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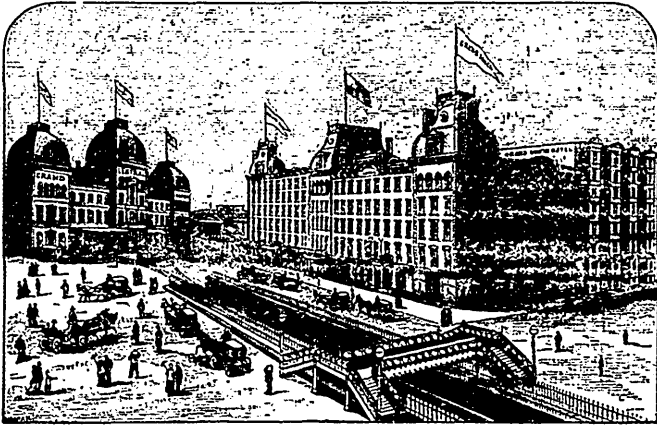
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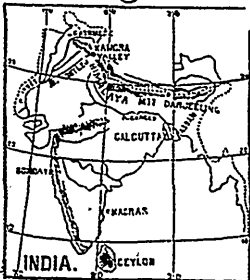
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## AN ADDRESS TO THE MEMBERS OF THE PARLIAMENT OF CANADA.

THE HIGH DEATH-RATE IN CANADIAN CITIES—TWENTY-FIVE PER CENT. GREATER THAN IN ENGLAND—THE IMMENSE MONEY LOSS IN CANADA THROUGH PREVENTABLE SICKNESS AND DEATHS—HOW THIS MAY BE PREVENTED—COSTS OF PREVENTION—WHAT HAS BEEN DONE—WHAT IS NEEDED.

IF any apology is needed for the following address to the legislators of the Dominion of Canada, I would ask permission to write, and also ask pardon for writing thus personally of myself, that, having now given over twelve years of the best part of my life almost solely to the consideration and study of public health subjects and proceedings, I have naturally learned in a greater degree than most others the value of practical public health work, and the extent of the loss yearly sustained by the people of this country from want of proper sanitary regulations—want of practical systematic means for the prevention of disease and premature deaths. And this has naturally given rise to a proportionally strong desire on my part to see more attention given everywhere to preventive measures. Hence my appeal herein to the legislators of Canada, and much more particularly the legislators of the Federal Parliament, in whose hands rest largely the health and life-interests as well as the other interests of the people of this Dominion.

## THE STRENGTH OF A NATION

cannot be correctly estimated simply by numbering its inhabitants. The health, vigor and ages at death of the people must be taken into account. For example, we find that according to the Statistical Year Book of Austria, in examining recruits for the army, the proportion of "fit" to "unfit," or accepted to rejected, is as nearly as possible *three to seven* in that country; while a British Army's medical report shows the proportion of "fit" to "unfit" of recruits examined there as two to one. As to the causes of primary unfitness, "muscular tenuity and debility" in the

Austro-Hungarian conscripts prevailed to the extent of 281 per 1,000; while of English recruits only 56 per 1,000 were incapacitated thereby, even with the addition of impaired constitutions. In Austria "disease of joints" (probably of a scrofulous character) incapacitates 106 per 1,000, while less than 10 per 1,000 are refused in England from this cause.

Again, in Norway, a highly favored country in this regard, about 25 per cent. of those who are born die before reaching maturity, or the age of 20 years. In England and the United States about 35 per cent. die under 20 years of age. In Ontario, of the deaths registered in 1877, only a small fraction less than 50 per cent. were of those under 20 years of age at death; in 1878, 48.5 per cent. were under 20 years. So that the amount or numbers of people of a nation is not a measure of its strength and stamina.—(*Sanitary Journal*, Feb., 1881.)

## WHO ARE INTERESTED.

Public health cannot be regarded as a subject which concerns the doctors only, but indeed the reverse of this: excepting inasmuch as it may concern them adversely to have their present means of living in a measure lessened. The doctors, however, invariably lead in all public health proceedings. As a class, they are benevolent and public-spirited, and they are the best judges of, and are hence impressed with the great value of, such proceedings. Public health concerns every individual, of every age and station, of every class and creed. Every case of preventable sickness is a direct loss to the country as well as to those directly concerned; every premature or preventable death is a still greater direct loss to the

country. In the present state of communities, one with a malignant or even non-malignant infectious disease, cannot suffer alone; one's neighbour, however careful and attentive to the rules of health, is constantly, from unconscious or unavoidable contact, liable to suffer also. Thus it is that the intelligent, the thoughtful, the careful and well-to-do are "pulled down" by the thoughtless, the indifferent and the improvident.

We may learn and know the best means of preventing disease, but we cannot force either individuals or communities to employ those means, though a large majority would do so in a large measure if they knew how. The State—the chief authorities of the country, can teach them how, and force them in one way or another to use the means. No one will probably deny that now, with the greater interest which has been awakened in sanitation, the authorities would be fully sustained in such a course of proceedings; certainly by all intelligent people; and is it not these who rule? In this free country yet surely it is,

PUBLIC HEALTH BUREAUS AND BOARDS

#### IN OTHER COUNTRIES.

There is hardly a civilized country, I do not know of one, that has not some sort of National or Government organization specially designed for looking after the public health. England is almost universally regarded as having the most perfect system in the world. It has, it appears, been the longest in existence. The continental countries of Europe have largely copied from Great Britain. Prussia, Austria and Russia have each an Imperial Board. France has a similar body, likewise has Italy, Denmark, the Netherlands, and other countries. The South American States are not behind in regard to this question. In Japan, a Central Sanitary Bureau of the Home Department of the Imperial Japanese Government was established in 1873. In June 1875, the sanitary control of the Empire was entrusted to this Central Bureau. About eight years ago a National Board of Health was organized in the United States, and an appropriation of half a million dollars was made by Congress the first year for the expenses thereof. Previous to this the majority of the States had each their State Board of Health. Now nearly every State has its special

Board. The National Board was almost universally regarded as doing very effective work and being a most valuable institution, but, through political influence, it appears, the appropriation was reduced and its efficiency much lessened. During the present year two Bills have been before Congress, with a view of reorganizing the Board, and placing it in a more efficient position. One of these, we just learn from the *American Lancet* for May, is likely to pass, with an appropriation of \$75,000. It is said to be a "very practical" one. It is in principle very like the one proposed herein.

#### VALUE AND PROFITS OF SANITARY WORK.

Political economists in England, Germany and the United States estimate the value to the State of a mature man or woman at 20 years of age, on an average, at \$1,000, or, as costing \$50 per year—for feeding, clothing, educating, etc., for 20 years, before becoming of service to the State. All that die before the age of 20 years represent, then, a direct money loss to the State, in proportion to this basis according to the age at which they die. Every fairly healthy child that dies at the age of 10 years represents a loss of \$500, and every one that dies at the age of 5 years represents a loss of \$250, and so on.

The best authority, probably, we can quote, Mr. Simon, late of the Government Board, Great Britain, said a few years ago, in reference to the mortality in England, that the deaths there were "fully a third more numerous than they would be if the existing knowledge of the chief causes of disease were reasonably well applied throughout the country." The mortality statistics there have shown a steady decline in the death-rate from fevers during the past ten years or more of from 80 down to 45 per 100,000 of population; while in preceding years it had averaged over 90 per 100,000. The *Lancet* has pointed to this as "a preliminary triumph of sanitation." In some towns in England the total death-rate has been lowered over 20 per cent.; in many the death-rate from typhoid fever has diminished from 33 to 50 per cent.; and in others the number of deaths from consumption has been reduced 20 to 40 and 49 per cent. According to a late number of the *London Sanitary Record*, (an official organ) in England, in the ten years

1871-80 the death-rate in 28 large towns, including London, dealt with by the Registrar-General in his weekly returns, averaged 24.0 per 1,000. During the past five years of the current decade, 1881-85, the rate of mortality in these towns has not exceeded 21.5 per 1,000. This implies that upwards of 110,000 persons have survived during the last five years, in these towns who would have died had the death-rate of 1871-80 since prevailed. In England and Wales during the same period of five years the saving of life, as the result of the reduction of the general death-rate of the country, is estimated by the best English authorities at about 388,000 lives. All this, and more, has been affected by practical sanitary work—means for preventing the spread of epidemics and for providing a pure water supply and by drainage and the cleaning of towns.

But this is not nearly all. It has been estimated from the records of the various benevolent societies in Great Britain and health assurance societies in the United States that there are 730 days of actual sickness, with inability to labor, for every death which takes place in the year; or in other words, for every death there are two constantly sick—365 (days) multiplied by 2 = 730. Some statisticians estimate the sick-rate higher than this. As corroborative evidence, let us take, for example, 100 cases of typhoid fever, one of the severe and common diseases of this country; each patient will probably be sick or incapacitated from labor from 35 to 40 days, if not more, on an average, representing say 3,750 sick or lost days; while probably not more than 5 of the cases will prove fatal. Some authorities estimate from 19 to 20 days of sickness per year for every individual, which would give a much greater sickness rate than the first-mentioned estimate. Now it is universally conceded that the application of sanitary measures reduces the proportion of sickness in a much greater degree than it reduces the mortality—that by preventive measures the people are made healthier in a much greater relative proportion than there is increase in the length of their life—that such measures have a more marked effect in the prevention of sickness than in the prevention of deaths.

There is therefore a still greater pro-

portionate saving in the sick-rate, with all the loss of time from the sickness of working men and women, and the doctors' bills, medicine, nursing, etc.

#### DEATHS AND SICKNESS IN CANADA AS COMPARED WITH ENGLAND.

In the March number of the health Journal, *MAN*, I drew attention to the high rate of mortality during the second half of last year in the 20 cities and towns in Canada which now make monthly returns of deaths to the Department of Agriculture in Ottawa. It was there shown that from the monthly reports the total mortality in the 20 cities and towns, as given in these reports, was at the rate of 37.6 per 1,000 of population per annum, and that the total mortality from zymotic diseases alone was at the rate of 18 per 1,000 of population, per annum. This high rate, as stated, was mainly owing to the small-pox epidemic in Montreal. But eliminating all deaths from small-pox in the Dominion, we find that the mortality from all other causes was 26 per 1,000, and the mortality from all the other zymotic diseases was at the rate of 6.6 per 1,000, of population, per annum. This is an unusually high rate, both as to the totals, and that from zymotics. Then it must not be forgotten that the returns are not yet regarded as absolutely complete. The system is yet in its infancy. Any errors are those of omission. Were the returns complete they would show most likely a still greater mortality. It is not easy to believe, for example, that in Chatham, with 8,000 inhabitants, there were only 39 deaths during the six months; or that there were only 74 deaths in St. Thomas, with 1100 inhabitants; or that the mortality was so low as reported in Guelph, Belleville or even Hamilton. It may be possible that it was so for the six months, a rather short period on which to base estimates, but it is much more likely that there were omissions.

In England, weekly reports (instead of monthly, as in Canada) are issued by the Government Health Department, which give both the births and deaths in each of the 28 largest cities or "towns." Let us contrast the showing of these reports with those in Canada:

During the year 1885, 182,339 deaths were registered in the twenty-eight

"towns" there, or an annual rate of 20.5 per 1,000 of the estimated population. This was considerably lower than in any year on record for which similar statistics are available. The marked improvement in the health of the country generally, and especially of the urban population, which had been going on since the beginning of the present decade, was fully maintained during last year.

So that, while in England, with her almost perfect sanitary system, in her 28 principal "towns," with an aggregate population of between nine and ten millions of people, often much crowded together, the mortality was only at the average rate of 20.5 per 1,000 of population, for the year, in the 20 principal cities and towns in Canada, with not very much over half a million of people, the mortality for the half year, with less perfect returns than in England, was at the average rate of 37.6 per 1,000 of estimated population, per annum; and even omitting altogether the deaths from the exceptional epidemic of small-pox, it was 26 per 1,000, or more than 25 per cent. more than in England.

The monthly statements from the cities and towns to the Department were commenced in June only of last year, and as the report for the year is not of course yet issued I cannot obtain the rate of mortality for the first half of the year. It would not vary much from that of the last half. The difference between the mortality in the first and in the last half in other counties, in the Province of Ontario, and in the cities during the previous year, was not noteworthy. On the one hand we have the high mortality from bronchial and lung diseases in the first half of the year, and on the other, in the latter half, the diarrhoeal diseases. Excepting the small-pox, last year was not regarded as at all an unhealthy year.

Let us notice the mortality from zymotic diseases, (infectious diseases, fevers, etc.) in England and in Canada. These diseases are better indicative of the real sanitary wants of a locality than is the total mortality. In England the mortality from these was only 2.7 per 1000, while in Canada it was 18 per 1000; or, eliminating the small-pox cases here it was 6.6 per 1000. In towns here, returning the very lowest mortality, probably imperfect returns, the mortality from zymotics was more than

double that of the lowest (Halifax and Hull) in England.

As to the necessity—the great want I say—of better public health administration in Canada, need anything more be said? But let us see what this want cost us in Canada.

#### COSTS AND LOSSES OF IMPERFECT SANITATION

We may, from the records we have, safely reach an approximation of what might be saved in Canada by a judicious, practical sanitary system properly applied. Let us put the population of the Dominion at 4,000,000 say, though it is doubtless much more. Take the mortality at 26 per 1,000 of population, eliminating the exceptional small-pox cases of last year. According to this estimate there died in Canada last year, from diseases other than small-pox, 104,000 human beings. I would observe here that there is no reason whatever to believe that the mortality in the rural districts in Canada is any lower than it is on the average or usually in the cities here. The imperfect mortuary statistics of Ontario show that, from all the deaths registered, a larger proportion die from typhoid fever and diphtheria, two of our most prevalent diseases, in the rural than in the urban municipalities. There are no other statistics to guide us. More attention is usually paid to health measures in the cities, the drainage and water-supply is usually better than in the country places. Now supposing the mortality in Canada could be reduced from 26 per 1,000 to 21 per 1,000; still 0.5 per 1,000 greater than in England. The best authorities in England estimate that the mortality under good sanitary administration would not exceed 17 per 1,000, on the average, and expect that in that country it will not be very long before it comes down to this rate. If the mortality in Canada were reduced from 26 to 21 per 1,000 per annum, there would be only 84,000 instead of 104,000 deaths, and 20,000 lives would be saved yearly.

I will not in this estimation take into consideration at all the pain and anguish, the anxiety and worry, accompanying and following sickness and death in a family, the bereft wives and husbands, fathers and mothers, nor the orphans, but confine myself entirely to the money value of health and life.

## LOSSES FROM PREVENTABLE DEATHS.

Of the 20,000 lives saved, one-half would probably be under 20 years of age. We have seen that in England and the United States about 35 per cent. of all deaths are of those under 20 years, though in Ontario nearly 50 per cent. die under this age. But we must bear in mind that in reducing the mortality a larger proportion of young children than older persons would survive. What had been the cost of maintaining these, say 10,000, young persons up to the time of death? In the annual report of the State Board of Health of Massachusetts, I find that in that State during seven years, 1865 to 1871, over 81,000 persons died at ages under 20 years, and that the average age of each of these was 3.6 years. Now if these 10,000 who die in Canada every year under 20 years of age from preventable causes die at this same average age, and we have no better way of arriving at an approximation, they live in all 36,000 years:  $10,000 \times 36 = 360,000$ . If each year of their life costs \$50 for maintenance (a low enough estimation) we have in these deaths a direct money loss of \$1,800,000. How about the other 10,000 who die from preventable causes after the age of 20 years? The average "expectation" of life of persons at 20 years of age is about 40; i.e., they will on an average live to the age of 60 years. On this, Life Insurance and "Endowment" companies base their table of premiums or dues. These 10,000 then who die thus we count a direct loss to the country. Each one representing 40 years of productive useful life, the country must sustain a loss of 400,000 years of labor:  $10,000 \times 40 = 400,000$ . Let us estimate each year at \$100 (this seems to me to be a low estimate.) do not all in Canada who live on to the full expectation of live save on an average after the 20 years of life, \$100 a year. I believe so. Some writers put this at \$300, apparently not subtracting the cost of living. If this \$100 is a fair estimate the country sustains a direct money loss in this way of \$40,000,000:  $400,000 \times 100 = 40,000,000$ . The costs of burial of these 20,000 bodies would probably amount to \$1,000,000; which I have not included.

These seem large sums of money, yet they are not the result of imaginary

figures, but the, simple and direct result of correct inferences drawn from verified facts. And this is not all. We have not yet considered the still more direct COSTS AND LOSSES FROM PREVENTABLE SICKNESS.

If, as has been estimated, there are 730 days of actual sickness to every death, there must be in Canada every year 75,920,000 days of sickness:  $104,000 \times 730 = 75,920,000$ . But as there are only 20,000 preventable deaths we can only count 14,600,000 days of preventable sickness; though, as I have said, sickness is preventable to a greater degree than is death. Fifty cents a day would hardly cover the actual costs of sickness—doctors' bills, medicine, nursing, &c., &c.,—on an average, but as there are many cases of sickness in which a doctor is not employed at all, let us put it at 50c. a day, and we have \$7,300,000 as the cost in Canada yearly of preventable sickness. I may observe that there are, it appears, about or over 5,000 medical practitioners in Canada. Almost all of these are prosperous, if prudent, and earn not less than \$2,000 each, on an average, per year. The cost of these then is \$10,000,000:  $5,000 \times 2,000 = 10,000,000$ ; or say nearly \$2,000,000 for doctors alone in preventable sickness. In those cases where no doctor is employed there is often much expense incurred in medicines, special foods, &c., &c., and where a doctor is employed, there is often a nurse, which, with medicines, wines, spirits, &c., &c., count up to more than the doctor's bill. So that I do not think the \$7,300,000 too high an estimate. Supposing the half of these cases of preventable sickness are amongst those over 20 years of age, the loss of time in connection therewith must be counted. This, at \$1 per day, (a very low estimate) would represent another \$7,300,000.

ONE HUNDRED MILLIONS OF DOLLARS  
SAVED.

Enormous sums these may all appear to some to be. They are, nevertheless, based on the estimates of our best authorities, and the lowest estimates have been taken. It seems therefore plain that the cost and losses to the people of Canada every year from preventable deaths and sickness is over fifty-six millions of dollars. \$1,800,000 for maintaining



young persons dying before reaching 20 years of age, \$40,000,000 in lost labor from deaths amongst those reaching 20 years, but not living out their expectation of life, and \$14,600,000 in costs and losses from sickness = \$56,400,000.

Another way there is in which we might approximate the losses from preventable deaths, if we were in possession of accurate mortuary statistics of Canadian people, and knew the average longevity of the race—the average length of life of every one, at death, or the average age to which every one lives. Wanting these statistics, suppose we put the average age at death at 40 years, it may be less, it may be more. Suppose, then, we reduce the mortality from 26 per 1,000 to 21 per 1,000, we would thereby increase the average age at death nearly 25 per cent., or say 9 years. Now if the 104,000 who die every year in Canada lived 9 years longer, there would be a gain of 936,000 years of life;  $104,000 \times 9 = 936,000$ . Only one-half of these 104,000, however, had reached the productive age, according to our previous estimates, and would therefore give only 468,000 years of productive life. If we value these at \$100 a year, as in the previous estimate, we find we gain \$46,800,000; \$6,800,000 more than in estimating it the other way. There would be a large gain, too, in about two-fifths of those who now die before the end of their 20th year living past that age and 8 years into the productive period. This would much more than cover the increased expense of maintaining children to a later period of life before being lost by death.

I trust it will be conceded therefore that my estimates are fair and within bounds.

If we could by good sanitary administration, judicious public health regulation practically carried out, reduce the death-rate to 17 per 1000 of population per annum, instead of 21 per 1000, as they hope to do in England—and there is no reason why we in Canada cannot do so as well—there would in so doing be a yearly saving of over one hundred millions of dollars, or over \$20 per head, to the people of this Dominion.

But no account has yet been taken of any special epidemic. The epidemic of small-pox last year has been left out of the consideration altogether. And we have no special

means of preventing the outbreak and spread of another such at any time. There have been, say, up to the present, within a year about 4,000 deaths, it appears, from this disease. To say nothing about the injury to trade, the actual costs and losses of this epidemic have amounted to many millions of dollars. And epidemic diseases are, by judicious sanitary precautions, the most preventable of all. Then it must be remembered that I have based these estimates on only 4,000,000 of Canadian people, when there are probably 5,000,000.

#### WHAT WOULD PREVENTION COST ?

Five per cent. of the above-named large sum, or \$1 per head, per annum, would give about, or nearly, \$5,000,000. This would do a vast amount of public health work. \$1,000,000 yearly would accomplish much—pay the interest, and a sinking fund for the principal, on vast sums of money, for providing pure water, and for drainage, sewerage, scavenging, etc. A very small sum spent on each family in educating them in the simple rules of individual health would accomplish much. \$5,000,000 would give to every municipality—city, town, village and township in the Dominion, the sum of \$2,000, besides \$100,000 for a Provincial health department in each of the provinces, and \$100,000 for a Dominion Health Bureau. One-fifth of this last sum, or \$20,000 yearly, would pay the expenses of such a Bureau for a commencement season of a few years. It is universally conceded that no other outlay "pays" so well—yields back so many fold, as that employed in the prevention of sickness.

#### THE FIRST ESSENTIAL IN PREVENTIVE MEASURES.

The first and greatest want in relation to preventing sickness and premature deaths is, I contend, a head, ONE centre, a Federal Government organization to look after the health interests of the whole Dominion, similar to such organizations in other countries. The old saying that what is everybody's business is nobody's business will apply here. Many centres, such as one in each of the provinces, will not accomplish the desired work for the Dominion. The Federal Centre is most needed, and should be first organized. If it were possible to have but one grand central health authority for all countries.

co-operatively it is plain that this would be best of all for the health interests of the people, especially as relate to epidemics. This is not possible in the present age, but it is possible to have a Federal health department for Canada, and thousands of lives will be sacrificed every year until such a centre is established.

The chief object of Government is to protect life and property. It is surely as much the province of the Federal Government to protect the people from disease and death as from robbery and murder, to protect them from the inroads of an epidemic as from the invasion of an army of men from a foreign foe.

In the Senate, five years ago, the late Senator Dr. Brouse in a lengthy speech on this subject said: "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 diseases 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."

The leaders of the medical profession in Canada have long maintained that we never shall have an efficient health organization, or make satisfactory or profitable progress in sanitary work, without a Dominion Board or Sub-department of health. At meetings of the Medical Council of Ontario and at meetings of the Canada Medical Association, resolutions have been passed, time and time again, until the profession is weary of it, urging upon the Federal Government the desirability of public health legislation. As many know, the late lamented Senator Dr. Brouse had long urged, from year to year, upon the Government of the day, the necessity for a Dominion Bureau of Health. Twelve years ago, during the parliamentary session of 1874, the then Premier, Hon. Mr. McKenzie, promised Dr. Brouse, the doctor himself informed me, that he, Mr. Mackenzie, would endeavor the next session to have a Bill prepared for establishing such a Bureau. (*Sanitary Journal*, May, 1875). The next session came, and it was stated that difficulties

in reconciling the powers of the Federal and Local Governments had prevented governmental action in this behalf. Later, a year before his death, Dr. Brouse again urged in the Senate the formation of such a department upon the present Government. Sir Alexander Campbell promised that the question should receive the consideration of the Government. Two years ago, the most representative and influential medical meeting ever convened in Ottawa, or doubtless in Canada, considered and declared in favor of a plan for a "Dominion Health Bureau," and a committee urged it upon the consideration of the Premier, Sir John A. MacDonald.

#### THE FEDERAL AND LOCAL POWERS— FUNCTIONS OF THE BUREAU.

With reference to reconciling the Federal and Provincial authorities, Senator Brouse, in the Senate, said: "It has been argued that this question is one which should be dealt with by the Local Governments. I know that that opinion has prevailed, but 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. What, then, should be the special function of the Department of Health? It should be, first, the organization and management of methods of collecting vital statistics; second, the directing of inquiries into the causes of prevailing diseases and epidemics; third, the investigation of permanent sources of sickness in localities, cities and towns; fourth, co-operation with local boards in the abatement of nuisances, and in the improvement of local conditions affecting public health. I may add that, under the last function, this department would be prepared to take cognizance of the important matter

of the adulteration of food..... 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."

At the annual meeting of the Canada Medical Association in September, 1880, Dr. R. P. Howard, of Montreal, president of the Association, in his address 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..... 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."

The education of the public in all questions pertaining to health is, I have always urged, one very important function which is unquestionably within the jurisdiction of the Federal authorities. By education I mean chiefly by means of intelligible reports on health, or diseases and deaths—with births and marriages, along with practical articles on hygiene, of an instructive character, and especially bearing upon the importance of sanitary work and of aiding health officers in their efforts and duties.

Health officers are appointed; but their duties are often ignored because they are not sustained by the public. There is a great and general need for a much more enlightened public feeling, which would demand of health officers prompt and vigorous action for the prevention of disease. I cannot see any way in which this can be brought about excepting by the action of the Federal Government. The provinces might do much in this way if disposed to do so, though some of them, being small, are hardly able to do much, and it seems clearly the duty of the Federal Government to do this in all the provinces.

#### THE REPRESENTATIVE MEETINGS TWO YEARS AGO.

On March 4th, 1884, as above mentioned, a large meeting of medical men who are members of the Senate and Commons, and many of the medical practitioners in and around Ottawa, was held in the House of Commons, for the purpose of considering the question of a Dominion Health Bureau. Amongst these present were the Hon. Senators Almon and Paquet; Drs. Bergin, Orton, Hickey, Fortin, Sproule, Landerkin, Grandbois, and Renfret, members of the Commons; and Drs. Grant, Church, Powell, Robillard, Logan, Horsey, Small, Wilson, Cranston, Hunter, Kelly and Playter. Dr. Bergin, M.P., was called to the chair. A plan for a Dominion Health Bureau and general Sanitary system was submitted to the meeting. After discussion, the plan was adopted, and a committee, consisting of Hon. Senator Dr. Fortin, and Drs. Bergin, Orton, Hickey, Grant, Church, Larocque, and Playter, was appointed to wait upon the Government and urge that measures be taken to have it carried into operation at an early day.

The plan as adopted, with minutes of the action of the meeting, were sent to members of the Ontario Medical Council, the Public Health Committee of the Canada Medical Association, and others throughout the Dominion who had given attention to matters relating to the proposed bureau, asking their views. Quite a large number of replies were received from these medical gentlemen in Ontario, Quebec and Nova Scotia, fully and cordially concurring in the plan and in the action taken in Ottawa, and expressing strong hopes that the plan would soon be carried into effect by the Government. These letters with the plan, minutes of the meeting, etc., were sent to the Department of Agriculture.

On March 20th, a deputation of over thirty medical practitioners, aldermen, and other members of the Quebec Sanitary Association, visited Ottawa, on matters affecting the public health, including that of urging upon the Government the desirability of establishing a Central Health Bureau at the Capital. A conference was held in the Railway Committee room, which, in addition to the deputation, was attended by members of Parliament and medical practitioners of this city. Dr. Desaulniers, M.P., presided. After over two hours spent in discussing the question a resolution was unanimously passed concurring in the action of the previous meeting of the 4th of March, and earnestly requesting that the Federal Government at once provide means for the formation of an Advisory Sanitary Committee—similar to that recommended in the plan adopted on March 4th, which should meet in Ottawa, say in June and September of that year (1884) and at the beginning of the then next session of Parliament for the purpose of conferring with the Minister of Agriculture in regard to the completion of the Sanitary Bureau.

The following members of the Senate and Commons were then appointed a committee to co-operate with the committee appointed at the meeting on the 4th of March, to carry out the objects of the resolution: Hon. Dr. DeBoucherville, Hon. Dr. Robitaille, Hon. Dr. Paquet, and Drs. Desaulniers, De St. Georges, Grandbois, Lesage and Rinfret.

Shortly after this the committee waited upon Sir John Macdonald and were most cordially received. Mr. Pope was ill and

unable to be present. After quite a lengthy discussion of the question, in which reference was made to the fact that two or three years previous to that time a deputation with a similar object had waited upon him (Sir John), he promised that the Government would consider the question at the earliest opportunity.

#### GOVERNMENT ACTION STILL WANTED— BEACONSFIELD'S VIEW.

It is needless to state that no action has yet been taken by the Government. Last year the profession, though many of them were discouraged by this want of action on the part of the Government in so important a matter, would have still further urged the necessity for a Bureau upon the Government but for the important measures then before Parliament, and, by request, they deferred doing so.

Now that the Canadian Pacific Railway is completed, what better can engage some attention on the part of the Government than the health of the people?

Benjamin Disraeli, as the reader probably knows, when not yet Lord Beaconsfield, in his last appeal to the country, in 1874, I think, in a public speech at Manchester, said: "After all, the first consideration of a Minister of the Crown should be the health of the people;" "the health of the people of any country should have the first and highest claims on the Government" of that country; and "I think public attention should be concentrated on sanitary legislation."

These were words of one of the cleverest, ablest and most successful of men, words of the head of the British Government, stated publicly, in a large manufacturing city; that public attention should be *concentrated* on sanitary legislation; that the *first* consideration of a Minister should be the *health* of the people. Not only were they wise sayings, but, as laying down a part of the Government policy at that time, they proved to be sayings of "good policy." Mr. Disraeli "carried the election" at that time, we believe, by a large majority; and he did not neglect to promote soon after it the well-being of the people by great improvements in the public health laws of Great Britain.

Party or political feeling would, I am sure, all be laid aside for the time if the Government would deal with this ques-

tion, and as Senator Brouse said: "the country is prepared to sustain them in so great, so noble and so glorious" a work.

#### NATURE OF THE PLAN PROPOSED.

Boards, as usually constituted, are regarded as irresponsible bodies and by many are objected to. I may state that the late Mr. Adam Crooks was opposed to boards, and had he remained in the Ontario Government, it is probable that, instead of a Provincial Health Board having been organized for Ontario, there would have been a sort of sub-department in connection with one of the departments of the Government, similar to what has since been provided for in Manitoba. Toward this, too, they are tending in regard to the Federal Health Centre at Washington.

The plan adopted two years ago by the meetings in Ottawa above referred to was as follows, excepting a slight change in the composition of the committee, and provided for:

First, a Deputy Minister of Public Health, who must be a physician, in first-class standing, and should be an experienced sanitarian and statistician, appointed by the Government, and who would be the chief health officer of the Dominion, superintendent of quarantines, vital statistics and all matters relating to the public health within the jurisdiction of the Federal Authorities. The Minister of Agriculture to be Minister of Agriculture and Public Health;

Second, a Public Health Committee, made up as follows; the chairman of each and every Provincial Board of Health; the chief health officer of any Province not having a Provincial Board, but other Provincial health organization; a physician specially appointed by the Government of any province not having a Provincial health organization of any kind;—*i.e.*, a representative from each and every Province of the Dominion; also, five or more competent persons to be appointed by the Federal Government, which might consist of a barrister, an architect, an engineer, a veterinary surgeon and a physician. The minister and deputy minister to be *ex-officio* members of the committee. This may seem like a large committee, but some of the State Boards of Health (U.S.) are as large. The members need not meet more than two or three times a year, in Ottawa and at

the call of the chief health officer (Deputy Minister) through the president or chairman of the committee. The president or chairman of the committee to be elected from year to year by the committee.

Third, a Secretary of the Public Health Committee, who must be a competent physician, also experienced as a Sanitarian and Statistician, appointed by the Government, and who shall be second health officer, or health commissioner, of the Dominion, and virtually an *ex-officio* member of the committee. He shall have the general management of the vital statistics and health reports returned to the department, in order to make the best practical use of them, attend to the monthly and annual reports, and be practically the chief executive local officer of the Health Bureau, under the chief officer or deputy minister.

Fourth, a medical practitioner appointed by the Government in each and every constituency, or "health district" (such as formed, for example, by an order in council, I think, about 3 years ago), who shall make a monthly report to the Health Department, from forms supplied, of the condition of the public health, especially as relating to epidemics, in so far as he could learn, in his district. In time these would be developed into important local health officers for their districts, respectively, as the sanitary system developed and became appreciated.

Fifth, the publication of monthly (for the present) reports or bulletins, consisting of a synopsis of the mortality returns and of the health reports, and practical comments and suggestion for the information of the people on health topics, which are to be distributed free to all health officers and publishers of papers, and otherwise, as may from time to time seem best, and the chief purpose of which shall be that of educating the public in health proceeding and creating a livelier interest in all measures for the prevention of disease.

An annual report shall likewise be published.

#### COSTS OF THE HEALTH BUREAU.

The chief officer or Deputy Minister and the second officer or Commissioner, only, I propose, should receive salaries, and such sums as will enable them to give their whole time to the work of their respective

offices. The members of the committee, including the president, to receive travelling expenses to and from Ottawa, and a per diem honorarium while engaged on the duties of the committee. Each district reporter or local officer to receive two dollars for each monthly report, or twenty four dollars a year.

I desire to state here that, while many think this too small a sum to secure good work, prompt monthly reports, etc., I am convinced, from communications with many first-class practitioners, that there could be found in every district one first-class man who would be willing to commence the work at this sum, *pro bono publico*, and attend to it as well as if paid a much larger sum, with the view of the work developing and becoming more important and remunerative in a few years.

A synopsis of the costs might be put about as follows, per annum :

Chief Officers or Deputy Ministers, Salary, say.....	\$3,000
Second Officers or Commissioners salary, say.....	2,400
Committee, expenses of 3 meetings, 12 members.....	1,800
Local or district reporters, 210 at \$24 each = .....	5,040
Monthly reports, paper, printing, etc., 20,000 copies at \$100 per month = .....	1,200
Annual report, printing, paper, &c	\$90

Office expenses, blank forms, etc.

say..... 1,000

Total..... \$15,240

So that a sum of \$18,000 or \$20,000 would be ample for a commencement of a number of years, affording, too, money for making investigations, etc., in relation to the causes of disease. With this could be organized a most useful Sanitary Bureau, which would be creditable as well to the Government who created it as to the Dominion.

In the above address I have but just alluded to the subject of vital statistics. Accurate statistics of births, marriages and deaths are of course indispensable to a complete Sanitary Bureau, but are not at all essential for a commencement. The cost, especially if obtained by extending the present system to all parts of the Dominion, would be great. I am of opinion that a system for the purpose could be devised which with the judicious management of a department, would soon give accurate returns, the costs of which would probably not exceed one hundred thousand dollars per year. I would engage the public school teachers and the medical health officers of the health districts in the work. I hope to have the honor of submitting a plan for your consideration in due time.

EDWARD PLAYTER,

THE ATTAINABLE AIMS OF SANITARY SCIENCE.

AT the annual meeting of the Birmingham and Midland Association of Medical Officers of Health held some time ago, the President, Dr. Bond, of Gloucester, in his address said, that practical sanitary science included not only such subjects as the art of personal hygiene, the causation and prevention of disease, the standards by which the health of the community should be judged, and the structural appliances and means best calculated to ensure health, but also a consideration of the sanitary duties of the State to its citizens, and of the individual to his neighbour and to himself. State medicine and personal hygiene must go together, and, whether the object was the limitation of infectious disease or the de-

crease of sickness, the one was powerless without the other. Hygiene, systematically studied as a science, was one of the most recently developed phases of the education of the world. Preventive medicine, he contended, could much more nearly approach an exact science than medicine proper, because it dealt more with the objective or surroundings than with the individual. Every new fact seemed to him to favor that view. For instance, two of his colleagues had been engaged for some time in making observations as to the action of light on bacteria. Those observations were most important from a sanitary point of view; but what he drew special attention to was a collateral fact observed, that whilst during one year they

found no difficulty in keeping their 'cultivation fluids' free from complications with other forms of life than those under observations, yet during the same period, of the next year they could scarcely, with the utmost precaution, keep them free from some of the various forms of torula; and it was most suggestive and singular, and something he believed more than a coincidence, that the latter period was exceptionally marked by what was sometimes called zymotic activity, or, in plain English, by a great tendency of infectious disease to spread and become epidemic. Now this suggested that zymotic activity did not depend, as was often maintained, upon increased susceptibility to infection on the part of the individual resulting from personal causes, but from a physical condition of the atmosphere favoring germ growth, and if, so, there was good ground for hoping that greater precision in attempts to destroy the seeds of infection at their source would be rewarded with greater success. One of the most urgent calls upon sanitary science was the prevention of those bad results which had hitherto been invariably found in the case of man and animals to accompany the aggregation and rearing of successive generations on the same ground. For that purpose it was essential to keep the earth and air as undefiled as possible, and to provide water absolutely free from contamination. He expressed the opinion that, with proper precautions, potable water could be obtained in populous as well as rural places. A second requirement was the limitation of outbreaks of zymotic diseases, and its ultimate extinction. Of the eight zymotic diseases, they knew sufficient of the special mode of diffusion of the infection to enable them, as a rule, to entirely control its spread, Parliament might impose penalties, and sanitary boards endeavour to enforce them but without the thorough co-operation of the people themselves, they would always be practically powerless to limit the spread of those diseases which were disseminated by personal agencies. Although the extinction of the eight chief zymotic diseases might not be looked forward to immediately, that result should be aimed at; for he contended that the extinction of those diseases was possible. There were other important duties devolving on sanitary science. One of these was the raising

of the vitality of the population, and that result could only be obtained in the course of time, and, in some cases, under favorable circumstances, would spread over three or four generations. Sanitary science likewise involved questions of sanitary education and the difficult subject of the influence upon health of various occupations. As to the health of the population, he said the test universally accepted by the public was the general death-rate. That test had done an immense amount of good work, but a time would arrive when that mode would require remodelling if they were not to have a sense of false security. Frequently the death-rate expressed the means of two extremes, and under any circumstances was no approach to a scientific test unless the age distribution was also considered. The best way of using the death-rate so as to express and bring out any avoidable waste of life was, not by comparing it with the death-rate of other towns or districts, but with a calculated death-rate of the same district on the basis of the 'Healthy District Life Table' of the Registrar-General, and estimated on the age and sex distribution as given in the last census of the locality in question. That would give a near approach to a scientific standard were it not that the decennial census allowed of wide variations in the matter of age distribution between the time of each enumeration. With reference to a large amount of avoidable mortality which occurred in childhood there was, he believed, a method which was less liable to fallacy than any other: it consisted simply in the relative proportion of those born who lived to the end of their fifteenth year; that was, before migration had any appreciable influence on the rate. Any standard might be used, but the one he had to propose had been estimated on the mortality of certain healthy districts, and was the mean of the rate of as great a number of years as were obtainable. The standard was this:—Of every 1,000 infants born there should be alive at the end of their first year 900; at the end of their fifth year 860, and at the end of their fifteenth year 830. The calculation was best made for any year by taking the average annual number of births of the preceding fifteen years. From that should be deducted the deaths under one year for the year in question, which would give the

number alive at the end of the first year, and should not be less than 90 per cent. Deducting from the same number of births the number of deaths under five, they got the number who attained the end of their fifth year, which should not be less than 86 per cent.; in the same way a deduction of those dying under fifteen would give the number who attained the fifteenth year, which should not be less than 83 per cent. In conclusion, he said that as time progressed and the avoidable waste of life

was arrested, the population would increase more rapidly. By that time, however, they should have learnt that there were immense tracts of the habitable globe now desolate which, by sanitary science and cultivation could be rendered perfectly salubrious, and that there were few spots which might not be inhabited by Europeans with safety. The earth was wide, and its complete subjugation was the attainable aim of sanitary science.

### EVOLUTION IN MAN—HIS ADAPTATION TO ENVIRONMENT.

A CLEVER writer in one of our English magazines some months ago undertook the task of attempting to describe man as he would be some thousand years hence, after having undergone all the various changes brought about by the gradual "adaptation to environment"—to use scientific phraseology. The author came to the conclusion that man in after ages would be a hairless, toeless animal, incapable of extended locomotion, and with a head abnormally large. The data from which he argued are easily recognized: the wearing of hats and boots, and the large amount of time spent in pure brain work are the chief.

By some the article was considered to be merely a travesty on the theory of evolution. By others it was thought to be a true but over-estimated account of the practical workings of that theory. In whatever light regarded, however, the paper contains many suggestions, interesting, not only to the evolutionists and biologists, but especially to enthusiasts in the study of human anatomy.

Whatever views may be held on the doctrine of the descent of man, it is a matter of every day experience that morphological and physiological changes are created by "adaptation to environment."

Nor are these changes by any means limited to the lower animals. Perhaps, indeed, owing to his greater activity and dispersion over the whole globe, these changes are greater and more apparent in man. This it is which makes the subject interesting to the general biologist, and consequently to the medical man. Let us glance at a few of these changes; and, for sake of example, let our view be limited to the professional and upper classes.

These classes devote a large portion of the twenty-four hours in reading. In process of time this must give rise to many more or less minute anatomical peculiarities. There will be a tendency to myopia, since the lens will contract, a habit of remaining fixedly abnormally convex. The external and internal recti muscles will be enormously developed. And for this reason: in perusing a page of a book or a column of a newspaper, the eye travels from left to right and back again several hundred times, while the superior and inferior recti act but once or twice.

Again, these classes lead a comparatively sedentary life. The gluteal muscles consequently being imperfectly nourished, will tend to gradual atrophy. The tuberosities of the ischium, too, may change in form.

Violent exercise being rare, the respiratory muscles will degenerate. Man will become short-winded, in fact. Already there is a vast distinction in this respect, not only between man and the lower animals, but also between different tribes of men—between the average American young lady and a North American Indian for example. The increasing use of vehicles will hasten such changes in the gluteal and respiratory muscles.

Owing to the fact that so many actions are performed by the right hand alone, not only will mankind become more generally one-handed, but, as a consequence of this, the left side of the cerebellum should preponderate in size over the right.

This may in time appreciably alter the shape of the cranium. Perhaps the upper extremities and the head will cease to be bilateral.

These are but a few isolated instances.



of changes which must undoubtedly be gradually taking place in a single class of men. It would be interesting to extend the inquiry further: to examine, for example, the effect of various description of skilled manual labor upon the artisan class; of the mode of life in factories upon mechanics; of the outdoor life upon laborers; and so on.

That the transformations are minute and extremely gradual, is, of course, true; but it is by such small and slow-moving tendencies (added to climatic influences) that the wonderful differences between races have been brought about. The nymphæ and the nates of the South African women famed for the large size of these parts doubtless owe their existence to some such processes. It is but scientifically correct to expect anatomical abnormalities to occur. And if anatomical, then, too, physiological. Their practical import is naturally at present almost *nil*; but to the physician and the surgeon of

some centuries hence they will not be so.

And the physician and surgeon of some centuries hence will perhaps thank us of this generation for having noted changes which will explain to him otherwise inexplicable facts—as the astronomers of the nineteenth century owe much to Chinese annals written some thousands of years before. A thorough and exhaustive view of this subject extended to all the races of mankind, and including every phenomenon which in any way acts upon the human frame may bring to light very many various and important facts hitherto unknown. That this is partially recognized is seen by the careful, accurate and minute investigations yearly prosecuted by the Anthropological Section of the British Association. We are not aware, however, that this Section has paid any particular attention to the group of changes to which we have above alluded. Here is an excellent field for our anatomists—*Canada Læcet*

#### THE CHEMISTRY OF FOOD—MILK AND EGGS.

I propose to consider two articles of food which in their simplest form contain all the elements essential to human nutriment. These are eggs and milk, the former being the subject of the present paper.

That these do contain everything required for building up and sustaining organic life is manifest from the fact that in the egg all the tissues and organs of the embryo chicken are developed from it, whether they be muscle or tendon, fat, cartilage, bones, feathers, membranes or glands; all these find the material for their construction in the apparently simple contents of a fresh egg.

Milk again, for a considerable period in the commencing life of all *mammalia*, including the human infant, is the exclusive nutriment from which their whole frame has to be built up, and that too at a period when growth and development are more rapid than at any other.

The parts of the egg necessary to be here considered are what are popularly termed the yolk and the white, the former floating as a golden sphere in the latter and kept distinct from it by a very delicate membrane which is difficult to observe while the two are in a fluid con-

dition, but easily demonstrable when the egg is boiled hard; another much coarser membrane is found between the white and the shell.

Comparative physiology as well as the chemical description we are about to give goes to show that the yolk is by far the most essential part of the egg; thus, the ova of mammalia, fish and reptiles are substantially nothing but yolk with no surrounding "white of egg" and, in most cases, unprotected by a calcareous shell. We will first, therefore, study

The yolk of the egg, is familiar to us, as a bag of viscid substance of a bright yellow color, sometimes darker and approaching orange color. This variation of hue is due to the varying proportion in which two different coloring matters are mixed in it; these, having no ascertained relation to aliment, may be passed over.

A portion of the yolk placed in the field of the microscope is found to consist of globular bodies, which are oil or fat globules, some much smaller bodies (the yolk corpuscles), and a viscid fluid; the oil globules contain a fluid very similar in its constitution to animal fats, though with a difference of some importance. Animal

fat consists of margarine oleine and stearine, which are compounds of margarine oleic and stearic acids with the well known organic base entitled glycerine; the oil of the yolk globules differs from the fat, mainly in omitting the stearine, which is the constituent which contributes most to the solidity of the fat. This omission probably renders the yolk fat more digestible than, for instance, beef, mutton or pork fat. Each fat globule is enclosed in an envelope from the fluid in which the globules and corpuscles float.

But besides the oil these globules contain a mineral substance of indispensable importance, the phosphate of lime. The corpuscles as well as the fluid in which they float are largely supplied with a substance which has been called by the chemists "*vitellin*," but which is simply a mixture of two better known substances, *casein* and *albumen*, the former being largely predominant. These belong to a group of organic materials constituting by far the greater part of the animal body; they have been called the *protein* compounds, but Prof. Huxley's term *protoplasm* is now their accepted name. *Casein*, *albumen* and *fibrine* are the principle members of the group; they are all made up of the four elements carbon, hydrogen, oxygen and nitrogen combined in the same proportion, and the members only differ in regard to the presence of minute quantities of sulphur and phosphorus in various proportions. No food which does not contain one or more of these substances is capable of sustaining animal life, and, from its predominant occurrence in milk and eggs, casein is inferred to be the one most readily convertible into animal tissues. These corpuscles and their surrounding fluid also contain a considerable amount of sulphur, as is shown by their blackening a silver spoon with a deposit of silver sulphide.

Of the white of the Egg less need be said. It consists mainly of a solution of albumen, the second of the protoplasmic principles above considered, and it also contains a phosphate of lime, but one of different constitution from that which we found in the yolk.

Both yolk and white contain the alkalis soda and potassa in the form of chlorides; but of these the potash is largely predominant in the yolk and the soda in the white; in this respect there is some

analogy between the contents of the egg and those of the heart and blood vessels, the yolk representing the blood corpuscles and the white the fluid portion of the blood; this, however, is an analogy which cannot be pushed too far without error.

From this account of the various materials contained in the egg we may derive well grounded inferences of their special destination in the structural development of the embryo fowl. As, however, this is a treatise on nutrition and not on incubation or embryology we shall only do so far as those inferences throw light on the availability of eggs for human nutrition.

The occurrence of two different phosphates in the egg offers pregnant suggestions toward the purpose in view. The same two occur in widely different departments of the human system. The monobasic phosphate of the yolk corresponds exactly with the phosphate found so largely in the human brain and nervous system, and the tribasic phosphate of the white is identical with the bone earth or mineral constituent of the bones.

Moreover we trace the one from the yolk through the blood cells to the brain, the other from the white through the liquor sanguinis to the bones.

Moreover the oil globules of the yolk are almost exactly identical in chemical reaction with those of the milk of mammalia, and both with corresponding bodies in the brain.

From all this it has been plausibly inferred that the yolk furnishes material for the more highly organized brain, nervous and muscular system of the embryo and the white for the bones and cutaneous system, including the feathers, beak, etc.

Two considerations, however, have to be met and discussed before this study of the egg contents can be considered complete.

1. There is more fat in the yolk than is found in the body of the chicken when hatched.

2. There is not lime enough in the white to account for the embryonic development of bone during incubation.

1. While a certain admixture of fatty with the protoplasmic elements is essential to the organization of the higher organic tissues, and while a portion of the yolk remains enclosed in the viscera of the chicken after it is hatched, still there is more fat in the yolk of the fresh egg than

can be disposed of in this way; we have to look for some other disposal of it.

This we find in the embryonic respiration, for the chicken does breathe even during its imprisonment in the shell. Immediately under the shell, at the larger end of the egg and between its two lining membranes a space can always be found unoccupied by the fluids of the egg; this is the embryo's breathing space and there is always a passage through the porous structure of the egg shell of carbonic gas outwards and of oxygen inwards, the carbonic gas being derived from the superfluous fatty matter, whereby the animal heat is kept up as it is in our bodies by the oxidation of fat in our food and in our own bodies. The superfluous fat, in short, is fuel for the combustion, which in all animal bodies is an essential condition of life.

2. It is easy to see that the shell is thinner at the latter periods of incubation than when fresh laid; indeed, were not this the case, it would be difficult, if not impossible, for the chicken to escape from its prison. But how does this thinning take place? Simply the lime of which the shell is constituted is dissolved on its inner side by the fluids of the egg, and then combines with the phosphates already described, converting them from the monobasic to the tribasic phosphate, which is the proper material of the chicken's bones.

The wonderful process, then, by which the apparently structureless contents of the egg become with no addition from without, except that of a little atmospheric air, the substance of a living organization has been accounted for so far as the destination of the various materials is concerned; but the very qualities which adapt the materials to this purpose adapt them equally well to the building up of the tissues of our bodies and the repairing of their constant waste. For the chemical constitution of all animal tissues is the same, and that which furnishes materials

for muscles, brain and bones of the chicken is equally valuable for the same tissues of our body. A fresh egg contains in itself everything which the human body needs for nourishment in a smaller space than in any other combination we can procure, and that too with all the diverse material mixed in exactly the proportion by which they are required for sustaining the life of chicken or man.

Fortunately, nothing need be said about adulteration in the case of eggs as human diet; the unbroken shell is our security. Only let the egg be fresh and we are safe; and every good housewife knows how to ascertain the freshness of eggs.

But there is a condition of egg, very little known, which considerably impairs its sanitary value as an article of food.

Soon after it became the practice to transport eggs in large quantities and to long distances by railway trains, it was found on their arrival that adhesion had taken place between the members of the yolk and those of the shell, so that the yolk could not be turned out of the shell unbroken. On examination by experienced pathologists this was found to be the result of true inflammation; the material of the adhesion was found to be precisely the same as that of the plastic exudation in inflammation of the lungs or bowels. It will at first sight seem absurd to speak of inflammation in such an unformed mass as an egg; but this arises from our forgetting that, structureless and unorganized as it seems, the egg, even when fresh laid, is a living being, and capable of disease from external causes. The cause of this inflammation is undoubtedly the shaking and friction from the motion of the cars, and it cannot but render the egg more or less unhealthy, as the products of inflammation can never be as salutary in food as those of healthy growth.—D. F. WRIGHT, M.D., Member of Tennessee State Board of Health, in *Health Bulletin*.

#### THE PUBLIC HEALTH—THE LIVING AND THE DEAD.

**T**WENTY-TWO cities and towns now make monthly returns of their mortuary statistics to the Department of Agriculture. Three Rivers, Que., and London, Ont., have commenced to make returns and are now in the list.

During the month of March, 1,351 deaths were returned from the 22 cities and towns. The population of the cities probably does not much, if any, exceed 600,000. With this population the mortality was at the rate of 27 per 1000, per

annum; as compared with 26 per 1000, exclusive of small-pox cases, during the second half of last year, as given in the last number of this journal. During February, making allowance for the shortness of this month, the mortality in the 22 cities and towns was at the rate of about 25 per 1000, per annum; the total number of deaths returned being 1167.

As a natural consequence of climatic changes, there is always in our Canadian climate a large increase in the mortality, in the month of March, from bronchial and lung diseases. The returns from Ontario have, invariably, for many years, shown this to be the case. To what extent this increased mortality in March might be prevented, by better ventilation and methods of warming in dwellings and by more judicious clothing, and more care in regard to exposures to the weather, I will not discuss here.

From small-pox, there were 15 deaths in St. Hyacinthe, 7 in Ottawa, 4 in Montreal, 3 in Sorel, and one in Halifax: making a total in the 22 cities and towns, of 30 deaths from this disease during March, as against 22 in February. While in Montreal the mortality from the disease decreased from 47 in January to 15 in February and 4 in March, it increased in Ottawa from 2 in February to 7 in March; there having been 3 deaths here from the disease in January. In St. Hyacinthe there were 6 deaths from small-pox in January and one only in February. It is surely time the epidemic were about stamped out in those places. More vigilance should be exercised by the health officers.

From measles there was a total of 25 deaths; 8 in St. John, N.B., 7 in Toronto, 5 in Quebec, 3 in Ottawa and 2 in Sherbrooke. In February, there were 24 deaths recorded from this disease; Quebec returning 10 and Toronto 9.

From scarlatina (scarlet-fever) there were 11 deaths, as against 10 in February. Of the 11 in March, 4 were in Montreal and 3 in Toronto.

Diphtheria caused in the 22 cities and towns 85 deaths in March and 93 in February. The mortality from this disease was chiefly in the larger cities—Montreal, Toronto, Quebec, Hamilton, St. John, Halifax and Ottawa; though in February there were 5 deaths from it in Sorel and 4 in St.

Thomas. The returns show a total mortality for the first quarter of the year, from diphtheria, of 269. This gives a death-rate for the quarter of 1.8 per 1000 of population, per annum, from this disease alone; or about one-fifteenth of the total number of deaths from all causes for the quarter. The disease is becoming alarmingly prevalent almost all over the civilized world.

Typhoid fever (including typhus and continued fevers), from which there were probably no deaths, caused only 19 deaths during March in the 22 cities and towns; as against 8 in February and 21 in January.

Diarrhoeal diseases increased the mortality from 20 in January and 15 in February to 48 in March. Of these last 18 were returned from Quebec, 14 from Ottawa, 5 from Toronto and 4 from Montreal.

Deaths from rheumatism increased from 4 in January to 6 in February and 10 in March.

During the first quarter of the year, ending 31st. March, 3797 deaths were registered in the 22 cities and towns or at the rate of about 25 per 1000 of population per annum; as against 26 per 1,000 (eliminating the smallpox cases) during the previous half year. During this same quarter the deaths of 156,908 persons were registered in England and Wales equalling an annual rate of 22, 8 per 1,000 of estimated population.

Improvements in the returns are noticeable. During the last six months of last year, for example, Chatham returned a total of only 49 deaths, or at the rate of about 12 per 1,000 of estimated population, per annum; during the first quarter of this year, 42 deaths have been returned from that town, showing a mortality of about 21 per 1000, per annum. Again, St. Thomas, for the latter half of last year, returned a mortality of only about 13 per 1,000, whereas, during the first quarter of this year, that city returned a rate of about 17 per 1000. Guelph in like manner increased from a death rate of 13, to one of 17, per 1,000. Hamilton, from one of 17, to one of 21, per 1,000. It seems hardly possible that the returns from these places are yet complete. From Belleville there is a falling off. For the nine months the mortality returns from that city are less than at a rate of 16 per 1,000 of population, per annum.

## MISCELLANEOUS.

A SIGNIFICANT fact as a "sign of the times" is that in England the protection of the homes of artisans and of all who have to rent dwelling-places has become so prominent a subject of parliamentary legislation. Says the Secretary of the New Jersey State Board of Health, Dr. Eza M. Hunt: It is equally significant that a political party in one of the chief States of the Union should have regarded it as politic to have in their different sections of its platform reference to the care of the health of the people and one special section as to the regulation of tenements. It is the social interest of the State and the interest of all citizens, independent of all parties, that the law, especially in cities, should have something to say as to the construction and oversight of houses in general and of those offered for rental in particular. Some people are beginning to see that health is a workingman's question and that to secure healthy habits, healthy food and water, a healthy home and healthy surroundings, is one way of increasing wages.

**MORTALITY AMONG CHILDREN.**—The fearful mortality among children during the summer months is due, in my opinion, to the fact that the little ones are not placed in a position to gratify their natural desires, and mainly from the fact that they are deprived of the use of cold water. Children, during the extreme hot weather, perspire freely. This would be caused by the extreme heat; but they are often, against their will, kept sweltering in flannel garments, which increase their heat and perspiration, and they are consequently very thirsty. If the child cries for drink, the nipple of the nursing bottle is thrust into its mouth. The child is thirsty, not hungry; but not getting the water which it does want, it takes milk, of which its stomach is already full. The consequence is, the milk, not being digested, ferments; and vomiting, diarrhoea, cholera morbus and death result.—*Journal Am. Med. Ass'n.*

**NEW THEORY OF MALARIA.** In the *Gazetta degli Ospedali*, Prof. A. Cantani gives a new theory of malaria. He says that the microbe germinates in the spleen. The organ enlarges, and its nutrition becomes perverted by the presence of the

organism. When the capsule of the spleen is very elastic, the enlargement of the organ undergoes no change, hypertrophy takes place, and no febrile attack result. When the capsule possesses its normal degree of elasticity, it is stimulated by the presence of the malaria germs, it contracts and forces the microbes into blood-stream, thus giving rise to the characteristic febrile paroxysm, with its stages of chill, fever and sweating. During the fever, the micro-organisms are destroyed or eliminated, giving rise to a period of repose, during which the germs which remain in the spleen proliferate, again irritate the capsule, which again contracts and produces another paroxysm, followed by a period of repose.—*Technics.*

THE microbe of mumps (parotitis) has been at length found, it appears from a paper of Dr. Olivier, published in the *Feuille Mensuelle des Maladies de l'Enfance* (*Deut. Med. Zeit.*) He found in the blood, saliva, and urine of parotitic patients cocci partly isolated, partly as duplicocci, or united in chains and heaps; he also noted small bacilli, which he believed to be identical with those described by Captain and Charrin. These bacilli showed mostly a spontaneous mobility, and could be colored in gentian-violet, while the cocci remained uncolored by this fluid. The pathogenetic nature of these microbes is best illustrated by the fact of their disappearance from the economy during reconvalescence. In the saliva of healthy children are likewise to be found micrococci, but they differ from those found during parotitis by being easily colored in gentian-violet. Olivier explains the metastatic phenomena in mammae and other organs, often observed during parotitis, by the immigration of the specific microbes into these glands. In children in whom these organs are poorly developed and contain but little blood, the metastatic processes occur almost never.—*Therapeutic Gazette.*

THAT popular abomination known as 'Beef, Iron and Wine,' which is now sold so extensively, not only by druggists, but by tradesmen of various kinds, deserves a little special attention from the medical profession. It is an agreeable mixture to the sight and taste; its name is a triple

combination of seductive mononyms; while, taken into the stomach, it acts as a gentle 'pick up,' to the worn and over-sensitive nerves of the ladies. It has, in consequence, become a popular if not a fashionable tippie, and is indiscriminately used to an extent that is, we believe, not entirely free from danger. Every medical man knows that the amount of actual beef or food in these various preparations is insignificant, and that it is the wine after all that makes them liked and leads so many persons to purchase their second bottle.—*Medical Record*.

MINUTE particles of dust, sand, cinders, etc., in the eye are best removed by means of a camel hair brush or pencil, moistened, but not wet, and formed to a fine, smooth point. The brush will absorb the moisture of the eye and with it will take up the particle, provided the latter has not been driven into the eye ball. When the brush is not at hand, a thin strip of soft paper rolled spirally so as to form a fine point, is the next best thing to use.—*American Engineer*.

SANITARY EDUCATION.—The tendency of the legislation of the day is to guard the public health; and wisely so, for to most of us health means everything. But Acts of Parliament are passed in vain if the public intellect cannot understand and does not appreciate them. We endeavour by education to raise the intellectual standard of the people, and thus hope to prevent poverty and crime; and there is a growing impression, not without foundation, that a great deal of crime, not to mention lunacy, is due to ill-health. That is, the mind is influenced in childhood by disease and unhealthy surroundings, and consequently the individual has not a fair chance in the battle of life. P. A. Karkeek, M.D., C.S., &c., Medical Health Officer, Torquay, in *Sanitary Record*.

To some persons nothing is more fascinating than indulgence in cocaine. It relieves the sense of exhaustion, dispels mental depression, and produces a delicious sense of exhilaration and well-being. The after-effects are at first slight, almost imperceptible, but continual indulgence finally creates a craving which must be satisfied; the individual then becomes nervous, tremulous, sleepless, without

appetite, and he is at last reduced to a condition of pitiable neurasthenia.—*Medical Record*.

#### ADULTERATION.

You wonder why they take such pains  
To turn up our horse-radish,  
To terra-alba all our sweets,  
To made out good a bad dish,  
To logwood wines, to slate our coals,  
Make pepper of dried berries,  
Use cabbage for tobacco plant,  
For raisins run in cherries?  
They strive for gain, they make it pay  
And men of every nation  
They "sit up nights" and rack their brains  
For new adulteration,  
Each time a substitute is found  
They pile it on the steeper;  
For there's nothing in this world so cheap  
But that there's something cheaper.

COFFEE AND DRUNKENESS.—A writer in the *Phil. Medical Times* declares that alcoholism is unknown in Brazil, and that the cause is coffee. Cafés in which the delicious infusions of the bean are dispensed abound there, as saloons for malt and spirituous beverages abound here. A leading medical authority of Rio de Janeiro declares that the number of drunkards in a country is in inverse ratio to the amount of coffee consumed.—*Med. Times*.

THE Tribunal Correctionnel of Lyons will in a few days deliver judgment on a hundred wine merchants in the south of France who have been found guilty of colouring their wine with fuchsine, in such large proportion that the wine is dangerous to the public health. In some instances three litres of this substance were mixed with every hundred litres of wine.—*Sanitary Record*.

DR. Gorham, of Albany, calls attention to the fact that during the past winter that city has been threatened by the presence of two epidemics of highly contagious and fatal diseases, typhus fever and diphtheria, which owing to the rigid enforcement of suitable hygienic and precautionary measures of the health department, were confined to narrow limits. *N. Y. Medical Times*.

AT a recent meeting of the Société de Médecine Publique, Dr. Airy read notes on a case of typhoid fever which occurred

last year in a handsome private house in the Rue de la Faisanderie, Paris. The house was recently built, and the sanitation was, to all appearance, excellent. Suddenly terrible smells were perceived; which were discovered to be emanations from the poultry-yard. This was badly constructed, its soil was permeable, and constituted close to the house a sort of open sewer cut off from any outlet.—*Sanitary Rec.*

A Therapeutic Chase—"Puck" says that a wise St. Louis physician cured a case of alcoholism by prescribing opium. He then cured the opium habit by giving cocaine. Now he is searching for a cure for the cocaine habit.

FROM ROME.—That the Romans were strong believers in prophylaxis is evident from the ruins of their wonderful aqueducts, sewers and baths. The oldest and largest sewer was built in 606 B.C., for the purpose of draining the Forum. The sewer, well-known as the Cloaca Maxima, is twelve feet high, from ten to thirteen

feet wide, and made of massive blocks of stone which were put together without cement. It was subsequently the outlet of an extensive system of sewers, and is still in use and in a perfect state of preservation. I may add, however, that this drain is so low now that the Tiber often backs up and floods certain parts of the city, this the city authorities are about to remedy, and have already begun a new outlet which shall tunnel under one of the hills, south of the city, and discharge its contents nearly four miles south. It would scarcely be correct to say that the old Roman baths were of therapeutic value. I know of nothing at the present day so recklessly extravagant as these baths must have been, and history tells us they should more properly be considered as palaces for pleasures and dissipations. Many of the ruins show that the dwellings of the wealthy at least were supplied with water and drains and heated by means of hot air, conveyed in terracotta pipes between the walls. DR. W. L. ALLEN, Rome, in the *Iowa State Medical Report*.

#### THE CLEARING OF THE RAILWAY TRACKS.

*To the Editor of MAN.*

SIR,—If I were not fully persuaded that there is in existence a very considerable amount of latent and unexpressed sympathy throughout the Dominion for the poor, still palpitating, and most horrifying wrecks of human creatures, only a short while before the animated and happy citizens of a free and presumed enlightened country, as are beheld so constantly being lifted by the pitying hands of toiling but socially powerless subordinates from the tracks on our great lines of railway travel, I might feel disposed, like some others, to give up all effort as a useless attempt to interfere with a cruel destiny which had been inscrutably permitted to trouble a well-intentioned and progressive people. But in an enlightened age, every great social trouble claims attention, and obtains, in the sequel, its appropriate remedy. What we have to grieve for is that this sequel should often be so long deferred, and that in a country of free institutions so many constituent citizens should be willing to shrink from the sometimes rugged work of social and governmental reform. Our excellent and truly British Mr.

Plimsoll is always ushered to the foot-lights as though he were the only man of the era who had done a brave thing. He certainly did a very brave thing, in opposing, in the way he did, a great compact *Interest* like the English shipowners, the good and the bad amongst them all banded together to resist the progress of a reform, the need of which was demonstrated with perfect plainness, as to the facts, and burning eloquence in the manner of setting them forth. Mr. Plimsoll was not merely opposed, but at length, almost borne down, in nerve and vital strength before the first instalment of his work was finished; and had he been permitted to carry it on to completion there is little doubt that he would have done something more than regulate the system of Clyde and Newcastle shipbuilding at one or two of the more salient points, sustained as that system is by a monopoly that sets at defiance the remonstrances of the world, that is, up to the present time; for it cannot be asserted that those complaints and representations have as yet been very forcibly stated, there being more tender consideration for the companies than for the public who commit themselves

to the ocean passage. Our best blessings will go with good, right-hearted Mr. Plimsoll, but he cannot help us just now, in Canada, in the question of the railway practices that have supervened upon the construction of an imperfect set of highways, not so much worse than those of other countries as they are less perfectly looked after, in the daily working, and the world of railways has itself no doubt much to answer for, in departing from the established principles of highway building that were clear enough to the minds of our forefathers; for when the sturdy Saxons, under their valiant kings, opened up a new country to labor and travel, and made a barbaric island to rejoice in prosperity, even in the midst of frequent wars and incursions, they in their tree-felling and road and bridge-building, without pretending to emulate the durability of the great Roman roads, of which they possessed a few examples, always seemed to have the welfare of the humblest of their countrymen at heart, in a completeness of the social idea that we now choose largely to ignore. They built parapets to those bridges, for which the Roman Arch stood them in such good stead, nor did the wooden bridge lack the protection of a strong rail, and their droves of cattle and wains of produce were conducted from the farm to their market without unnecessary suffering to any living creature, and with due protection for the property. Occasional marauders were bravely dealt with, while the light of Christian example and precept was present to guide to more perfect methods of life. Mere emotion and good wishes did not satisfy the minds of men in those days, nor appease their consciences. Long ages lapsed, and the workman hero, George Stephenson, arose. Brave George, the pitman, before a committee of the House of Commons, was gravely addressed: "I say Mr. Stephenson, suppose a cow were to stray upon your new railway track, and come in contact with your new train of carriages?" \* \* \* "So much the worse for the cool!" was the reply,—for even the great inventor, in the absence of the knowledge that only experience could give, did not see how small a thing will often derail a train, making it much "the worse" for both passengers and intruder, and I am well persuaded his kind nature would never have applied the rough principle to human

beings. We know all about it, of course! We have cow-catchers, and cattle-guards, and a pretence of gates, *sometimes*, and we look after the railway fences, but still this very form of "accident" is not by any means entirely done away with. The level crossings are an open sore in Canada, and must be dealt with separately, and only by the way, so I now refer to parapets of embankments as well as bridges. *The former need them just as much as the latter*, and the making of them is easy in a country of square timber, and they would prove not only an incalculable protection to life, but an absolute monetary saving to the proprietors of the road. That reform has not come yet. One day it will, we may be well assured. In all movements of reform we have to be systematic. It is by order and combination for a settled purpose that we can alone hope to succeed, and it is best to begin with the simplest and the most urgent. *The most essential as well as the simplest reform is to get the tracks cleared.* It only needs a railway police, trained to their duty. The trackmen could serve, if made constables for that end. Passengers must not be allowed to trespass upon the line any more than the cattle, for they ought to know they have not a vestige of a claim in law for this too common practice. By side-walks, the lines could be made to accommodate them. Till these are constructed, there is no real hardship but kindness in warning them from the track. The public road is seldom far away. It may be a pleasure to Canadians, young Canadians especially, to risk their lives—many of our brave boys proved that at Batoche—but this is a case in which they have no right to ask to be indulged in a heedless folly. I am sure the sweethearts and wives will agree to this, and the settlements can have no special desire to have the charge of families of orphans. Let us reckon up what a frightful disorganizer the rail has proved in this sad connection, and be wise Mr. Dalton McCarthy wants support for his Bill. It may not be all that is required, but it is a beginning. Plimsoll or no Plimsoll, I confess to a lively interest in his projected work, and if we will stand at his shoulder, with a hearty good-will, and for once, with unity of voice and feeling, he will conquer for us.

Yours, PUBLIC SAFETY.



## EDITORS' SPECIAL CORNER.

The public health question is a remarkable one. Everybody concedes that it is one of great importance. Yet almost every body manifests little or no interest in it except on special or too late occasions. The interest must be there, nevertheless, inherent in every one, as the universality of the law of self-preservation clearly indicates. Yet it is not commonly manifested. Place a patient suffering from small-pox however in the midst of a small community or a crowd, and observe the effect. Not only is a public health measure then distinctly conceived in the mind of all, but the individual health becomes of much consequence to every one. Every body mentally complains that the small-pox carrier is there, or, more especially, is allowed to be there, or exposed to others who are well. Few probably censure the sick man. Every body knows so well that there are many poor ignorant people who are as it were naturally quite indifferent about the interests of others, that they hardly blame the poor creature; but blame the health authorities, if there are any, and if there are none, blame those who should have made or provided for health authorities, forgetting that they themselves too are to blame for not encouraging and aiding in health proceedings.

READER, you know very well that, solely from want of proper health regulations, you are liable at almost any time, in any public place, even in church or on the street, to be exposed to small-pox, scarlet fever, or other infectious disease, germs of which you may quite possibly carry home to those near and dear to you, and which may cause the death of one or more such near and dear ones. Should you do so, content not yourself with the thought that it was to be so, or that it was God's will and wisdom to take your darling, but, if you had not already been trying your best to secure for yourself, your family and your neighbors, the needed health regulations, blame yourself all the rest of your days for being indifferent about the life of your loved one who was depending upon and trusting in you. Perhaps the infection you unwittingly carried home may not have caused death, but only doctors' bills and nurses' bills, and druggists' bills

with much anxiety and suffering; or perhaps it caused yourself to be placed for days or weeks upon a bed of sickness. These are smaller matters, but can you afford such? You know very well too that for want of such proper health regulations, properly carried out, your indifferent neighbor may at any time deposit some filth containing infection near your dwelling or in your pathway, or near enough to your well to be dangerous from washings or soakage, or near the public water supply. You have really practicably no protection. In some municipalities, it is true, there are health laws for the suppression of causes of sickness such as I refer to, but chiefly from a want of proper public sentiment and support and of general knowledge in relation to the laws of health, the laws are but imperfectly carried out.

THE real want of the day, as relates to the health of the people, the well-being of the masses, is education in all matters pertaining to health. The municipalities will not educate the people in this way. If a few enlightened ones should do so, comparatively little good would follow when neighboring ones do not do likewise. One or two provinces may do such work, but unless all do it, and uniformly, the benefit would be comparatively but little. In order to have it done successfully, the Federal authorities must do it. By one central authority or source it can not only be done much better, but very much less expensively. By the Federal authorities, health statistics can be best collected and then utilized in the education of the people. The real basis of practical sanitary work is doubtless a good system of vital statistics and disease reports. For the former—accurate statistics of mortality and natality—a good deal of money would be required. The Government have commenced in a small way but much extension is needed. Educate the people in the laws of health, and correct vital statistics may soon be much more easily obtained.

A SYSTEM of vital statistics is much needed in Canada. The country can well afford it, and cannot prosper as it should without such a system. In the outline for a Dominion Health Bureau given in the first part of this-

number, a system of vital statistics was not provided for because of the much larger sum of money required for the working of it. One of the first things the health committee, when organized, should take into consideration should be that of providing for a uniform practicable system for the Dominion, acceptable to all the provinces, for the registration of all births and deaths, and also of marriages; and also to educate the people up to an appreciation of the value of such statistics. The system of statistics would then form a part, and a most important and essential part, of the Health Bureau. Meantime we should make the best of the system now in operation for obtaining a record of deaths in the principal centres; which record, though not accurate, is sufficiently so to show that the mortality in Canada is vastly greater than it should be, and that it is high time to take such action as shall have for its object the prevention of such high mortality.

A SYSTEM for reporting the condition of the public health from month to month throughout the Dominion is quite a different thing, however, and would be comparatively inexpensive, as shown in the plan above referred to. This would be of immediate practical use. When there is an outbreak of an epidemic in any city or locality, we must not wait for the mortuary returns to make it known, but we should be informed of it at once. Such information should be given through a certain number of reporters, each in a fixed or defined locality. It must be obvious to any one that it would be a most desirable thing to have from every constituency say in the Dominion, regular reports of the condition of the public health, especially as relating to epidemic or infectious diseases. The whereabouts and course of epidemics would then be known, and they could be dealt with accordingly.

In conclusion we appeal now to every reader of this Journal to use his influence in impressing upon the Government, or upon his representative in parliament, and upon the public, the necessity for legislative or Governmental action, with the view of promoting the public health and preventing such a high mortality as has been recorded last year in our principal cities and towns. Every one has influence and can do something, and every one is directly concerned.

Let not legislation on this important question be put off any longer, or any longer than the next session of Parliament.

We have just been favoured by the department with some notes on the analyses of infants' foods. We can only state here, however, that we are surprised to find that, in most of the foods in the market claiming to be especially adapted for infants, so large a proportion of starch; many of them containing from 60 per cent. to 70 per cent. of it, and in many cases it is reported as "unbroken." Starch is absolutely indigestible in the infants stomach and is a very improper food—innutritious and irritating. Long and thorough boiling will break it up of course. We would warn our readers to be very careful what sort of food they provide for young infants. We would state, however, that the home manufactured "Baravena Milk Food," of Messrs. Fish & Ireland, was not included in these analyses. The starchy part of this food has already been virtually partly digested by having been converted into dextrine. This we believe to be a safe and valuable food. In our next number of *MAN* we purpose giving details.

THERE now are four of the United States which have passed the Act requiring morphine and its salts to be put up with scarlet labels and wrappers. They are Georgia, Florida, Kentucky and Virginia.

At the International Congress of Hygiene, held at Hague, in 1884, Dr. Bertillon said that, "Of illegitimate children, there were in one thousand births in Ireland, thirty; in Holland, thirty-eight; in Belgium, fifty-three; in England, sixty-one; in Prussia, sixty-six; in Italy, seventy-three; in France, seventy-five; in Denmark, seventy-six; and in Bavaria, ninety-six."

HEALTH was the first question considered by the ancient Greeks. It is about the last considered by the modern Americans. The Greeks took exercise to preserve their bodies. The Americans take pills.

"Do you rectify mistakes here?" asked a gentleman as he stepped into a drug store. "Yes, sir, we do, if the patient is still alive," replied the urbane clerk.

## OBSERVATIONS AND ANNOTATIONS.

THE difficulty of obtaining a good model of either sex increases with the increase of civilization. A man's limbs may be perfect but his chest is narrow; or his head is fine while his shoulders are sloping. In one of the churches in New York, directly behind the pulpit, stands a noble stained glass window, in which is represented the full-length figure of a scantily-robed angel. Whether the angel is male or female nobody knows. After photographing fully a dozen female models, selected with infinite pains and at considerable expense, the artist had not one satisfactory figure. In his despair he fell back upon an uncouth Italian tramp, who turned out to be a good model, with the exception of his ankles. With some "idealizing" of outlines a moderately successful angel was produced; but none of the worshipers who gaze at him know how much trouble he cost.

A PITTSBURG writer makes the assertion that in fifty years, or perhaps half that time, coal will not be carried from the mines to its place of destination in bulk, but only its actual heat energy will be transported and that by wire, a process which he says, can be accomplished by converting coal into heat, the heat into motion and the motion into electricity; a storage battery at Cincinnati would take it up as fast as generated at the mines, and from this battery it could be taken and converted back into motion and heat, or changed into light.

THE difference between one boy and another is not so much in talent as in energy.—DR. ARNOLD.

DR. KOLBE states with regard to the fatigue occasioned to the eyes by paper of various colors, that red and green papers produce more fatigue than blue and yellow, and these again more than grey and white of the same degrees of brightness. Altogether, he does not think that a colored paper for printed books presents any advantage, as far as eyesight is concerned, over white paper.

ATTENTION is called in German medical journals to the fact that, so far back as 1849, the usefulness of inoculation with rabies-

poison, as an antidote and preventive against the effects of bites by mad dogs, was discussed in *Jahr's Klinischen Swweisungen*, in the articles, on "Poisoning" and "Dog-Rabies." In a much attenuated form it has been used to considerable extent in this country. So says the *New York Medical Times*.

A NUMBER of writers in recent medical journals attribute epidemics of diphtheria to proximity to manure heaps, and one, in the *British Medical Journal*, connects a peculiar form of throat disease with the Croydon sewage-farm. He writes that: "Though it is difficult to prove that the sewage-farm is a cause of disease, yet he has such a number of throat-cases, with spotted tongues, of a bad drainage type (the neighborhood itself being well drained), and which, from examinations, do not depend upon bad house-drainage, or impure water or milk, that he attributes these throat-cases to the fact that the Elmers End Road, bordering the farm, is the way into the country much frequented; and that children loiter and play near the brook draining the farm, the cases principally occurring in children. About three years since, he had a family with these throats. All the drains had been put in order before taking possession; but he was not satisfied, had all the drains re-inspected, and found all the sanitary arrangements perfect. The milk was derived from the occupier's own cow. This family did not regain strength till they were sent away for a long change. In the following year, notwithstanding all that had been done, the same symptoms appeared again; and one child was attacked with severe diphtheria, and died."

ANOTHER writer in the same journal, Dr. Steavenson, of London, having had his attention directed to the fact that a writer in *Lyon Medical*, M. Ferraud, traced some relation between manure-heaps and epidemics of diphtheria, recalls the circumstance that, when resident at the Children's Hospital, he was struck with the frequency with which children with diphtheria were brought in from the mews. In those cases the families occupied the rooms over the stables. So noticeable was the connection, he says, that he mentioned the point in a paper on diph-

theria, published in the *Medical Times*, in February, 1883. Not only did the children suffer from diphtheria, but there was reason to believe that the dogs and cats that frequented the mews also suffered in the same way, although this suspicion was not confirmed by autopsies, as it was impossible to obtain the bodies of the animals that died with throat affections. Some districts of London were entirely free from diphtheria, while others afforded numerous examples of the disease, and Dr. Stevenson thinks it would be interesting to know whether the localities of immunity were deficient in mews and manure heaps.

"DANGERS stand thick through all the ground," some one wrote long ago in a little hymn. Dr. Seifert (in *Wiener Med. Wöchen*) reports a case in which a young lady, æt 26, had been wearing stockings which had been colored by an anilin-red, containing a large percentage of arsenic. She was suddenly seized with all the symptoms of a "gastr-enteritis and an acute hemorrhagic nephritis"—an inflammation of the stomach and bowels and kidneys; besides, an eczematous skin-eruption made its appearance on the dorsal surfaces of both feet. The treatment first gave a very unsatisfactory result, until the cause was discovered, when the patient was cured of her disease within three weeks.

INDICATIONS come up from time to time that pure air may yet be obtained in railway cars. The Boston and Lowell road, says *The Railway Age*, are operating successfully a system of ventilation which supplies an abundance of pure air for each car, the supply being furnished from a register between each window, and the quantity controlled by the occupant of the seat. The air thus furnished is not of the quality that comes in at the open car window or door, loaded with dust and dirt, but is clean, fresh and entirely free from cinders. The air pipes which supply the current are attached to the side of the car between the windows, and terminate in a movable nozzle or register so that the air current can be turned in any direction and the amount of air regulated at will by each register.

THE following account of a meeting of the Board of Health of Philadelphia is given by a reporter of the *Times*: "There were present thirteen guardians of the city's health,

six reporters, and three contractors with grievances against a resolution on drainage. The six windows were tightly closed, and a majority of the thirteen sanitarians smoked cigarettes or cigars. In the course of half an hour the atmosphere was so full of carbonic acid gas that every victim of the prison had headache, grew comatose, or restless and red-faced. In such a room the board of health wrangled over resolutions and differed on such questions as the deadliness of odors and the purity of alley air. A resolution was adopted requesting councils to direct the construction of smooth, impervious pavements round the public market house as a sanitary measure of importance in connection with the protection of the food supplies of the city. At this junction a chorus of three voices simultaneously moved to adjourn. The motion was carried unanimously, and the nearly asphyxiated assemblage dispersed.

THE *Philadelphia Ledger* thinks that "the regulation of the diet is the principal field for advance in the medical profession in the near future." It is evident, a medical exchange says, "even to the surface observer, that foods, habits and other incidents of life, being daily and contiguous, must have much more influence on constitutional tendencies than medicine and treatment, which is occasional or varied. Perhaps the clews to the two opprobria of the profession—consumption and cancer—are to be conquered after all by means of food."

THE following "advice to doctors" is given by the *Southern California Practitioner*: "Every physician knows how difficult it is to treat himself or a member of his family as thoroughly and successfully as he would a patient, who was no more than a patient to him. This feature of the physician's life can all be changed if he will only follow the directions of that great philosopher, George Eliot, when he says: "Remember to treat your cold as if it were an orphan's cold, a widow's cold, or any one's cold but your own."

THE Governor of Illinois in his last message to the Legislature paid the following high tribute to the State Board of Health. This, he said, which was in its inception very difficult to establish by legislative enactment, has steadily grown in usefulness and popular favor, until now it is one of the

most important bureaus of the State government. By reason of the able management of its members, and especially of its secretary, the medical profession of the State has been very much elevated and improved. Incompetent beginners have been prevented from practicing. The grade of medical education required for practice has been raised to a respectable and safe standard, while mountebanks and quacks have been driven from the practice of their wiles and deceptions on the people of this State. The health of the citizens and their protection from inroads of contagious and epidemic diseases have been faithfully and carefully watched. Rules for sanitary care and regulation and instruction as to prevention of prevalent and especially dangerous diseases, have been so successfully published and promulgated that it is believed thousands of lives have been saved.

THE "Cremation of Human Bodies Not a Necessary Sanitary Measure," was the title of a paper read at the last meeting of the New York Society of Medical Jurisprudence and State Medicine, by its venerable and distinguished President, Dr. Frank H. Hamilton. He said that he could not approve of any legislation making it obligatory that the body of any person whatever should be cremated; and for the following reasons:—  
 First.—The danger to health and life from the present mode of burial, when the inhumation has been properly made, has, by the advocates of cremation, been greatly over-estimated, if, indeed, it can be said to exist at all. Second.—Cremation removes effectually one of the most important means of detecting certain crimes. Third.—The general sentiment of the community in which we live is opposed to cremation; and, in view of the facts above stated, it would be unnecessary, unwise, and unjust to impose cremation by legal enactments. The first of these, he thought, was perhaps the only one at present requiring extended discussion—and to this he especially devoted his attention.

DR. HAMILTON, in speaking of the comparative innocuousness of the emanations from abattoirs, said: The mortuary and general sanitary statistics of Chicago will probably not show that it is any more unhealthy today than it was before it became the slaughter-house of the world; nor has it been said

that Cincinnati has suffered in its sanitary reputation by the immense growth of its industry in the slaughter and packing of hogs for home and foreign markets. He did not intend to say that decaying animal matter does not give out noxious gases, and under certain circumstances that they do not cause sickness and death; but only that the dangers from these sources have been greatly exaggerated.

A DR. FINDLAY, of Havana, has been making experiments on the inoculability of yellow fever. He had the experiments performed by mosquitos, which he caused first to bite or sting a patient suffering from yellow fever and shortly after a healthy person, with consent of course. He found that the disease was only inoculable from the third to the sixth day. When two mosquitoes were employed, so that a double dose was given, the symptoms of the experimental disease were somewhat more severe than when only a single mosquito was used. Of eleven cases of inoculation, six were efficacious, one doubtful, and four negative. The period of incubation varied from five to fourteen days; the symptoms consisted of a headache, fever, injection, with sometimes an icteric tint of the conjunctiva, and in some cases albuminuria. The fever lasted, as in the ordinary form, from five to twenty-one days. The author believes that this method of producing artificial yellow fever will ultimately be found very valuable as a prophylactic against the disease.

#### SPECIAL TO SUBSCRIBERS.

So late has been every number of the JOURNAL this year, so far, that we have deferred, from month to month, sending accounts to subscribers, hoping each month that the printer would overtake the delay. Will readers please bear in mind, however, the terms: \$1.50 if remitted before the account has been sent; \$2 when not so paid. But very few of our readers object to this, and for the most part when they do not pay early, or before being "billed," they send their two dollars. Only a *very few* object to do this, and, we think, unfairly so. All remitting \$1.50 now soon at an early day will receive a receipt for the year's subscription. We shall be glad if many will kindly respond to our well-meaning suggestion, and "please remit."