffee houses, refreshment rooms and other places for the sale of non-alcoholic drinks.

In relation to the infectiousness of tuberculosis and its communicability from cows to man, it is stated (Dr. Wyss of Geneva, in *Den Fortschritt*) that this disease is unknown or very rare in those countries the people of which do not breed cattle, as in the polar regions and tropics. According to the evidence of competent trustworthy Norwegian medical men, the southwestern districts of Norway had remained free from tuberculosis until the introduc-

tion of English cattle. Since then this disease has been rapidly spreading.

DR. WYSS states that it is not sufficient to boil milk at 158° F. in order to destroy the tubercular bacillus which the milk may contain. Hueppe states that the sterilization of milk is extremely difficult.

WHAT seems to be a clear case of the infection of scarlet fever being conveyed, with the result of communicating the disease, by means of a book from a free library, is reported in the *Sanitary Record* of June, inst.

HERE is a lesson for landlords:—In the Superior Civil Court at Boston a mother and her four children have individually sued the landlord to recover damages for sickness, contracted because of the poor sanitary condition of the house, and for the care of the family during their sickness from diphtheria. Damages in each case were awarded, the mother receiving \$1,600, and the children \$700, \$300, \$250 and \$200 respectively.

THE average weekly circulation of the *British Medical Journal* has risen to 14,000, a number which the *Journal* asserts is not only enormously in excess of that of any other medical journal in the country, but will be found on investigation to be considerably in excess of the combined circulation of the whole of the other medical journals in Great Britain.

THE *Utica Observer* states that a commercial traveller offered to sell, at 4 cts. per pound, but did not recommend, "current jelly," which consisted of water, tartaric acid, glucose, gelatine, dried cores and skins of apples, aniline red for coloring and a variety of other things.

IN the canton of Berne, Switzerland, the advertising of proprietary medicines has been forbidden, unless the article has been approved by the sanitary authorities. Although the newspapers have protested, steps have been taken to make the order applicable to all cantons.

COFFEE-TEA is the name of a new beverage prepared from roasted leaves of the coffee tree. The Malays prefer this tea to coffee. The leaves contain 0.5 to 0.7 per cent. of caffeine, with more of the bitter principle than the berry.



THE important subjects, mostly original, which have been treated of in this journal during the past three or four months are, amongst others, as follows: Science of Health and its Popularization; Milk Supply and how it may be contaminated; Catching Cold; Temperance and Prohibition; Adulteration of Foods; Recent Experiments with Disinfectants; Health Officers and the Water Supply; Isolation in Infectious Diseases; What to do with House Slops; The Patent Medicine Evil; Open Air for Consumption; The Public and the Medical Profession; The Progress of Sanitation during the Reign of Queen Victoria; On the High Death Rate in Canada and its Prevention; What Rags may do; Overwork and worry; Consumption, is it Contagious? its Prevention; Poisonous Wall Papers; Diet and Dining; Disposal of Sewage; Downward Filtration; Holidays, Whither shall we go? Camping

#### NOTES ON CURRENT LITERATURE.

IN the June *Century* is a striking portrait of Count Leo Tolstoi, the Russian novelist, presenting a personality of a unique and homely yet fascinating type, the impression of which upon an American is recorded by Mr. George Kennan in a paper entitled "A visit to Count Tolstoi." This account is the forerunner of what will doubtless be an attractive series of papers which is promised later in the magazine, making record of a hazardous trip to Siberia in 1885 and 1886 by Mr. Kennan, in the interest of the *Century*, for the purpose of investigating the Russian exile system. Mr. Kennan's present paper gives a graphic description of Tolstoi and his home, and sets forth some of the novelest's peculiar religious and social opinions. An illustrated paper of the widest popular bearing is the second of Prof. Atwater's articles on food.—"How Food Nourishes the Body," presenting in compact form a large amount of the latest deductions of chemical analysis and other scientific investigation. The Lincoln History makes good progress, and there is the full complement of entertaining light reading, in story and poetry.

HARPERS MONTHLY for June is hardly up to the good average of this magazine. "Social Studies" are interesting and sug-

gestive. Mrs. O'Meara's "Norika, a Story of Russian Life," contains much that is of interest. The editorial departments contain much that is useful and attractive.

A NEW illustrated paper has reached our table—"The Illustrated Foreign News, Printed from Duplicate Plates of the Illustrated London News and other Foreign Periodicals," and promises to be an excellent weekly which will probably take at once a good position. In appearance it is much like the well known *London News*; only \$4 a year—The Illustrated News Co., Potter Buildings, Park Row, New York.

ST. NICHOLAS for July has just reached us. Frank R. Stockton follows his last month's paper on "King London" with an equally interesting description of life "In English country," characteristic scenes of which Alfred Parsons and Harry Fenn show in several delightful drawings. H. H. Boysen commences a new "Tale of Two Continents. Alexander Black, an amateur with a professional's experience, gives, in "The Amateur Camera," some useful hints to his fellow-amateurs, the sort of advice that is not found in the books. The Brownies celebrate the "Glorious Fourth."

Do not shut out too closely with shutters or blinds, the sunshine from your rooms.

NEITHER rooms nor the human body can be long in good condition without abundance of sun light.

DRINK not freely of iced or very cold water, especially when much heated or after a meal, but sip it slowly.

So much space is given in this number to the valuable article by Dr. Carpenter, on disinfection, from a late issue of the *Sanitary Record*, that the usual variety of topics cannot be discussed. We thought it best not to divide it.

"A VALUABLE SERIAL, which ought to be in the hands of every Mayor, Alderman, Town Councillor and Health Officer in the Dominion." So it is stated of the CANADA HEALTH JOURNAL in a Report on Epidemic Diseases, &c. By J. T. Bell, Esq., late Chairman Board of Health, Belleville.