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STATE MEDICINE.

SPEECH OF THE HON. SENATOR DR. W. H. BROWSE, IN THE SENATE, JANUARY 25, 1881.
—COSTS OF SICKNESS AND DEATHS; PROFITS OF PUBLIC SANITATION; EXPERIENCE OF OTHER COUNTRIES.

(From *The Ottawa Citizen*.)

In calling attention to the important subject of health legislation, I am not treading upon new ground. The path has been trodden and well marked. More than 2,000 years ago Plato, in his great work of organization for the government of the city, gave a most important position to the State physician. Without this officer, and the most efficient that could be secured, as a chief of a department of health, the government, in his opinion, was not and could not be complete. What those functions were which this great statesman required the State physician to perform we gather from the writings of Hippocrates, the contemporary of Plato. Hippocrates was appointed State physician to Athens, and greatly aided in promoting her greatness. He laid down the following instructions:—

“When you have selected the city for your future residence, consider well its situation, how it lies to the winds and the rising of the sun—whether north and south or east and west—consider also attentively the water which the inhabitants use, whether marshy and soft or hard and running from elevated and rocky situations, and then if saltish and unfit for use. Also the ground, whether it be naked and deficient in water, or wooded and well watered; also whether it lies in a hollow or is elevated and cold, and then as-

certain the mode of living of the inhabitants, and their pursuits. If you have thoroughly investigated these matters then you will have no difficulty in understanding all the diseases prevalent in the city and how they manage them.”

Here we have, more than 2,000 years ago, an eminent statesman modelling his government, and, when defining its several departments, marks out as one of the most important that of State Medicine. We also find his intimate friend and counsellor, Hippocrates (the father of medicine), organizing and controlling that department. And, from the above quotation, we learn how graphically this great Minister of the department of health laid down the salient points for the guidance of his subordinate officers. A writer remarks that we have come to realize in our own time, in the more important features of a liberal government, many of the characteristics of the successful republic of Plato, but, in the organization of the department of State medicine, we have as yet failed to realize the model Health Board of Hippocrates. The subject of health legislation is not only important and apparent, but, in order to appreciate its full value, it will be necessary to consider some of its bearings in detail. I shall ask the indulgence of this hon. House while I briefly refer to the following points: What is hygiene? What nations have legislated for public health? What has been accomplished by such

legislation? What may be accomplished by wise health legislation? What are the just demands of the people? What are the responsibilities of a government? Hygiene is of two kinds, private and public. It is of the latter I shall speak. Public Hygiene interests all classes of the community. It has to do with persons of every rank, of both sexes and of every age. It takes cognizance of the places and houses in which they lived, of their occupations and modes of life, of the food they eat, the water they drink, and the air they breathe. It has to do with the physician and his patient, the statesman, the scholar and the divine, the farmer at his plough, the artizan in his workshop, the miner in his pit, the student at his desk, the mariner on the ocean, the condemned in his cell. It is not only a study, but it is a large and comprehensive science. It unmasks the hidden poison that desolates our cities. It offers protection from destructive epidemics. It teaches a remedy that stays the shaft of death, and secures to the thoughtful and attentive citizen a healthy, a happy and a prosperous home. This science, that claims such kindred to the subject, has naturally engaged the attention of a wise government. England's great statesman, in his official position, has stated that the first duty of a statesman is to legislate for the health of the people. Great Britain stands preeminently in the front ranks in her attention to preventive medicine. Chadwick, Simon, Grey and Farr were the heralds who summoned our parental nation to answer for its profligacy of human life. Their efforts were successful. Since 1842 more than fifty

public health bills have passed the House of Commons in England. I may particularize a few of the more important: her Public Health Acts of 1848, the Nuisance Removal Act of 1853, the Local Government Act of 1858, the Sanitary Act of 1866, the Public Health Act of 1872, and the revised Public Health Act of 1875. These Acts, together with others not enumerated, have completed and established on a solid foundation an efficient system of public hygiene, with 15,000 sanitary districts and the requisite number of sanitary officers. France also has carefully considered the great question of State health legislation. The Government of that country has made itself responsible for the health of the people. A department of health has been established. In the formation of a government and the distribution of officers, special care is manifested in selecting a minister who is well qualified to fill the place with efficiency. The result throughout France has been most satisfactory. A remarkable and marvellous decrease in the yearly death rate has been effected. In 1842 their most important legislation resulted in passing a wise health bill. At that date the death rate was 1 in 36 per thousand, while in 1862 it had been reduced throughout France to 1 in 39 per thousand, and in the next decade, through wise sanitary legislation, the death rate was reduced to 1 in 47 per thousand. Let us analyse this result:

1842—Death rate 1 in 36 per 1,000 for 40,000,000.....	Aggregate. 1,120,000
1862—Death rate 1 in 39 per 1,900 for 40,000,000.....	1,030,000
1872—Death rate 1 in 47 per 1,000 for 40,000,000.....	850,000
Difference from 1842 to 1862.	90,000 lives saved.

Difference from
1842 to 1872 270,000 lives saved.
Or 26 per cent.

Prussia, ever jealous of her growth and greatness, both in military prowess and internal development, is shadowing France in her health legislation. She fully recognizes what can be accomplished by wise sanitary laws. Not only has she established health officers throughout her provinces, who are responsible for the health of the people in their localities, but she has instituted an imperial board of health at her capital, which controls all matters of a sanitary character throughout the empire. What has been said of the results in France may also be said of the great work accomplished in Prussia. Austria, Russia and Italy are vigorously moving in the same direction. This question was considered of such magnitude and importance that Italy, during the last summer, held a sanitary convention at Turin, to which sanitarians from all nations were invited, to discuss the great questions of public hygiene. I will now proceed to consider the question of what has been accomplished by health legislation. Here is a wide field for our consideration. Almost every progressive nation has turned its attention to this work of reform. Our own country constitutes the exception. It is true some individual effort has been made to cause public attention to consider this important subject. Some of our medical journals and particularly a sanitary journal published at Toronto, and ably edited by Dr. Playter, have done something towards directing the mind of our Canadian people to the question of public hygiene, but these efforts have received no assistance

or encouragement from our Legislature, nor could they expect to be successful in their individual or unaided work—a work that requires a nation's resources to ensure success. In looking over the range of sanitary reform, I am still hopeful that, in the near future, Canada will awaken to the importance of legislating for the health of her people. Our American cousins have accomplished much through health legislation. The State of Massachusetts every year, at its first meeting of the Legislature, selects her best representatives to act as a health committee. All the necessary powers are given to them to secure sanitary reforms. In a few years, as the result of their legislation, we find the death rate in that State reduced 16 per cent. Michigan, twelve years ago, imitated the example of Massachusetts. The Legislature took the philanthropist, the sanitarian, to her confidence. Ample means were supplied, a State health board was established, and the work of reform vigorously carried on. The death rate of Michigan has been reduced 15½ per cent. I might refer to many more individual States across our borders to show what has been accomplished. Most of them are alive to this important work. Reference should be made to Colorado. Almost from the first settlement in that State a persistent effort has been made to impress on the mind of the public the healthy and sanitary influence of the climate and soil. The State has been largely peopled through this influence, and to-day Colorado may be considered the grave-yard of the Eastern States and Canada. I do not hesitate to assert that we have lost

thousands of our best citizens by not showing the same zeal to impress upon the people the fact that we possess within our borders all the elements of health which make life and residence desirable. To demonstrate clearly what has been accomplished through health legislation, I must particularize in some degree. England, as before mentioned, in 1842 actively engaged in sanitary legislation. Dr. Latham in his admirable treatise mentions the results of sanitary efforts in twelve towns. I will instance five of them:—

	Before Legislation.	After Legislation.	Saving of Life.	Decrease of Typhoid Fever.	Decrease of Consumption.
Cardiff.....	32	22	32 p.c.	40 p. e.	17 p. c.
Croyden.....	23	18	22 "	63 "	17 "
Merthyr.....	33	26	18 "	60 "	12 "
Newport.....	31	21	32 "	40 "	11 "
Salisbury....	27	21	20 "	75 "	49 "

Liverpool 38½ before legislation, changed to 26 after legislation, a reduction of 33 per cent. Manchester 37 before legislation, changed to 27 after legislation. Glasgow from 34 before legislation, changed to 27 after legislation.

Dr. Buchanan, one of the most eminent sanitarians, reported that in 25 cities and towns under his supervision, the death rate had diminished, in some 25 per cent., and in others 33 per cent. Again, all the reports give this assurance, that in all their cities and towns, the average age before legislation was 22 years, while it afterwards increased to 27 years—showing a gain of 20 per cent. in prolonging human life. It is only necessary to refer to the great metropolis, London, to see what can be accomplished by sanitary health legislation. The death rate of that city was 42 per thousand; to-day it re-

gisters but 22 per thousand. The mortality from consumption alone has been reduced from 49 to 10 per cent. To-day that densely populated city is more healthy by 35 per cent. than our own highly favored cities, neglected as they are, and have been by the Legislature controlling the destinies of our Dominion. Take for instance our highly favored commercial city, Montreal, with the Ottawa River behind her, the crystal waters of our noble St. Lawrence in the front, and fanned by the mountain breezes; and yet you will find to-day the death-rate 35 per cent. higher than the death-rate in the great city of London, with her sluggish and contracted river Thames. I must here pause to congratulate the City of Montreal in already having reduced, through sanitary reforms, her death rate fully 25 per cent. within the last five years. I have mentioned that the death rate from consumption in London had been reduced from 49 to 10 per cent. Professor Grey, an eminent sanitarian, who was appointed on a commission to investigate this question, after making full inquiries, has penned this living sentence, "I am fully impressed that throughout England and Wales that of the 36,000 deaths yearly from consumption, 5,000 could have been prevented." Consumption may be considered our national disease. It prevails with a fearful sacrifice in some of our localities. This significant appeal should be heeded by every member of our Canadian Parliament, that nothing should be left undone to turn aside so great a calamity. The swollen death rates of our cities and towns appeal to

us for action for sanitary legislation. What can be accomplished by public hygiene? In order fully to bring this question properly before this hon. House, I must consider three points involved in the subject under discussion: Life, health and money. Dr. Simon (none better qualified to hear testimony) has said "that one-third of the deaths in England could be prevented." If the remark can be applied to England truthfully, after the reduction in the death rate that has been made there, may it not be said with double force of our own Canada? Let us take the statement and present the result. Our population is about 4,000,000. Call our death rate 20 in the 1,000 yearly. The aggregate deaths for the Dominion would be 80,000 yearly. If Dr. Simon's statement applies to us we would have 26,666 deaths yearly that could have been prevented. Instead of one third, I will take one quarter of the death rate as preventable — one quarter of 80,000 will give us 20,000 yearly as preventable deaths. Our governments are buried deep in thought how best they can secure a large immigration. Immense sums of money are taken from the Treasury to accomplish this object—and I am bold to say that we lose, in the aggregate, as many through preventable disease as we induce to become permanent residents from our emigration agencies. I appeal to the Canadian sentiment if we should not feel as deep, if not deeper, interest in protecting those lives that are near and dear to us, as we should for the immigrant stranger who settles upon our shores. As regards the consideration of health, it has been

computed and satisfactorily shown, that for every death there are 20 severe cases of sickness. Also, that each severe case of sickness consumes about 20 days. We have 80,000 deaths yearly. Multiplied by 20, the number of severe cases of sickness to each death would give 1,600,000 severe cases of sickness. Each severe case of sickness, lasting about 20 days, on an average, would then make 32,000,000 days of sickness during each year for the Dominion. Again, to prove that this calculation is correct, we will take the estimate of France and Germany. According to their returns there are 2 days' sickness to each individual, averaging the whole population: 4,000,000 of people in our Dominion, at eight days' sickness for each, would give us precisely 32,000,000 days of sickness, and similar to the first mode of reckoning. Our calculations have been taken at one quarter instead of one third. One fourth of 32,000,000 days of sickness gives 8,000,000 days of sickness that occurs yearly in our Dominion that could have been prevented through sanitary legislation and a careful observance of sanitary laws. I will not tarry to depict the amount of pain and misery connected with these 8,000,000 days of sickness, nor refer to the poverty and crime at the result of this aggregate of sickness, but will ask hon. members to bear in their memories the living assertion of Dr. Simon, Health Officer of England, that all these 8,000,000 days of sickness may be prevented by a wise government. I will now consider the money aspect. Here I may strike a chord that may move those in authority. Although

we know that governments are largely unsympathetic—even credited with having no souls—it has been computed by careful sanitarians that each severe sickness costs, on an average, \$40. I have shown that there are 20 severe cases of sickness to each death; that the number of deaths in the Dominion yearly is 80,000. This 80,000 multiplied by 20 equals 1,600,000 severe cases of sickness, and that multiplied by \$40, the cost of each sickness, amounts to \$64,000,000, which amount represents the cost of the sickness yearly in Canada. One fourth of this is preventable, making the annual loss which could be saved, \$16,000,000. Again, it is estimated that each day's sickness costs \$2. That there are eight days' sickness, averaging the whole population; this gives \$16 for each person yearly, and our population is 4,000,000. Here we have again the cost of sickness \$64,000,000. The two modes of computation bring the same result. It must here be observed that the loss of \$16,000,000 is not the only loss; there is an indirect loss—during those days of sickness, nothing is added to the wealth of the country. Again, our aggregate deaths are 80,000 yearly. About 40,000 occur previous to the age of 21 years. It is also ascertained that these 40,000 who die under the age of 21 years, reach the age of 4 years on an average. If we multiply the 40,000 by the average, 4 years, we find 160,000 years. It costs not less than \$50 per year, on an average, to maintain, clothe, feed and educate those 40,000 who die under 21 years of age. Multiply 160,000 by \$50, cost of each year, and we have

the result of \$8,000,000. One quarter of this loss can be prevented by proper sanitary legislation. The foregoing is a direct loss, for it refers to that class who are not producers, but consumers. I will now turn to the indirect loss caused by death under the age commonly allotted men. According to various estimates, the cash value of each adult life to the nation has been fixed at \$1,000. As about one half die under the age of 21, we will place the cash value of each citizen at \$500. Our aggregate deaths are 80,000 yearly; our cash loss, at \$500 each, would show \$40,000,000, one-fourth of which, according to the estimate of Dr. Simon, is preventable. Now, gentlemen, I have made these computations, and they are correct. They are facts that cannot be disputed, and I will, therefore, proceed to another point already mentioned. What are the demands of the people, and what are the responsibilities of the Government? A deeper interest is manifested in this subject as year follows year. We find in our own country, at the present time, a deep interest is manifested in the great question of health legislation. We find not only individuals, but the public press of the country, taking up the subject for discussion, and demanding that the Government should move in the direction of public health legislation. I was very much pleased to see recently an interesting editorial article on the same subject in a St. Catharines journal, and I hold in my hand a copy of the London *Free Press*, a paper that is widely circulated, in which I find a very able article on that subject. In view of these facts,

the time will soon arrive, if it has not already arrived, for the Government of Canada to take some action on this question. Not only do we find the press of the country taking a deep interest in this matter, but we have seen that it has been discussed by almost every assembly of medical men that has been convened during the last two or three years, or since this question has been agitated in the Legislative halls of Ottawa. Every electoral division of medical men has passed resolutions asking that the Government should institute health legislation, and when the Medical Council for the Province of Ontario met, they also passed a resolution demanding that some action should be taken by the Parliament of Canada. At a recent meeting of medical men, probably the most important that has ever taken place on this continent, or in the world, that of the year 1876, in Philadelphia, when representatives of every civilized nation on the face of the earth assembled, the great questions with regard to health were discussed. An important resolution was passed at that time, recommending that a bureau of sanitary science should be established at Washington; and they demand that the Government at Washington should institute a department of health, presided over by a minister, so that the sanitary condition of the people should be properly cared for, and at that very convention a resolution was passed, and, I believe, forwarded to Canada. I have asked for that paper, demanding that the Government here should also establish a department of health for the same purpose. Not only are individuals, the press and medical conventions demand-

ing this, but we see a deep interest also manifested in it in our colleges. Every well organized situation of any standing in the medical department throughout Canada and other countries has established a chair of sanitary science, in order to educate the mind particularly in this great question of preventive medicine. I know that many think that this question should be left to the physician. I have seen it stated that this was a good work assigned to the physician. No greater mistake could be made. The duty of the physician is to stand between the grave and his patient. He is called to the bedside to treat disease as it is placed before him. It is the duty, hon. gentlemen, of the Government to arrest the arrow before it inflicts its wound upon the victim. That is the position that the legislature should take so far as legislation goes, and it is the duty of the physician at all times to combat disease. There is no class of men in the wide world who are more willing to take their lives in their hands to attend at the bedside of the suffering and devote their time, their talents and their lives even to the healing of the sick and the allaying of pain, but it is the duty of the Government to take a higher and another position. I find in the *Chicago Medical Gazette* a statement which I shall read, with the permission of the House. It is as follows:—

“Experience and common sense alike declare that it is as much the province of Government to protect its citizens, in so far as possible, from disease and death, as it is to guard them against the drepdation of the lawless and criminal class. The fundamental object of the Government, indeed, is to protect life and property; and it is just as essential that the citizens of large cities be protected by Government against

the manifold and mortal dangers of ill-ventilated and tenement-house vaults, as that they should be protected against incendiaries, thieves or robbers. The poor have no houses to be protected by the fire department, and no property to be protected by a police department. The only property possessed by the great mass of the poor, who occupy tenement houses, is their health and ability to work, and, by their daily toil, to earn their bread. Is it not the duty of their Government (for it is the people's Government after all) to protect, in every proper way, that health and capacity to labor? Nor should it be forgotten that such protection operates as the protection of the rich as well, for the pestilence that begins in the hut does not stop at the threshold of wealth."

That this work is important, and that individuals consider it so, I will quote from a statement by Mr. Jackson S. Schultz, a merchant of New York city, a man of prominence there, when referring to this question of health legislation after the city had instituted a department of health. Mr. Schultz states that:—

"The loss in money to that city, between 1822 and 1840, on account of errors in quarantine, originating with the epidemic of yellow fever in 1822, was at least \$100,000,000. Further, the feeling among merchants was such that if there were any danger of falling back upon those old practices they would be willing to maintain a State and a National Board of Health for the purpose of promulgating correct views regarding public sanitation."

The point now is what should be done by the Government? I hold, hon. gentlemen, that the Government should institute a department of health, having a minister at its head, with proper subordinate officers, to consider this great question. I will now refer to some remarks made by a gentleman whose name is no doubt well known to most of you, Dr. Howard, of Montreal. In addressing the Medical Convention from the whole Dominion, held in September last, on this very question, he said:—

"If it be true that under Confederation the care of the public health is a function of the Provincial Legislature, and beyond the power of the Dominion Government, then it appears to me that the first step to be taken should be to establish a Central or National Board of Health, to which should be assigned, amongst other duties, the preparing a comprehensive plan for a national public health organization, to be submitted to the Federal and the Provincial Legislatures for their approval; the obtaining information upon all matters affecting the public health; the advising the several departments of the Government, and the executives of the several provinces on all questions submitted by them, or whenever, in the opinion of the Board, such advice may tend to the preservation and improvement of the public health; the securing the establishment of a board of health in each province, whose functions shall be performed in accordance with the plan prepared by the Central or National Board; the guiding, advising and assisting the Provincial Boards and securing their co-operation in the obtaining of regular periodical reports upon all matters of State medicine; the combining and summarizing in annual reports all the information and facts contributed by the several Provincial Boards of Health, and by any other municipal health organization, or other source. The Central Board should probably consist, as suggested by Dr. Richardson, of a physician, a surgeon, a physician with practical experience as a health officer, a chemist, a veterinarian a statistician, a sanitary engineer and architect. These should all be men of first-rate qualifications, and should receive compensation during the time when actually engaged in the performance of their duties and if the President of the Board were given a seat in the Cabinet, as Mr. Stansfield was in Mr. Gladstone's last Administration, and as Mr. Dobson has been in the existing Administration of the same distinguished statesman, then the influence and usefulness of the National or Central Board of Health would be greatly increased, and its success secured. The health of the people would then be recognized to be as much a primary and special care of the Government as the wealth of the people."

I would also refer to some remarks made on the same subject by Dr. Botsford, of St. John, New Brunswick, on the same occasion:—

"As a profession we have clearly and frequently brought this subject of vital statistics before the country, and no blame can attach to us if efforts are not being made to do away

with the annual loss of ten thousand human lives; and yet, as citizens, we have to blush for our Dominion, which either from ignorance or wilfulness neglects to grapple with this momentous question."

It has, again been argued that this question is one which should be dealt with by the local governments. I know that that opinion has prevailed, but I consider that this Government can legislate in that matter so as not to interfere with any legislation that may take place with regard to health in the various provinces, in this way: let the provinces have their boards the same as they have in Germany; let them legislate as they do in the principalities throughout Germany, and send their reports here to the department of health, and let this be a common storehouse of information, where the facts connected with the sanitary condition of our country may be tabulated, and from here let those facts go forth to educate the people and instruct them how they may preserve their health and their lives. In this way there need be no conflict of jurisdiction or authority. If I am in order, I will now refer to a speech made in the other branch of the Legislature by a distinguished member of the present Government, Hon. Dr. Tupper, in reply to some remarks that I had made in the House as to the right of Parliament to legislate on the question of health. I think I have the right to quote his remarks, in order to show the interest that he then manifested in the subject, and I certainly had hoped that we would have before now some Act to show that the Government were determined to legislate on this question. Dr. Tupper, at that time, said:—

"He felt it was a matter of regret that the

subject of the public health had not been under the purview of the federal power. The hon. member for Grenville had shown, by a very moderate calculation, something, like \$15,000,000, a year might be saved to the wealth of the country. Suppose the saving were placed at half that, a small portion of it would pay for the attention to be devoted to this question, and the advantage would be great in rendering it more attractive as a country to reside in. From the lowest point of view—the financial—the question assumed a gigantic character. It was not exaggerated in any degree by the hon. member for Grenville."

I am committed to this subject. It is dear to me, and I look forward to the time when the voice of the people will demand that the Government shall take a step in the right direction. I know that all reforms are slow of growth; we have seen it in the history of the past. Wilberforce labored year after year before he succeeded in striking off the shackles from his fellow man. Howard traversed Europe, going from dungeon to dungeon and cell to cell, in order that he might bring to light the cruelty that was done to humanity under sanction of law; and although his bones now lie bleaching on the shores of a foreign land, his memory still lives in the minds and hearts of his fellow countrymen. I hope the Government will take this matter, that is of so much importance, into their hands, and if they will accomplish the object I have advocated they will find that the country is prepared to sustain them in so great, so noble and so glorious an effort

The Medical Officer of Health of the City of Edinburgh, Dr. Littlejohn, writes to the *Lancet* that the experiment of requiring physicians to report all cases of infectious diseases, has proved a great success in that city. The physicians make these reports upon forms furnished for the purpose, and receive 2s. 6d. for each report.

ON THE LOCAL ORIGIN AND CAUSE OF CANCER.

BY JONATHAN HUTCHINSON, F.R.C.S.

On the question as to how far and under what circumstances cancer may be regarded as a local disease depends for the most part our decision as to the measures for its treatment.

In syphilis we have a good example of a disease which is both local and constitutional—local in one stage, constitutional in another.

Now, of course no one can doubt that malignant diseases are in their later stages constitutional, and that the blood itself becomes tainted. But the question is, on which class of influences does the very commencement of cancer depend? Does it begin in disorder of the assimilative functions, leading to change in the condition of the blood, or is it, as in syphilis, a mere matter of absorption of morbid material from a local growth, induced by local causes? I will first cite the facts which seem to favour the latter view, and then consider the objections to it.

1. Some forms of cancer continue throughout their course purely local disorders. The rodent ulcer spreads merely by continuity from the part originally infected, never causes enlargement of the glands or induces secondary growths in the viscera: yet no one can doubt that it is closely allied to those cancers which do become constitutional; and in the facts that is incurable except by excision, that it tends to return most inveterately

after removal, and that it involves without distinction all structures which it comes in contact with—skin, mucous membrane, cartilage, bone, etc.—it is most certainly malignant. It would appear that about five-and-twenty years is the average duration of life in a subject of uncured rodent ulcer, death being eventually induced by purely local processes of destruction.

2. Some forms of cancer which do become constitutional are most certainly local at first. A man engages in an occupation which exposes his skin to constant contact with coal-soot. He soon becomes hopeless as to cleanliness, and only attempts the removal of the irritating material from the more exposed parts. In the course of years, on that part of his cutaneous surface on which most folds occur, and which is far beyond all others likely to harbour the soot, there are, in the presence of warty growths, evidences of irritation. In the course of a few more years, one of these so-called "warts" has enlarged and ulcerated. The disease is let alone, and by-and-by the inguinal glands enlarge and coalesce into a tumour, which ulcerates, bleeds, extends widely and deeply, assumes all the features of an open cancer, and, in the course of a few months, destroys life.

I have before me the notes of nearly thirty cases in which, in different London hospitals, operations for cancer have been performed. In most of these there is no knowledge that return did ever take place. In one in which the disease began at the age of twenty-one, three excisions were required in

nineteen years, the man remaining throughout in good health, and appearing to be finally cured by the last. In a second an interval of twenty years occurred between the first and the second operation, the man remaining at his occupation, but, of course, being more careful as regards cleanliness. It has been argued by some, who adopt the opinion that cancer has its beginning in blood-changes, that there must be something in the occupation of a sweep which exercises an influence upon his constitution, and predisposes him to cancer; and thus without denying that the irritation of the soot localises the disease, they will not admit that it can be considered in the light of a *vera causa*. Without venturing summarily to discard such an hypothesis, I must say that facts incline me very strongly not to believe it. Many instances are on record in which men not sweeps, but who in the course of their occupations exposed one or other part of the body to the irritation of soot have had soot-cancer there developed. I have seen it on the hand of a gardener who was accustomed to scatter soot as a manure, on the hand of a bricklayer who was habitually employed in setting and re-setting fire-ranges, and on the scrotum of a stoker, and fireman. Analogy may also afford us corroborative testimony. Can any reason be offered in explanation of the fact that for every three women who suffer from cancer of the lip, there are one hundred men affected by that disease, excepting that this disease is usually caused by smoking and is, in fact, a clay-pipe cancer? It is very rare amongst the

richer classes, because they are careful to use clean and smooth mouth-pieces to their pipes.

I have tabulated upwards of 110 cases of cancer of the lip occurring in hospitals, and find amongst them 106 men and four women, while of the four latter two had adopted the habit of smoking, and one other the diagnosis of the disease was doubtful. In cancer of the tongue or cheek, induced by the long-continued irritation of a broken tooth; in cancer occurring in the old cicatrices of burns which have been irritated; in melanosis supervening on congenital moles which have been scratched; and in the not infrequent transformation of an old syphilitic ulcer on the tongue or os-uteri into one of a malignant nature. We have additional instances of cancer induced locally by different forms of local irritation. In the case of a gentleman, the greater part of whose tongue I removed for epithelial cancer about three years ago, and who died two years later, of return of the disease in the glands of his neck, there was the history of a syphilitic sore of several years' previous duration. The diagnosis as to its original character had been made by two medical men of great sagacity, and it was borne out by a history of syphilis and by the fact that on other parts of the organ syphilitic white-margined patches were still present. In a case of carcinoma of the cervix uteri which I saw some years ago, Dr. Oldham (with whom I saw it, and who had previously attended the lady) assured me that the sore had originally been an ulcer of syphilitic origin, and added that

he had several times seen malignant disease supervene in cases of similar character.

Let no one reply that most of these instances exemplify only the connexion between epithelioma and local irritation, and there is an essential difference between that disease and true cancer. Epithelial cancer is as true a cancer as the scirrhus form, differing mainly in that it occurs in parts which usually are easily accessible to the surgeon. Epithelial cancer is, as a general rule, quite as rapid in its progress to a fatal event as is scirrhus. Few cancers end, as a rule, more quickly than those of the tongue. Those of the female genitals are also often very rapid. Those of the lip and skin generally, if we date, not from the first appearance of a warty induration, but from the time when that wart began to ulcerate and took on a *bona fide* cancerous character, spread when not interfered with, very rapidly—more rapidly, for example, than scirrhus of the breast.

A strong argument in favour of the local origin of cancer is, that when it commences in a part which can be watched, it may be seen that the first effects are not the production of a cancer, but simply of an irritable sore or warty induration. Many so-called "cancers of the lip" are even at the time of their removal doubtfully cancerous, being just in the transition stage between common inflammation and malignancy. Often a wart on a sweep, or a crack on the lip of a smoker, will remain as such for years before it assumes the features of true cancer.

The facts hitherto cited are of a positive character, tending to prove that local agencies are efficient to the production of local malignant disorders. It will now be desirable to advert to certain negative facts which favour the opinion that cancer is for the most part local rather than constitutional in its origin. In estimating their value we must keep clearly in view the difference between cancer in its commencement and in its later stages, after it has by absorption become constitutional.

The chief negative facts referred to by the author relate to the frequent occurrence of cancer in symmetrical organs. Very few facts, he says, are on record as regards the occurrence of cancer symmetrically. I have myself, during a considerable series of years in which I have been interested in procuring instances of this kind, only seen five cases in which both mammary glands were affected, and one in which the cellular tissue of both orbits was simultaneously attacked. In most of these cases there was a history of hereditary tendency. Professor Langenbeck, with whom I had a conversation on the subject a few weeks ago, told me that he thought he had not seen more than half a dozen examples of cancer of both mammary glands. I do not recollect a single instance of symmetrical cancer of bones, or of the eyes. There can be no doubt that symmetry in diseased processes, as a rule, denotes a blood origin, and that the want of it points to a unilateral causation.

The great arguments in support of the constitutional origin of cancer are its occurrence as a primary disease in internal and protected

organs ; it being sometimes hereditary ; the want of success which so often attends operations for its removal ; and its not very unfrequently assuming a multiple form and occurring in many different places at the same time.

Cancer of the liver is a good example of the disease in the form in which most would be inclined to assert that it was certainly of constitutional origin. We meet with it there in an organ with which external influences have little or nothing to do, and it is almost always seen in numerous distinct masses. But it must be borne in mind that we do not know what form the disease assumed in its very earliest stage ; and I may be allowed to suggest that it is but fair to infer of cancer in hidden localities that which we know is its course in those parts which can be seen and touched. Supposing a single nodule of cancerous material to be produced in some one irritated or diseased spot in the liver, its rapid diffusion in scattered masses through the organ is easily accounted for on the absorption doctrine, or calling to mind the large vascular channels by which the liver is everywhere permeated. A similar remark applies to cancer of the lungs. I will put it as a clinical question to those of greater experience in the subject than myself, whether there is not in many cases of cancer of the internal organs a history of previous irritative disease ? Cancer of the rectum occurs often in women in whom that tube has been severely bruised during a long labour. I have two patients now under observation, who assign a malignant stricture a few inches up the gut to that cause, and, I think, with a fair probability that they are right. Cancerous

disease of the bowels higher up originates, I believe, not unfrequently in the cicatrices of dysenteric or tuberculous ulcerations. Many cases of cancer of the stomach occur in those who have suffered for long from symptoms which might be supposed to indicate non-malignant ulceration. Many other cases not preceded by local symptoms are probably due to hereditary transmission, which, as I shall endeavour to show directly, is no real exception to the law of the local origin of cancer.

The further we investigate the laws of generation, the more clearly we shall perceive that reproduction is only a mode of growth. The son is an actual part of his father ; he is literally a chip off the old block ; he is an outgrowth, a development, and only in a very restricted sense a new being. Whatever his father's blood was at the time he was begot, that -- modified, be it remembered, by his mother's -- the son's will be. A man, the subject of soot-cancer which has infected his blood, becomes a father, and, should his son become cancerous, it would be quite correct to say that the disease in him was of constitutional origin, but the fact would prove nothing whether against the assertion that the starting-point of cancer was local. Its origin is often constitutional as it regards the individual affected, but local as regards the starting-point, the disease itself. Nor would the recurrence of cancer by hereditary transmission in the representatives of several successive generations in the least alter its original character. The syphilitic virus differs from the cancerous virus in this, that after it has been absorbed into the blood it tends to go through a certain course and in due time to exhaust its power,

whereas that of cancer is not subject to any such limitary law. If the son of a cancerous parent inherit such a taint as suffices to produce in him the same disease, the growth thus caused will tend to contaminate his fluids yet more, and the chance that his children may suffer, instead of being less than it was in his own instance, will be at least as great, or very possibly greater. Thus a family in which cancer has once occurred may be very long indeed before the liability can be considered as in the least diminished, since every outbreak of it is equivalent, as far as the patient's subsequent progeny are concerned, to relighting of the fire in all its pristine vigour. It is a matter of wonder with some writers that a disease so clearly capable of transmission to offspring as cancer often is, should not more commonly be traceable to hereditary causes. The difficulty is, I take it, to be explained by the fact that cancer for the most part does not show itself until about the end of the child-bearing period, and that therefore but few children are born the offspring of parents either of whom actually had cancer at the time. Were it not for this—were cancer a disease like syphilis, frequently suffered from before marriage—no doubt the community would soon become very extensively affected with cancerous taint.

The opinions which I hold may perhaps be best illustrated by a hypothetical case. If a thousand men and the same number of women, all free from the remotest hereditary tendency to cancer, could be made to constitute an isolated community; if circumcision of the males were always

practised, smoking strictly prohibited, broken stumps of teeth promptly removed, all *nævi* and moles excised, and the most precise personal cleanliness enforced, I should expect many generations to pass before cancer showed itself. When it did show itself, as it would undoubtedly in a longer or shorter time, the consistent development of the theory in question would lead to prompt adoption of surgical measures, if the case admitted them, to the prevention of the affected person from becoming a parent, and possibly even to the prohibition of marriage in the case of the child last born to him, if such birth had occurred within a short period of the outbreak of the cancer. In avowing a belief that measures such as these would be calculated to restrain the spread of cancer, it will be seen that I differ *toto cælo* from the opinions of those who consider cancer a disorder of blood origin. And it will be seen at a glance that the question as to which opinion is right and which wrong is one of very vital consequence in the practice of surgery.

To return to the more strictly practical aspects of the matter, it may be freely admitted that the assertion that in theory cancer is at its *fons et origo* a local disorder is a very different one from an avowal that in practice we may treat any individual case as if it were so. A vast number of the cancers which we encounter are, as regards the individual, strictly constitutional, or in other words hereditary. Then, again, it must be remembered that a vast number, although local at first, have become constitutional in the individual, owing to absorption of the cancer-

ous plasma. Only a few of those which come under our observation are still restricted to the place affected and susceptible of successful treatment by local measures. The following circumstances ought always to be deemed suspicious as to the existence of general taint:—

1. *Whenever the disease is symmetrical.*

2. *When the patient is young.*
As a rule, when young persons are attacked by cancer, there is a history of hereditary tendency; but, whether such be the case or not, the disease is usually constitutional. It must always be remembered that the not being able to obtain from the patient's friends a history of cancer in relations does not by any means prove that no instance of it has ever occurred.

3. *When the growth is unusually rapid in the development.*

4. *When there is no history either of injury or of source of irritation,* more especially if the organ attacked be one which is well protected.

If we adopt the view that cancer when it begins *de novo* in an individual—*i.e.*, not hereditarily—is a local disease which tends to become constitutional by the absorption of its fluid elements through the lymphatic system and thence into the blood, the following rules as to its treatment follow as a matter of course—

1. Primary cancers ought whenever accessible to be excised, or otherwise freely and promptly destroyed.

2. Since the process of absorption into the system is simply one of time, and since the prevention of it is the one point of importance to the patient, all operations for the

removal of cancers ought to be done without any avoidable delay.

3. If the lymphatic glands are in the least enlarged they ought to be taken out, the entire cluster being removed—as well those which are not enlarged as those which are,

4. If the disease return, either in or near the cicatrix, or in the proximal lymphatics, it ought still to be regarded as possibly local, a second free excision promptly undertaken.

5. After an operation for the removal of a cancer the patient and his friends ought to be informed of the probability that the glands may enlarge, and impressed in the most forcible manner with the absolute necessity of immediate recourse to the surgeon should such be the case.

6. After the excision of a cancer which has involved the removal of a considerable portion of integument, great care should be taken, either by transplantation or other manœuvre of plastic surgery, to secure a limp cicatrix which shall be wholly free from tension.

7. The removal of cancers by escharotics is a practice to be avoided (excepting perhaps under certain unusual circumstances), for the simple reason, if for no other, that it wastes invaluable time, and consequently involves increased risk of the contamination of the system.

The want of success which has attended operations for cancer, and the comparative discredit into which they have consequently fallen, are to be attributed to the fact that such measures are, in the large majority of instances, not adopted until too late. In many instances these delays are unavoidable; but

in many others, were the views of the profession generally a little modified on these matters, they might easily be obviated. In how many cases of scirrhus of the breast does the surgeon who first sees the patient waste many months in the vain trial of constitutional remedies, in the hope, it may be, that his suspicions as to the nature of the lump may not prove correct, or, it may be, regarding an excision not as a means of possible cure, but only as a mode of temporary alleviation when the growth shall have become painful? Again, in numerous cases in which the surgeon relies boldly on his diagnosis, and advises an immediate operation, the tumour being as yet small and painless, the patient, alarmed at the proposal, seeks other opinions, and thus becomes herself responsible for a delay which will cost her her life.

IMPURE WATER AND WATER ANALYSIS.

MICROSCOPIC LIFE AND SPECIFIC GERMS.

Dr. Charles Smart, in the *Sanitary Engineer*, gives the following practical and sensible article on the above subject:

A certain percentage of the organic matter in ordinary waters is alive, consisting of minute animalcules and microscopic plants. The latter when aggregated become visible to the unaided eye, as adherent slime or floating scum, generally of a greenish color. The former with few exceptions are visible only through the microscope. It need scarcely be mentioned that the sensational reports concerning them are the offspring of a very little knowledge. The single drop of water, so teeming with life that

the mind becomes lost in the attempt to calculate the myriads which may exist in a tumblerful, is always a selected drop in which has been netted the greater part of the life which was present in perhaps a gallon of the water. Drops taken at random, even from a very impure water, seldom show any living forms. The presence of these animalcules indicates impurity, their number suggests the amount of impurity, and their kind frequently throws light on the character or quality of the impurity. The ova of intestinal worms may be present and propagate disease; but, excluding these, and the specific germs to be immediately considered, none of the various forms of life which occur in water can be said to cause injury to the system of the consumer. Their influence must rather be considered as beneficial, until proved by experience to be otherwise, for they transform dead, putrescible, and harmful matter into living and impurescible tissues.

When decomposing organic matter exists in such quantity as to render a water dangerous, its presence can generally be detected by the tainted odor. Analysis is seldom needful to protect from choleraic diarrhoeas. But waters which, to the senses, give no indication of the putrefactive process, and which show on analysis but a small total of organic matter, may be dangerous from the peculiar character of certain of their organic constituents. Among the substances generally classed as organic matter, there may be the essence, germ, or poison of specific disease. The propagation of typhoid fever by means of the water-supply is a well-recog-

nized fact. A well or other water-source becomes contaminated by the alimentary excretions of a fever patient, and straightway every household which draws its supply from this source becomes infected with typhoid, while others which make use of a different supply are spared. Cases of this kind are of frequent occurrence. Typhoid fever is a dangerous disease. It kills one-tenth of those whom it affects; and when the victim fortunately escapes with life, it is at the expense of long sickness and tedious convalescence. Consumption often follows on its trail and completes the destruction which it commenced. The census returns show that at least 25,000 people die annually in the United States from the direct effects of the typhoid poison. Not all of these cases are propagated by the water-supply, but the more this subject is investigated, the more important does the water become in this connection.

The poison of typhoid fever is reproduced within the system of the affected individual, and is discharged with the alimentary refuse. It finds its way from the surface, or from the vault or sewer to which it has been consigned, to the water-supply. Usually in such cases, the quantity of the accompanying animal refuse or sewage material warrants the condemnation of the water. But if the sewage matters reach the water by filtration through the soil, all solid particles of animal matter may be removed, and that present in solution may become oxidized by the air in the porous soil, or nitrified by a fermentative agency, so that organic matter may not be found in the filtered water. The filtration, if effective, destroys

the usual products of healthy animal waste, or in other words, purifies the water which contains them; but there are grounds for believing that the specific poison of typhoid fever is not so readily destroyed,

Neither chemical methods nor the microscope can guarantee the absence of this poison; whence it may happen that a water may be capable of spreading the disease, although on analysis it may show as comparatively pure. The worthlessness of the processes in use by sanitary analysts has been argued from this, generally by those who have attained to the little knowledge, which is dangerous, with a view to perverting the results in some particular instance. A water free from any notable amount of organic matter, and yet poisoned by the infection of fever, is a possible case—an unusual one, however. But even when the ordinary sewage material is destroyed, its nitrified remains and other indications of its previous existence can be demonstrated, and by them the connection is established between the water-supply and a polluting source. Any interference with the efficiency of the filtration by the progressive enlargement of the lines of communication, the establishment of new channels by fluctuations in the level of the subsoil water, or other causes, may carry the sewage unchanged into the supply. Or the polluting source may at any time become infected with a specific poison, which may resist the purifying influences of the filtration. Analysts are therefore guarded in their opinions concerning the wholesomeness of a water which is exposed to such dangerous possibilities. While they

are unable to specify the existence of fever poison in a given water, they can indicate the supplies which are liable to become so poisoned.

TYPHOID FEVER FROM INFECTED MILK.

The *British Medical Journal* of Dec. 11, says the *Sanitary Engineer*, reports two epidemics of typhoid fever from infected milk. The first was at Worthing, where a son of the occupier of one of two adjoining houses—the other occupier being a dairyman—returned from London in good health on September 16, and on September 24 fell ill of typhoid fever.

The two houses had in common a well which had been in use for 40 years or more. Examination of the interior after the outbreak occurred showed a palpable soakage into it from the outside, a little above the water line, and on the same side as, and just beneath, the drain of the other house.

For the washing out of milk cans the well water was used. About the middle of October cases of typhoid began to appear in the town, in some cases in houses where there were no sanitary defects, but always where the milk supply came from this dairy. In all, 44 cases occurred from this cause, 8 of which proved fatal. The well was filled up November 4, and the last case appeared November 9.

The second epidemic was at Southport, where 32 cases of typhoid occurred from infected milk—the further spread of the disease being prevented by stopping the sale of milk. There is little doubt that we have in this country, and especially in our large cities, typhoid fever from milk contamination, but

it has not been established. When typhoid fever occurs which is not traceable to water supply, look out for the milk.

INTERESTING FACTS AND FIGURES.—ARE CANADIANS NOT LONG LIVED?—NATIONALITIES AND OLD AGE IN ONTARIO.

Though a large number live to advanced age in Ontario, the returns of deaths, according to the reports of the Registrar-General for the last three years, in which only are tables showing nationalities of descents, show that of a certain number of English, Irish, Scotch, Americans, and Canadians, each, who live to be sixty years of age and over, a smaller proportion of Canadians than of any of the other nationalities named above live to be eighty years and ninety years old and upward.

Whatever may be the cause of this—whether habits of life, as overwork, early exposures, improper food, or climate—the fact appears to stand out, proved unmistakably, by figures, for each of the three years.

Thus the report for 1877 shows that, while 760 English people died at the age of 60 years or over, and that 210, or 27.6 per cent. of that number, lived to be over 80 years old; 1,368 Irish people died at the age of 60 years or over, and 384 or 28 per cent. of that number lived to be over 80 years old; 751 Scotch people died at or over the age of 60 years, and 275, or 36.6 per cent. of the number, lived to be over 80 years; of Americans, 345 died at or over 60 years old, and 140, or 40.5 per cent. of this number, lived to be over 80 years old; 707 Canadians died at the age of 60 years or over, and only 175, or 24.7 per cent. of

that number lived to be over 80 years old.

Of those who lived to be 90 years old and over there was a somewhat larger proportion (according to the number exceeding 60 years of age) of Canadians than of English, but there were only about half as large a proportion of Canadians as of Scotch and Americans, and a little over two-thirds as many as of Irish, lived to that advanced age.

Up to the age of 70 years Canadians do not compare so unfavorably with those of the other countries.

Why does not as large a proportion of Canadians live to be 80 and 90 years old and over as of the people of other countries living in Canada? This is a question it would be well if it were possible to have answered correctly; when the cause would be known, and might probably be overcome or avoided.

The climate of Canada is universally believed to be favorable to health and longevity, and the cause of the smaller proportion of Canadians in Ontario living to advanced age must be sought for elsewhere.

The principal cause is probably in the overwork and exposures, incident to the earlier life of Canadians in a new country.

The "Americans," so registered, show the largest proportion living to advanced age; but the numbers of these are not large, and they are probably of the well-to-do class or of the very low class, both of whom take life easy, and not of the more hard working people, who are usually most exposed, or perhaps in different, to influences which shorten life.

Next come the hardy, plain living Scotch; and next to these the Irish; then English; and, last, Canadians.

As the country becomes older, and as more knowledge in regard to the laws of health is disseminated, it will doubtless be found that the longevity of Canadians will compare most favorably with that of the people of other countries.

BELOW IS A TABLE SHOWING THE TOTAL NUMBER OF DEATHS AMONG THE DIFFERENT NATIONALITIES, AND THE NUMBER ABOVE 60 YEARS OF AGE.

Nationality	1877.		1878.		1879.	
	Total deaths over 60	Per cent. of Number over 60 living over 90	Total deaths over 60	Per cent. of Number over 60 living over 90	Total deaths over 60	Per cent. of Number over 60 living over 90
English.	670	70.4	734	65.5	869	62.6
Irish.	501	66.27	483	68.30	1356	67.6
Scotch.	1368	65.5	1284	68.30	816	72.6
Americans.	897	73.36	873	70.32	536	75.8
Canadians.	210	80.9	175	70.32	264	75.8
English.	31	70.4	27	65.5	32	62.6
Irish.	82	66.27	95	68.30	95	67.6
Scotch.	67	73.36	33	70.32	60	72.6
Americans.	35	72.7	23	77.41	32	75.8
Canadians.	32	80.9	25	70.32	29	75.8
English.	450	70.4	422	65.5	544	62.6
Irish.	483	66.27	156	68.30	917	67.6
Scotch.	548	73.36	396	70.32	439	72.6
Americans.	275	80.9	231	70.32	272	75.8
Canadians.	140	72.7	132	77.41	143	75.8
English.	345	70.4	249	65.5	320	62.6
Irish.	450	66.27	422	68.30	264	67.6
Scotch.	707	73.36	663	70.32	521	72.6
Americans.	450	80.9	422	70.32	201	75.8
Canadians.	175	72.7	156	70.32	201	75.8
English.	707	70.4	663	65.5	814	62.6
Irish.	450	66.27	422	68.30	521	67.6
Scotch.	707	73.36	663	70.32	521	72.6
Americans.	450	80.9	422	70.32	201	75.8
Canadians.	175	72.7	156	70.32	201	75.8

LIFE AND MIND ON THE BASIS OF
MODERN MEDICINE.

The following is from the *Independent Practitioner*, Baltimore:—The editor of the *Lancet* makes this comment in criticizing a letter upon the above subject: "We maintain that the non-existence of a something beyond or behind matter cannot, with our present knowledge, be proved. The statement, that function or motor force is imminent in matter is not sufficient in these days of vigorous analysis, as an explanation of the meaning of energy in organized bodies present in the state called life, and absent in death. Co-ordinated or associated action surely has a higher or deeper significance that can be predicted of corpuscular *vis insita*. This can never account for the intelligent co-operation of atoms in working out harmoniously the well-being of the individual organism."

The foregoing extract was taken from a recent number of the *Record*, and is of such importance that we place it in our editorial department. It would be well for science, for morality and for mankind, if all editors, and others, in responsible positions in the profession, had the intelligence and moral courage to appreciate these facts in a proper manner, and to give utterance to their honest convictions upon this most important subject. And now that the *Lancet* has spoken, it is sincerely hoped that lesser lights in the profession will take courage and speak "for God, for man, for duty," and thereby aid in stemming the torrent of materialism and unbelief, which are sweeping so many into the great ocean of atheism! It is no

part of our duty to write sermons on the inspiration of the scriptures nor to expatiate on the evidences of Christianity; but it is our duty, as well as our privilege to endorse such noble and truthful utterances as stand at the head of this paragraph. Did the class who attempt to undermine religious belief, and subvert the teaching of Revelation, supply us with any better thing than the declarations of the lowly Nazarene; or something which could give a dying man equal comfort and hope in his last hours; we might not dwell for a moment upon the infidel teaching and tendency of the present time! But, unfortunately, they offer their proselytes and followers nothing but annihilation and darkness, as the reward for their disbelief of the Christian faith! Our great surprise is that any human being possessed of sufficient intelligence to comprehend the simplest principles of logic to say nothing of the "longing after immortality," can in the face of nature deny the eternity of the soul and a future beyond the grave!

SEWAGE AND TYPHOID.

It would be hard to find a better illustration of the doctrines which we (*Med. Times and Gazette*) have endeavoured to enforce with regard to the origin of typhoid than that afforded by the following extract from the *Times* of Friday, December 24:—"At the Mansion house, on the 23rd ult., Mr. John Lynn, a refreshment and oyster-shop keeper, of 70, Fleet-street, was summoned before Alderman Sir William Anderson Rose for keeping in his shop a well used for domestic purposes, the water of which was polluted and unfit for use. The well had

been the subject of numerous complaints for some time past. As long ago as the month of June last the defendant had been warned by the authorities, and he then signed an undertaking, in consideration of which the authorities took no further steps against him, that the well-water should for the future not be used for either drinking or cooking purposes, and that the pump should be fastened by a chain or padlock during the hours he was licensed to carry on business. Since then, however, Dr. Sedgwick Saunders, the Medical Officer of Health for the City of London, had visited the premises, and found the pump unchained and in use. The water was analysed, and found to contain sewage-matter, which rendered it totally unfit for use. The object of these proceedings being taken was to get the Court to issue an order for the pump and well to be permanently closed. The defendant stated that his father sank the well in 1826, and it had been in use since he was twenty years old. For the last nine months it had not been used for drinking or cooking purposes, but it was very useful for cleansing the shop. Taking the statements as given, says the *Medical Times and Gazette*, we have here a well of the old kind sunk deep enough in Fleet street to find water in 1826, and in use ever since—up to a recent period, at all events—for all kinds of purposes. The water has come in the course of time to be little else than diluted sewage; yet we have no history of typhoid. Were typhoid begotten of such water alone, we shudder to think of what the consequences might have been. Lynn's is one of the oldest of the oyster-shops in London, and one of

the very few which still maintain their pristine character. The *clientele* is large and specially select, for it is much patronised by the barristers, solicitors, and men of letters who throng the vicinity. Any special outbreak amongst such a class could hardly have been overlooked. None has ever been recorded. But evidently all the conditions for generating an epidemic were here to hand, with one exception—that is, impregnation with typhoid discharges. But it is this very risk of specific contamination which should, as we have said, be carefully avoided. Where sewage can go, typhoid germs can go. The risk of both should be cut off at once by *filling up*, not merely by *closing*, this and such like water-sources.

TEN YEARS OF VITAL STATISTICS IN ONTARIO.

INTERESTING FIGURES.—DISEASES WHICH
HAVE INCREASED.

A review of the returns of deaths in Ontario for the past ten years—1870 to 1879, inclusive,—though the returns were not nearly complete, furnishes many interesting and instructive facts, drawn from the relative proportion of deaths from certain diseases in its relation to the total number of deaths returned.

DIPHTHERIA.—We find this disease has largely increased in this Province since 1870. In this year there were registered from all causes 6905 deaths, 73 of which were from diphtheria; or one from diphtheria in every 94 from all causes. In 1871, a total of 9182 deaths were

registered, and 165 from diphtheria; or one from this disease in every 55 from all causes. In 1872, a total of 10745 deaths from all causes, and 164 from diphtheria; or one in 65 from all causes. In 1873, 11069 deaths from all causes, and 172 from this disease, or one in 64. In 1874, 10352 deaths from all causes, and 217, or one in 47. In 1876 (no report issued in 1875) 18623, deaths from all causes, and 864, or one from diphtheria in 21, from all causes. In 1877, a total of 20053 deaths and 964, from this disease, or one in every 20 from all causes. In 1878 a total of 17808 deaths, and 989 from diphtheria, or one in every 18 from all causes. And in 1879 there were 17958 deaths registered from all causes and 574 from diphtheria; or one in every 31.

Thus, although there was a falling off in the number of deaths from this disease in 1879, there were more than three times as large a proportion died from this cause in that year than in 1870. In 1878, more than five times as large a proportion died from it as in 1870.

The above shows that there has been a gradual and almost constant increase in deaths from this disease. From the many reports of severe epidemics of diphtheria throughout the province in 1880, it is to be feared that when the returns are all in for that year they will show a further increase in the number of deaths from this cause.

Is it not of the very first importance, important beyond railways or general education, that some means be adopted to stay the ravages of this scourge?

CANCER.—The returns show that there has been a large increase from

year to year, in Ontario, in the relative number of deaths from this terrible disease. While in 1870, one death from cancer was registered in every 90 from all causes, in 1879 we find one death from this cause in every 61 from all causes. And the returns show a gradual increase, and almost a constant one, from year to year: Thus in 1871 the number was one from cancer in every 85 from all causes; in 1872 one in every 79; in 1873, one in every 89; in 1874, one in 72; in 1876, one in 57; in 1877, one in 58; in 1878, one in 62; and in 1879, one from cancer in every 61 from all causes.

In another part of this number we give an instructive paper, on the causes of cancer from an author of high repute.

PARALYSIS.—A slight increase is shown by the returns to have taken place in the relative number of deaths from paralysis. The increase was much more marked down to the year 1878, inclusive: in 1879 a smaller relative number die from this cause; about the same number indeed as in 1871: namely one from paralysis in every 61 from all causes. In 1872 there was one death from this cause in every 68 from all causes, and in 1878, one in every 52 from all causes; the returns showing a gradual increase from year to year from 1872 to 1878, with the exception of 1876, when the relative number was nearly the same as in 1871.

We purpose continuing in future numbers our review, with comparisons &c., of the returns of deaths during the last decade.

TAKE CARE OF YOUR HEALTH.

The following good advice is given in *The Christian*: One of the most foolish things that men and women can do is to kill themselves, or to exhaust their energies and wreck their health. No one is benefited by such imprudence; nor does any one ordinarily thank them for their pains. What you *are* is more important to ordinary minds than what you have *done*. You may have performed immense labors, but if you are sickly, and sour, and dyspeptic, and querulous, people will forget your services, and be attracted by the superior personality of others who may have accomplished far less than yourself.

But imprudent and exhausting endeavors do not promise the best results even in the accomplishment of needed labors. The man or woman who labors moderately and judiciously, does more in a year and more in a lifetime than the person who rushes on with unreasoning haste, and, without the rest and recreation which his physical nature demands, does two weeks' work in one, and is sick a fortnight to pay for it; or accomplishes two years' work in one, and is then permanently disabled and becomes a useless burden on the industry of others.

Take care of yourself. If you do not take care of yourself, no one will take care of you. No wife or husband or child will thank you for killing yourself for them. No employer will bear your aches and pains, or pay your doctor's bills, or support you in the sickness which you have brought on yourself by overwork for his benefit. You are to remember that the body is the temple of the Holy Ghost, and that

you are not your own, but are bought with a price. You have no more right to abuse your body and overtax your energies than you have to whip and abuse an overworked and borrowed horse; and yet there are persons who will work themselves twice as long as they would think it right to work a dumb beast, and will urge their jaded energies to utter exhaustion and paralysis, and after all will accomplish less than they would had they labored carefully, and preserved clearness of mind, vigor of body, and fitness for careful and successful endeavor.

Work is Heaven's ordinance, but they who work without food, or intermission, or rest, violate the divine arrangement, and doom themselves to unknown and incalculable evils. The very persons who have profited by their unwise exertions will call them fools for their pains, and they will be obliged reluctantly to admit the appropriateness of the designation. On the other hand, those who are careful of health and strength, who provide things needful for the body, and who treat themselves as well as sensible men would treat a horse or an ox, will find in the end that they can do *more* work and *better* work than by the opposite plan; and that they will be prized and loved and honored not only for what they have *done*, but for what they *are*; for their vigorous manhood and womanhood, their healthful personality, which images forth the likeness of Him who had made them.

RELATIONS OF SANITATION TO CHRISTIANITY.

At the Sanitary Convention held under the Management of the

Michigan State Board of Health, at Flint, Jan. 25-26, the Rev. C. H. W. Stocking, D.D., gave an address under the above heading, from which the following is an extract: Sanitation, from the first, was religion put into practice. The Saviour's miracles were nearly all for the relief of some form of mental or physical suffering. Christianity has ever made sanitation one of the first duties of discipleship. Out of this inherent instinct of religion the hospital was born, and to Christianity alone the world owes that particular form of organized benevolence.

The church looks upon marriage not merely as a civil contract, but as a divine ordinance, and to be logical, she is bound to teach that the physical and spiritual welfare of the individual and of society is laid in Christian wedlock. Marriages that are likely to perpetuate a feeble, diseased, and vicious stock, are sins against the individual body, the State, and Christianity itself; for the laws of nature are the laws of God also.

Care should be given to the physical education of our children. Many children are sacrificed to rich food, unreasonable hours, fashionable dress, and evening parties. The nursery and the open air, simple food, unfettered limbs in unembroidered garments, romp and play, sleep at the bird's own hour, will prevent many children from drifting into the great ocean of eternity.

When American wives and mothers, sisters and daughters, shall reach the standard of womanhood as given by Solomon in the thirty-first chapter of Proverbs, there will be more intelligent culinary supervision, mutual helpful-

ness, cheerful economy, and material thrift. There is no part of the great field of humanity and philanthropy where religion is not bound to go with her gentle ministries, and whoever neglects or wars against the body is her enemy. She has a rod to smite every oppressor—the landlord whose tenement house is a death-trap, the rum-seller who steals the frugal gains of the laborer, the ship-master who packs his hold with living freight, and tosses to them starvation fare, the manufacturer who holds in bondage the children who ought to be playing at their mother's knee, or the adulterator of food and drink, whose lying labels cover so many commercial deceits. She condemns him who drugs his senses with alcohol or tobacco, or prostitutes his body to lust, or who shortens his life by inordinate pleasure, needless exposure or overwork, and mad haste for wealth; and may she soon be fearless enough to lift up her voice from all her pulpits against the great host of murderers who in every rank and station of life, in the church and out of it, are engaged in a cowardly slaughter of the unborn innocents. All readers of current religious events know what she is doing in her great missionary and reformatory enterprises. Where the old brewery and the Five Points once stood, now stand union schools, virtuous women, and palatial warehouses.

Hospital societies, lying-in societies, maternity societies, working-women's homes, are scattered all over the land. Medical missions in China and Japan are the work of Christianity alone, and they have opened in a few months a door at which the preachers of the gospel

have been knocking almost in vain for many years.

THE CONTAGIOUSNESS OF TYPHOID FEVER.

In his last report on the Homer-ton Fever Hospital (*Sanitary Record*), Dr. Collie makes some observations on the occurrence of enteric fever amongst the nurses at the hospital, which have an important bearing upon the contention that typhoid fever is a contagious disease. Dr. Collie states that believing, as he did at one time, that typhoid fever was not contagious, he thought there must be something wrong with the drains when cases of it arose among the nurses. But the considerations which he sets out in his report led him to conclude that the drain hypothesis did not explain the phenomena, and that the cases were, in fact, due to personal contagion, inasmuch as, with one exception, they occurred among persons in direct contact with the enteric sick; whereas persons not in direct contact with the enteric sick, but who were, more or less, exposed to a possible sewer air contamination, escaped. He found further, and in this lies the great importance of his researches, that, in addition to direct contact with the sick, another condition appeared to be no less necessary to the production of the disease—a certain age. Almost all the cases were found to be under thirty, and the majority under twenty-five years old. During the last ten years, though exclusively occupied with fever, Dr. Collie has met with but one case of enteric fever in a nurse over thirty years of age. This element of age is, he believes, the reason of the relative immunity of

nurses from enteric fever in certain hospitals, an immunity which might exist always, and everywhere be complete, if due regard were had to the age of those who nurse enteric fever. This immunity would of course prove nothing against Dr. Collie's view that enteric fever is contagious, so long as the nurses have not passed the susceptible age.

IMPERMEABLE FLOORS.

It would be a safe assertion to make of every building, that the floors present, to a greater or less degree, open joints, and, as a consequence, are *receptacles of dirt*. This is owing to their construction, and to the fact that all woods, when worked, are affected by the atmosphere, swelling from damp, and contracting when exposed to dry heat.

On recently taking up the floorboards in the wards of a hospital, immediately under every open joint was a ridge of fine dust from one to two inches deep, which the slightest breath of air put in motion, and between the boards was a similar collection, being gradually carried through each time the floor was washed.

The *Sanitary Record* refers to this and a new process for making impermeable floors, as follows:—

The first necessity for the satisfactory employment of wood, for any purpose, is that it should be thoroughly seasoned, either by lapse of time, or artificially. In these rapid times the good old system of cutting timber to be used in the form of boards, and stacking it in the open air, but under cover, and there allowing it to remain two years or more, is almost obsolete,

and recourse has, therefore, been had to a system of desiccating which, when properly carried out, produces the desired effect in from three to six weeks, according to the nature of the timber. But when all this has been done, and without it the making of a permanently close jointed floor is impossible, there still remains the fact that wood exposed to damp will swell under all circumstances, and contract when the damp is removed, and that the more seasoned the wood is the more rapidly will it absorb moisture. This coming and going of wood, as it is technically termed by wood-workers, continues until the timber has become acclimatized, when it will remain in a practically quiescent state. In order to remove the hitherto lasting defect in floors made of any kind of wood, and to provide against the effect of the natural laws of expansion and contraction, a patent has been taken, and the Impermeable Flooring is being manufactured by Howard & Sons, of Berners street, London, with the result that their new or old buildings can have in the future floors made of any woods, either singly or in combination, plain, or elaborately inlaid, which will be permanently close jointed, and as a consequence impermeable and free from dirt receptacles. The desired object is gained by very simple means, and at a cost so low, that there can be no reason for entirely covering floors with perishable carpets, as the outlay for covering an old floor with Impermeable Flooring or parquet, would soon be saved in the reduction of outlay for carpets.

By observation and experiment, it is found that if twelve lengths of

flooring board, each six inches wide, be planed, they will each shrink transversely with the grain one-sixteenth of an inch, supposing the timber to have been well-seasoned before working, but to a much greater extent if the wood be unseasoned, as is almost always the case in new buildings. Now, as each board shrinks towards its own centre, it follows that on the twelve prepared boards being separately nailed to the joists of a building in the usual way, there will eventually be eleven joints, each open one-sixteenth of an inch.

In the patent flooring, the eleven joints are made perfect before the boards are laid on the joists, each board being secured to each adjacent one by dog nails stretching over each joint, making one compact panel, the shrinkage on which will be three-quarters of an inch, presuming the length of each panel so prepared to be six feet, and two are joined together, making a length of twelve feet. The wood is not fastened together at any point, but where the two panels (which are kept in position by rebated fillets) join there will be a shrinkage from each end to that point of three-quarters of an inch. In a room not over fifteen feet wide, this can be allowed to come from under the skirting, so that there will be no opening in the main floor; in rooms of greater width, say twenty-four or thirty feet, there will be an opening of three-quarters of an inch at the end of each 12 or 15 feet panel, provided for by the insertion between each of slips of wood of various widths, which would only require shifting in position, the wider taking the places of the narrower, an operation which in a room

60 feet by 40 could be easily done by a joiner in a day, and as the shrinkage would not take place till the building was thoroughly dry, it follows that the floor would have acclimatized and remain permanently close-jointed as long as the wood lasted.

In new buildings the slips should not be put in till required for occupation, as, if the flooring has been properly seasoned, it will swell from absorption of damp when first laid. When it is required to cover an old floor which has shrunk, the slips are unnecessary, for as there would be presumed no damp in the building, the Impermeable Flooring, being jointed under hydraulic pressure, will expand slightly in the laying, and very rarely shrink again sufficiently to open the joints.

STORM WATER AND HOUSE DRAINAGE.

In an article on this question in the *Sanitary Engineer*, Mr. Robert Moore, Sewer Commissioner, City of St. Louis, says the whole matter may be summed up in the following propositions:

1. Sewers for storm water are needed in closely built towns to take the place of the natural water-courses which are obstructions to business and injurious to the public health.

2. Where the outfall of these sewers is into a tidal current, or a stream large enough to be beyond danger of pollution, it is cheapest and best to use the storm sewers for the reception of house-drainage.

3. But where no such outfall can be obtained, the best method is complete separation, so that the storm-water system shall receive

no house-drainage, and the house-drainage system shall receive no storm-water.

REGULATION OF MILK-SUPPLY.

The authorities in the City of Glasgow have approved of the following important regulations in reference to the milk supply:

1. No milk-shop, milk-store, dairy, or place or premises where milk is kept, stored, or exposed for sale, shall be used as a dwelling room or sleeping apartment, nor shall be used for any purpose whatever, other than that for which it is registered.

2. The trade of washing or mangling clothes shall not be carried on where milk is stored or exposed for sale, nor in any apartment communicating therewith.

3. No articles shall be exposed for sale along with milk, other than bread and eggs, and dairy produce, which includes butter and cheese.

THE YEARLY DEATH WAVE IN ONTARIO.

It is interesting to trace the rises and falls in the mortality from month to month during the year. The total number of deaths in Ontario from month to month, the number in each month being placed in a column, represents a curve with certain almost regular elevations and depressions, or rises and falls, which vary little from year to year. Every year this curve or wave shows two principal high points and two low points;—makes a sweep high up and then sinks low down, and then a second like sweep, high up and low down. It invariably reaches its first high point in the cold, wet weather in spring—March or April, and its second high

point in the hot, dry weather in the latter part of summer, usually August. The high death point in the spring is always caused, for the most part, by deaths from diseases of the lungs and air passages—congestion and inflammation of the lungs, bronchitis, pleurisy; and the high death point in August by diseases of the digestive tract, as the stomach and bowels—diarrhoea, cholera infantum, dysentery. The low points in the wave are reached, one in June or July and one in the Autumn, often in November, though sometimes October and sometimes December returns the smallest number of deaths.

The high point in Spring is made up largely by deaths amongst the adult population—of those in the prime of life; while the Summer high point is made up for the most part by the deaths of young children, and these largely in the cities and larger towns. As regards the prime

CAUSES OF THE TWO HIGH POINTS IN THE DEATH WAVE,

we cannot do better than quote the following from the last annual report of the Registrar-General:

“Regarding the winter or spring high death point, it is important to observe that, it is not the first cold weather in autumn or early winter that gives rise to the great increase in the mortality, but it is that at the end of the winter, after the severe cold is past. Why is this? It cannot be doubted that, though the cold at this later period is accompanied by winds and greater humidity of the atmosphere, those who then ‘to death succumb’ have been, during the winter, exposed to some pre-disposing causes of lung

diseases—to causes which have made them readily susceptible and prone to these affections. The most eminent authorities have brought forward convincing evidence that the re-breathing of breathed air in unventilated rooms is a common and constant cause of diseases of the lungs and air passages. Here, then, doubtless we have the chief factor, the principal cause, of the high March death-rate from diseases of the organs of the chest: exposure during the winter to impure air in close, unventilated rooms. Other causes, to be sure, help to swell up the wave of death at this period. There will be found a few in this country badly housed and fed during the winter, and cold and hunger combine with the foul air to predispose to these fatal diseases, manifested with the chills of spring; others are inactive and spend much of their time in cramped positions with contracted lungs, and these organs then much more readily take on congestions and inflammations on exposure to cold damp air.

“In reference to the summer high death point, it may be said that the warmer the atmosphere the more rapid the generation of malaria, and the development and growth of all sorts of disease germs, moulds, mildews, etc., etc.; and the greater the insanitary conditions, *i.e.*, the more we allow ourselves to be surrounded with excremental or waste organic matter of any sort, the more abundant the development and growth of those causes of disease. Indeed, without the presence of decomposing organic matter, as on the surface of the ground or in the soil, there cannot be any development of such causes.

These effluvia and the microscopic germs or seeds of these minute vegetable growths, moulds, mildews, etc., pervade the air, and attach themselves to the foods we eat, and are absorbed by the drinks we use; especially are they absorbed by milk, the universal food of the young. They take root and grow upon fruits, and indeed more or less upon all sorts of alimentary substances. And not only are they, hence, taken into the body with the food we eat, but they are drawn into the lungs and blood with the air we breathe. In the body they interfere greatly with healthy nutrition, and give rise to general debility and intestinal diseases; the more readily and more severely affecting those who had passed the previous winter housed in unventilated apartments, but who, with perhaps better developed lungs than digestive organs, escaped

the effects of, or lived through, the cold damp blasts of March,

“There is abundant evidence on record in proof of the above. Indeed the facts are well recognized. But it must be observed, and should ever be borne in mind, that it is not the weather, *per se*, that is responsible for the high rate of mortality at these particular periods.”

Were the number of deaths in each week made up, we should find between these two high points, on either hand, smaller weekly ups and downs in the wave ripples, as it rippled over the slighter causes of death; while on the whole it gradually rises higher and higher to its highest point, or sinks lower and lower to its lowest level.

Frequently the higher of the two points is that of March or April; sometimes the August or summer high point is the higher of the two.

MONTHLY RETURN OF DEATHS FOR JANUARY.

City or Town.	Population according to last assessor's return	Total No. deaths registered for the month.	Diphtheria.	Dysentery.	Diarrhoea.	Typhoid fever.	Scarlet fever.	Other fevers.	Phthisis (Consumption).	Brain disease.	Heart disease.	Pneumonia.	Lung disease.	Old age.	Other causes.	Total No. deaths per 1,000 living per annum.
Toronto	77,034	83	6	.....	.....	2	.....	1	11	4	5	3	7	4	.....	13
Ottawa	25,000	14	1	1	.....	.....	.....	.....	11	1	1	.....	.....	.....	.....	7
Hamilton	3,509	58	1	.....	.....	1	.....	.....	8	.....	3	3	3	3	.....	18
London, Ont.	19,941	20	.....	.....	.....	.....	.....	.....	4	.....	1	.....	2	1	12	12
“ for Feb.	.....	21	.....	.....	.....	.....	.....	.....	4	2	.....	.....	2	1	.....	12
Kingston about	14,000	14	.....	.....	.....	.....	.....	.....	5	2	1	1	1	2	.....	12
Guelph	10,100	5	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	1	.....	6
Belleisle	9,987	19	1	1	3	3	.....	1	3	1	1	2	2	1	.....	23
St. Catharines	9,984	14	2	1	.....	.....	1	.....	4	.....	3	.....	2	1	.....	18
Stratford	8,702	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	16
St. Thomas	8,063	6	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	1	3	9
Brockville	7,441	12	3	1	.....	1	.....	1	3	1	.....	.....	.....	1	1	19
Chatham	7,572	9	1	.....	.....	1	.....	.....	2	.....	.....	.....	2	1	.....	13
Windsor	6,500	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	6
Peterborough	6,800	5	.....	.....	.....	.....	1	.....	2	.....	.....	.....	.....	1	1	7
Lindsay	5,371	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	3	12
Woodstock	5,982	5	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	3	12
Cobourg	5,118	6	.....	.....	.....	.....	.....	.....	2	1	.....	.....	.....	1	1	14
Port Hope	5,324	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	7
Barrie	4,818	5	.....	.....	.....	1	.....	.....	.....	2	.....	.....	.....	.....	.....	12
Totals	246000	318	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18

REMARKS.—From Toronto the returns for January must be incomplete; some January deaths will doubtless be returned in February. More promptness should be enforced. From Ottawa the returns are as usual, very imperfect. From Hamilton, Belleisle, St. Catharines, Stratford, and Brockville the returns are probably about perfect for the month. Guelph, Windsor, and Port Hope are far behind, while Peterborough and St. Thomas are but little better

Editor's Special Corner.

THE NEW YORK Board of Health report the number of deaths last year in that city from zymotic diseases, which were influenced or aggravated by defective plumbing, to have been 3,894, out of a total of 31,866 from all causes.

THE CHICAGO *Tribune* "Health Commissioners" have found a row of very handsome dwellings, belonging to the mayor of that city, Mr. Harrison, a very good mayor, it is said, which tell a tale of woe—*i. e.*, the inhabitants of the houses do—about the deadly sewer gases in the houses, from defective plumbing and want of ventilation, the occupants suffer from chronic sore throat and diphtheria.

EAR-ACHE.—In his late work upon the ear, which we noticed in the January number of this JOURNAL, Dr. Buck says, undoubtedly very truly, that every ear-ache should be considered as the beginning of what later may prove to be a fatal disease. It should receive early and constant attention from a physician who is able to examine the ear with speculum and reflected light.

THE JAPANESE are beginning to recognize the value of public sanitary regulations. Every prefecture in the Empire has its health Bureau. European exhortations did much to produce this effect, but the cholera did more. The people everywhere recognize the efficacy of disinfectants, and use all imported from Europe or America.

A SIMPLE FIRE ESCAPE is suggested by the *Fireman's Journal*. A piece of netting such as trapeze performers use to break their fall in case of accident, might be carried in small compass, attached to the hook and ladder truck, and could be readily fastened by ropes to lamp-posts or the like, or held by a dozen or two willing hands, and might save many lives of persons compelled to jump from upper windows. It has been tried with good success in Germany.

FOR TESTING THE AGE OF EGGS.—*Les Mondes* gives the following:—Dissolve 120 grammes of common salt in a liter of water.

An egg put in this solution on the day it is laid will sink to the bottom; one a day old will not reach quite to the bottom of the vessel; an egg three days old will swim in the liquid; while more than three days old will swim on the surface.

TESTING DRAIN PIPES.—A writer in the *Ironmonger*, (*Scientific American*), from long practical experience in testing drain pipes, confidently recommends for that purpose what he terms a "smoke test," and which gives evidence as to leaks both to the sight and smell. The materials that he employs are soiled cotton waste and sulphur, the smoke from which, after ignition, is blown into the drain or pipes. If leakages exist in the latter inside of the house the smoke and smell both issue forth and show that something is wrong, and generally tell also just where the fault or faults are. Sulphur, as well known, is one of the best of disinfectants, and a dose of the fumes from this to the drains, after disease has been in a house, would effect much good.

SPECIAL TO TOWN CLERKS, REEVES, AND OTHERS.—While many corporations have taken advantage of our offer to supply clubs of 3 copies or more at reduced rates, there are many who have not done so. Council men and clerks are ex-officio health officers, and should keep "posted" on health matters.

We supply 3 copies for \$4.00; 5 copies for \$6.50, and 6 copies for \$7.50.

IF MUNICIPAL CLERKS would bring this fact and the JOURNAL before their councils we should hope to receive many more orders than we do for 5 and 6 copies. Please do this, friends, and help to "scatter the good seed."

MANY TO WHOM BILLS were sent with last number have not yet "responded." Will these please kindly not forget us.

We desire to apologise to our readers for the late appearance of the JOURNAL this month, owing to several circumstances, which were uncontrollable.