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1887.

CANADA

# HEALTH JOURNAL,

A MONTHLY MAGAZINE OF  
PREVENTIVE MEDICINE,

— EDITED BY —

EDWARD PLAYTER, M.D.

Public Health and National Strength and Wealth.

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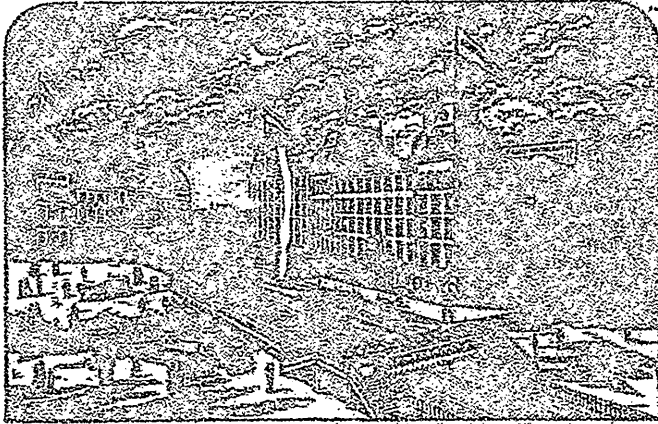
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# THE CANADA HEALTH JOURNAL.

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## THE SCIENCE OF LIFE AND HEALTH AND ITS POPULARIZATION.

LIFE has been variously defined; but as to what it really is, little is known. Of all that relates to it, however, of its various processes and essentials, a great deal is known. Life and health may be regarded as inseparable, as unless all the processes of life are carried on in a perfect or healthy manner life is not perfect or healthy. The science of life and health may therefore be considered one. We may regard the science of life and health as one of the most perfect or exact of sciences. Of all that relates to the promotion of health, to the development and prolongation of life, the present knowledge is fairly exact. Indeed, the science of life and health is much more exact than that of "medicine," as this has been commonly so called and understood. It may be here observed that, until recently, universally, and even now, very generally, medicine has been confined to the limits of cure. In Dunglison's medical dictionary, a standard one in common use, "medicine" is defined as "that branch of physic which relates to the healing of diseases." Locke defines "physic" as "the art of healing diseases and preserving health; the science of medicine." Until within the last few decades, during many previous centuries very little thought or attention it appears was given by physicians to the prevention of diseases, or the preserva-

tion of health. The Ancient Physicians, as in the time of Hippocrates, seemingly regarded the prevention of sickness as a part of their profession and practice, and made efforts to popularize knowledge relating thereto, but all through the earlier centuries of the Christian period and until quite modern times we can find, in the history of medicine, but little, if indeed strictly anything, indicating that the sanitary science as now understood was regarded as forming any part of medical science or practice. It would appear that, after the decline of the Greek, Roman and Arabian schools of literature, there was, too, a great decline in "medicine," and upon its revival, it was much more empirical and pretentious than it had been, and charlatan-ism, with its basis of drugs and "cure," was much more common than scientific medicine, and prevention formed no part of it. Within the last few decades much more attention has been given by physicians to the causes and prevention of disease and a distinct branch of the science of medicine has been gradually developed, which is called "Preventive Medicine." This is properly and simply the science of life and health, or more briefly, the science of health. If we use the Latin derivative, the *sanitary* science; or if the Greek, the science of *hygiene*, it is all the same. It is the science which has for its ob-

ject the prevention of disease by the avoidance or removal of its causes, the preservation of health and the development, invigoration and prolongation of life. This science of prevention, or this branch of medicine, as stated, is a much more exact science—a more complete and perfect one—than is that of cure. It is also a much more simple science, especially as relates to man in his more primitive state, or individually.

The rules of health—the maxims or laws which comprise the science—are simple; although as civilization progresses, and people herd together in cities, these rules become more complex, as it then becomes the more difficult to remove or destroy the waste products of life and so to keep pure the air and water, and also to prevent the spread of any infectious disease which may chance to break out; while commercial intercourse often conveys from city to city the infectious particles or germs of disease. The science, in these circumstances, as applying to the many, is termed the science of public health or public medicine, or, when associated with the Government of a country, state medicine. They are all the same except in the manner and extent of practice.

When disease has not been prevented, when the causes have not been removed or avoided, and the bodily functions—the life processes—have been interfered with, or when any specific disease has taken root in the body, then the healing science, that of cure, must be applied. This last science, relating as it does to all the organs and functions of the body, in health and disease, to the changes produced by disease and to all the remedies and their various effects upon different organs and different constitu-

tions, demands a vastly more extended knowledge, and many years of study and hospital practice, and must ever be confined to a few—to the physicians, even to the specialist; for it is being recognized as so vast that it is being more and more divided into branches. It never can become popular knowledge.

The simple rules and precepts of the science of health should be universally known; they should be popularized and practiced so far as possible by everybody.

Boards of Health, and indeed all health organizations, seem to lose sight of the importance of popularizing health knowledge—of instructing the masses of the people in the simple rules of health. The aim has been too much to make compulsory health laws and enforce them. The law of self preservation is so strong and universal, that there are comparatively but few people who would not practice fairly the simple rules of health if these rules were but taught, and the value of them, and the advantages of practicing them—taught, to old and young, in pamphlets, in lectures, in school and out of school—universally taught.

In Canada, nothing of any consequence has been done in this way, either by public effort or by boards of health, although a few ineffectual attempts have been made. Municipal boards might do much. In some of the states of the neighboring union, notably in Michigan, much has been done to enlighten the public, and it appears great good has followed.

In our cities and towns the mortuary returns show a death-rate 20 per cent. to 25 per cent. higher than in the large cities in England, yet nothing is being done to prevent this destruction of life. According to this, some 25,000

human beings die every year in Canada who ought not to die, and who would not, were not the mortality higher here than in England.

In the words of Mr. Mackison, C. E., F. S. A., &c., &c., at the late annual meeting of the Sanitary Association of Scotland, The great public mind must be educated thoroughly in matters pertaining to health; and, until this is accomplished, there never will be the improvements expected in the sanitary condition of the people, either personal or relative; or in their dwellings and surroundings, that under ordinary circumstances is attainable. This process of education must go on until the sanitary inspector shall become an *esteemed benefactor*, and cease in the public mind to be looked upon as an ill-conditioned officious person. Every year is certainly pointing more direct-

ly to it. Never, indeed, was there a time when the public mind was so disposed to look favorably at the sanitary question as now; never a time when so much is being done to carry out the principles of good sanitation, and to remedy the existing sanitary defects. But still, much has to be done; much has to be arranged and set agoing to disseminate amongst the young at our schools a sound knowledge of the principles of health, physiology, domestic economy, and good sanitation; and much has to be taught of things which are injurious to health, dangerous to life, and lead to discomfort.

A National Association should be organized in this Dominion for the purpose of distributing freely and popularizing the laws of health, individual and public.

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### THE MILK SUPPLY, AND HOW IT MAY BE CONTAMINATED.

FEW subjects of hygiene are of more importance than that which relates to the milk supply--the chief food of the young of the coming generation. We can hardly draw attention to it too often. The great majority of the public seem to think it is all the same so long as it is milk they get. Few know how vast a difference there may be in the composition, and in the effects upon the infant stomach--and indeed upon the human organism at any age--of two samples of cows' milk, which to the ordinary unaided senses appear to be the same.

There are a number of ways in which milk may be affected, altered or deteriorated: first, by the condition, healthy or otherwise, of the cow; second, by the food the cow consumes; third, by the treatment she receives--

housing, kindly care or abuse; fourth, by natural changes in its composition, in certain circumstances; fifth, by absorbing from without gases, odors, infections, &c.; and sixth, by adulteration. A system of inspection of milk should provide for a complete supervision in relation to all these various ways in which a public milk supply may become so altered in its character or composition as to be unfit or unsafe for use.

In winter, milk is much more liable to become contaminated than in summer, and then needs more special looking after. Cows in close, unventilated byres are more likely to become diseased than when at large in the fields; while their food in winter is usually less suitable. Odors are more likely to be absorbed from foul stables or

confined rooms and shops; and with the scarcity of milk in the cold season it is more liable to be adulterated. Let us briefly notice the various ways in which milk may be rendered noxious or injurious.

1st. One would hardly suppose that a diseased cow could give good or wholesome milk, and it seems unnecessary to write of, or to produce evidence, that disease in the cow will affect the milk; yet evidence will make the fact more impressive. It must be remembered that if a severe disease will affect the milk in a marked manner, a less severe disease will doubtless effect it, though in a less marked degree.

The tuberculous disease in cows will undoubtedly effect the milk, and there have been repeatedly in this JOURNAL, reports of cases in which infants had plainly suffered from the use of such milk. Dr. Billings, in a book entitled "Relation of Animal Diseases to the Public Health," tells us that Dr. Hertwig, (Vet. Inst., Berlin,) drank daily, for four consecutive days, a quart of milk taken from cows having the foot and mouth disease. On the second day he observed a mild fever, pains in the limbs, headache, a dry and hot throat, and a peculiar sensation in the hands and fingers. These mild phenomena continued about five days; then the lining of the mouth became swollen, especially the covering of the tongue. In a short time small vesicles began to develop. At the same time that these symptoms appeared in the mouth and on the lips there appeared an eruption of a similar character upon the hands and fingers. Two medical practitioners also subjected themselves to the same experiment, and at the same time similar results followed. There is much evidence

that scarlet fever and other diseases may be communicated to the human organization from the cow through the milk. Inflammatory diseases of the udder, even in a mild form, are well known to produce perceptible changes in the milk, one of which is a condition resembling the milk shortly after calving.

It must be remembered, too, that milk may be much altered in character from disease in the cow and the altered condition not be perceptible to the senses,—neither to the sense of sight, taste nor smell.

2nd. The effects of the food of the cow upon the milk are well known; as are also, and which are of the same character, the effects of articles of diet and of certain drugs, taken by a mother, upon her nursing child. The natural food of the cow is grass, green or dried and cured, and when a healthy cow is fed exclusively on this, her fresh milk is good, and generally slightly alkaline; on the contrary, when fed chiefly or largely on other food the milk is almost always acid. Infants are intolerant of acid milk. Nursing mothers usually object to take acid foods. Dr. Lewis Smith, of New York, in his work on the "Diseases of Infancy and Childhood," says, "Milk used for infants should always be alkaline. If it is acid, as shown by the proper test, it should be rejected." Dr. Mayer, a good authority, says, "The very worst milk is that supplied by cows fed on potato refuse from brandy distilleries; the best among the stall-fed being that obtained from the cows of cow fatteners which feed on hay and grass in stalls. By substituting the milk of the latter for the former, he was often enabled to arrest at once the intestinal derangements previously referred to."

A striking illustration of the evil

effects of the milk of slop-fed cows on children was afforded Dr. C. S. Merrill, of Albany, (*Albany Med. Annals*), in the case of his own two-year-old child. While travelling in Germany with his family in the summer of 1884, they stopped at a hotel in Neuhausen. The day after their arrival at this hotel his child, who was previously well, was taken with a diarrhoea. The doctor, after having been assured by the landlord that the milk supply was from his own cows, kept at grass upon the premises, restricted the child's diet to milk alone; but, finding him growing rapidly worse, he made a private investigation of the source of the milk supply, and found the cattle confined in a barn, and learned from the cow-feeder that they got nothing save the refuse matter from the table of the hotel, mostly stale fruit. He immediately left that hotel, the other sanitary conditions of which were good, and his child speedily recovered, notwithstanding he continued with a milk diet.

3rd. Many dairymen are aware that the treatment which cows receive affects the milk and they treat their cows with much kindness and gentleness, drive them quietly in order not to excite or heat them, and house them well to prevent their getting chilled. On the other hand, many dairymen do not know the extent of the effects of treatment, and so act accordingly, and abuse their cows to the detriment of the milk.

4th. Besides milk becoming sour, mouldy, &c., after having been kept, it has recently been discovered that, in certain circumstances, a poisonous substance, called tyrotoxin, sometimes found in cheese, is developed in it. The substance and its formation is not yet

well understood, but cases of severe sickness from its effects have been reported, and from new milk.

5th. Milk has a wonderful power of attracting and taking in all sorts of odors—smells—noxious and otherwise, to which it is exposed, in the atmosphere, as most people know. In a recent number of the *Scientific American* we find the following: "Take a wide bowl or soup plate to the cow stable when you go to milk; pour into it a pint of fresh milk, set it on the floor or at the height of a milk stool, so as to expose it fully to the air of the stable, behind and close to the cows. If the day is close and heavy and the milk is cold, and the stable not cleaned out and aired, the result will be surprising. Take it into the house, or anywhere away from the stable, and try to drink it." There appears to be no doubt whatever that milk will absorb infections—specific disease germs. Many outbreaks of epidemics of typhoid fever, scarlet fever, diphtheria and the like have been traced to milk infected in this way.

6th. Adulteration of milk, especially with water, sometimes very foul water, is very common, as everybody knows. Unfortunately this is the only sort of milk contamination with which the Federal Government, through the Commissioner of Inland Revenue, can deal and use means for preventing. Dominion analysts are making every effort to prevent this vile practice of frequently robbing the young and innocent infants of their rightful nutriment. The provinces, whose duty it is, should provide for a complete system of milk supply inspection, from the physical condition of the cow to the last retail vendor of the milk.



## "CATCHING COLD," A POPULAR ERROR.

THERE is a great lack of correct knowledge in relation to the nature and causes of disease. This often operates greatly against the success of the physician in the treatment. It is very manifest in regard to "colds," about which we have often written in the pages of this journal. As we oft' have, too, in relation to the common fear of mild drafts of fresh air. DR. AUSTIN FLINT, some time ago, contributed the following timely remarks to the N. Y. *Medical Journal*:

The phrase to "catch cold," so often in the mouths of physicians and patients, is a peculiar solecism. It implies not only that the term cold denotes something positive, but that this something is a living entity, a sort of demon in ætiology, which does not catch, but is caught by the unfortunate victims. The synonym *Erkältung* pervades German literature remarkably. There are few diseases in the nosology in the causation of which "catching cold" does not enter, according to German writers. At the present time a question under discussion in Germany is whether pneumonic fever is attributable to "catching cold," and there appears to be an emancipation of the minds of some of the most distinguished of the physicians of that country from the traditional notion that this disease is the work of the ætiological evil spirit represented by the term "cold."

There is an indefinite latitude in the phrase to "catch a cold." The phrase is used to denote inflammation or catarrh of the mucous membrane of the air-passages, but its application is extended to various affections in various situations. There is but little ground for its application to the ætiology of the so-called nasal, pharyngeal, laryn-

geal, and bronchial catarrh; but I shall confine my remarks to the supposed danger of "catching cold" as involved in therapeutics.

If most persons outside of the medical profession were to be asked what they considered as chiefly to be avoided in the management of sick people, the answer would probably be "catching cold." I expect that this question would be answered in the same way by not a few physicians. Hence it is that sick-rooms are poorly ventilated, and patients are oppressed by a superabundance of garments and bed clothes. The air which patients are made to breathe, having been already breathed and rebreathed, is loaded with pulmonary exhalations. Cutaneous emanations are allowed to remain in contact with the body, as well as to pervade the atmosphere. Free exposure of the body is deemed hazardous, and still more so bathing or sponging, the entire surface of the body being exposed. Patients not confined to the bed, especially those affected with pulmonary diseases, are overloaded with clothing which becomes saturated with perspiration, and is seldom changed for fear of the dreaded "cold."

These sketches are from life, and the observations of every practitioner furnish real illustrations; the supposed morbid agency of cold is a traditional error deeply rooted in the popular mind. It interferes often, in no small degree, with the satisfactory management of cases of disease. It is an obstacle in the way of securing for patients hygienic conditions, the importance of which may be greater than that of drugs. It is obstructive to the adoption, in cases of fever, of the antipyretic treatment, which is, perhaps,

the most important of the improvements in modern therapeutics. How reluctant are physicians, on account of traditional ideas, to make a trial of either the cold affusion of Currie, the cold bath, the wet sheet, or even sponging the body, in cases of pneumonic fever, although testimony is ample of the safety and utility of these measures, how many hesitate to resort to them, lest, if the termination be fatal, the death might be attributed to a therapeutic innovation so opposed to popular prejudice!

A reform is greatly needed in respect to catching "cold." Let the demon be exercised first from the medical, and next from the popular, mind! Let it

be generally known and believed that few diseases are referable to the agency of cold, and that even the affection commonly called "a cold" is generally caused by other agencies; or, perhaps, by a special agent which may prove to be a microbe. Let the axiom, "a fever patient never catches cold," be reiterated until it becomes a household phrase! Let the restorative influence of cool, fresh, pure atmosphere be inculcated! Let it be understood that in therapeutics, as in hygiene, the single word *comfort* embodies the principles which should regulate coverings and clothing. Non-medicinal therapeutics will have gained much when this reform is accomplished.

#### TEMPERANCE AND PROHIBITION.

NO subject is being more generally discussed at the present time in Canada than that of temperance and prohibition. Intemperance in the use of intoxicating beverages, we need hardly write, is a common cause of disease; but, in itself, it is not nearly so common as many people appear to believe. Intemperance in eating, and in the indulgence of the passions, are likewise common causes of disease, physical and mental. The question of the food or nutrient properties of alcohol is, as everyone must admit, an unsettled one. It has never been shown, in any experiments which have been made, that all the alcohol taken into the system has been expelled with the secretions. It is difficult to understand how anyone who, with an unbiassed mind, has investigated both sides of the question can believe that alcohol, in a certain limited quantity, is not a food, but a poison; more especially if he be a physician and has clearly observed its effects as a restorative in low conditions of the system. It seems to have been

used by man in some form from the time of the earliest historical records. However prohibited, men will obtain it in some way, and it will even find its way into temperance drinks.

We would state again, that while questioning the wisdom of attempts toward total prohibition, including wines and beer, we strongly advocate an extreme degree of temperance in the use of all alcoholic beverages. People have not yet learned how small a quantity of alcohol is enough; how much virtue there is in even a small quantity of wine or beer; that when a feeling of comfort or satisfaction, as from a "steak" or a "chop," is experienced, no more should be taken: they have not yet learned that what is now commonly regarded as "moderation" is often great excess; that even three or four glasses of wine or beer a day is not moderation, especially for many persons, with whom half of this would be abundant, and more than half would prove injurious. There is a vast deal yet to be learned about alcohol and its

proper use in the human economy. Moderation—temperance—in its use is not yet understood.

As relates to intemperance, there may be said to be two prime causes of it, or at least it may be considered in this way: One, the alcoholic beverages, common everywhere; the other, man's inordinate desire for them with a want of self-control. Now, a good question is, which of the two causes is it best to endeavor to remove or to turn first attention to?

Human nature is well known to be such that anything naturally desired will, as a rule, be obtained at all hazards. Human ingenuity, energy and perseverance will in some way gratify the human desires, and this, too, often even in spite of laws, human and divine. Yea, it is such that enacted laws of restraint not infrequently seem but to act as a stimulus to a greater effort to gratify desire. If, then, it were possible to regulate man's desires and to increase his powers of self-control, would it not be better to do so than to only endeavor to keep out of his reach that which he desires, and thus so resolutely endeavors to obtain?

What are the most common causes which give rise in man to a desire for alcoholic stimulants and gradually cause him to lose his self-control? Three most fruitful ones are: First, the foul atmosphere of uncleanly, unventilated homes, especially bedrooms; second, badly-selected and badly-cooked food; and, third, the use of tobacco. The depressing effect upon the human body of these causes, usually combined, drives many a human creature to the dram-shop. There is no doubt whatever that many a man, and woman, too, has been, as it were, forced to the bar or the grocery for spirits to counteract the physical and mental depression

arising from the unhygienic personal habits and surroundings of the home, not knowing of, or not being able to apply, any better remedy for the depression than the quickly-acting spirits.

In England the Peabody dwellings and the societies for building homes for the working people have done much to promote temperance. How many drunkards have been made by the foul air of the sleeping room, by want of a bath and by bad cooking, will never be known—but doubtless very many. There is no doubt whatever that a large proportion of inebriates were induced to become so, usually unconscious of the fact, by the use of tobacco. The depressing effects upon the organism of this poison gives rise in many to a desire for the stimulating action of alcohol. Reformed men have fallen again into intemperate habits by reason of the use of this vile weed. It is hardly possible to find an inebriate who does not use tobacco, and in 90 per cent. of the cases the tobacco habit was first formed.

With these causes of intemperance operating in full force, feeding and keeping alive in those exposed to such causes, the incessant desire for something to arouse and to soothe the deranged nerve centres—to cheer the depressed spirits, to stir up mental despondency, or bring oblivion to the relief of general unhappy conditions, temperance workers may force upon Parliament Scott Acts and prohibitory laws, but they never will prevent the use of some form of alcoholic drinks, so long as beer can be brewed and the juice of the grape and other fruits will ferment; or at least not until mankind attains in the course of development a much higher mental and physical standard than the race is blessed with at present.

If the temperance workers had but

devoted the well-meant efforts already put forth on behalf of prohibition to intelligent efforts towards promoting the individual physical health of the great unwashed, and many others, a much better foundation would by this time have been constructed for a state of true temperance amongst the people.

It is not yet too late for those who

seem only to consider but the one great cause of intemperance to turn attention to other causes, and instead of aiming only at preventing the manufacture and sale of alcoholic drinks, aim, too, at removing the intenser, deeper-rooted causes, which undermine the natural stamina and life of the people, and destroy this power of self-control.

### THE ADULTERATION OF FOODS.

WHAT THE PRESS, HEALTH OFFICERS AND OTHERS CAN DO TO STOP IT.

THE Government have recently made provision for the prevention of food adulteration, but without intelligent help from the public these provisions cannot be brought into effectual practice. Vigilance is required on all hands, and municipalities should take advantage of the measures provided in order to aid in the suppression of this vile practice. The practice, it is true, is not nearly so extensive in Canada as in the United States, and the Government wisely made timely provisions to prevent—as better than to wait and cure, yet, as the Commissioners' Governmental reports show, it is very general, and sufficiently practiced to demand constant and general watchfulness on the part of all interested in the public welfare. Below are extracts from the *Chicago Grocer*, a journal which may be regarded as good authority as to the condition of foods among our near neighbors.

“The extent to which the adulteration of food is carried on, is hardly conceived of by the general public. From time to time public notice has been drawn to certain articles, but after apparent indignation has died out, the practice is resorted to again, and is either forgotten or endured by the consumers. The daily press can do

more than the trade press, for the former's circulation is largely among the consumers, while that of the latter is among the retailers. But the trade press can do this much; it can jointly combine and have samples of the different food products analyzed by a competent chemist, the result to be published simultaneously in all the different trade papers who are anxious to see this contemptible, dishonest and pernicious practice put a stop to.

“Food adulteration is now an art as well as a mystery, and to such delicacy has it reached that in many cases not even the microscope or chemical analyst will detect the foreign substance. In Canada the names of the manufacturers who adulterate their products are given to the public through the daily press, and of all the ways and means devised to stop this wholesale manipulation this has proved most effective. We may not be able to make laws that will be enforced, but we can make public the names of those dishonest manufacturers who will not desist in their undertakings until forced to by finding their wares unsaleable on account of well founded prejudice against them. . . . .

“We frequently read that the youths of the present generation are sickly,

without strong constitution and with less energy and grit than those of former days. All sorts of theories are advanced, but it does not seem to have occurred to any of our benefactors that the food we consume, and which is supposed to give us health, strength and energy, is tearing the vitality of our organizations slowly but surely away from us. If there are no poisonous ingredients in our food, there are mixtures which weaken their health-giving qualities and which takes from our necessary stimulants a large proportion of their virtues. It is stated upon excellent authority that the extensive use of glucose, or the grape sugar of commerce, is held to be the main origin of Bright's disease of the kidneys, and the cause of the present prevalence of that fatal malady. And yet there are high authorities who state that glucose contains no injurious qualities. Manufacturers, who adulterate for pecuniary profit, do not make any distinction when a poisonous ingredient will improve the appearance of their products. What is there more startling than the cool indifference with which some of these men employ noxious and deadly ingredients? There are hundreds upon hundreds of men who are perfectly willing to spread disease and death broadcast over the community, if by so doing they can add a few extra dollars to their annual profits. The situation is lamentable in the extreme.

"Tea, coffee, sugar, molasses, baking powder, butter, cider, vinegar, mustard, spices, pickles, farinaceous foods, olive oil, confectionery, chocolate, jellies and beverages, are adulterated, to say nothing of the dye stuffs used in dress materials, poisonous wall paper, artificially colored flowers, and medicines without a genuine drug in them.

"The proper thing to be done is to make the penalty large enough and sufficiently sure to make the risk of punishment greater than the profit which will warrant the manufacturers in attempting it, for in this way it seems to us that the law will have a natural and wholesome success."

A late number of the *Pacific Record of Medicine and Pharmacy* gives us further insight into the practices of the adulteraters in the following words, which may assist in awakening the public to a livelier sense of the necessity for vigilance: "Science has proved that scarcely one of the many articles in common use, and considered nutritious, contains any of the substances we think it does. In England, more than half of the coffee consists of the livers of cattle baked to dryness, and flavored; while in this country it consists largely of beans, peas and chicory. If one is very particular, and buys the whole bean, roasting and grinding for himself, he will find on analysis, that the bean is paste, made by machinery.

"An excellent article of black or green tea, which is guaranteed pure, and for which a good price is paid, will resolve itself into the leaves of the willow (*Salix Latifolia*.) A chemist of Chicago conceived the happy idea of converting corn starch (a carbohydrate) into sugar (another of the series) by adding to the one the element it needed, and lo, glucose was the product.

Now one pound of cane sugar at 7 cents, and two pounds of glucose at 2 cents, makes three pounds of sugar costing 11 cents, but which sells at 21 cents.

"Two hundred barrels of cider vinegar were confiscated in New York lately, because analysis showed that it was made by adding one pint of sulphuric acid, at 3 cents, to 40 gallons of water.

and colored brown with burnt sugar.

"It is not generally known that honey comb is made from stearine by machinery, and filled with glucose, and sold as "honey in the comb;" nor that cream of tartar is made from starch and gypsum, with a little tartaric acid.

"Only lately have we known that cows are not necessary for the production of milk. We can get just as good apparent milk, with cream too, from a mixture of salts and water. San Francisco learned this fact a few months ago, and New York has just received the proprietor of the compound.

"The apple sauce which was, and is so palatable, among the known ones, is only stewed pumpkin or squash, with glucose or molasses, and the same products of the soil, furnish, with gelatine (from fish) nearly all our jellies and preserves; even our flour must receive its due amount of alum; in order that it shall make white, good looking bread from a poor quality. The fact that butter is made from refuse fats, and is impossible to easily distinguish from the genuine article, is as well known as its names, butterine or oleomargarine.

"To say that the silk dresses of our wives are loaded with tin to make them "stand alone," or that the muslin is fixed with starch to make a glossy, fine appearance, is outside our province. Even our luxuries are beyond our comprehension.

"The infant mind (and the adult too) looks "with anxious yearning" at the display of sweets in the confectioner's window. If they knew that the dis-

covery of the new body, "saccharine," a product of coal tar, three hundred times sweeter than sugar, mixed with starch and terra alba, would represent all the sugar candy, would they buy it so eagerly? Yes! The saccharine costs \$12 a pound, but a teaspoonful in a barrel of water makes a liquid as sweet as sugar. Add starch and terra alba, with coloring matter and flavor, and you have sugar candies.

"The modern dude, by some self denial, has acquired money enough to take the object of his adoration for an evening out. Fortunately for him, *he* knows nothing of science or religion. He has his divinity with him, and is going to have ice-cream and oysters. *She* knows nothing of microbes or of modern thought (adulterations we say nothing about). The ice-cream contains the deadly *tyrotaxicon*, and by and by the nausea, vomiting and colic seize them both, and a doctor's bill is the consequence. If they happen upon a "pure milk" cream, the oyster, which has been lately denounced "as the scavenger of the mud flat," and in whose liver reside the "microbes of fearful disaster," is sure to produce trouble."

As above stated, the press can do much to awaken the public, and local papers should not be so backward in publishing the names of parties selling adulterated articles. We would urge upon local boards of health, where these have been organized, to make systematic raids upon the practice wherever suspected, and endeavor to bring the guilty to feel the weight of legal punishment.

#### THE GEOGRAPHICAL DISTRIBUTION OF CONSUMPTION.

THE third volume of Hirsch's great work, *A Handbook of Geographical and Historical Pathology*, recently issued

by the New Sydenham Society, contains some striking, and to many no doubt, novel facts regarding the incidence of

pulmonary phthisis, or consumption. The following remarks upon the subject from the *British Medical Journal*, of January 8th (inst) will prove of interest. It is, as Professor Hirsch remarks, emphatically a disease of all times, all countries, and all races. No climate, no latitude, no occupation, no combination of favoring circumstances forms an infallible safeguard against the onset of tuberculosis, however such conditions may mitigate its ravages or retard its progress. Like typhoid fever, pythisis dogs the steps of man, wherever he may be found, and claims its victims amongst every age, class, and race. A summary of results shows that the average number of deaths from phthisis is about 3 per 1,000, or nearly one-seventh of the total mortality.

The first fact which comes out clearly from Professor Hirsch's tabulated data is the relatively large mortality from phthisis in the large centres of population. Thus Vienna has a death-rate from this cause of 7.7 per 1,000, or more than twice the general average, Pesth is credited with 6.9 per 1,000. Brussels with 5.6, Stockholm with 4.1, Munich and Glasgow with 4, Berlin and Dresden with 3.8. In the smaller towns the rate sinks to 3 or 2.5 per 1,000, and in rural districts the mortality is still less.

Many facts are at hand to show that an increased liability to phthisis goes *pari passu* with rapid growth of population and especially with the massing together of large bodies of workers engaged in arts and manufactures. Impure air and bad hygiene are undoubtedly the most potent factors in the genesis of the disease, and take precedence even of hereditary predisposition and imperfect nutrition. Among nomad tribes, such as the Krihiz of the Central Asian steppes or the Bedouins of Arabia,

the disease is practically unknown, but there is much instruction and warning for us in the fact that when, as sometimes happens, these wandering tribes settle in the towns their immunity immediately ceases.

The influence of geographical position upon phthisis turns out to be much less than current opinion would indicate. We are prone to regard it as essentially a malady of temperate latitudes, and of the Anglo-Saxon race, but more accurate statistical information proves that it is very virulent in many warm countries, and that some of the inferior races, such as the negroes, the inhabitants of the West India Islands, and the people of the South Seas suffer more in proportion than the nations of Europe. It will be a great surprise to many people to learn that the death-rate from phthisis is as high in sunny Italy as in foggy England. Those who hold the old-fashioned notion that damp and cold are the main causes of phthisis will be puzzled to account for the almost complete immunity enjoyed by the inhabitants of the Hebrides and the Faroe Islands. Latitude is not, however, without a distinct influence, both upon the prevalence and the type of phthisis. The disease becomes rarer as we approach the poles, and is extremely infrequent within the limits of the Arctic and Antarctic Circles. In the Tropics the disease does not conform to the ordinary chronic form familiar to medical observers in this country, but in the brevity and severity of its course approximates rather to acute tuberculosis.

While the influence of latitude is comparatively slight, irregular, and apt to be counteracted by other conditions, that of altitude is most potent. Among the higher Alps, the Andes, the elevated plateaux of Mexico, Persia, and South

Africa, we approximate, though probably never quite attain to, conditions of absolute immunity. In India the disease is tolerably common, and very pernicious on the lowlands, while it is extremely rare upon the upper slopes of the Himalayas, the Ghaats, and the Nilghiris. At Bogota and Quito, in spite of the aggregation of large populations, the disease is excessively rare, and is practically limited to settlers from the lowlands or from other countries. Even at Potosi, among a population engaged in mining, and amidst conditions of very imperfect hygiene, phthisis can scarcely gain a footing. It is thus evident that the protective influence of high altitudes suffices to counteract other forces which usually occasion a widespread prevalence of the disease. The extremely low mortality from phthisis in Switzerland, namely, 1.85 per 1,000, is explained by the fact that so large a proportion of the people reside at a considerable altitude above the sea-level, although the sparseness of the population, no doubt, also operates in the same direction.

The influence of a damp soil in promoting phthisis is now well established, and suggests obvious practical conclusions.

The incidence of phthisis in the Australasian colonies is of much interest, in view of their popularity as refuges for the consumptive. The large towns of Australia have now a death-rate from phthisis of over 2 per 1,000, and present

little advantage to the phthisical sufferer over his own country. On the other hand, the large inland plains of Australia are almost exempt from phthisis, and constitute a genuine sanatorium. In New Zealand, phthisis has made frightful ravages among the Maoris, and is the chief factor in their approaching extinction; but the explanation of this fact is not to be sought in any adverse climatic influence, but rather in the miserable dwellings and wretched food of the native inhabitants of these islands.

Professor Hirsch's conclusions may be thus briefly summed up. Phthisis is everywhere prevalent, but it is rare in Polar regions, and rarer still at high altitudes. The main factor in its production is overcrowding and bad hygiene. Heat and cold *per se* have no influence. Damp, when conjoined with frequent oscillations of temperature predisposes to the disease; but humidity of the air is less important than dampness of the soil. Occupation is extremely important, but mainly indirectly, as tending to good or bad hygienic conditions.

No reference is here made to the contagiousness of consumption, in which most physicians now believe. It is generally believed too that contagion has had much to do with the spread of the disease in New Zealand. If it had not, why did it not so spread before the free intercourse with Europeans?

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#### RECENT EXPERIMENTS WITH DISINFECTANTS.

AT a meeting of the Cambridge Branch of the British Medical Association, Dr. Elliston, the president, after detailing the experiments of Koch gave the following:

After testing various substances, Koch arrives at the conclusion that the only reliable disinfectants are chlorine, bromine, and corrosive sublimate, and that, to arrest development, only cor-



rosive sublimate, and certain ethereal oils, and allyl-alcohol are to be trusted. Bromine vapours are recommended for confined spaces. Chlorine is a little less satisfactory, but more so than has been supposed. It is comforting, however, to observe that in corrosive sublimate we have an invaluable germicide, and that solutions of 1 in 1,000 to 1 in 15,000 are sufficient to kill micro-organisms. A solution of 1 in 1,000 was sufficient to kill the resting spores in ten minutes, and, indeed, simple moistening of the earth with this solution is sufficient to arrest the power of development.

The experiments of M. de la Croix, conducted in a totally different manner, also point to the extreme value of the perchloride of mercury and chlorine.

Professor Konig, of Gottingen, also relates a personal experience of twenty years' experience of the value of fumigation of rooms by sublimate. The method he adopts is very simple. After closely shutting the windows of the infected room, the person who carries the disinfectant sprinkles about fifty or sixty grammes of the sublimate on a coal-shovel, over a glowing firepan, and then quickly leaves the room and locks the door. All chinks must be stopped beforehand. The sublimate evaporates quickly, and the room is now left exposed to the fumes for three or four hours. The door is then opened, and, in opening the window, care must be taken to hold a cloth over the nose and mouth. The door is immediately locked again, and the room is aired for several hours, the windows being left open. The windows are once again shut, and the room is fumigated in the usual way with sulphur, in order to render harmless the mercury which is still present. Professor Konig states he has never observed any harm to

those who carried out this method, nor to the inhabitants of the cleansed rooms.

Professor Forster, of Amsterdam, also bears testimony to the value of a solution of from  $7\frac{1}{2}$  to 15 grains of sublimate in thirty-five ounces of distilled water, as a perfect disinfectant for the hands after contact with infection, while he regards the usual solution of carbolic acid and water,  $2\frac{1}{2}$  per cent., inadequate for the purpose.

It is satisfactory, therefore, to know that we have reliable chemicals that will stand the severe tests of modern investigation. It is still more satisfactory, I think, that boiling water is a perfect disinfectant. No contagium can resist a moist temperature of  $212^{\circ}$  Fahrenheit. Linen and clothes (of the material that will not be injured by boiling) can be perfectly disinfected by this simple process.

At the request of the German Government, Koch and Wolfhürzel experimented upon the comparative disinfecting value of dry heat and steam. They reported that, by the direct application of steam at  $212^{\circ}$  Fahrenheit for from five to ten minutes, even the virulence of dried blood was destroyed. Earth-spores which have a reputation for tenacity of life at high temperature above all others, were devitalized by fifteen minutes' exposure to steam, while they resisted the action of dry heat for three or four hours at  $302^{\circ}$  Fahrenheit.

Dr. Russell, medical officer of Glasgow, says that during the last ten years over a million of articles (from persons affected with every kind of contagion known in this country) have passed through the Glasgow laundry, and that he has never known a case of interchanged disease, although the women engaged in the laundry have occasion-

ally suffered from handling the linen before the boiling process. In the disinfection of apartments, care must be taken to burn the collected dust, and thorough domestic cleansing is neces-

sary, but it is clearly incumbent upon all sanitary authorities to make provision upon a scale adequate to the purpose, to secure steam disinfection in its varied systematic details.

## THE PUBLIC HEALTH FOR DECEMBER.

MORTUARY RETURNS FROM THE TWENTY FOUR CANADIAN CITIES AND TOWNS.

THE mortality returns from the 24 principal cities and towns in Canada, which make monthly reports for the Department of Agriculture, at Ottawa, for December, as for November, show but a slight increase in the death rate over the previous month; or from 1,218 to 1,249.

The total mortality for the month in these twenty four centres, allowing for the natural increase in the population was about the same as in December, or at the rate of a little over 22 per 1,000 of population per annum.

Of the larger cities, Montreal as usual, returned the highest mortality (as it doubtless gave the highest natality), or about 27 per 1,000 of population per annum. Ottawa returns show a mortality of about 24, and those of Quebec about 23, per 1,000. Toronto and the other larger cities return only a rate of less than 20 per 1,000. Peterborough continues to show a high death rate. During the last quarter of the year the mortality averaged there 23 per 1,000. Diseases classed as "Local" appear to be the chief cause of this.

In Hull the mortality increased from the high rate of November, 37 per 1,000, to 43 per 1,000 in December. A rate of about 13 per 1,000 per annum was from zymotic diseases alone; or more than thrice the average from all the cities and towns.

In Sorel, almost the same high mortality prevailed as in the previous month, 74 per 1,000. While in November the

high rate was chiefly from "Local" diseases, in December it was less from these causes and there were seven deaths recorded as from diphtheria alone, or more than one in every thousand of population, for the month.

We are constrained to repeat what was herein stated in effect last month, that something should be done, by authorities of some sort, to prevent the continuance of this dreadful destruction of human life in Sorel, and which would probably be found to prevail in other places not reporting a record of deaths.

From zymotic diseases, in the twenty four cities and towns there was a slight but not noticeable increase in the mortality; it being in both months a little less than at the rate of 4 per 1,000 of population per annum. In the larger cities, except Ottawa, it was below the average; in the capital it was over 50 per cent. above, or over 6 per 1,000. In London it was even higher, or about 7 per 1,000; and in Peterborough, 9. In Chatham and Sherbrooke it was considerably above the average. In Sorel it was 18, and in Hull, as stated, 13 per 1,000.

There were no deaths recorded from small-pox. From measles there were 6 deaths and from scarlatina 3. From diphtheria there were 110 deaths—in the previous month 97. In Montreal and Quebec there was a decrease in the number of deaths from diphtheria; and also in Ottawa, from 6 to 5. In Toronto there was a slight increase and in

Hamilton a very large one—from 2 in November to 10 in December. In Winnipeg there were double the number, and in London there was an increase from 4 to 10. In Peterborough there was an increase from 3 to 5 deaths; while in Chatham there were 3 deaths

from the disease in December, though none in November. From other diseases there were no noticeable changes in the mortality.

The continued low rate of the mortality returns for St. Thomas is noteworthy.

## THE PUBLIC HEALTH IN 1886.

### THE DEATHS IN THE 20 PRINCIPAL CITIES AND TOWNS.

**D**URING the year 1886, from the monthly reports to the Department of Agriculture, at Ottawa, we learn that in the twenty principal cities and towns in Canada, comprising an assumed population for the year of 640,000, there were 16,018 deaths, equal to a mortality of over 25 per 1,000 of population. The mortality the previous year, in nineteen of these cities and towns, as stated last month, was 30 per 1,000 of population. But then there was an unusual epidemic of small-pox. Excepting the 3,312 deaths from this disease, the mortality, from other causes, last year, was greater than in 1885. The mortality then last year again in the cities and towns of Canada was nearly 25 per cent. higher than in the large and crowded cities of England. The rates in the different cities and towns are given in the last column of the table of returns for December on another page. In Montreal, Quebec and Ottawa the mortality was above 30 per 1,000, last year. In the small Town of Sorel, with a population of about 6,000, there were 303 deaths, or 50 per 1,000. In St. Hyacinthe the mortality was 44 per 1,000. Of the western cities the mortality was highest in Toronto—24 per 1,000.

From small-pox there were 149 deaths in all; and all took place during the first half of the year,—no cases having been reported since June.

From diphtheria there was an increase in the number of deaths last year, as compared with 1885, of 50 per cent.; there being 975 deaths caused by this filth disease in 1886—752 in 1885 with only one small town less making reports. With general health knowledge and good health regulations properly carried out this disease would be very rare, if known at all.

ALL the sanitary inspectors at Columbus, O., were discharged and the health officer allowed to resign because it was not thought necessary to maintain the department during the winter. On account of the prevalence of diphtheria, it has been found necessary to appoint a temporary health officer.

A BARREL of kerosene oil, buried ten feet under ground, will, it is said, contaminate every well within a quarter of a mile, and the oil will be apparent to the taste. The accumulations of privy vaults will extend their pernicious influence even a greater distance, although the water which it affects may not indicate to the taste the presence of any impurity. Whether privy vaults are open or plastered with cement, they cannot keep the poisonous gases and substances from penetrating the soil. So says the *Sanitary Plumber* and we endorse it all.



## MISCELLANEOUS SELECTIONS.

**THE USE OF TOBACCO.**—A number of years ago, in a reply to a communication by the editor of this JOURNAL, the *Toronto Globe* gave the following which is worth repeating: We do not doubt there is much truth in our correspondent's view of the relation between the tobacco habit and the craving for stimulants—how much is a question worthy the closer attention of medical men. Certainly, whether dangerous or not, the inordinate use of the narcotic weed is one of the most unthrifty and unpleasant habits of the age. How many thousands, whose families are but scantily supplied with the simplest necessities of life, spend in this useless and purely selfish indulgence enough to add very sensibly to the comfort of wife and children. The selfishness of the habit is one of its worst features. No respectable man would wish to have his wife and daughters join him in the luxury of a pipe or cigar. To most women, and not a few men, the odour of stale smoke in the breath or clothing is intensely disagreeable, and they can hardly encounter it in the person of the nearest friend without a sensation of shrinking. Altogether we question, whether at a higher stage of civilization and refinement, the tobacco usage of the nineteenth century may not be looked back upon with something of the same wonder and disgust with which we now regard many an obsolete habit of our half-civilized ancestors.

A PHYSICIAN of experience says:—It is a good rule to always ride up an elevator, but when coming down to take the stairs. Like going up hill, walking up stairs is hard work, and sometimes risky, especially for people

with weak lungs, defective respiratory organs, or heart disease. But going down stairs hurts nobody, but is good exercise; going down on a brisk run is really a good thing—it shakes up the anatomy, without incurring the danger of physical over-exertion. This shaking up is good for one's internal mechanism, which it accelerates, especially the liver, the kidneys, and the blood circulation.

THE contagiousness of consumption is well illustrated by a writer in the *N. Y. Medical Times*. A legal friend gave a clinical story which greatly interested the writer. He knew a family who lived in an Eastern State, several years ago, who nearly all went into consumption. There were originally in the family twelve children. The man and father was a well-to-do farmer, and noted for natural good sense. One of the boys became infatuated with a consumptive girl and married her. In a year the girl died, and the boy came home with consumption. In time he died too, and one of the sisters, who was most devoted to him, was the next victim. The disease progressed until seven of the children were buried. The father had learned a lesson from observation, which has taken the medical profession centuries to learn, and when the father learned it he acted with the wisdom he had. After returning from the funeral of the last victim, the father remarked, "Well, mother, if any of my children dies in this house with consumption, it will be within a short time." That night the house, furniture and all burned down. A new house was built and there was no more consumption in that family.

SIR JAMES PAGET, by computation, finds that the loss owing to the sickness of the working people of Great Britain amounts to twenty million pounds per week. This is bad and calls for thoughtfulness as to money value of health. "We often wonder," says an exchange, "how many millions are lost each week from simple laziness; how many more from pure wickedness? Verily, the loss from these causes, entirely preventable, amount to very many hundreds of millions of dollars. As it is, the healthy, the industrious, the virtuous, are compelled to support the rest in the poor house, by charity, or in jail.

**THE HEALTH OFFICER'S TRUE PLACE.**  
—Dr. B. W. Richardson, in his admirable work on "Preventive Medicine," writes the following: In every local district the medical officer of health should have the true place that belongs to him, in all that relates to official action bearing upon health. He should hold to the sanitary department just the same position as the recorder does to the legal. He ought not merely to be the adviser of his board; he ought, by virtue of his office to be the chief and chairman of the sanitary department. He ought to be elected for a definite period; he ought to be upheld in every useful health reform he brings forward; he ought to be encouraged to inaugurate reforms; he ought to be placed in such an independent position that he can inaugurate any reform and correct any evil without being subjected to the risk and personal anxiety of dismissal for good service. He ought, in a word, to be able to put down disease, of which he is, the medical judge, as freely, as unsparingly, as fearlessly as the legal judge puts down crime. Until this is the rule medical officers of health will remain as mere clerks and

chroniclers of disease; suggesters of placebos in sanitation; scapegoats of sanitary blunderers; gentlemen of education engaged by money for perfunctory service.

**DIET AND DIGESTION.**—Dr. F. W. Pavy, F. R. C. S., physician to Guy's Hospital, London, in his valuable work on Food and Dietetics, gives us the following: Under natural circumstances instinct guides us in the selection and consumption of food and drink. Whilst keeping to simple articles of diet, it may be left to the sensations of hunger and thirst to regulate the amount of solids and liquids taken. In many disordered conditions, however, there is such a perverted state existing that the promptings of nature fail to be evoked, and it devolves upon reason to assume the initiative and dictate the supply to be furnished. Under these circumstances the nature and amount of food administered will often exert a most potent influence for good or evil, and the art of dietetics thus comes into great importance. Skill and attention are called into requisition—indeed it is not too much to say that success in the treatment of disease is largely dependent upon a display of judicious management with regard to food. . . . It must be borne in mind that the demand for food is dependent upon its proper application, and failure of the appetite is often due to the defective manner in which nutrition is performed. It is not what we eat, but what we digest, assimilate, and apply that concerns us about nutrition. Food introduced into the stomach, but not digested, assimilated, and employed, is calculated to prove a source of irritation and to do harm. It is not, therefore, to be thought that because it is got down it must needs prove of service.

THE Ladies' Health Protective Association, of Beekman Hill, New York, says the *Sanitary Plumber*, which waged a determined warfare on Michael Kane's manure dumps on the East River, has now undertaken another good work. They have begun an inspection of the tenement houses in the city, and say they are going to use every means to compel landlords to light the halls and furnish water on the upper floors, and are preparing a report on tenements.

THE number of "quack" advertisements found in professedly religious journals is truly astonishing, says the *People's Health Journal*. By allowing such advertisements to appear in their columns these journals do a three-fold injury; the credulous public is imposed upon, because it is supposed, of course, that nothing but the truth would appear in a religious publication. Confidence in scientific medication is diminished; thereby the medical profession is injured. Humbuggery and fraud are encouraged, and consequently honesty and general integrity depreciated. If the proprietors of these journals expect their influence for good to be unlimited, they must guard their advertising columns more closely in this direction. "Ye cannot serve God and mammon."

#### PHTHISIS CURABLE AT EVERY STAGE.

—In a review of the English translation of a work by M. Jaccourd, the justly celebrated professor of Medical Pathology to the Faculty of Paris, entitled *Curability of Phthisis, etc.*, it is announced that "the curability of pulmonary phthisis at every stage is now a well established fact," the author's conclusions are as follows: To sum up what has been stated, pulmonary phthisis is curable in all its stages. This is the prolific notion that presides

over the whole history of the disease, and which should unceasingly inspire and direct all medical action. The incurability proclaimed by Laennec and his immediate successors, is disproved by pathological anatomy and clinical observation. None should, therefore, allow themselves to be influenced by such a condemnation, which is but a historical souvenir. When the existence of tubercles in the lungs is recognized, it should not be inferred from that moment that he who has them is doomed to death in consequence of their presence. Should it be found that the tubercles soften and a cavern forms, it should not be believed, on this account that all is lost. It has been shown that this is not the case, and the natural tendency which tubercle has to fibrous transformation, that is to recovery, should not be forgotten. Before being discouraged, the physician should search and examine incessantly whether the patient is in the requisite conditions for such favorable evolution to occur. If all hope of absolute recovery must be abandoned, a relative cure should be wrought, and every exertion be made to place the patient in such conditions that he can live notwithstanding the lesions which are now irreparable; in a word, the plan adopted should be to strive and strive always, with the unshaken confidence which may be drawn from the notion that recovery is possible. The enemy *can* be conquered. This is the idea that should engender and sustain every effort. It is certain that this conviction is the first condition of success; since it is absence of faith in the possibility of cure which prevents the adoption of all therapeutic treatment.

ADVERSITY does not take from us true friends; it only dispels those who pretend to be such.

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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; of "patent medicines," not accepted.

## EDITOR'S SPECIAL CORNER.

WITH this number commences the Ninth volume of this JOURNAL. It is over twelve years since it was first established in Toronto. It has passed over many ups and downs and through many changes, yet still lives to spread the "Gospel of Health." The editor cordially wishes all its readers a happy and prosperous year—eighteen hundred and eighty seven.

FRIENDS of the JOURNAL and of the cause would help materially to promote the public welfare and the interests of individual friends and neighbors by aiding us a little in extending the circulation of the JOURNAL. Many, if not, all subscribers to it could, by a few timely words, induce a friend to subscribe also; or even five friends, who, in the form of a club, for \$6.00—\$1.20 each, would receive five copies, addressed separately. We give no "premiums" for new subscribers, but give liberal clubbing rates to pay-in-advance subscribers. (Please see page of advertisements.) Who will aid us in this way in our work?

A NATIONAL Health Association must be organized in Canada for promoting health legislation and educating the public in health proceedings. With a death-rate from 20 to 25 per cent. greater than in our motherland, as shown monthly by figures returned to the department at Ottawa, which means 25,000 more deaths annually in the Dominion than there should be, surely something ought

to be done to check the stride or to narrow the swath of the grim skeleton. Will not many of the public spirited men in this progressive country, many of whom devote so much time and energy to the prevention of cruelty to animals, to the temperance cause and to other philanthropic work, join in and help to preserve the most valuable of all life—that of little helpless children, of vigorous youth, and of men and women in their prime? which is being daily destroyed on every hand by preventable diseases—by want of knowledge of the laws of health—in other words, by foul air and foul water, and by the spread of infectious disease—diphtheria, scarlet fever, typhoid, and above all, consumption. We must have, and soon, a National Health Association.

ELSEWHERE in this number we have stated that the science of health is an exact science. It is consequently less progressive than the purely medical and other sciences. There is less that is absolutely new to relate. Nevertheless, new and constant causes of disease are being found out and made known and people must be frequently admonished, and reminded of the rules of health; while there are millions of people yet entirely ignorant of the simplest of these rules, who ought to be taught, and for the direct and special advantage of those who do know and even practice them. For if one's neighbors will not attend to the laws of health, it is



often impossible for one to avoid causes of disease, however careful one may be in attending to all such laws. Hence it is to every one's individual advantage to aid in educating the masses of the people in relation to health, or at any time any one may be unexpectedly and unavoidably exposed to malignant disease.

A GENERAL ELECTION excitement and turmoil are liable to give rise to much greater ills than a temporary lull in trade or fluctuation in stocks. The extra strain thrown upon a number of individuals, many of whom are well past their prime, is liable to result in the collapse of a certain number, whose enfeebled heart and brittle arteries are not equal to the extra excitement; and hence the loss by death of some of our ablest men may be the result. The *British Medical Journal*, just after the recent general election in Great Britain, said, "Already we hear from different localities of the sudden death from apoplexy, pneumonia, etc., of would-be members, or their more energetic partizans; and before calm is re-established, others will doubtless succumb. It would be interesting to tabulate the deaths ascribable to times of political excitement; and as the task would not be altogether an easy one, it offers a good field for work for individuals gifted, or plagued, with the 'bump' of statistical inquiry." It is possible that more hygienic modes of living of the candidates would secure them immunity from mishap. Active politicians, past middle life, now in the fray, will you take warning?

Doctors' BILLS, as a rule, are larger and more common in the spring time, than at any other period of the year. The period of highest mortality in Canada, so far as statistics show, is in the second quarter of the year, and especially in March and April. And this mortality too, usually includes many of the most valuable lives—of vigorous men, in the prime of life—largely from pneumonia and other lung diseases. Why is this? Why is it not the other way? Why, with the warmer, pleasanter weather, the cheering spring, is not life more vigorous, and death less frequent? The March winds are blamed. Colder winds sweep down upon us in February, January, December. We have no doubt whatever that the increased mortality is owing to people being housed

up, little or much, in too warm, and, especially, unventilated rooms, breathing and re-breathing the same vitiated air, which must have a depressing effect upon the human organism, and render it susceptible to the causes of disease. Doctors are perhaps nearly as liable as others to neglect to have provision made for ventilation. Remember, if provision is made for the removal of the foul air in a room, fresh air will find its way in, no fear of that, in this country in cold weather, as we have often shown. Make an opening into a chimney or stove pipe that is usually warm, and through this the breathed air will pass out.

#### OBSERVATIONS AND ANNOTATIONS.

THE PUBLIC analysts branch of the Department of Inland Revenue, for the prevention of adulteration of foods, drugs etc., are making provision for materially increasing the usefulness of the branch, by reaching a much larger number of adulterators or adulterated samples. Simple and readily applied tests are to be employed by the local or district analysts whereby inspected articles may be at once distinguished from the pure ones, when only the former need be submitted to analysis; in this way, a much larger number of samples may be brought under observation and inspection. To milk and coffee, two very frequently adulterated articles, attention is to be first, it appears, especially directed in this way.

DR. F. C. MEWBURN, of Toronto, in a communication to the *Canada Lancet* of last month, suggested that medical students be taught the art of cooking. "How many drunkards have been made, how many just on the dangerous brink, have gone down to the pit from bad cooking will never be known.... If those who are in good health suffer from poorly cooked food, what must it be to the sick.... Is it not possible to have a short course of dietetics added to the [student's medical] curriculum? There is no need for more lectures: let the *materia medica* be purged of all the obsolete articles, and let the time devoted to them and to the preparation of chemicals, be utilized for this subject."

THE ADDRESS of his worship, mayor Stewart of this city, had a ring about it which, if thoroughly acted upon, will go a

long way in making the capital what it ought to be. He appears to be alive to the health interests of the city. "To have a prosperous city we must have a healthy city, and health cannot be relied upon if we have not cleanliness." He thought, added to the sewerage system there should be a scavenging system. The benefit to health would be incalculable. He trusted the Board of Health would give this matter early and serious consideration, for certainly in no way were the vital interests of Ottawa more directly concerned.

DR. ELLIOT, Medical Health Officer of Orillia, in his annual report of last year, states that up to the end of the first half of the year the town was in a remarkably healthy condition. In the latter half things were not so favorable. In August there was an outbreak of diphtheria, propagated in Uxbridge, where the first patient, a boy of seven, had been visiting. The precautions taken prevented the disease spreading. There had been many cases of typhoid fever which the doctor thinks Orillia had ought to feel ashamed of, "when we reflect that of all preventable diseases, perhaps none are more so than typhoid fever." Nearly all the cases appeared in the south and southeastern part of the town. In his report, both last year and the year before, he had pointed out the unhealthy condition of that part, and ventured to predict that fevers would be an annual occurrence so long as the sanitary condition remained unimproved. An additional number of the inhabitants had been supplied with pure water, but much less sanitary work had been carried out during the year than in either of the two previous years. Orillia appears to have been unfortunate last year in the selection of its chief officer.

THE TRUE "Gospel of health" was recently preached in St. John's Church, Ottawa, by the curate, Rev. A. W. Mackay, from the text, psalm 41. 1, "Blessed is he that considereth the poor and needy," it being "Hospital Sunday." The Rev. gentleman preached a very practical sermon, to which we listened with a great deal of pleasure. He dwelt upon the need of light and ventilation in the homes of the poor, and of the evils of over-crowding. The numerous cases of typhoid fever in Ottawa hospital

he attributed to foul and poisonous gas generated by bad drainage. Contagious diseases he said would not spread so rapidly if men would live amid clean and pure surroundings and obey the simplest laws of nature. It would indeed be well for communities if ministers would often from the pulpit preach thus practically upon the care of the "temple of the soul," and we hope Mr. Mackay's example will be frequently followed, and that such sermons will become common.

THROUGH the courtesy of Mr. Ald. Gray, we have received, just as we are about "going to press," a copy of a resume of the mortality of the city of Montreal for the year 1886, with the comparative tables of the mortality from various diseases in the two preceding years, now first published. It appears that the mortality from measles, scarlet fever and diphtheria, as well as from small-pox, were very materially less prevalent or fatal in 1886 than in 1885, indicating better sanitary administration. The small-pox epidemic has thus developed a brighter as well as a dark side.

THE CHOLERA is constantly establishing more and more centres. A Bulgarian gardener, according to the *British Medical Journal*, has imported cholera from Hungary to Firnova, in Roumania, and fifteen villages have since been attacked. The Turkish authorities show considerable alarm, and are taking energetic measures. Military cordons are established along the southern frontier, with instructions to fire on whoever attempts to break through. Whoever neglects his duty, whether officer or soldier, is threatened with death. A medical commission is instructed to carry out the measures prescribed by the International Health Council at Constantinople. A quarantine station is organized at Moustapha-Pacha and all travellers are kept under medical inspection for eleven days. As recently reported in the daily press, the disease has extended over the Andes to the Pacific Coast, into Chili, and is there spreading and creating great alarm.

THE NEXT and early numbers of the JOURNAL will contain articles on poisonous foods, the effects of which are becoming common; cheap foods—a great national economy; many dangers from the use of

"patent medicines;" arsenical wall papers; baking powders; tobacco poisoning; isolation in infectious diseases; heart-disease and the late Earl Iddeleigh; the large infantile mortality and its prevention; why the w. closet should not be in the bath-room; the health officer's place, work and duty, and many other useful and practical subjects.

JUDGE BROWN, of Big Rapids, at the sanitary convention last month in Michigan, after referring to the health regulations of the ancients, said, "As civilization has advanced, and the average of mankind has reached a higher intellectual condition, health laws have become more general and better enforced. It may be stated as a fact that the race of man has advanced mentally and physically in proportion as heed has been given to the laws for the promotion of health. A kind of intuition seems to pervade the human race, aside from and above all law, that it is necessary to care for the public health in order to be comfortable and happy, and to enjoy this life." The "intuition" we fear is very weak in a great many people.

OYSTERS are not generally "fed" for market, but, according to the *Anti-adulteration Journal*, for this month, they are sometimes taken from their original beds and carried to the "floats," where fresher water is allowed access to them. Absolutely fresh water would kill them. The fresh water is absorbed in quantity, and gives them an appearance of plumpness. Oysters can be "water-swollen" in this way in twenty four hours. It is a trick of the dealers, resorted to in order to make their oysters more salable.

A PROMINENT French Government official last summer occupied a house at one of the most fashionable French watering places. When his family moved into the house they were told to beware of the water in the well. On this account they drank only "mineral water," until the last day, when the stock was out, and the servants were too busy to go for more. Madame said, "For once surely there can be no harm in drinking the well water." They drank it. Six out of the nine persons soon became ill and died; others were attacked after their return home. The well has been examined by M. Dujardin-Beaumetz, and is reported to con-

tain the bacilli which are believed to be associated with typhoid fever.

THE registration of plumbers movement is progressing satisfactorily in England. We hear but little about the recent movement in this direction in Canada. The *Sanitary Record* says, "If there is one trade more than another that should be under strict regulation, it is that which has our health as individuals and as a nation at the mercy of its most ignorant journeyman. Let us by all means have the Plumbers' Company registrations and certificates, and let us also have a rigid inspection by the local and independent sanitary officials of all plumbing work before it is hidden away from public gaze." At present the Plumbing Company, being desirous of not attempting too much at once, is only striving for the registration of plumbers. Plumbers who can satisfy the registering committee of sufficient practical experience in the trade are registered at once. Those who cannot so satisfy the committee are required to undergo an examination.

A GOOD SUGGESTION is made by a writer in the *Sanitary Era*.—In putting in systems of water works in small towns, he writes, too little attention is given to the matter of "flushing." Where it is necessary to have "dead ends" on street mains (as it is in all small towns) there should be valves placed at all such ends, of such capacity that the connected section of main could be flushed clean, at least once a month. The natural tendency of the sediment coming into water mains is toward these ends. On opening ends of this description for the purpose of making extensions he has found them, in some cases, nearly filled with mud, and this full of minute animal organisms. He has seen animal organisms, visible to the naked eye, drawn from private hydrants near these ends. He thinks the water hydrants not sufficient for the flushing.

SOMETIMES when it is desired to hit the doctors, it is reported that during their absence in a certain town the mortality decreased. Here is something for the other side: In the parish of Eastwood, County of Renfrew, England, during two weeks of October, there were no deaths recorded at the registrar's office. It is the first time it

has occurred since the Registration Act came into force. The parish embraces a population of 15,000. The usual death-rate is from 15 to 17 per 1,000. For years past the medical wants of the inhabitants had been attended to by four medical men, but during the last year no fewer than three other gentlemen started practice there, thus making seven where previously there were only four.

MEMBRANOUS CROUP has for some time been believed by many to be infectious. The Department of Health of St. Paul, Minn., has issued a circular containing this notice: Instances where an entire family have been attacked, owing to exposure to membranous croup, have been too numerous to leave doubt in the minds of reasonable persons, as to the contagious nature of the disease. At the last meeting of the Board of Health, and at the instance of a number of physicians, the Board recommended to the common council an ordinance (since passed) requiring all physicians, in the future, to report to the Department of Health all cases of membranous croup, in the same way that they now report diphtheria, scarlet fever and other contagious diseases.

On several occasions we have referred to the danger of so many dogs running at large, and the probable increase of hydrophobia in both dogs and man. It appears that rabid dogs are largely on the increase in the provincial towns in England. In one place, seven dogs and two men, it is reported, had been bitten, in another place, two boys and a girl had been bitten. But neither the people nor the authorities will kill off the dogs until a number of human beings have suffered, probably more than death. So it is here and everywhere.

AN EFFORT is to be made to abolish the Health Board of Detroit, Michigan, and create a health commissionership endowed with full power. There have been dissensions in the present Board.

A GOOD preventative to dyspepsia is slow eating. A small quantity of food slowly eaten satisfies hunger better than a much larger quantity rapidly consumed.

A WOMAN quack was imprisoned in Paris for selling as a cure for heart-disease a con-

coction made by boiling puppy-dogs and red earth for nine days in oil. Price, four dollars for a small pot.

DURING one year Pasteur has treated by inoculation 2490 persons, believed to have been bitten by rabid animals. In 10 of these cases death ensued.

THE Birmingham (Eng.) *Daily Post* publishes as the result of one day's foot-ball games thus: One death, two broken legs and two other fractures. A good day for surgeons, but rather rough on the boys, says an exchange.

MUCH dissatisfaction is expressed respecting the action of the committee of the American Public Health Association with reference to the "Lomb prizes," according to the *American Lancet*.

IN a sanitary point of view, that house is the most perfect in which all the plumbing is located in a building detached from the dwelling.

THERE is abundant evidence, says the *American Lancet*, showing that nearly all hair restorers contain lead, and that their long-continued use may induce serious disease.

THE great State of Pennsylvania gives its State Board of Health \$5,000 a year, while the State of Mississippi gives its state Board \$45,000 a year. Such is the practical estimate placed upon the public health by the two states.

DR. MULLER (*Deut. Med. Woch.*) recommends a solution made of thymol 0.25 gm., benzoic acid 3.00 gm., tincture of eucalyptus 15.00 gm., and water 750.00 gm., to be used as a wash to rinse out the mouth after meals, and especially before going to bed. It is said to destroy bacteria and prevent carries of the teeth and foul breath.

"SEE here," said an angry citizen to a quack doctor, "that 'wonderful discovery' of yours for preserving the scalp is a fraud." "Why so?" "Look at that," he went on, removing his hat, "since using it I have lost all my hair." "Oh, it doesn't pretend to preserve the hair," replied the doctor, "only the scalp. You've got your scalp left; be thankful. You musn't expect too much of medical science."

THE fourth annual meeting of Ohio State Sanitary Association, will be held in Columbus, Ohio, February 10th and 11th, prox. This appears to be a flourishing association. Canada should have a similar one.

IN ARREARS to this JOURNAL, there are many, and we would respectfully ask them to kindly remit the amount due. Most of them, those who are more than one year (1886) behind, have had bills sent to them, will they kindly honor the same, and much oblige.

THE NAMES of those who have received the JOURNAL for years and *will not take any notice* whatever of our appeals to them for a reply of some sort to our communications, we purpose (as did the *Lancet* some years ago) giving to the rest of our readers and others, by publishing the names in the JOURNAL. Not a very long list, but they ought to be more generally known.

#### NOTES ON CURRENT LITERATURE.

HARPER'S MAGAZINE for January opens with a charming frontispiece, by Frank French, "A Creole Belle." There is an interesting, and indeed, with the present state of international feeling in Europe, a timely article, apparently the first of a series, on "The Navies of the Continent—I. The French Navy," by Sir Edward Reed. We are given a delightful, lengthy and finely illustrated paper on New Orleans, by Chas. Dudley Warner. This is followed by two stories—one by Kathleen O'Meara, "Narka: A Story of Russian Life, part 1," and the other by R. M. Johnston, "Martha Reid's Lovers," illustrated. "Summer campaigning with the Cossacks," is another good paper, profusely illustrated. There is a long instalment of "Springhaven" and several good poems. The "Easy-chair," "Study" and "Drawer" contain the usual amount of interesting and entertaining reading. Altogether, we think this, the first number for the year, is an exceedingly good one.

READERS of the Life of Lincoln, and doubtless there are many in Canada, in the January *Century*, will be gratified by the liberal portions of that work which are presented to them from month to month. The current part relates to Lincoln in Spring-

field; the first clash with Douglas; the Log Cabin and Hard Cider Campaign; Lincoln's marriage; his relations with the Speeds of Kentucky; the Shields duel; the campaign of 1844; and Lincoln's devotion to Clay. Among the characteristics of the young politician, it is recorded in his own words that he was opposed to "removals to make places for our friends." The paper has a number of interesting pictures, portraits and documents. There is, too, in the January number a sketch entitled "George Bancroft, —in Society, in Politics, in Letters," contributed by the editor of "The Princeton Review," formerly Mr. Bancroft's private secretary at Berlin. Edward Atkinson contributes a paper on "The Relative Strength and Weakness of Nations," being the first of "Two Studies in the Application of Statistics to Social Science." The number contains papers on "Comets and Meteors," "French Sculptors," "Fencing and the New York Fencers," and an "Indian Horse Race," with the usual allotment of fiction and poetry. In "Topics of the Time" are three editorials: "A Tyranny that Cannot Live in America" deals with the tyrannical and dead-level features of the Labour Problem; "The Blot on the 'Scutcheon'" presents three reasons why the long struggle for International Copyright law should be continued during the present session of Congress; "How Prohibition Grows" is addressed both to the Prohibitionist and to their opponents. Two of the "Open Letters" are, one by Wm. Wilkinson, on "Greek and Latin—shall they Stay or Go?" and another by Charles Barnard on "The Cultivation of the Cantata."

ST. NICHOLAS for January, issued December 27, is not so much a New Year's number as a second part of the Christmas number. It opens with an old-time poem by Edith M. Thomas, called "Ye Merrie Christmas Feast," charmingly engrossed and illustrated by Reginald B. Birch, the work of whose clever pencil is also seen in the drawings for two bright poems, "The Gallery Cat," by Margaret Vandegrift, and "When the Mad-pa was a Little Boy," by Malcolm Douglas. The article, "Millet and the Children," by Ripley Hitchcock, with its numerous illustrations by the great peasant painter, and the curious little sketches, never before

published, made by him to amuse his grandchildren, will also amuse and interest all readers of St. Nicholas, young and old, whether they are fond of art or only of pictures. There are more "Brownies," by Palmer Cox, which come oftener now.

"A REASON FOR SMILING," is given by a blind little maid in St. Nicholas for January, by Emilie Poulsson:

"Bertha, tell," I said one day,  
 "Why you seem so glad and gay—  
 Brimming full of happiness,  
 What's the joy? I cannot guess!"

In a tone of wondering,  
 Speaking thoughtfully and slow,  
 "Why!" she said, "I didn't know  
 There had happened anything"—  
 Here the laughter rippled out—  
 "To be looking sad about."

THE *Scientific American* gives from time to time a good deal of valuable sanitary information. Some late numbers have been especially good, not only as relate to sanitation, but as valuable scientific papers. In the number for December 18th we find reference to a paper on purifying water by agitating it in contact with finely divided iron. The chemical nature of the organic matter is changed, and existing albuminoid ammonia is reduced from one-half to one-fifth of its original amount; the water is softened by the precipitation of the carbonate, and infusorial life is largely destroyed and modified. The system is now in successful operation at Antwerp and other places in Holland.

THE *Public Herald*, of Philadelphia, is doing a valuable work in hunting up and exposing frauds and humbugs, and it deserves liberal encouragement. It gives the names of many advertising dead-beats who rob publishers of papers. In its last issue it exposes a woman in Illinois who has been selling villianous pills to young married women for criminal purposes. There is, no doubt, a good deal of this sort of thing being done quietly and secretly, and the *Herald*, in striking at such villany, is saving life and health.

PHYSICIANS' supplies, especially all required in antiseptic surgery, may be found in large variety and quantity at the establishment of Messrs. W. A. Dyer & Co., Phillips Square, Montreal.

#### HEALTH MAXIMS FOR DAILY PRACTICE

Health has a money value: as you would take care of money, so take care of health.

Pure air first of all: shun, as poison, air once breathed.

Breathing foul air makes foul blood: let the foul air out of your rooms and let in the fresh air.

Keep your lips closed and strain the air through the nostrils.

Learn to breathe full and deep, and so strengthen your lungs.

When tired take rest, not stimulants: sit in a low easy chair or lie down.

"Don't eat when very tired nor when over heated,—wait a little.

**D. R. ROBERTSON, L.D.S.,** Dentist, Graduate of the Philadelphia Dental College, and of the Royal College of Dental Surgeons, Ontario. Office: over Mr. Christie's Drug Store, Corner of Sparks and Metcalfe Streets, Ottawa.

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# FREE GRANTS, PRE-EMPTIONS, ETC.

How to obtain them in the Canadian North-West.

## DOMINION LAND REGULATIONS.

Under the Dominion Lands Regulations all Surveyed even-numbered sections, excepting 8 and 26, in Manitoba and the North-West Territories, which have not been homesteaded, reserved to provide wood lots for settlers, or otherwise disposed of or reserved, are to be held exclusively for homesteads and pre-emptions.

**HOMESTEADS.**—Homesteads may be obtained upon payment of an Office Fee of Ten Dollars, subject to the following conditions as to residence and cultivation:

In the "Mile Belt Reserve," that is the even-numbered sections lying within one mile of the Main Line or Branches of the Canadian Pacific Railway, and which are not set apart for town sites or reserves made in connection with town sites, railway stations, mounted police post, mining and other special purposes, the homesteader shall begin actual residence upon his homestead within six months from the date of entry and shall reside upon and make the land his home for at least six months out of every twelve months for three years from the date of entry; and shall, within the first year after the date of his homestead entry, break and prepare for crop ten acres of his homestead section; and shall within the second year crop the said ten acres, and break and prepare for crop fifteen acres additional; making twenty-five acres; and within the third year after the date of his homestead entry, he shall crop the said twenty-five acres, and break and prepare for crop fifteen acres additional—so that within three years of the date of his homestead entry, he shall have not less than twenty-five acres cropped, and fifteen acres additional broken and prepared for crop.

Land other than that included in Mile Belt, Town Site Reserves, and Coal and Mineral Districts, may be homesteaded in either of the three following methods:—

1. The homesteader shall begin actual residence on his homestead and cultivation of a reasonable portion thereof within six months from date of entry, unless entry shall have been made on or after the 1st day of September, in which case residence need not commence until the 1st day of June following, and continue to live upon and cultivate the land for at least six months out of every twelve months for the three.

2. The homesteader shall begin actual residence, as above, within a radius of two miles of his homestead, and continue to make his home within such radius for at least six months out of every twelve months for the three years next succeeding the date of homestead entry; and shall within the first year from date of entry break and prepare for crop ten acres of his homestead quarter section; and shall within the second year crop the said ten acres, and break and prepare for crop fifteen acres additional—making twenty-five acres; and within the third year after the date of his homestead entry he shall crop the said twenty-five acres, and break and prepare for crop fifteen acres additional, so that within three years of the date of his homestead entry he shall have not less than twenty-five acres cropped, and shall have erected on the land a habitable house in which he shall have lived during the three months next preceding his application for homestead patent.

3. The homesteader shall commence the cultivation of his homestead within six months after the date of entry, or if the entry was obtained after the first day of September in any year, then before the first day of June following; shall within the first year break and prepare for crop not less than five acres of his homestead; shall within the second year crop the said five acres, and break and prepare for crop not less than ten acres in addition, making not less than fifteen acres in all; shall have erected a habitable house on the homestead before the expiration of the second year, and on or before the commencement of the third year shall have begun to reside in the said house, and shall have continued to reside therein and cultivate his homestead for not less than three years next prior to the date of his application for patent.

In the event of a homesteader desiring to secure his patent within a shorter period than the three or five years, as the case may be, he will be permitted to purchase his homestead, or homestead and pre-emption, as the case may be, on furnishing proof that he has resided on the homestead for at least twelve months subsequent to date of entry, and in case entry was made after the 25th day of May, 1883, has cultivated thirty acres thereof.

**PRE-EMPTIONS.**—Any homesteader may, at the same time as he makes his homestead entry, but not at a later date, should there be available land adjoining the homestead, enter an additional quarter section as a pre-emption, on payment of an office fee of ten dollars.

The pre-emption right entitles a homesteader, who obtains entry for a pre-emption, to purchase the land so pre-empted on becoming entitled to his homestead patent; but should the homesteader fail to fulfil the homestead conditions he forfeits all claim to his pre-emption.

The price of pre-emptions, not included in Town Site Reserves, is two dollars and fifty cents an acre. Where land is north of the northerly limit of the land grant, along the main line of the Canadian Pacific Railway, and is not within twenty-four miles of any branch of that Railway, or twelve miles of any other Railway, pre-emptions may be obtained for two dollars per acre.

Payments for land may be in cash, scrip, or Police or Military Bounty warrants.

**TIMBER.**—Homestead settlers, whose land is destitute of timber, may, upon payment of an office fee of fifty cents, procure from the Crown Timber Agent a permit to cut the following quantities of timber free of dues: 30 cords of wood, 1,800 lineal feet of house logs, 2,000 fence rails, and 400 fool rails.

In cases where there is timbered land in the vicinity, available for the purpose, the homestead settler, whose land is without timber, may purchase a wood lot, not exceeding in area 20 acres at the price of five dollars per acre cash.

Licenses to cut timber on lands within surveyed townships may be obtained. The lands covered by such licenses are thereby withdrawn from homestead and pre-emption entry, and from sale.

**INFORMATION.**—Full information respecting the land, timber, coal and mineral laws, and copies of the regulations, may be obtained upon application to THE SECRETARY OF THE DEPARTMENT OF THE INTERIOR, Ottawa, Ontario; THE COMMISSIONER OF DOMINION LANDS, Winnipeg, Manitoba; or to any of the Dominion Lands Agents in Manitoba or the North-West Territories.

A. M. BURGESS, Dep. Minister of Interior.