

PAGES

MISSING

Modern sanitarians have been accused of merely substituting one terror for another in the mind of the child—bacilli instead of bogies. But even if this be true, there are profound and from a practical point of view most important differences between the two terrors, one is real, and the other imaginary. A child cannot avoid meeting many a bacillus, although he will never actually make the acquaintance of a bogie. We are not filling a vacuum when we put new ideas into a child's mind. We are simply substituting for strong and irrational fears, mild and reasonable apprehensions, whose moderate and intelligent regarding would save many a death and many a crippled or blighted life. Children, like savages and ignorant adults, believe and invent and retail among themselves the most extraordinary and grotesque theories and beliefs about the structure and functions of their bodies, the nature and causation of their illnesses and the mechanism of their aches and pains. A plain and straightforward statement of the actual facts about these things will neither shock, nor distress them, nor make them old before their time, but on the contrary will interest them greatly, relieve their minds of many unfounded dreads and save them from the commonest and most hurtful mistakes of humanity—those which are committed through ignorance.

—*Woods Hutchinson, A.M., M.D.*



A. W. Wakefield, M.A., M.D., B.C. (Contab.) M.R.C.S.
(Eng.), L.R.C.P. (Lond.). Vide: "Sanitation and Hygiene
in Newfoundland and Labrador"



A Labrador Residence, "very far from being
one of the worst."

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Special Articles

**WHAT IS BEING DONE OUTSIDE OF THE DENTAL
OFFICE FOR THE IMPROVEMENT OF
THE HUMAN MOUTH**

BY ARTHUR DAY, D.D.S., TORONTO.

Former articles in *The Public Health Journal* on dental subjects have shown the different conditions of the human mouth, and shown what is being done to correct some of those conditions by the dentist. Probably few people know the amount of work being done outside of the dentists' individual efforts to correct the unsanitary state of the mouths of the public at large.

The civilized world is being swept by a great Oral Hygienic Movement. Those in charge of the health crusades, and in charge of the School Children's Inspection, are devoting more time and energy towards the improvement of the mouth and throat than to all the other parts of the body. They have found that it is in the mouth that the germs of quite a proportion of the most prevalent, and the greater proportion of the contagious diseases find a harbor. Also it is in the mouth that lies the power to a great extent to fortify the system against these germs, for proper mastication is the first necessity for bodily strength. The Societies fighting tuberculosis are beginning to recognize the importance of a mouth in proper condition. It is possible and probable that defective teeth cause indigestion, and consumption gets a hold after that from lack of resistant force.

The mouth of the child being put and

kept in proper condition, will help to prevent the decline of a general nutrition to the danger point. The Brooklyn Committee of the Society for the prevention of tuberculosis, have joined with the second district Association of Brooklyn to maintain an up-to-date dental office free to the poor. The work is done by forty members of the dental Society, who give an afternoon a month of their services. Authorities agree that a poor condition of the teeth not only helps to breed the disease, but in cases of apparent cures the patients may re-infect themselves through decayed teeth. Physicians now send their patients to the dentist to help cure not only indigestion, but a great many other ailments, as gastro-intestinal trouble due to Pyorrhoea Alveolaris, pernicious anaemia, and systemic infections directly due to conditions of the teeth and mouth, and even for mental depression and hypochondria and many perplexing nervous troubles in women.

The Germans are probably the farthest advanced in the public oral hygiene movement, both among the children and the grown people. They have recognized that the problem of dental hygiene is not altogether one of benevolence,—it is largely a problem of economics. Their insurance companies find that it is to their financial

advantage to care for the teeth of their policy holders. The free dental infirmaries connected with the public schools have demonstrated first, that the time lost in having teeth attended to was far less than time lost formerly by toothache and disability caused by decayed teeth; second, that the cost of keeping teeth in order was more than compensated for by mouth health, and, therefore, reduction in cost of medical services; third, that child was better mentally and physically. And not only the Germans, but all the other countries are beginning to recognize the economical value of clean mouths and good public health. Through the efforts of the health authorities preventable diseases are showing a great decrease the past few years, and the public are beginning to appreciate the preventive measures. The proper care of the mouths by the people will probably be the greatest of all the endeavors of the health boards. In most countries it is compulsory to have needed dental work done before entering the army. The same is required of those joining the Nursing Staff of Hospitals. If the medical profession and the Government recognize this requirement, it proves to the general public that proper mouths are necessary in all occupations. Match factories now have compulsory dental inspection and treatment, and since its inception there have been practically no deaths from phosphorous poisoning.

So far the educating of the public in oral hygiene matters, has been done through the dental profession almost entirely. Though the members of the governments to some extent recognize the importance of such education it is hard for them to pass laws regarding it, until there is a public demand for such laws. The Legislatures and boards of education have been approached by the different dental Societies, but little real progress has been made. Like all new movements the campaign is slow to get going. The Governments want absolute proof of the necessity of the work, and while the dental profession itself is sure of the necessity, they have not as yet statistics for the proof of it. However, the dental Society of Rochester, N.Y., is starting on some experiments which they feel will furnish the required proof. They are taking some children who have been attending the public school for delinquents (who

are, of course, behind in their grade), and putting their mouths in the best possible condition. None of their environments will be changed. The dentists propose to show that these children will make a marked improvement in their studies, and possibly be transferred to the regular school, the change being affected through the dental treatment entirely. The Societies realize that it must be through the public school that the masses are taught Oral Hygiene. The modern public is rapidly growing into the habit of looking to the school for reform measures of various kinds, and as regards the child, the modern school-teacher is fast assuming the cares and responsibilities that once rested upon the parent, and it is through the child as it grows up, that the dental profession intend to educate the parent on Hygiene. That is our only hope of teaching the great mass of foreign immigrants who come to our shores each year, who are unable to read or write our language. The physical development, and the relation of the physical to the mental and moral phases of growth has received a large share of attention in the schools lately. With the information at hand the fact is established that forty per cent. of the absence from school is caused by improper oral conditions. The school board of Birmingham, Ala., have established three summer schools, because there was such a number of delinquents, it would be economy to raise the children up to standard rather than carry them through another school year. This delinquency was all caused by sickness among the pupils. Such conditions are showing the school boards the positive necessity of proper dental treatment for the students. Until lately the dentists had to coax for permission to examine the school childrens' teeth, though it was free of all expenses to the school. Thanks to their persistent endeavors, however, the former view on compulsory examination is changing.

There is now this inspection in every civilized country. In Germany the investigation into school childrens' teeth was begun thirty years ago, and now there are about fifty free Clinics. Sweden has over thirty. They are established also in Prussia, France, Japan, Norway, the Phillipines and Russia. In the latter country, where the poor are supposed to be down-trodden, the children are given free dental treat-

ment, St. Petersburg itself having ten free dental infirmaries. In some places the examination has been done without fee on the part of the dentists, in others it has been paid for by the city governments. In all of them the examination has reached a high degree of systemization. Pedley first started this work in England, which was in 1893, and he was perhaps the first to urge the appointment of paid school Dentists for each school. The London County Council at its meeting in July last year recommended accepting offers to have the teeth of all the children from the age of seven and a half years to eight and a half fixed properly, at a cost of twelve thousand pounds annually. Scotland received one hundred thousand dollars from T. Brown, Esq., who died last year in Los Angeles, to establish free dental clinics in the different Scottish cities. Even Manilla, in the Phillipines, can boast of a couple of infirmaries, a small one in St. Luke's Hospital and one at St. Paul's Hospital, where the poor pay if they can afford it. These are self-supporting and also support one in the city prison. There is also a free school clinic.

Our own continent, which is foremost in the profession of dentistry, would be expected to lead in the Oral Hygiene Crusade, and it is probably ahead of any other country. The work is being pushed with the greatest enthusiasm. It is being systemized by the Hygiene Committee of the National Dental Association of the United States. It started with the "National Oral Hygiene Campaign" in Cleveland, Ohio, in May, 1910. Though some places have had examination of school children's mouths long before that time. The plan consists in making a dental inspection of all the public school children, delivering courses of lectures in all the schools and establishing and maintaining free dental clinics where the public school children of the indigent poor may have free dental services. It was about ten years ago that the National Dental Association, realizing that most of the dental imperfections came from an unsanitary condition of the mouth launched the campaign for public dental education. The dental profession were asked to go into the school and present the matter to the teachers and pupils. Not much progress was made, however, until the fall of 1909, when Doctor Ebersole, of

Cleveland, by the aid of the public press, and the dental Society to which he belonged, worked up such an enthusiasm, that a large and representative meeting was held in Cleveland in March of the following year. At that meeting were Dr. C. W. Wills, of the United States Hospital Marine Service, as personal representative of President Taft, and other prominent men of the country, besides distinguished educators from different states. The general plan adopted at the meeting was first to have dental inspection in all the public schools, to be looked after by the different local dental Societies. A triple chart record of the condition found, to be made, one to be given to the National Association Committee, one to be given to the school board, and one to be given to the parents of the child. The examinations made so far show that between ninety-six and ninety-seven per cent. of the mouths of the school children need dental attention. After the inspection, a free course of lectures in three sets, one for the children, one for the mothers of the children, and one for the Public. Following the lectures, the establishment of a free clinic. The National Committee finance the project. They supply the dental outfits and the local dentists do the work. Each child is given a brush and powder and taught how to use them. The Association does not propose to do this indefinitely. That would be impossible and would be too much to expect. The idea is that the dentists want permission only to be allowed to go into the schools and do this work for twelve months, free of any costs to the school boards or city governments. At the end of that time, if the records do not prove without a doubt, that the school board can afford to finance the work themselves to a monetary advantage, nothing will be asked of them. The way in which it is proposed to show that this work would be profitable to the school board if carried on by them is as follows: The school record of every child is looked up for the year previous to coming to the clinic, showing how many days were lost by illness, and if possible, the nature of the illness, and the progress made by the child during that time. Then a similar record is kept during the time of free dental treatment and compulsory oral hygiene education, and a comparison of the two records is made. The cutting down of the

list of delinquents, the dental profession claims will save enough to finance the new movement. Last year in New York City seventy thousand school children failed and had to take their year over again, which cost the city three million dollars.

For the purpose of educating the public, there was formed three years ago, the "Dental Hygiene Council of Massachusetts." It issues pamphlets which are distributed free, and maintains a travelling dental and oral hygiene exhibit, illustrating the importance of a clean mouth and properly cared for teeth. The exhibit is made up of plaster casts, photographs, charts, etc. The council also gives free popular lectures to the public by dentists and physicians. The exhibit moves from place to place. In Rochester the dental Society publish a monthly magazine for the public on hygienic matters.

Almost any city of any importance in America has dental inspection of schools now, and quite a number have free dental infirmaries for the children. The first free clinic in New York City was St. Bartholomew, which started in eighteen ninety-one, for the extraction of teeth. The Children's Aid Society there now maintain several in the public schools, as also one each in the twenty industrial schools with an attendance of twenty thousand children. In Cleveland there is compulsory dental examination in the schools, and free dental services for the children of the poor. The Dentists of the city each give a week of their time to do this work or in lieu of that give thirty-three dollars,—the amount required to hire another to do the week's work. Rochester has two free dental clinics; there they started the dental examination in the schools twenty-five year ago. In Brooklyn every school child is subject to compulsory examination of the mouth, followed by sending cases requiring attention to the infirmaries, free if necessary. Among the other places with free dental clinics for the school children are New Haven, Baltimore, Milton, Pa., Saginaw, Spokane, Toledo, Jackson, Mich., and Detroit. In all of these places their services are given by the Dentists without any fee. Philadelphia City Council appropriated one thousand dollars two years ago, and last spring two thousand five hundred was added to this to furnish the dental clinics, and two rooms in the city hall are given for

their use. In the most of these cities the equipment of the clinics is as complete in every respect as the best furnished offices in the larger cities. Boston is more fortunate than probably any other place. Thos. A. Forsyth, who was a resident of that city, gave two million dollars as a perpetual foundation by which every child from birth to the age of sixteen may receive the most expert dental services without charge.

The Canadian Oral Prophylactic Association is taking up the work in a very practical and helpful manner. It is a chartered company, organized to study dentifrices and put a proper one on the market, as also a proper tooth brush, and to educate the public in oral Hygiene. The profit made by the sale of its products finances the educational campaign. None of its members receive any dividend on their stock in the Association. Its policy is to help any other Society in Canada which is organized to educate the people in dental Hygiene. In the past year it distributed thirty-five thousand pamphlets all over the Dominion. At the request of the Government it is preparing a dental exhibit in the railway car which carries the tuberculosis exhibit through the country. Toronto has a dental inspector on its Medical examination staff for the Public Schols. Different institutions and public schools, throughout Ontario have instructors in Oral Phophylaxis, under the guidance of the Ontario Dental Society. Halifax has had systematic examination in schools since 1908. Besides all these public school infirmaries there are about sixty dental Colleges in the United States and Canada, and these all have infirmaries where dental work is done at a very small cost.

It is encouraging to notice that some of the state and provincial governments are recognizing the importance of this work. A few have appropriated sums ranging around one thousand dollars, to be expended annually as an aid. Nova Scotia has an amendment to the Education Act providing for the inspection of all school children's teeth. The Ontario Government has sent out pamphlets to teachers and others on the care of the teeth. New Jersey has a law allowing any city to give one thousand dollars annually towards a free dental clinic. And New York in December last appointed two dentists lecturers on Oral Hygiene for the state department of health.

All these free clinics, the compulsory examination of the mouths, and even the small assistance given by the different governments leads us to hope that it will be but a few years until the mouths of all the

people are in a sanitary condition. Indeed, considering the short period the oral hygiene campaign has been on, it has made wonderful progress.

SANITATION AND HYGIENE IN NEWFOUNDLAND AND LABRADOR

BY A. W. WAKEFIELD, M.A., M.D.,

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Having been invited by the Editor of *The Public Health Journal* to give some account of the state of affairs appertaining to sanitation and hygiene (words whose meaning and significance are almost unknown throughout the country) in Newfoundland and Labrador, I feel that before attempting to do so, an apology is due to the readers of *The Journal*. Until recently I was working for the Royal National Mission to Deep Sea Fishermen, doing the ordinary work of general practice in isolated districts, and without any special training whatever in matters of Hygiene and Public Health. It was only in June, 1911, that, at the urgent request of Dr. Grenfell, the Superintendent of the branch of the Mission on this side of the Atlantic, and of the Hon. John Harvey, President of the Newfoundland Association for the Prevention of Consumption, I agreed to devote the summer at any rate to the work of this Association. It is, therefore, not with the idea of being able to impart any technical information that I undertake this article, but rather with the view of explaining the conditions in this the oldest of all the British colonies, and of eliciting useful information or other help from my readers to guide us in the campaign we have undertaken against the wildest of all our wily adversaries, the "hardy perennial" little vegetable labeled by the horticulturalists who grow and tame him, the "Bacillus Tuberculosis."

The country I propose to describe is the Island of Newfoundland, with its adjacent dependency of Labrador on the mainland.

Newfoundland is a country about the size of England and Wales, while Labrador has a coastline almost 1,000 miles long as the crow flies, and many times this length if the coastline of all the innumer-

able bays, inlets, and harbors be counted. In the whole of Labrador and in the northern 150 miles or so of Newfoundland, there was not a single resident medical man until 19 years ago the Royal National Mission to Deep Sea Fishermen deputed Dr. Grenfell to start a branch of the Mission in Labrador. The only medical attention the inhabitants could get was from the doctor on the mail boat, which visited the larger settlements a few times only during the short summer. This lasts only from about June to September. The Moravian missionaries also in the extreme north amongst the Eskimos at times had the services of a qualified medical man. As the whole of the white and Eskimo population of Labrador consists entirely of fishermen, living only on the seashore, it is unnecessary to describe the interior of the country, which is peopled only by a few Indians, of whom little is known. The total population of Newfoundland and Labrador is about 242,000. Of these, nearly 4,000, known as "liveryers," live all the year round in Labrador, while 30,000 to 40,000 fishermen, many of them taking their wives and families with them, visit the Labrador coast every summer for the fishery. The very large majority of these are Newfoundlanders, but a few schooners visit us from Canada and the United States also.

"Overcrowded" is not the word to describe the condition on many of these schooners. One hundred persons, including women and children, were on one schooner of about eighty tons that I happen to know of; and this is by no means an exceptional case. There is no doubt that many worse instances occur. Of course, the large majority of these are only passengers, and are landed on reaching Labrador to fish

from the seashore; but in the meantime, if conditions are adverse, they may be quite a long time aboard.

In the same way the houses, particularly on the Labrador, and also in the north of Newfoundland, are often terribly overcrowded. This is especially the case in winter, when many of the people move up the bays or a few miles inland, to their winter houses which are nearly always very small, and generally one-roomed, partly for warmth and partly for economy. Travelling in winter, I have slept with my two drivers and two fellow-travellers in a one-roomed house, the regular occupants of which consisted of the father, mother, and ten children! Another time I came to a very small one-roomed house (roughly estimated as not more than 12 by 8 feet), the same evening as did the Hudson Bay Co.'s fur buyer, his driver, and the mail man. There was not room for us all to stretch out on the floor; I slept next to the H. B. Co.'s agent, a very big man, and when I wanted to turn in my sleeping bag, it was necessary to do so in conjunction with my neighbor, who was lying half on top of me.

In the photo of the house shown on page 234, which is very far from being one of the worst, the height may be gauged by the size of the ordinary flour-barrel shown in the picture.

Conditions in the south of Newfoundland are much better in this respect, but in the north of the island they are nearly as bad as in Labrador.

To appreciate the true significance of this overcrowding, it is necessary to take into consideration the fact that indiscriminate spitting, with a few noble exceptions, is universal in the greater part of Newfoundland and Labrador. Very often on arrival at a house I have found the floor, where shortly my sleeping-bag had to be laid, one filthy mess of spit! Moreover, in most of these houses the windows are not even made so that they can be opened, and the atmosphere, with a big stove roaring in the middle of the room, is absolutely indescribable.

The staple dietary of a very large number of the poorer people consists of nothing more than white bread, molasses and tea, with a very little cheap oleo-margarine. To this may be added, in summer, fresh fish; in winter, a little dried salt

fish reserved from the summer's catch, and such fresh meat in the way of rabbits, partridges, ducks, geese, seals, or caribou, as may be obtainable. This fresh meat is a very variable quantity; occasionally in some places it is to be had in plenty, at other times and places it is absolutely unobtainable. It is certainly becoming more and more scarce.

The above, according to my experience, which covers the most of Labrador, the northern portion of Newfoundland, and certain parts of the south, describes the average conditions in the north and Labrador. In the south the standard is very variable, but the average is undoubtedly much higher. As there are always those in a better position who are able to afford salt pork or beef, butter, sugar, condensed milk, or other delicacies, so there are also those who are unable to afford even flour, molasses, and tea in anything like sufficient quantity; and I have known many instances where even the flour, molasses, and tea had almost run out.

Under these circumstances it will readily be seen that the conditions are almost ideal for the spread of tuberculosis. The "seeds" are most carefully preserved and cultivated, and they are sown in the most approved fashion, not "by the wayside," or "on stony ground," but "on good soil," specially tilled and prepared to receive them. They, therefore, sprout, and blossom, and bring forth fruit, a few fifty, but more a hundred fold.

Owing to the scattered nature of the population, and the fact that there are stretches of coast hundreds of miles in extent without a single medical practitioner, it is absolutely impossible to keep accurate medical statistics. Often death certificates are made out and signed (if at all) by the grave-digger, the sexton, or anyone else who can write. The official returns and statistics are therefore totally unreliable, and we are free to draw our own conclusions from the published records. In the year 1906, when the Association for the Prevention of Consumption was inaugurated, the total number of deaths in the colony was 4,663, having risen more or less steadily from 3,865 in 1901. During the same period the death-rate per 1,000 (corrected according to the officially estimated increase of the population since the census in 1901) rose from

17.54 to 20.13. In the city of St. John's the death rate per 1,000 in 1906 reached the stupendous figure of 27.00. Taking again the same period from 1901 to 1906, the number of deaths officially attributed to tuberculosis (all forms) rose from 654 to 933, and the death rate per 1,000 due to tuberculosis rose from 3.1 in 1901 to 4.0 in 1906. The accompanying table shows the difference between these figures and those obtaining in England and Wales:—

	Newfoundland	St. John's (City District)	England and Wales
Death rates from all causes per 1,000 living	1901 17.54 1906 20.13	21.79 24.67	16.9 15.4
Total number of deaths from tuberculosis (all forms)	1906 15.43 1910 750	21.67 136	14.5
Deaths from tuberculosis (all forms) per 1,000 living	1901 749 1906 936 1910 750	161 152 136	
Deaths from pulmonary tuberculosis per 1,000 living	1901 3.40 1906 4.02 1909 3.17	4.03 3.80 3.68	1.80 1.64 1.52
	1901 3.12 1906 4.00 1909 3.09	3.35 3.77 3.54	1.26 1.15 1.08

According to Dr. William Bullock, the above statistics show a worse condition of affairs in Newfoundland than those prevailing in any other country known to him. (Horace Dobell "Lecture, 1910, p. 14 of reprint). Certain individual towns, however, are worse, namely, Yassy (Roumania), and Manila (Philippine Islands), with a mortality from tuberculosis respectively of 4.16 and 5.0 per 1,000 living. But even this does not represent the true condition of affairs, for a cursory glance at the official register is sufficient to convince any medical man that an unknown, but large, number of deaths attributed to other causes must undoubtedly be due to tuberculosis.

Not having the register for 1906 to hand, let us examine that for 1910, and I think we may assume that the diagnosis of tuberculosis was at any rate not more frequently given in 1906 than in 1910.

The deaths attributed to meningitis (non-tuberculous) are 62, while those attributed to tuberculous meningitis number only 22. There has, so far as I can ascertain, been no epidemic of cerebro-spinal meningitis. The deaths attributed to whooping-cough number 95, and influenza is said to be responsible for 25. Other items are: "Other diseases of brain, 53"; "Convulsions, 233"; "Other diseases, nervous system, 33"; "Acute bronchitis, 55";

"Chronic bronchitis, 29"; "Bronco-pneumonia, 30"; "Pneumonia, 140"; "Pleurisy, 13"; "Congestion of the lungs, 9"; "Haemorrhage of lungs, 13"; "Diarrhoea, and enteritis, 85"; "Other diseases of intestines, 33"; "Peritonitis, non-puerperal, 21"; "Bright's disease, 40"; "Diseases of the joints, 8"; "Congenital debility, 335"; "Old age, 334"; "Ill-defined diseases, Dropsy, 24; Heart failure, 72; Other ill-defined causes, 75; Unknown causes, 59."

Exactly what proportion of the above figures should be attributed to tuberculosis, it is impossible to say, but there can be no doubt that it must be such a number as would raise our death rate from tuberculosis to such a figure as is absolutely unknown in any other part of the world, according to the above-mentioned authority. It must be taken into consideration, however, that similar fallacies may exist in the records of other countries, whose statistics approximate most nearly to those of Newfoundland. On the other hand, the statistics published concerning Britain, and others of the more densely populated countries, are probably approximately correct.

There are five medical men permanently on the staff of the Labrador branch of the Royal National Mission to Deep Sea Fisheries. (The main work of the Mission is carried on in Great Britain and on the North Sea). Besides these five, there are always a number of temporary helpers to enable us to meet the great press of work in summer. All of these have been impressed with the extraordinary prevalence of tuberculosis, and a number of general practitioners in the south of Newfoundland have told me the same story. All ordinary forms of tuberculosis are met with, existing, I believe, in about the same proportions as in Britain.

An interesting fact is that tuberculosis of bones, joints, and glands is common in Labrador, thereby seeming to negative the theory that such tuberculosis, especially in children, is due to the bovine bacillus. Fresh milk of any sort, except human, is absolutely unknown in that vast country of Labrador, with the exception of a comparatively small district in the south. It is conceivable, however, though not probable, that a bovine infection had been con-

tracted through the use of butter or but-
terine.

So much for the statistical evidence of the terrible prevalence of tuberculosis. To give practical illustrations drawn from personal experience, I must be allowed to anticipate. So far I have been attempting to demonstrate the factors which led to the formation of the Association for the Prevention of Consumption (A.P.C.) in 1906. My personal experience, however, only dates back to 1908, and the following instances, with one exception, have, therefore, occurred since that date. I met the father of a family that had consisted of 11 children. The father and, if I remember rightly, the mother, had always been exceptionally strong and healthy. Some 11 or 12 years ago their children started dying of tuberculosis. One after another died until six had gone; four definitely of consumption, the other two with symptoms very suggestive of the same cause. At that period Dr. Grenfell came along, gave definite instructions as to disinfection of the house, etc., and as to the necessity of open windows and the avoidance of spitting. These directions were scrupulously carried out. Since that time, not only has there been no further death, but the remaining members of the family have enjoyed splendid health!

A mile or so away from this family, I visited a man lying in bed, in the last stage of consumption. The windows were all tightly closed. He was coughing violently, and spitting great masses of phlegm over the floor, the walls, and even the bed. It was impossible to approach the bed without wading through this pestilential swamp. He was being attended by the members of his family, and scoffed openly at me when I tried to explain to him the danger and the almost inevitable result of his spitting. He died a few weeks later. I have not since visited this settlement, and am, therefore, unable to say how many of the family have contracted the disease.

Another family I visited lived in a little shack, consisting of two very small rooms, in one of which an almost red-hot stove was roaring, in the other the mother lay in bed dying of consumption, and far from scrupulous as to the deposition of her spit. Every window was literally and tightly caulked up, "to keep the cold

out." The oldest boy was in hospital with a tuberculous ankle. The other children were living at home, all filthily dirty, with pediculosis and impetigo, and there was evidence pointing to early tuberculosis in all but one.

Another small settlement which I visited consisted of two brothers, their wives, a sister, and three children, all living in a one-roomed shack. The oldest boy had a tuberculous ankle. It was in winter and desperately cold. The only food in the house was a few pounds of flour, an ounce or so of tea, and the last dregs of the molasses barrel. The shack was about 200 miles from our nearest hospital, to which it was quite impossible to convey the boy.

In the middle of a big settlement I have seen a woman fill her kettle from a little stream formed by the melting snow, on to which during the whole winter the excreta of men and dogs, and every description of filth and refuse, had been indiscriminately cast. A good water supply was only 100 yards or so away.

The above are merely instances of innumerable cases which I could quote, demonstrating the gross ignorance, and the appalling conditions which prevail. They are taken from different places, widely separated, along the great length of coast which I have visited, and there are only a few places along this coast where similar cases could not be found. As for the, to me, less known south of Newfoundland, from what I have heard and seen, I have no reason to think that things are very materially better, except in certain places where the work of the A. P. C., the local medical practitioner, or others, has borne excellent fruit.

It was, therefore, not without justification that the Association for the Prevention of Consumption was formed in 1906. The work of education was at once commenced. Pamphlets were issued for distribution. Nurses were procured who visited the houses of consumptives and others in St. John's, and in many of the outports. During two summers a medical student has devoted his holiday to going round the bays giving educative lectures on consumption, illustrated by a magic lantern.

Teachers in the elementary schools have been given a short course in hygiene, and elementary hygiene has been introduced into the curriculum of the schools.

Owing largely to the efforts of the Association, a Commission of Public Health was appointed by the Government. This Commission has already investigated and reported on the matter of consumption.

A large number of medical practitioners in the outports have recently been appointed local representatives of this Commission, and splendid work has already been accomplished by some of them.

Compulsory notification of consumption, and compulsory disinfection of houses wherein deaths from consumption have occurred, have been obtained by the united efforts of the A. P. C. and the Commission.

A hospital for the isolation of advanced cases has been established at St. John's, but, isolation not being compulsory, it is very hard to persuade patients to take advantage of this institution.

Two open air shacks have been erected by the Commission at St. Anthony, to be run under the supervision of the Royal National Mission to Deep Sea Fishermen.

It was at this stage that I was requested by Dr. Grenfell, and the President of the A. P. C., to come to St. John's, and take up the work of the Association exclusively during the summer of 1911 at any rate.

After visiting certain districts in the south of the Island, and with the concurrence of the A.P.C., I came to the conclusion that the summer months are entirely unsuitable for this work, and that during the winter very much more satisfactory work can be accomplished. We arrived at this conclusion after due consideration of the following facts:

In the first place, during the summer, all the men are exceedingly busy with the fishery. Very many of them are away in Labrador. The women are also very busy, either helping to "make" the fish, or working in the gardens, etc. The schools are all broken up, and many of the teachers are away.

And, finally, everyone being so busy, no one has either time or inclination for outside interests. In the winter all is different. The men are home, with very little to occupy their attention. The schools are in working order, and special lectures can be given to the children, and their teachers further interested. Moreover, lectures, etc., are welcomed as tending to break the monotony of the dull routine of

winter life. We, therefore, decided to stop work for the summer and resume in the autumn.

Even in the less isolated southern portion of the colony, however, what I have seen convinced me of the necessity for this work. Some observations made in two of the southern outports will illustrate this.

In a certain outport, one of the largest and most prosperous in Newfoundland, the following conditions were found:—

The water supply of the settlement is derived from wells. The well which appears to be chiefly used, is situated just at the side of the main road, almost at the lowest point of the depression where the road crosses a small valley. On the slope of this hill, draining into the valley and only about 50 yards distant from the well, is a burial ground. The well has a cover, but it was not in place at the time, and I saw the dust and filth from the road blowing freely into the well. I was told that the cover was never used. There is no drainage system in this settlement, and all slops and waste material are emptied into the gutter at the side of the road. One of these gutters leads directly down to and ends up against the cement wall of the well, and I could find no outlet, nor overflow for this gutter. The well, being at about the lowest point on the road, the slops run down the gutter till they are stopped by the well wall, and there lie, oozing through into the soil at the edge of the well. When I was there a pool of exceedingly filthy looking water was actually as described. I was told that the cement wall runs down four or five feet below the surface of the soil, but this would be of little value in such a case, and a large proportion of this slop water must ooze through into the well. There is no proper well bucket, and every person brings with him whatever bucket he chooses for lowering into the well to draw his water. There is nothing in the world, so far as I can ascertain, to prevent this bucket being the washing bucket, the stable bucket, or the slop bucket. In any case, the bucket is generally placed on the floor of the house, and the floor is also usually considered the right place to spit on.

The above describes the water supply in one of the most advanced of the outports. Some years ago there was an epidemic of

enteric fever, but since then the general health of this settlement has been about the average for the Island.

I went on from there to a much smaller settlement, notorious for consumption. I cannot remember the exact figures, but a most inordinate number of lives have fallen victims to the bacillus tuberculosis during the last few years, and the total number of deaths last year, almost all caused by consumption, was, I was told, just equal to the sum total of the number of deaths during the four preceding years. There is no doctor within a good many miles. The minister and the school teacher recognize the awful state of affairs, and are struggling nobly against it.

I was told that the school house was just large enough to properly accommodate one-fifth of the number of pupils on the books. Two only of the windows will open, each only about six or eight inches. The people are in the habit of holding revival services in the evenings after school hours, during which the habit of spitting, almost universal in Newfoundland, is wont to be more than usually indulged in, and the windows are generally kept tightly closed. The teacher told me that when he comes to open up on the mornings following the meetings he is often literally driven out by the poisonous condition of the atmosphere. And he assures me that sometimes, at the end of the evening, the atmosphere becomes so foul that the lamps will not burn! In this room the children have to be packed together for school! There are no sanitary conveniences in connection with this school (only three or four exist in the settlement), the consequence being that in warm weather the putrefying stench in the school yard is simply overwhelming. In spite of the urgent representations of the teacher and its chairman (the minister), the school board will not move in the matter.

The stupendous difficulty of imparting movement to such a colossal mass of inertia and ignorance can perhaps be estimated from an account of my own experience. Bait being scarce at the last mentioned settlement, a number of men were congregated by the roadside, making strenuous efforts, apparently, to lay the thick dust by continuous streams of expectoration. Having been introduced by the minister, I proceeded to inform my hear-

ers of the purpose of my visit. The man who appeared to be the leader of the gang (a member of the school board!) at once began to object. His opinion was that in the old days God used to kill people off by means of wars. As there were no wars now, He was unable to kill people off in that way, and had consequently invented consumption as an equally effective way of accomplishing the same end!

The plan of campaign we have framed consists chiefly of educating the people. This work of education is to be attempted by travelling almost continuously during the winter, holding lectures illustrated by a magic lantern, visiting and inspecting the schools, speaking, where occasion offers, especially to the children, stimulating the interest of the teachers and others, and, if possible, organizing local committees of the A. P. C. to follow up the work.

Several trips have already been undertaken, and a number of places visited in Conception Bay, Trinity Bay, and Bonavista Bay, besides a large number of lumber camps now actively operating in the woods. On some of these trips my wife accompanied me, and by her singing greatly aided the work, both by attracting people to the lecture, and also by affording breaks or intervals in the lectures, when the attention of the audience began to flag. After a song the attention would be as good as ever again. In almost every case the lecture hall was crowded to the utmost, in some cases numbers of people had to be turned away. The attention also was uniformly excellent, the lecture, illustrated by the magic lantern, being followed with the greatest possible interest.

Two nurses have been employed by the A. P. C., one of whom spent the summer visiting consumptive patients in certain of the outports; the other did equally effective work in St. John's.

The policy of presenting suitable literature to patients and others is being pressed forward, and every means is being taken to impress upon the public the fact that consumption is a preventable disease, and to teach them how to prevent it. Amongst other methods, we have arranged, with the co-operation of the postal authorities, for a monthly poster to be sent to every post office in the country where it is displayed in a conspicuous place. Every month a new poster is made out,

containing in a few picked words some truth which we wish to drive home. The Postmaster-General has been most kind, not only in allowing all the A. P. C. matter free delivery by mail, but even in personally issuing instructions to all post offices concerning the display of these posters to the best advantage. Yet even in this apparently simple matter, we experience a difficulty typical of this country. Even the simplest matters do not get done, and it is necessary to keep an eye on every detail. It has been found that quite a large number of post offices have received neither the A. P. C. poster nor even the Postmaster-General's circular. The influence which these posters should have exerted has in this way been greatly reduced. In other cases, however, much trouble has been taken to use them to the best possible advantage, and they have certainly attracted a great deal of attention. An A. P. C. Calendar has been sent to every school in the colony.

In this connection we have also to record with gratitude the whole-hearted support of the editors of all the principal newspapers. They have all, over and over again, opened their columns to help us. It is impossible to estimate the power for good which they exercise in this way.

On broad lines, and comparing tuberculosis to the growth of a deadly weed on a big estate, our campaign aims at the education of the public on two main lines, namely:—

(a) The destruction of the weed (tuberculosis); and, above all, the prevention of propagation by the destruction of all seed (infective material).

(b) The development of the soil (the bodily health) in such a way that any chance seeds which may escape destruction, cannot take root and grow.

The first object will be attained by the proper disposal of all sputum and other infectious matter, the disinfection and ventilation of houses, and the disinfection of clothing, table linen, utensils, etc.

The second object is to be attained by bettering the condition of the people in every way, and thus increasing their bodily resistance to disease. Special attention is being paid to the most essential matters of good food and fresh air. At present the staple dietary of the poorer classes consists, as already stated, very largely of "loaf," tea, and molasses. The "loaf" is

made from the whitest of white (and, therefore, presumably bleached) flour. We hope to introduce the use of whole-wheat flour, being the whole wheat berry ground up, and containing, according to Robert Hutchison, M.D., F.R.C.P., about twice the quantity of proteins, fats, and mineral ash (largely composed of phosphates), contained by the so-called "finest" white flour. (Food and the Principles of Dietetics, Chap. XI.)

We also recommend a more varied diet, including large quantities of beans, peas, lentils, rice (unpolished), oatmeal, etc. All this will cost little, if any, more than the present insipid white flour and will contain very many times more nourishment.

The genuine difficulty with regard to thorough ventilation consists, of course, in the extreme cold experienced during the long winter, and in the great poverty of many of the people, and the consequent deficiency of good warm clothing. This, however, is no excuse at all for the fact that windows are not made so that they can be opened, even in the warm summer weather, or for the extreme heat and poisonous atmosphere only too frequently present. To meet this difficulty we are collecting supplies of warm clothing, bedding, foot-warmers, etc., old or new.

Mrs. Wakefield is, moreover, interesting herself in various plans for providing suitable and profitable employment for consumptives who are unable to do hard work. She is at present teaching a class in the Consumption Hospital at St. John's an easy and effective art known as "chip carving." This can be done in the open air, and even in the cold with mitts on. And the articles so made are finding a ready sale. She also hopes to teach them basketry, and to encourage carpentry, knitting, and other things. This will not only enable them to earn a little money and food, but will also prevent their falling into lazy ways, as consumptives are so prone to do.

Night camps with free breakfasts and suppers for consumptives able to work were opened during the summer in St. John's. By this means the patients were given the advantages of fresh air at night and good food for two meals at any rate. They were thus encouraged and helped to work, and were at the same time educated in the proper methods of living.

In the belief that the milk and meat

ger considering the prevalence of the spit-supplies are responsible for a large amount of disease, including tuberculosis, attempts have been made to deal with both these questions. At present there is no power of inspection of any kind over the importation of live stock, and the natural consequence is that Newfoundland has become the dumping-ground for ill-conditioned and diseased cattle. I have personally inspected (unofficially) two shipments of cattle, and though I was prepared for something pretty bad, I had never dreamed that it was possible to obtain anywhere such a collection of old, worn-out, emaciated and diseased-looking cattle. Very few were in even fair condition, and some were coughing. All these cattle were landed and sold, whether for butchering, breeding, or milking, without a single question being asked about any one of them. The obvious danger of this condition of affairs is greatly enhanced by the fact that the meat inspection in the colony is grossly inefficient, and the Board of Health has no power whatever in this respect.

The present milk inspection is distinctly better, though the powers under the Act are limited and vague. There is only one inspector in addition to the medical officer of the Board of Health, while there are more than 800 suppliers of milk to the city and suburbs of St. John's. Efficient inspection is, therefore, impossible; and, while the leading farmers supply very good milk, some very bad milk is also sold to the public.

In setting out to deal with this milk question we found it essential to obtain some idea of the extent of bovine tuberculosis in this country. In this we were assisted by five of the leading farmers who volunteered to submit their herds to the tuberculin test. Out of these five herds, comprising forty-four (44) cows, only two were found to be tuberculous, i.e., 4.54 per cent. This was better than we had dared to hope for, and we, therefore, made the tuberculin test compulsory (if required by the veterinary surgeon) in our scheme. A set of regulations, in pamphlet form, has been drawn up, and any supplier of milk guaranteeing to carry out these will be given a certificate by the Board of Health, and supplied with an A. P. C. number plate for his cart or sleigh. His name will also be advertised in the papers and in

public places, and he will receive all the support possible from the above bodies. This scheme has the heartiest support of most of the leading farmers, and it promises to be a considerable success.

The problems of the inspection of meat and of imported cattle, however, seemed soluble only by Act of Parliament; and, therefore, at the Prime Minister's request, a report has been sent in to the Government demonstrating the present intolerable condition of affairs, and recommending the efficient inspection of meat and of imported cattle, very much as such inspection is at present carried out in Canada.

The institution of open air schools for weakly children has also been discussed. But we are met here by very great difficulties, largely owing to the pernicious system of denominational education still existing in this colony.

I may, however, here mention the fact that our work is most strongly supported by all the superintendents of education in the colony. This is a factor of inestimable importance, and is already bringing forth fruit. For the school teachers as a class are very much interested, and are doing their very best to help the work by interesting and teaching the children. The good which they are accomplishing in this way is incalculable. Moreover, the superintendents of all denominations are co-operating with the A. P. C. and the Public Health Commission in arranging for practical classes in domestic science to be held in St. John's for the benefit of girls at the teachers' training schools and the older female pupils in the schools. Mr. Vincent P. Burke, A.A., has recently visited Canada in order to secure a thoroughly trained female teacher for this work. In this he has been successful, and it is confidently hoped that this project will in time have a very great and far-reaching effect in dissipating apathy and ignorance, and in bettering the conditions of living throughout the colony.

Reports have been received from most of the medical practitioners in the outports who have been appointed local representatives of the Public Health Commission. Some of these are most interesting, and the reports on some of the schools and the school children provide ample food for reflection. The following are a few extracts:

"In half of the schools the children sweep up. This is a source of great dan-

ting habit by men at the meetings held nightly for church purposes in these buildings. In the absence of any system of ventilation, the schools are not fit for pupils to use the following day, as the air space is very small, being in one case as low as 57 cubic feet per pupil." (Dr. W. F. Plewes). Other schools referred to in the same report contain 240, 80, 114, 83, 68, and 122 cubic feet of air per pupil.

Only about half the schools are supplied with closets. The following is an analysis of the examination of one school consisting of 30 pupils:—

No. of children with short sight	3
No. of children with diseased ears	2
No. of children dirty	14
No. of children with decayed teeth	24
(With a total of 96 decayed teeth, an average of 4 each).	
No. of children who are chronic mouth breathers	21
No. of children with enlarged tonsils	16
No. of children with extremely enlarged tonsils	4
No. of children poorly clothed	8
No. of children underfed	9
No. of children tubercular	2
No. of children in pro-tubercular stage	2
No. of children with heart disease	6
No. of children with lateral spinal curvature	12
No. of children who are verminous	3
No. of children with impetigo	1

Will such children grow up to maintain the national traditions of extraordinary virility and hardihood for which their ancestors have ever been famous? Time alone can tell.

Nearly all these reports from the outports record defective ventilation in the schools, in some of which the state of things is very serious.

Other matters frequently mentioned in the reports are:—

(1) The water supply, which is very frequently obtained from surface wells, likely to be very seriously contaminated by surface drainage.

(2) The midwives in the outports, most of whom are old women with absolutely no knowledge either of midwifery or asepsis.

One outport practitioner states that tuberculosis is the primary cause of death in 4.5 per 1,000 living in his district, and a contributory cause of death in 3.5 per 1,000, i.e., a cause of death in 8 per 1,000

living. Local practitioners in other districts report death rates from tuberculosis of 7.39, 5.00, 2.70, 2.30, and 1.77 respectively per 1,000 living. It is, therefore, evident that the prevalence of the disease varies very greatly in different districts, but that in most districts the death rate is above, in some districts very far above, the normal.

A very interesting statement was made to me by a most observant man who has travelled in almost every part of the island, and who has had very exceptional opportunity of forming an opinion on the subject. It is well known that, owing, no doubt, to extreme isolation, different settlements vary very widely in their methods of living, etc. My informant stated that he had noticed that in settlements where the people and their houses are dirty, and where spitting and other filthy habits are prevalent, tuberculosis is extremely prevalent, in spite of the fact that in these very settlements the staple dietary is often very good. In other settlements where the people keep themselves and their houses clean, and where spitting on the floor is not allowed, tuberculosis is much less common, although the staple dietary is quite inadequate, consisting in many cases of little more than carbohydrates, with very small quantities indeed of proteins and fats.

Consideration has been given to churches, public conveyances, meeting halls, etc., and at the instigation of the A. P. C. certain of these are now properly ventilated, others are systematically disinfected and cleaned.

Preparatory to the introduction of an anti-spitting law, instructions are being issued to the police to abstain from spitting when on duty, a habit at present freely indulged in; and a special magic lantern lecture has been given to the whole force to impress upon them the reason for these regulations. In fact, the whole spirit of our campaign is to appeal to the common sense of the public by showing them the reasons for our recommendations. It is felt very strongly that the whole question of success or failure depends absolutely upon the public thoroughly understanding the measures that are being taken on their behalf.

I am happy to say, however, that we have the support of nearly all the lead-

ing people, not only in St. John's, but throughout the country. The "Daughters of Empire" operated some open air shacks last summer, which were an undoubted success. The Government is now seriously considering the best method of taking up the whole question of tuberculosis in this colony, and the members of a wealthy firm have just announced their intention of giving \$100,000 (one hundred thousand dollars) towards this purpose. They propose to erect a sanatorium near St. John's, costing \$50,000, and 16 smaller sanatoria in the outports, one in each of the 16 electoral districts, and each costing about \$3,000. Properly handled and wisely admin-

istered, this scheme will be of immense benefit to the colony.

Thus the country is being wakened up to the necessity for a radical change; and although innumerable difficulties await us, still we look forward to a time when the colony of Newfoundland instead of being a byword, will be a country where tuberculosis is unknown.

Should any of my readers be inclined to give any suggestions for new lines of work, or help in any other way, or, best of all, should any desire to visit the country and help actively in our work, it would give me great pleasure to hear from them.

THE ROYAL EDWARD INSTITUTE

BY MRS. MACDONALD McCARTHY.

Royal Edward Institute, Montreal.

There is no greater menace to the health of the people of our city of Montreal, and of our Province, than the widely prevalent infectious disease tuberculosis, for the study, prevention and cure of which the Royal Edward Institute was founded two years ago through the liberality of a private citizen.

The Institute is a free dispensary at which from 900 to 1,000 consultations are held monthly. The patients — who numbered 1,020 in the past year — are visited by the staff nurses in their own homes and taught how to improve the living conditions there, so as to secure for themselves the best possible chance of recovery with the help of fresh air, rest, proper food and strict cleanliness, while at the same time having impressed upon them the duty of protecting other members of the family and all persons coming in contact with them from the ever-present danger of infection. It is admitted that, under ordinary circumstances, every active case of consumption infects at least three healthy persons, while in some instances the disease has been communicated to a much larger number. Our educational propaganda is, therefore, regarded as the real corner-stone of the results we aim at, building up by unceasing vigilance and activity in fighting tuberculosis.

To mention merely one protective measure adopted by the Royal Edward Insti-

tute — the distribution of sputum cups — reaching the total of 54,790, in the past year, an idea may be formed from this figure of the necessarily diminished danger from infection to the community in this direction alone.

To estimate the progress of a campaign such as we are engaged in, complete and accurate statistics are indispensable. These in the past were not available, but an earnest effort is now being made to cover the entire field with our records of reported cases and the mortality from tuberculosis. We also have an index of all the streets and have noted the numbers of houses in each street in which cases of tuberculosis have occurred during the past two years. In that period our nurses have made 7,674 visits, and one inspector 9,491, the details of which are entered on our index cards.

An encouraging decrease in the mortality statistics from the disease in Montreal during the past year indicates that our work is already bearing fruit. The average duration of the patient's life after he has been attacked by tuberculosis has also been greatly prolonged of recent years.

On the other hand, we note a deplorable increase in the percentage of patients who do not sleep alone, the explanation being the poor housing conditions and high rentals in Montreal. A great reform in this

respect is an absolute necessity. The dark room so common in our tenements is an unmitigated evil for which the occupants of the houses are not responsible. As it is well-nigh useless to expect landlords to remove this hot-bed of disease and infection from the cheap tenement, the only hope rests with the city which should frame the building laws to meet this requirement. As regards ventilation, our inspector's report for 1909 shows that in only 30 per cent. of dwellings of all classes in our city is ventilation good.

Fifty beds for advanced cases are provided by the city, but the number falls far short of the requirements. Until adequate provision is made for advanced cases it will be difficult indeed to check the progress of the disease in our midst. The experience of other countries goes to show that the decrease in the mortality and incidence of the disease is in direct ratio to the provision for the isolation of advanced cases.

The Ladies' Relief Committee of the Royal Edward Institute does excellent

work in visiting and assisting destitute patients, providing food, medicines and such other comforts as are urgently needed in some cases, paying rent or a small pension for the indigent and deserving patient. The cost of this service is necessarily high and is met chiefly by donations from the public in response to the solicitations of our members.

A grant from the city and the services of an inspector are valuable aids in our work. We have also a large membership list and frequently receive generous donations from public-spirited citizens, but with an ever-increasing number of patients the cost of conducting a free dispensary is so great that without the active cooperation of all classes and forces in the community the burden would be too heavy for us to carry.

The recommendations to the Provincial Government made last year by the Royal Commission on Tuberculosis will, we trust, soon bear fruit and extend our facilities for fighting our worst national foe, the dread White Plague.

RELATIONSHIP OF THE MEDICAL PRACTITIONER TO PUBLIC HEALTH

BY CHARLES A. HODGETTS, M.D., L.R.C.P., LONDON, D.P.H., F.R. SAN. I.,
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There is no necessity to waste time by carrying you with me through a lengthy and somewhat prosy dissertation on the evolution of public health work. It is, I think generally accepted, like many other things animate and inanimate on this terrestrial sphere, that it has evolved from chaos, and while we can learn much from the past, it will not do for us to stand dreaming of either what has been or what might have been. The world moves, the people move and medical science, always an inexact one, moves also; it has made rapid progress in your time and mine, and like the physician himself now moves with electric speed of high voltage.

The time was when the family physician was the multum in parvo of medical, surgical and obstetrical knowledge, but the present is one of specialization, nevertheless the general medical practitioner remains an improved shadow of his former self.

The day was when he had to exercise all the functions which have been taken over by the body corporate and vested by provincial laws in the Medical Officer of Health. This was and is still considered by many as a usurpation of the functions of the physician by the state and hence clashings are very frequent between the general practitioner and the Health authorities.

We would, therefore, consider the present day status of Public Health—particularly as it relates to conditions in Canada.

The first thing that strikes a student of the question is that there are public health laws which are more or less uniform in each province. They are founded mainly upon British precedents, and as law-abiding citizens, the medical men must conform thereto, and if unfair or unjustly severe they should endeavor to secure their amendment by united and proper repre-

sentation to the body enacting the particular law.

It is in the minor points of life that the greatest friction occurs, and perhaps from a public health standpoint the greatest difficulty occurs between the medical practitioner and the health authorities in the requiring of the notification of certain contagious diseases. What is the situation? The provincial legislatures by these enactments presuppose that a physician can and will diagnose these diseases—but does he?—and if he does not, why? If he does, why does he not comply with the law? and again, why should he give away the professional secret in this particular class of diseases?

It has been my experience that the relationship is the more strained as between the health authorities and the physician when the latter is ignorant in respect to many diseases of this class; the fault is not always his, as during student days he, as a rule, is not afforded the opportunity to see and study them. This is a mistake which must be righted by those entrusted with medical education. It can be done by a co-operation with the local health authorities, who should furnish the means whereby this can be facilitated. It is a duty the municipality owes the profession and the people, that this opportunity should be given the senior student, for, in the segregating of cases by statutory requirements the opportunities for the study of these diseases have become circumscribed, the requirements being very exacting in respect to isolation. Too much umbrage is often taken by the medical practitioner, when, in the public interest, the health authorities desire consultations with an officer of the Public Board of Health, to ascertain as to the true character of a particular case. Under the existing method of the appointment of Medical Officer of Health from amongst the ranks of the medical practitioners who are engaged in general practice, this procedure is often found necessary and where it is carried out with tact and discretion, as it is under the present medical inspector in this province, there is nothing to fear on the part of the practitioner.

At the present time many medical men do not realize their position in respect to the notifiable diseases, and through ignorance of the requirements do not notify of

each and every case of this class of diseases which fall into their hands. The law does not discriminate between mild and severe cases and requires their notification irrespective of type; on the other hand, the physician often does, and looking upon a case as for instance a mild one of Scarlet Fever, he calls it Scarlatina, and fails to notify the constituted health authority. He overlooks the fact that a mild case possesses the peculiar infection, and, therefore, may be the source of a wide-spread epidemic unless the proper precautions are promptly taken by the health authorities to prevent its further spread. This is an error which can and should be avoided—indeed, would be avoided if he was educated aright as to the true character of infection as well as to his duties and responsibilities.

In acting in the manner just outlined, a physician is not honest to himself, his patient, the family, the community or the health authorities, and I would add, to his fellow practitioners—for it is not for him to discriminate as to the mildness or severity of the case, so far as notification is concerned. Having once diagnosed its character, it is his duty to notify forthwith, leaving the disposition of the case and the precautions to be taken by the family to the constituted authorities. Did he do so, there would certainly be less friction than sometimes exists, and he would save himself a "heap of trouble."

The difficulties with the quarantining of families would be materially lessened if physicians were to take the stand that their responsibilities ceased with notification and that all the details of quarantine, isolation and disinfection, etc., were matters for the consideration of the health authority and for which this authority was responsible. The doctor should take the position that, owing to the law stepping in and claiming a right to supervise and authorize what shall or shall not be done, he is relieved of any further responsibility in that direction. The procedure is recognized by all citizens as the course best suited to cope with such diseases under the conditions of present day civilization. Then, if the physician has any fault to find with the details laid down in respect to any particular case, it is wiser if he do not ventilate these before the family—he must remember he is not responsible, and should consider that

professional etiquette would be better served if he consult with the constituted health authority, for it is quite apparent that while general rules must be followed, action upon each case must be taken upon its merits—in other words, while we legislate in the aggregate the precautions to be followed in each case must be dependent upon its peculiar surroundings and conditions, and of these the physician is generally able to give information which would be most useful to the health officer in satisfying the requirements of the law.

The relationship of the physician to the health authorities is perhaps more frequently strained where communicable diseases occur in the homes of the poor, in municipalities where the authorities have not themselves complied with the health laws and have failed to provide the necessary accommodation in isolation hospitals for the proper treatment of this class of the community—and too often because the local authority fails in the discharge of its responsibility in this respect, it endeavors to place a part, if not all of its duties upon the medical man who, in many instances, is doing work at his own cost and charge which should be borne by the body corporate. In such cases the medical men of the municipality should in their united capacity, by proper representation of the case, show the public that it, as a corporate body, has a duty to perform, and they should further indicate how suitable provision will safeguard against outbreaks of these diseases—and in this manner indicate the duty of quarantine and disinfection, etc., is not a medical responsibility, but a municipal one to be conducted by the local health officer.

It has been my experience that some physicians do not play fair with the local authorities, and I can best explain my point by instancing a case.

A child is taken ill with a "sore throat," symptoms lead the physician to suspect "diphtheria;" he takes a swab which he forwards to the public health laboratory—in the meantime administers say 5,000 units of antitoxin—the report is received the next day "positive" and the house is placarded. By reason of the prompt treatment of the case, the child convalesces rapidly; it has been seen in time and properly treated—then a second swab is sent to the laboratory, which still shows positive. The

doctor becomes annoyed, as all physical signs of the disease have gone. He then wishes to test the accuracy of the laboratory examination—takes a third swab which he carefully sterilizes and sends this to the laboratory—then he breaks confidence with the health authorities and what can he say if ever after both his swabs and himself are looked upon with suspicion.

This certainly is not the way to foster confidence with the health authorities, and my illustration would be without weight if it were not founded upon actual facts.

The physician must remember that the laboratory is not infallable—the laboratory is like himself, liable to make mistakes—and he must remember that the laboratory man is dependent upon him for good specimens properly taken, and the laboratory man has everything to gain by making a true statement of what he finds. If the physician is satisfied by physical signs that the case has recovered—even after the bacteriologist tells him it is still a laboratory case of diphtheria, then it is a case for conference with the local health officer.

If the medical practitioner has duties and obligations to perform, so, too, has the municipal health authority, and if it, as representing the people and the law, does not live up to its obligations, how can it in all justice expect the medical practitioner to do all that is required of him?

It is unfair to make the doctor a criminal when the body corporate representing the people daily neglects its duty—endangers the health and comfort of the many by its sins of omission—take in the case of the notifiable diseases, can any one point to a single urban municipality in this province which has ample provision for communicable diseases. I certainly know of none—if the members of our boards of control and city councils were held criminally responsible for their failure to live up to the Health Act of Ontario, it would be a good thing for them, possibly some adequate provision would be made and they would move as rapidly in this direction as they have done to give "the white way" on our city streets. In my opinion, they are still on the stage coach of public health, which has been living without any horses attached thereto for over a quarter of a century. It could not move because of the absence of the motive power—it would certainly delight one's eyes to see them attach even a team

of good live horses to this coach and get a move on—but also they would be then still behind the times, for this is the age of electricity in preventive medicine as in everything else.

My sympathies have always been with the medical practitioner who allowed himself to be inveigled into accepting the position of a Medical Officer of Health any municipality, particularly those where his services were not whole timed—and I sincerely trust that a change will soon be brought about. Quebec has already seen the folly of the old method and within a few months there will be appointed a dozen of medical men who have qualified in post-graduate public health work—these gentlemen will be apportioned to districts in the province and each will have direct control over the sanitation of the district to which they are severally appointed, and I am pleased to learn that Ontario is at last taking advantage of an old statutory provision in the Public Health Act, whereby District Health Officers may be appointed.

My own regret is that Ontario, which was the banner province, to enact a public health act, has not been the first to move in this matter. That it was not the fault of previous Public Boards of Health I know to be a fact, for representation was made more than once, asking for legislation along the lines of County or District Health officers.

But the Provincial Health stage coach has got a legislative electric motor hitched up to it, and it is most gratifying to note that there is something doing which will, I am sure, prove acceptable to the medical practitioners of the province and equally so to the thinking public, although it may hit, and hit hard, the average municipal councillor who in the past has been the great stumbling block to the carrying on of up-to-date public health work.

The public health laws should be strengthened and those responsible for their enforcement be made to feel their responsibility, is quite evident, and I need only point to one glaring example which unfortunately is to be found in the capital city of this great Dominion. The incidents of the great typhoid outbreak in 1911 are still fresh in our memory, and now we have an example of the same authorities' stand in respect to an outbreak of smallpox where it has been present for over a year. The

following is part of a report of the discussion of the local board of health as given by "The Citizen," February 16, 1912:

SANITATION NOT VACCINATION.

Board of Health Talks to Doctor Shirreff.

Strong opposition by Ald. Forward and ex-Ald. Cunningham at the board of health meeting last night prevented a stringent regulation with regard to the attendance at high schools, collegiate institutes, colleges and universities in the city, of pupils who have not been vaccinated within the past seven years, going into effect.

Dr. Shirreff recommended to the board that clause 17 of the Act with regard to inoculation be put into effect by the board. The clause reads:—

"In all cases where it is deemed necessary by the medical health officer of any municipality owing to the presence or threatened presence of smallpox, he may, with the approval of the local board of health, require certificates of successful vaccination or of insusceptibility on re-vaccination within seven years of all students of high schools, collegiate institutes, colleges and universities within the municipality to be presented to the proper authorities of the said institutions and no student refusing to present such certificate on demand shall be admitted to further attendance on classes in said institution until such certificate is furnished."

Dr. Shirreff explained to the board that he had no control over public and separate schools, and asked that the separate and public school boards be requested to put into effect clause 16 of the Act, which gave them permission to do the same as clause 17 allowed the board with respect to the higher institutions.

"There's not one thing there you need do at all," commented Ald. Forward.

"If the people knew how much smallpox there was they would be alarmed," asserted Dr. Valin.

"Take a little sulphur and cream of tartar and you won't have smallpox," retorted Ald. Forward.

"There cannot be so many cases as will make any regulation of this nature necessary," ex-Ald. Cunningham said. "I don't think you should carry that recommendation."

Ald. Forward.—"Neither do I."

Ex-Ald. Cunningham.—"You had better leave this stand over until there is a full meeting of the board."

Chairman Chevrier.—"But the cases are increasing."

Ald. Forward.—"No, no; I won't support this at all. There are too many getting vaccinated now. I'll fight it to a finish."

Dr. Shirreff.—"If only you would enforce this milder means of preventing the spread of the disease, it would be of great assistance. If we don't do something, the Ontario provincial board of health will step in and do something."

Ald. Forward.—“Let them start and we will see where they get off at.”

Ex-Ald. Cunningham.—“I don't think it is proper to spring a thing like this at a half meeting. Everyone is not in favor of vaccination.”

Ald. Chevrier.—“We know that and respect their feelings, and don't wish to have compulsory vaccination. We must stop the spread of the disease, however, and if the pupils do not wish to show their certificates they can stay at home.”

Ald. Forward.—“It's just the thin edge of the wedge, and if you want to call a special meeting to deal with this, you can do so. I for one won't stand for it.”

Only four members of the board were present, and Ald. Valin, who moved a resolution to put the recommendation into effect, could not get a seconder, so the matter was laid over.

Ald. Forward then took the medical health officer to task for allowing certain cans to remain in the back yards of houses in Hintonburg and Mechanicsville.

“If you would clean up these tin cans and let vaccination alone it would be a good thing,” he stated. “No wonder there is smallpox. I move that these cans be cleaned up this week. What right has this board to leave these cans in the back yards?”

Dr. Shirreff explained that the cans were left in the yards pending a thaw, when they would be taken to the dump and emptied, and that they were property of the people, who would hold the board responsible for loss if they were removed.

Ald. Forward stated that if they were not cleaned up, he would personally act in the matter, and see that they were. The board agreed and the cans will be taken away at once.

Those present were Ald. Chevrier, Ald. Valin, Ald. Forward and ex-Ald. Cunningham, the absentees being the mayor, ex-Ald. Pinard and ex-Ald. Grant.

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The M. O. H., as representing the Health authority of a province, stands in a unique position—he is a doctor specially entrusted with legal authority to enforce not only provincial laws, but local health by-laws, which have for their object the protection of the health of the inhabitants, both resident and non-resident of the municipality for which he acts.

He stands as the preventive officer of the people in all that relates to their health, and in the discharge of those duties must bring an intelligent knowledge of medicine into co-operation with law education, engineering, architecture, sociology, agriculture in several branches, plumbing and many branches of industrial life in so far

as they have a bearing upon the individual and his environment.

It will thus be seen that a Public Health Officer occupies a very peculiar and unique position—one requiring special training over and above that given in the ordinary course by which he qualifies as a Doctor of Medicine. It calls for post-graduate work of no mean character and such as can only be obtained by means of a Degree in Public Health. This being the case, let us consider then the present day conditions in this province—what relation does the medical practitioner occupy to the constituted authorities? The answer is not as simple a one as may at first seem evident, and the reason why is: a medical man is one who is employed by a responsible individual in the person usually of the head of a family or household, and to this individual he is primarily responsible and logically this is the case, but the people through their representatives in the legislature have given up their rights in certain particulars in so far as they relate to communicable diseases—The reason is not difficult to find for it was found that by placing the responsibility for the supervision of this class of diseases upon some local authority, the public would be better protected against outbreaks and a large class of the community who were otherwise indifferent would be properly cared for and protected against their own inaction by the representatives of the community taking prompt and efficient measures looking to their protection, i.e., doing what they either would not or could not do.

Hence the reason for the substitution of the local authority of health for that formerly occupied by the head of the household; thus the medical practitioner is required to pass on his information within a reasonable time to the local authority, though, for obvious reasons, the head of the household is not in any way relieved of his responsibility to acquaint the health authorities of the fact that a case of a particular communicable disease exists within his household.

This new order of things—and I use the word “new” advisedly, although the law has been upon the statute books of this province for three decades—this new order is resented in some quarters just as much as if it had been enacted during the time

of the present generation of practitioners and the reason is not difficult to find.

There are possibly some five or six hundred medical practitioners who are serving in the position of Medical Officers of Health in as many municipalities, but few of them are all time men, and yet they are each vested with the same authority—have virtually the same duties to perform; the difference is this—the all time man has the authority and the staff—none too efficient is the best of them, wherewith to enforce the law, the accommodation for the isolation of at least some of the cases of communicable diseases and the means for disinfection—but what shall we say for the other ninety and nine out of each hundred who nominally fill the position—the crux of the whole question is that these officers are engaged in the practice of medicine for a living in the municipality which they are supposed to serve—the anomaly is one that cannot be found amongst any other body of professional men—no medical man can carry on a successful practice and be an efficient health officer, the two positions are altogether incompatible and the sooner the public realize the fact that in continuing the present “modus vivendi” in public health, they are but prostituting the medical profession and jeopardizing their own lives. In what other profession, in what other calling in life does the law require a man to enforce such an important part of the statutes of the province and supervise the carrying out of such municipal by-laws, as it does the unfortunate medical practitioner who is lured into accepting the onerous position of Medical Officer of Health. Is there any other body of professional men or business men who would commit themselves to the folly of accepting such a similar official duty and who would be expected at the same time to earn their livelihood amongst the very people amongst whom they are called upon to enforce its provisions?—None that I know of.

Would we look for efficiency in a part time police force, whose duties are more to keep the peace by apprehending the criminal—a post hoc duty—rather than to prevent crime? Or do we efficiently prevent fires by employing a part time fire-brigade? These methods of part time men have been tried in respect to protection against crime and fire, but have been superseded by trained men giving their whole

time to the work and municipalities willingly pay for the services so rendered, being assured that it is the cheapest and most efficient method of dealing with these important problems of municipal life.

If these two public preventive services can be better worked through the modern methods now in operation throughout the civilized world, what shall we say of the service which has for its object a much more valuable public asset than peace and property, i.e., the health and lives of our people?

The medical men and the public of this country and, I might add of this continent, seem content with the present system of Public Health service. Governments, municipalities and the medical profession have not yet realized that in the employment of all time men properly qualified medical officers of health, they would be saving lives and preventing disease, and so long as the members of the medical profession are willing to assume the responsible duties of the office of a medical officer of health and accept therefor, either a small fee or no fee at all, so long will the municipal authorities and governments be willing to continue on in the old time way.

Public authorities, on the other hand, must realize right now that a Medical Officer of Health is not one whose duty it is either to nominally fill the position, or one only to be active after disease has appeared in a municipality and then only carry on the work in a half-hearted or unintelligent manner as too many do. A Medical Officer of Health is there to prevent disease, to maintain a high standard of healthy conditions in the municipality which he serves—it is his duty to so supervise and patrol the district by competent inspectors that its inhabitants will be protected to the fullest extent against all that tends to lower their vitality as well as all that causes disease.

To fill such a position it requires the all time services of a medical man—not a medical man who is engaged in private practice, but a properly trained public health medical man—a specialist—one possessing executive ability, who knows his duties and will conscientiously discharge them—such a man would command both the confidence of the medical profession practising in the municipality and of the rate-payers.

But there is more than this to be considered if any number of medical men are to engage in this specialty—it is essential that their tenure of office must not be at the mercy of a municipal councillor, for it is the experience elsewhere that in the discharge of his official duties in apprehending what disastrous results may occur, provided a certain course is not pursued by a municipal council or in having done that which is right and proper for the health of some person or persons in the community, he thereby antagonizes those who are simply courting popularity and endangers his position and makes his tenure of office uncertain. This important contingency must be carefully safeguarded and in the public interest such an officer might very properly be considered as the representative of the Provincial Chief Health Officer and dismissal should only be with his consent. As for myself, I would, in the pub-

lic interest, go further and make them officers of a provincial service, as by so doing, the central authority would be able to move the officers about, establishing a system of promotion which would secure a higher degree of efficiency than could otherwise be looked for. With the central provincial laboratories in full operation, permanent medical officers of health could be detailed from time to time to work therein and with summer sessions specially arranged, they could keep abreast of the advances made in all branches of hygiene.

In conclusion, it is essential that such officials shall be given an adequate remuneration—the salary must be commensurate with onerous duties to be discharged and such as will attract to it medical men of the highest standing, and for this purpose, our Universities must prepare themselves to give the very necessary post graduate instruction.

MEMORANDA CONCERNING VACCINATION IN THE PROPHYLAXIS OF TYPHOID FEVER

BY WILLIAM S. MAGILL, A.M., M.D.,

FIRST LIEUTENANT, M.R.C., U.S.A.;

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The idea of preventing the development of disease by creating a hypernormal resistance in the human organism is one of the first conceptions of Pasteur, after his discovery of microbes, and it is not to be forgotten that the first preventive method for securing such protection from disease in man was developed by Pasteur and has come to us practically unchanged to-day as the preventive treatment of rabies. In this particular disease it is to be recalled that the hyper-resistant state of the patient is obtained by a rapidly intensive process of vaccinating the patient by successive hypodermic injections of material containing the living organisms of the disease itself, but by initial doses of such organisms of so diminished virulence that the induced resistance of the patient permits the rapid increasing of virulent doses of these organisms to the point of development of human resistance in the patient, so great as to render impossible the development of the disease of rabies, even when he had

been inoculated with very virulent material previous to his vaccination process.

Following this brilliant achievement of Pasteur, methods of vaccination established upon these fundamental principles of inoculating more or less avirulent germs of the disease in progressive intensification of virulence have been extensively experimented with in the laboratory and to some extent applied in treatment of disease.

The first experiments of vaccination with living organisms, logically led rapidly to the trial of methods of vaccination by the use of bacterial extracts, or dead bacteria, instead of the living germs of diminished virulence.

Methods of vaccination in which sterilized cultures of various microbes could be utilized date back for many years and such methods will be found among the early works of Pfeiffer. The first use of sterilized cultures of virulent germs for a vaccination method of treating disease in man was made by Haffkine, and this use of ster-

ile cultures of the bacillus of cholera was the basis of Haffkine's method of prophylaxis for the prevention of cholera, which he so extensively practised in India and has so completely established.

With the success of Haffkine's method in cholera, so distinctly an intestinal infectious disease, our most logical deduction would invite experiment of the similar method for the vaccination treatment of typhoid fever, which is itself so distinctly an intestinal infection; and experiments with such vaccine were made many years ago. The principal experimenter in this work is Almroth Wright, to whose persistence and long continued advocacy as a method of typhoid prophylaxis the principal credit for the status of this vaccine treatment is due.

The first considerable utilization of this vaccine was made under Wright's direction, inoculating English troops in India that were particularly exposed to typhoid, inoculating troops in typhoid infected barracks at home or abroad, and in inoculation of troops embarked for service in the Boer War.

The results obtained by these preventive measures were considered quite satisfactory and this method was extensively controlled and utilized in other countries.

There are three proposed methods of preparing this vaccine matter, but the method of utilizing the vaccine is practically the same.

Of the three methods of preparing vaccine now, in the foreground is the German method, which consists in growing a medium virulent strain of *bacillus typhosus*, inoculated upon a broad surface of the usual agar media, the culture then incubated for forty-eight hours, the resultant growth of bacteria being then washed off with sterile physiological salt solution, in which solution the number of typhoid bacilli per c.c. is then determined by the method subsequently to be described, and this solution then diluted with the same physiological salt solution to make a solution of standardized bacteria per c.c. Two strengths of solution are made: (A) in which the solution contains 500,000,000 typhoid bacilli per c.c.; and (B), solution which contains 1,000,000,000 typhoid bacilli per c.c.

The German method of producing the

typhoid vaccine is that followed in the laboratory of the United States Army Service.

The English method of producing the typhoid vaccine is somewhat different, as it was devised by Wright and slightly perfected by Leishman. The method consists in inoculating a carefully prepared bouillon of standardized alkalinity of 10 (Eyre scale) with a usual not particularly virulent strain of typhoid bacillus. The cultures are then grown in flasks, affording as large surface as possible, in the incubator at blood temperature, from twenty-four to forty-eight hours, preferably the latter. When grown under such conditions, the usual strain will produce at the end of forty-eight hours a culture of which each c.c. will contain something over 1,000,000,000 typhoid bacilli, perhaps 1,500,000,000. The actual number of bacilli contained in these growths is then determined by the process devised in Wright's laboratory and carried out very simply as follows:

It is recalled that the number of red blood corpuscles in human blood is well known and varies slightly. If, therefore, an equal volume of such blood be mixed with equal volume of culture or emulsion of typhoid bacilli, the resultant mixture may be smeared upon a slide, stained with any good blood stain, and the relative number of bacilli to that of red blood corpuscles is then easily determined by a small microscopic examination, counting the bacilli and red corpuscles in one or more fields observed.

Having determined this proportionate count, the actual number of bacilli per c.c. in the culture examined, results from a simple calculation. The culture or emulsion of typhoid bacilli to be standardized, is then properly diluted according to the determined count to bring the actual number in the diluted blood to any desired standard. This method is utilized at present for all standardization of typhoid bacilli cultures or emulsions used as vaccines.

Referring then to the English method of typhoid vaccine production, the cultures previously obtained are standardized by the methods just described to two dilutions: A—containing 500,000,000 typhoid bacilli per c.c., and B solution—containing 1,000,000,000 of these germs per c.c.

The third prominently proposed vaccine

varies substantially from either the German or English vaccines just described. The third vaccine is advocated most strongly by Vincent and contains elements which may prove to make it superior to the other two, but Vincent's vaccine has not had anything like the broad, extensive application in actual prophylactic work.

Vincent's method involves the culture of many selected strains of typhoid bacilli in his effort to produce a polyvalent vaccine. The selected strains are inoculated all together upon the usual agar and grown in the incubator for forty-eight hours, exactly as in the case of the German method. The resultant growth is carefully washed off with physiological solution, as in the German method, but this resultant emulsion of typhoid bacilli is then incubated at blood temperature to secure an effective maceration and the effusion of the endobacillary substances into the fluid. The macerated fluid is then centrifugalized and the resultant supernatant, clear liquid is removed from all sediment and shaken up with ether. The ether is utilized here as an ultimate sterilizer, as Vincent avoids any application of heat to his vaccine beyond that of blood temperature.

After agitation with ether, the heating of this fluid to blood temperature brings about the rapid ether removal by evaporation and the clear liquid remaining constitutes the third vaccine, which is that advocated by Vincent.

Of this third vaccine, two strengths are utilized: Solution A—in which the emulsion of polyvalent typhoid bacilli has been carried in the incubator for twenty-four hours only, and solution B—in which the same emulsion was carried in the incubator for forty-eight hours.

For producing a typhoid immunity with Vincent four injections are given to each patient every eight to ten days, the first injection being one-fourth of a c.c. of the twenty-four hours' incubated emulsion, and the second dose three-fourths of a c.c. of the same emulsion. The third dose contains one c.c. of the forty-eight hour incubated emulsion and the fourth dose contains two c.c. of this latter emulsion.

It is claimed for Vincent's method of provoking immunity that a better grade of intensely organic resistance is obtained

with less, practically no, discomfort of the patients treated.

Returning now to the German and English vaccines, their method of use is the same and the process of vaccination consists in the administration of three injections to each person in whom it is desired to provoke a typhoid immunity. The vaccines prepared in Germany, England or this country are standardized as previously described and to these solutions a dose of lysol, or trikresol, to the amount of about one-fourth of one per cent. is utilized for the preservation of the sterility of this vaccine matter after that sterility of the standardized solutions of the typhoid bacilli has once been produced at the laboratory.

After producing the vaccine solutions, diluting them to obtain the proper standard desired, these solutions are heated carefully in a water bath to about 53 degrees centigrade (Leishman), or 55 to 57 degrees centigrade (German and American Laboratory Uses).

It is preferable not to allow the heat of these vaccine solutions to go higher than 53 degrees and it is found that the heating of these solutions of living typhoid bacilli for one, to one and one-half hours, at 53 degrees centigrade produces their complete sterilization. It has been pointed out that without such heating the mere addition of the small quantities of antiseptic previously noted would produce the sterilization of that fluid after a few days time, but the experimental work of Leishman would indicate that the heating to 53 degrees centigrade in no way lessens the immunity production power of the vaccine and is, therefore, retained as an additional safeguard for sterility.

After sterilization and then the addition of antiseptic the vaccine of standards A and B are carefully sealed in glass ampulae, in which packages, protected from the light and kept relatively cool, it has been found that the power of immunity production, and therefore, practical utility of the vaccine is retained for at least three months.

The production of immunity with these vaccines is obtained by three injections to the patient. The first injection should be a dose of 500,000,000 typhoid bacilli, followed ten days later by a second injection

of 1,000,000,000 typhoid bacilli, and this followed eight to ten days later by a further dose of 1,000,000,000 typhoid bacilli.

The English authority is inclined to consider the first two injections sufficient to provoke a satisfactory immunity, at the same time considering that three or even four injections would be of advantage to the degree of immunity resulting.

The use of vaccine in troops involves, as far as possible, the injection of three doses.

It is to be recalled that this method of protection from typhoid fever by such vaccines dates back already fifteen years. The results of the extensive vaccination in the English army since that period have come from more and more extensive utilization of such vaccination; and results of this method of vaccination in Germany are available from the colonial troops for the last seven years; and results for more than two years' utilization in the United States are also available.

Speaking in general terms, it can be said that this vaccine method is without danger; that carried out as at present, it involves very slight inconvenience for any of the persons so inoculated and practically in no case does it result in any symptoms of severity. The reports of the use of this vaccine with the troops actually in active duty, show conclusively that the large vaccine treatment does not interfere to any extent with any of the men on active duty.

It is quite demonstrative of the freedom of this treatment from undesirable symptoms that in many cases of vaccination of troops where the matter has been left entirely to the voluntary action of the soldier, these soldiers have not failed to continue the treatment right through the three injections without complaint. There can be no doubt of the very great immunity resulting from this treatment.

The statistics of troops in campaign and in infected localities, where experiments have been made on a large scale, where vaccinations have been made on troops working together with troops not vaccinated; the result of these experiments show most conclusively the immunizing value of this vaccine treatment.

As a matter of debate, there exists, however, the question of duration of such ac-

quired immunity. The work of more recent years has shown unfortunately that there existed grave defects in much of the vaccine utilized in the first years of this method of anti-typhoid vaccination. These defects have been corrected in the work of more recent years, but knowledge of the previous defective vaccines quite invalidates any clear determination of the duration of resultant immunity.

There is good authority — German, French and English—to believe that in most cases an immunity would be gained that would last possibly two years. There is some statement that reported cases would indicate a possibility that the acquired immunity, sometimes lasted only a few months. As a result, however, of most exhaustive investigation, the official governmental report in France, recently made, advocates the use of this vaccine for all troops called into service; for all troops in service in notably infected localities and for all persons whose career brings them to any special exposure of the typhoid infection (nurses in hospital wards containing typhoid cases, physicians and all others actually engaged in caring for patients in time of typhoid epidemic, etc.).

The question of anti-typhoid vaccination in this country has been brought most actively to the front by reason of the particular interest and activity of the laboratories of the United States Army Service, and these activities are quite exhaustively described in the report of the surgeon general of 1911.

It is interesting to note that throughout the year 1910, 16,000 persons were subjected to this vaccine treatment, whereas in the first six months of 1911, about 28,000 were thus immunized. Throughout these treatments the amount of severe general reaction resulting from these vaccine injections are noted after the first injection one-tenth of one per cent., the same after second injection, and eight one-hundredths of one per cent. for the third injection. That is to say, ninety-nine per cent. of the people treated show no particularly marked reaction.

From these army laboratories, also, vaccine for the immunizing of 2,752 men of the navy has been supplied and for those other than members of the military service

of the United States, the following amounts of vaccine were distributed from the army laboratories in 1910:

Vaccine Used in 1910.

	C.c.
Department of Health of Buffalo, N. Y.	708
Florida State Board of Health.....	786
Iowa State Board of Health.....	144
Texas State Board of Health.....	36
Georgetown University, D.C.....	12
North Carolina Medical College....	244
Tufts Medical School.....	12
Neurological Laboratory.....	60
National Guard of Missouri.....	18
National Guard of New Mexico....	1,242
National Guard of Virginia.....	123
Marine Hospital Service.....	207
United States Navy.....	3,281
Doctors, for private use.....	378
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Total outside of Army for 1910..	7,251
Total used in Army for 1910....	68,592
<hr/>	
Grand total.....	75,843

For the first six months of 1911, 112,772 cubic centimetres of vaccine matter have been used in the army service, and 23,238 cubic centimeters of these vaccines have been distributed for use other than by members of the army. Details of the distribution outside of the army for the first six months of 1911, follow:

	C.c.
Iowa University College of Medicine	36
Austin Sanitarium.....	132
Hon. Chas. L. Bartlett, M.C.....	3
Louisiana National Guard.....	120
Maryland National Guard.....	1,500
Massachusetts National Guard....	348
Minnesota National Guard.....	156
Mississippi National Guard.....	172
Missouri National Guard.....	2,472
New York National Guard.....	4,800
North Carolina National Guard....	300
Ohio National Guard.....	769
South Carolina National Guard....	1,204
Virginia National Guard.....	1,482
Wisconsin National Guard.....	12
Public Health and Marine Hospital Service.....	36
Virginia Military Institute.....	18
Doctors, for private use.....	2,122
United States Navy.....	7,556

	C.c.
Total outside of Army.....	23,238
Total used in Army.....	112,772

Grand total..... 136,010

The widely advertised utilization and results of anti-typhoid vaccination in the troops in Texas last year has produced a quite general movement towards the utilization of this method. A considerable effort has been made by some of the members of the medical profession throughout the country to obtain a more general vaccine immunity as a general protection against typhoid, and considerable activity has been shown in the national guard throughout the States to secure the immunization of the militia troops.

Up to this date in the State of New York from 5,000 to 6,000 doses of vaccine have been utilized in the troops of the national guard, the actual number of men enlisted in the State being 15,000. The vaccine thus far used for immunizing those who wish to submit themselves to this treatment has been secured from the laboratories, of the Army of the United States. It is supplied on requisition from the adjutant General's office of this State and the amount supplied is charged to the respective fund of the National Guard at the rate of twelve and one-half cents per dose. The method of proceeding to such vaccination in the troops of the National Guard of this State is that those military surgeons thus serving, that are willing to devote their services, offer to perform a vaccination and receive on requisition the proper vaccine.

The offer to vaccinate any number of the National Guard is made by such surgeon undertaking the service, who then vaccinates such members of the troop as are willing to accept such vaccination.

From reports of similar activity in other States, it would seem that it would not be difficult to secure volunteers to a considerable portion of the enlisted service, if the activity of the medical officers, as well as the military command should be actively directed to this end.

It is a requirement of the military service of the United States Army that each enlisted man shall be thus immunized. It has been for some years required in the German army that every soldier in the

colonial troops shall be thus immunized and in many foreign armies, France and Italy for example, considerable bodies of troops

are thus protected by vaccination, which is urged whenever such troops are detailed for duty in a possibly infected locality .

MUNICIPAL MILK SUPPLY

BY DR. W. T. SHIRREFF, M.H.O., OTTAWA, Ont.

Milk may be said to be *the* universal food of that delicate barometer of our nationhood, the child, and, next to water, is the most generally used beverage by all classes. When we consider that the food of the child determines the future of the citizen and the physical strength of the potential fathers and mothers, we see that in guarding the milk supply we are not confronted solely with the question of infantile sickness and death with possible outbreaks of infectious diseases through the milk, but of the far larger problem, the great social problem that of the future of the race. The first duty of man is to be a good animal: to be that he must be well housed, well clothed, and well nourished from his infancy up to maturity and especially in the earlier years. In his duty to the State he can do no less than house, clothe, and feed his children: ought not the State or the municipality do all in its power to aid the man in selecting the proper shelter, clothing, and food for his family so that the wants of the many may not be exploited for the benefits of the few. At the outset let us see what is the nature of this food and why it must be safeguarded.

The three cardinal points we must remember in considering this food are these: (1) That it should be used raw. (2) That once dirty it cannot be cleansed. (3) That it should be used before it is forty-eight hours' old. In these three cardinal points it differs practically from all other foods, and, therefore, in protecting the milk supply these three must always be kept in mind. To the casual observer, except when the milk is actually sour, there may be no difference between a first-class milk and that of very poor quality. We are here to consider the ways and means in which a municipality may protect the food of the infant. Milk being of a necessity, the sole food of artificially fed infants during the first year of their life, and of other

children, after the period of nursing, almost the sole food, and this being the most important period of this human animal's existence, we must take every precaution to surround it with every available safeguard, both for the good of the child and the State; both now and the future.

The problem from a municipal standpoint is this: The supplying of pure wholesome milk for general and especially infant, child and invalid consumption. We are likely all agreed on the cardinal principles that should be laid down to produce a clean wholesome milk, but we must take care when we pass and enforce ordinances that we do not overstep the mark. Consider for a little with what we have to deal. The producer is generally some hard working farmer, in 50 per cent. of the cases, by actual compilation of statistics carrying on his business at a loss, a business in which he has invested a varying amount of capital, at which he must work day in and day out, early and late, to insure him even a nominal return on his investment. As a rule, he is not scientifically trained in the different steps of tillage, planting, storing, feeding nor in properly housing and caring for his cattle nor in handling and transporting the milk. Still a great many of them have done more than they have been paid for in improving the condition of their premises, cattle and utensils.

The great danger of hurriedly passing milk ordinances, of a drastic nature would be that we might seriously dislocate our milk supply or jeopardize the industry. We, therefore, must depend considerably on an educational campaign, or if we do make drastic regulations that are likely to cause financial loss to the individual he should be compensated to some extent, either by the municipality or the State.

In considering the ordinances that should be passed I cannot do better than read you a by-law, which was passed in our city

for the regulation of the milk supply. In doing so, I will give you a short resume of the agitation leading up to the passing of this regulation.

Early in 1907 an agitation was stated, aided materially by the newspapers, to have our milk supply properly inspected and to ascertain what the actual conditions were. A duly qualified veterinary surgeon was appointed to report on the conditions of all the dairies supplying milk to the city. One hundred and sixty-four establishments were visited, the individual output varying from a few quarts to 130 gallons of milk per day.

The total number of cows in various stages of lactation housed in these premises were approximately 4,800. He found that many of the rudimentary structures presented a higher percentage of hygienic conditions than those of more expensive construction.

Out of the 164 dairymen, 21 were found to be in dirty condition showing little evidence of any attention to cleanliness, while 82 were fairly clean with plenty of room for improvement.

A very bad fault in many of the stables was the inadequate supply of light, ventilation and drainage.

A very undesirable feature existed in too many of the stables and that is the accumulation of dust on the ceilings and walls, and in several instances hogs were housed in close proximity to the cows, increasing the already unsanitary conditions.

Another custom was the storing of large quantities of roots in the same building as the cows.

As a result of this, on July 1st, 1907, Dr. Hollingsworth, my esteemed assistant, was appointed milk inspector. His duties were to inspect all premises supplying milk to the city and also the distribution of same. After studying the conditions and ascertaining the actual facts this by-law was prepared. I venture to say that it stands to-day the most effective and complete by-law of any city in controlling and regulating the milk supply. This was further amended in May, 1911, by requiring that all milk sold from stores or other distributing places in the city, should be in the or-

iginal containers received from the dairymen.

By-Law No. 2758.

A by-law respecting the licensing of milk vendors and the inspection of milk.

The Municipal Council of the Corporation of the City of Ottawa enacts as follows:

1. No person shall sell milk or cream or offer the same for sale in the City of Ottawa, either directly to the consumer or to shops or stores or in wholesale quantities to any person to be afterwards sold or delivered by such person to the consumer, without having first obtained a license so to do under the provisions of this by-law.

2. The said license shall be issued by the License Inspector upon the presentation by the application of a certificate of the Medical Health Officer of the City of Ottawa that the applicant has, with respect to his cattle, premises and equipment, complied in all respects with the provisions of this by-law and the provisions of "The Public Health Act," and upon the payment of the fee for such license as hereinafter provided.

3. Before applying for the said license the applicant shall apply to the said Medical Health Officer for the inspection of his cattle, premises and equipment upon the following form:

"To the Medical Health Officer for the City of Ottawa:

"Desiring to sell milk in the City of Ottawa, I hereby apply to have my cattle, premises and equipment inspected, and agree to observe the provisions of 'The Public Health Act' and all by-laws of the Corporation of the City of Ottawa and all regulations of the Board of Health of the said city relating to the production and sale of milk, and to keep my cattle and premises and to handle my milk in a manner satisfactory to yourself, neglect or default in this respect rendering me liable to forfeit my license.

"My milk is obtained from my own herd, consisting of cows, from which the average quantity sold is..... gallons, and from

The food supplied is
....., 19....."

4. The said license, unless the same shall become sooner forfeited, shall be for the year current at the time of the issue thereof, and shall expire on the 30th day of April next, succeeding the date of the same.

5. The fee for such license shall be ONE DOLLAR and ONE DOLLAR for each extra wagon used for the sale or delivery of milk or cream.

6. Every *milk vendor who carries* on his business or calling with any wagon, cart or other vehicle shall at the time of the issue of his license receive from the Inspector of Licenses a plate bearing a number which shall be fixed on a prominent place on the left hand side of the outside of such wagon, cart or other vehicle, and shall remain thereon during the period for which the license, is granted, and no other device displaying a number shall be exhibited upon the outside of such wagon, cart or other vehicle, and such plate shall be returned to the Inspector of Licenses at the expiration of the term of the license and every such licensed person shall have his name and address legibly printed on each side of his vehicle in letters at least three inches long.

7. Every milk vendor, his servant or person employed by him shall produce and exhibit his license whenever required so to do by the Medical Health Officer of the said City of Ottawa or any sanitary inspector, or by the Chief of Police or any police constable or other person duly authorized to demand its production.

8. Any license granted hereunder may be cancelled at any time by the Board of Health of the said City of Ottawa, upon its being proved to the satisfaction of the said Board that the holder thereof has violated or failed to comply with any provision of "The Public Health Act" or this by-law, or of any regulation of the said Board of Health relating to the production or sale of milk.

9. The Medical Health Officer or any sanitary inspector may examine and inspect all milk offered for sale whether in the streets, public places or shops, and for such purpose may enter all carriages, carts and other vehicles used for the conveyance thereof or from which the same is delivered to purchasers and during business hours

may enter all public places and shops in which the same are exposed or kept for sale, and shall seize and destroy all tainted and unwholesome milk.

10. No person shall sell or offer for sale in the said City of Ottawa any milk which is unwholesome or unfit for human food or any milk which has been adulterated or reduced or changed by the addition of water or other substance or by the removal of cream or from which strippings have been held back or which) contains less than 12 per cent. total solids, 3 per cent. of which must be butter fat, or the temperature of which is higher than fifty degrees Fahrenheit; but skimmed milk may be sold as such if contained in vessels bearing upon their exterior the word "Skimmed" placed conspicuously in letters not less than two inches in length; but no person shall supply skimmed milk unless such quality of milk is asked for by the purchaser.

11. Cream shall contain 18 per cent. butter fat, and no milk shall be sold as cream containing a lesser percentage of butter fat unless such lesser percentage is clearly shown upon the vessel from which said cream is supplied, for the information of the purchaser.

12. No milk or cream shall be sold from cows which may be unhealthy, sick or receiving medicine, or with inflamed, or in any way abnormal udders or while in heat, unless kept from the rest of the herd during that period, nor from cows which have the *appearance of suffering from tuberculosis* until they have been tested and found not to react to tuberculin injection, nor from cows within thirty days before, or six days after, calving, nor from cows fed with any food which would have the effect of deteriorating or tainting the quality of the milk, or from cows supplied with bad or impure drinking water, or from cows which are not kept clean and brushed, comfortably sheltered and bedded and regularly supplied with an adequate amount of suitable food and water.

13. All stables in which cows are kept, whose milk is sold in the said City of Ottawa, shall be kept clean and dry and thoroughly lighted, ventilated and drained; the walls and ceilings of the said stables shall be whitewashed in the spring

and fall, and the same shall be kept free from dust and cobwebs and accumulations of manure, and no inhabited room, workshop, store-house, privy, cesspool or urinal, and no fowl, hog, horse, sheep or goat shall be located within the same.

14. All milk to be sold in the said City of Ottawa shall be removed from the stable to the milk house as soon as drawn, and strained through several layers of clean cheesecloth; if aerated, this must be done with an aerator approved by the Medical Health officer of the said City of Ottawa, scrupulously clean and iced, and in a clean place, free from dust and odors; the milk must then be covered and kept cold in a refrigerator or ice water vat at a temperature not higher than 50 degrees Fahrenheit, and such ice water vat must be kept well iced and scrubbed with washing soda in hot water twice a week.

15. All dairies or other places where milk is sold or kept for general use shall be thoroughly drained and well lighted and ventilated, and at all times kept clean throughout, and in a sanitary condition.

16. In stores or shops every refrigerator or other receptacle where milk is kept or stored for sale or general use, shall be kept at a temperature not higher than 50 degrees Fahrenheit, shall be used for milk only and be at least twenty-five feet distant from any privy, water or other closet, stable, pen or outhouse, and shall not be exposed to the air or any living or sleeping room or of any business or other surroundings that may tend to make milk foul or impure.

17. All dairies, shops or other places in which milk is sold or kept for general use shall be subject to regular inspection under the direction of the Board of Health of the said City of Ottawa.

18. All cans, bottles, measures or other vessels used for milk shall be kept clean and be thoroughly washed before milk is put into them and dustproof when in use.

19. All dairymen and vendors of milk and all drivers of milk wagons and vehicles having their milk in possession at the time shall furnish the said Medical Health Officer or any sanitary inspector with such samples as he or they may require from time to time, and at such place as the samples may be demanded from them.

20. Every sample of milk obtained as aforesaid shall have a label attached to the vessel containing the same which shall have written thereon at the time of collection the number of the sample, date of collection, and the initials of the officer or inspector receiving same, who shall at once enter in a book carried for that purpose for further reference, the corresponding number, with the name of the owner and driver from whom the said sample was obtained, and the date of obtaining such sample.

21. Each sample shall be examined separately at the City Laboratory, according to number, and a report thereon forwarded to the Medical Health Officer by whom the same shall be entered in a register and the name as given by the inspector of such sample subsequently inserted.

22. Milk must not be transferred from cans to bottles or other vessels on the street, except when transferred to the vessel of the purchaser at the time of delivery, and the contents of the can must be thoroughly mixed before measuring out the quantity to be sold.

23. Every person vending or offering milk or cream for sale in the said City of Ottawa shall give full information to the Medical Health Officer as to the source of his supply and shall not sell milk from any source condemned by the Medical Health Officer of the said city.

24. Every dairy man or vendor of milk in the said city shall notify the Medical Health Officer of the said city in writing of any contagious animal disease occurring among his cattle or of any contagious disease in his family or the farm house or shop at which, from which, or in which, the milk is either sent or received, and shall carry out the restrictions laid upon him by the Medical Health Officer of the said city under "The Public Health Act." Under no circumstances shall a milk vendor or his servant, employee or driver take from a quarantined house any money, can, bottle or other utensil, or enter such house for any purpose whatever without written permission from the Medical Health Officer of the said city.

25. Every vendor of milk in the said city shall permit all his milch cows and cow byres and all dairies and other places in which milk is sold or kept for general

use, to be inspected by the Medical Health Officer or any sanitary inspector of the said city whenever any such officer may desire to do so.

26. The proprietor of any store or shop licensed to vend milk in the City of Ottawa must have his license posted up in a conspicuous place in such shop or store.

27. Any person or persons who shall be guilty of any infraction or breach of this by-law, or of non-compliance with any of the requirements thereof, shall upon conviction thereof before the Police Magistrate, Mayor of any Justice or Justices of the Peace, having jurisdiction in the matter, forfeit and pay such fine as the said Police Magistrate, Mayor, Justice or Justices convicting shall inflict, of not less than ONE DOLLAR and not more than FIFTY DOLLARS, together with the costs of prosecution, and in default of payment thereof the same shall be collected by distress and sale of the goods and chattels of the offender, and in case of non-payment of the fine inflicted for any such breach and there being no distress found out of which the same can be levied, such offender shall be imprisoned in the common gaol for the County of Carleton, with or without hard labor, for any time in the discretion of the Police Magistrate, Mayor, Justice or Justices so convicting, not exceeding six months, unless such fine and costs be sooner paid.

To this will be added that small top pails must be used.

These regulations you will notice are quite comprehensive and you may think drastic in some of their provisions, but, nevertheless, we have succeeded in having them almost universally enforced and adopted. They would be almost ideal provided that: 1st. We could have all the cattle that react to the tuberculosis test rejected. 2nd. That we could ensure that all of those workers handling milk would appreciate the value of absolute cleanliness. 3rd. That we could educate the consumer of the absolute necessity of the proper care in handling the milk they receive. Now as to how we enforced the provisions of this by-law: We have a qualified veterinary surgeon to inspect the premises of all those wishing to supply milk either directly or indirectly. He is furnished

with a score card, to aid him in summing up the conditions. This score is kept on file and published quarterly, if his license is granted, and can also be obtained by anyone wishing same from the Health Office at any time. 2nd. Samples of milk are taken from all vendors at least three times a month for chemical analysis. 3rd. Samples are taken from all vendors once a month for bacteriological analysis. 4th. Sufficient number of inspectors are employed to inspect all premises every two months.

Besides this, the inspector must have patience, perseverance and tact, and invite and secure the co-operation and confidence of the dairymen with whom he has to deal. I might say that we were agreeably surprised at the spirit of co-operation and desire for improvement shown by the dairymen in general, and now rather than showing resentment at the visits of the inspector, they look forward to his coming, and are, as a rule, quite willing to act upon his advice. Much of this depends on the tact and good sense of the inspector or inspectors.

The result of this inspection may be best appreciated by taking the report of the Ontario Milk Commission, which was appointed to visit all cities and towns in Ontario to investigate the methods whereby clean, wholesome and sanitary milk was being delivered to the consumer.

The barns in the vicinity of Ottawa were visited when the cows had gone into their winter quarters of 1909. This was two years after the appointment of the milk inspector. Everyone of these was nicely white-washed and free from cobwebs, dust or other dirt. Almost all had cement floors which were cleaned out twice a day, the manure in many cases being loaded on a sleigh and hauled away. A separate milk house was located twenty-five feet or more from the barns, which were generally well supplied with water, light and ventilation. In addition to all this the cows were all kept looking sleek and clean, the hind quarters and the udders being closely clipped in almost every case, and in one barn the operation of clipping the cows was in progress when we called, and we were informed that it only required about ten minutes to go over each animal. The result not only improved

the animals' appearance, but made it an easy matter to keep it clean during the winter months, in the stable, and thus greatly minimized the danger of contamination to the milk. This very commendable practise appears to be adopted to a much larger extent around Ottawa than in any other part of the Province, in many portions of which it is entirely unknown.

You will notice that the problem naturally falls into three divisions: 1st. The producer. 2nd. The distributor. 3rd. The consumer. These three represent three chains that must be welded and the whole as strong as the weakest link in the items of the series.

I have shown you above what may be accomplished in the production and also to a certain extent in the distribution. Now, let us pick out the weak links and see how we can overcome them.

In Production.

The cattle are not tuberculin tested and those reacting rejected because you cannot expect these men to be at the loss of those rejected. This matter should be dealt with by the Federal authorities, making the test compulsory for dairy cattle and eliminating those rejected, compensating to a greater or less extent. 2nd. The cleanliness of the milkers, utensils and of other persons that handle the product. This is not satisfactory, but can only be overcome by education.

Distribution.

The essential thing is to have the milk handled as little as possible, that is, placed in as few different receptacles as can be done. It is a step in advance to have the milk sold from shops only in bottles, but we allow milk to be delivered from the can from house to house and will do so until we can absolutely assure ourselves that the bottles before filling will be surgically clean. The large distributing plants have an advantage in the cleanliness of the utensils and the improved methods of bottling and handling, but they have the disadvantage of the milk being brought to the quality of the poorest patron, and also the lowering of the individual ambition to excel. The weakest link of both is the uncleanly habits of the person actually distributing.

Cities that are too large to have their milk come in by vehicle, must receive a greater or lesser quantity by train, and, in this case, provision should be made for the daily inspection of the incoming milk at each railroad station to ascertain the conditions of the receptacles and see that the milk is kept at a suitable temperature; besides, also, the farms from which the milk is produced being inspected as above.

We have spoken of the producer and the distributor, now we must take up the consumer. We may see that the milk produced is excellent, the distribution perfect, but all our efforts will be in vain if the milk is not properly kept, handled and fed when received. We cannot pass ordinances to compel the people to handle this delicate food properly, and even if we did we would get a hue and cry around our ears, for "interfering with the sanctity of the home," "individual rights," "or the liberty of the individual." Three spectres that have more to answer for in checking the wheels of progress in public sanitation and hygiene than all other things put together. It devolves upon us, therefore, to have a systematic, persistent, painstaking educational campaign to promulgate this knowledge and to awaken the public to the serious necessity of this matter, and to do what we can to encourage and help those who, from financial disability are unable or are ignorant of the measures to be adopted.

This, in my estimation, is one of the very serious problems of public health work, in so much as it is directly connected with the problems of infant mortality.

As public health guardians, our chief concern is not only to see that a supply of clean, wholesome milk is provided, but that it is actually taken into the bodies of the infants and children, and that in a wholesome state, for, after all, that is the vital point. How can we accomplish that object?

I have enumerated above what we may do to protect the production and distribution of the general milk supply, and all these laws can be laid down and in time can be hoped to be conformed to. What must we do till such a time as this ideal shall be accomplished; we know that continuously tubercular bacilli is being distributed, to say nothing of the other poison-

ous matters that are developed in the milk during the warm months or if kept too long, as it sometimes is after pasteurization.

In my opinion, and from the experience of other cities, the best course is this; with the aid of either private philanthropy, municipal support or by a stimulation of personal ambition, get at least one dairyman to equip and stock a modern dairy with only healthy tuberculin tested cattle, which, besides insuring a supply of good, wholesome milk, will be an optical illustration of no small educational value to the other milkmen. Have this milk delivered to a central depot, either in bulk or in bottles, or, if necessary, a number of them, and from here distributed to children under one and one-half years of age, invalids or nursing mothers, at a cost of not in excess of that of the ordinary milk which is delivered.

There is one fundamental principle that in actual practise we cannot get over, and that is, that the general public, and especially the poorer people that we must reach, will not or cannot pay a greatly enhanced price for "certified milk." We already have a supply in some cities and the cost, as a rule, has been prohibitive to those whom it is most desirable to reach. From this depot as a centre have nurses visit the homes of these people, have them instructed in the proper handling of the milk, and give instruction as to the proper methods of its care and preservation, and also of the care and feeding of the child. In this way only can this very important part in the municipal milk supply be properly controlled.

Considering pasteurization: so long as we have milk produced with a high bacterial count, just so long should it be pasteurized, but pasteurization should, in my estimation, never be considered a permanent necessity in any system on milk supply.

Pure wholesome, clean T.B. free raw milk is first. Pasteurized milk second.

Pasteurization should not be considered as a permanent measure, but only as an expedient for:

1. The conditions that may require pasteurization can be removed by other and more desirable means.

2. Pasteurized milk will produce constitutional disease in infants.

3. Pasteurization destroys the lactic acid bacillus, but it does not destroy some of the more resistant casine ferments and other bacillus which produce toxic substances. Destruction of the lactic acid bacillus destroys or delays the on-coming of that danger signal, sour milk, and insofar as it does it increases the danger from the protection of toxic substances from the more resistant bacteria.

4. The process invites less care in the production and handling of the milk.

5. Pasteurization to be effectively carried on must be connected with a well organized and well conducted large milk business, and it therefore follows that the majority of establishments would need to be kept under comprehensive, strict and expensive control by the health authorities; for if we force them all to distribute from some large distributing plant we create a monopoly that in my opinion would not be desirable.

As for the other preservatives of milk, such as chemicals, etc., are only mentioned to be condemned.

Of the ordinances, the most difficult problems for the future are these:

1. To get tubercular free cattle.
2. To have the consumer using the milk receive it and handle it properly.
3. To educate the person handling the milk, that is, the milker, and distributor to the value or absolute cleanliness and what cleanliness really means when treating with milk.

The first matter should, I think, be undertaken by the Federal Government. The others can only be overcome by legislation, education and constant and efficient watchfulness.

RECOMMENDATIONS FROM THE CANADIAN PUBLIC HEALTH ASSOCIATION TO THE VARIOUS AUTHORITIES CONTROLLING THE ADMINISTRATION OF PUBLIC HEALTH MATTERS IN THE DOMINION

The principal role of the Canadian Public Health Association is to afford a federal voice to the opinions of provincial and other health associations and of individuals, after the same have been thoroughly discussed, ventilated and approved of at the annual meetings of the association. In pursuance of this policy recommendations were proposed and discussed at the annual meeting during the Convention held in Montreal in December last, and referred to the Executive Council for consideration and action.

The following recommendations were accordingly approved of, and copies sent to the secretary of each provincial board of health, as follows:

I.—Re Antivariolic Vaccination.—Resolved, that it is the opinion of the Canadian Public Health Association that, since the great discovery of the possible protection of the people by vaccination, by Dr. Edward Jenner, in the 18th century, no scientific fact has been more clearly established by manifold and universal experience in every part of the world. Recognizing such facts, this Association desires to affirm its belief that:

Vaccination carried out according to the most developed scientific methods of the present day:—(a) as regards the preparation of vaccine; (b) its being preserved and maintained active by cold; (c) the performance of the operation with aseptic precautions,—guarantees, in practice, immunity against smallpox which, before Jenner's discovery, was the cause of the highest mortality of any known disease.

As this has been the experience of every medical officer of health, this Association hereby urges upon every provincial and municipal board of health the enforcement of existing vaccination laws and regulations, or when lacking, the passing by legislative authorities of such acts as will as-

sure the successful vaccination of every child and the revaccination of all non-immune persons whenever smallpox appears in any community.

II.—Re Tuberculosis.—The Canadian Public Health Association recommends:—

1. That laws be framed, in such provinces which have not already adopted compulsory notification of tuberculosis, which will require notification of this disease.
2. That the various provinces enact such legislation as will require municipalities, counties, and combinations of counties, or districts of over a certain population (to be decided upon) to make provision for the care and supervision of such cases as may be notified, and that action be not left optional with the aforesaid municipalities;
3. That, recognizing the fact that, with the exercise of proper care, advanced cases of pulmonary tuberculosis or consumption may be treated in a general hospital without being a source of danger to the other patients, it is deemed advisable that, wherever feasible, hospitals receiving government aid should make provision for the reception of a due proportion of such cases;
4. That this Association approves of and endorses the very valuable work which is being done by the Canadian Association for the Prevention of Tuberculosis in its educational campaign to arouse public interest in the subject of tuberculosis, by the formation of anti-tuberculosis societies, by lectures, and by the distribution of suitable printed matter.

III.—Re Housing.—Resolved, that this Association deems it of urgent necessity that provincial legislatures pass acts, making provision whereby Urban Municipalities can make house-planning by-laws and land-purchase schemes, whose operations may include such suburban areas as the provincial boards of health may deem necessary.

IV.—*Re Medical Inspection of Schools.*—Resolved, that this Association cordially approves of medical inspection for schools, and considers that such inspection should be carried out under a properly organized system for each province. It, therefore, cordially endorses the aim and objects of the committee appointed at the last Convention of the Sanitary Services of the Province of Quebec, to draw up a practical plan for organizing the inspection of all schools throughout the province. Dr. J. A. Baudouin, Secretary of the Convention of Sanitary Services of the Province of Quebec, reports that a committee of the Convention is now at work preparing such a plan, which on completion will be submitted to the Quebec Provincial Department of Public Instruction for consideration.

V.—*Re Federal Supervision of Biological Products.*—The following recommendation was approved of and sent to the Director General of Public Health, Department of Agriculture, Ottawa:

Whereas, the Federal Government of

Canada at present exercises no supervision or control over the manufacture, importation or sale of vira, toxines, anti-toxines, sera, bacterial filtrates, bacterial vaccines, and other analogous products designed for the detection, treatment and cure of disease in men and animals, with the exception of a few now prepared at the Biological Laboratory of the Agricultural Department:

Be it resolved by this, the first annual Convention of the Canadian Public Health Association, that it is in the interests of public health that the Federal Government should, at the earliest opportunity, seriously consider that all such products offered for sale in Canada, conform to certain definite standards which they may establish.

Replies acknowledging the receipt of these recommendations, and thanking the Association for them, have been received from the secretaries of the provincial boards, and also from the Director General Public Health, who stated that he would place the recommendation concerning the federal supervision of biological products before his minister.

INTER ALIA

In view of the Congress of Hygiene and Demography to be held in Washington, D. C., from September 23rd to 28th inclusive, and the Meeting of the American Public Health Association from the 18th to 20th of the same month, the 1912 *Congress of the Canadian Public Health Association, to be held in Toronto*, has been arranged for September 16th, 17th and 18th, inclusive. Those delegates, however, who propose arriving in Toronto on Friday or Saturday of the preceding week are requested to notify the Committee for Local Arrangements, the Committee for Local Arrangements having arranged to look after the delegates at such time, as well as during the regular days of the meeting. Secretaries of the Committee for Local Arrangements are Mr. T. Aird Murray, Lumsden Building, Toronto; Dr. Duncan Anderson, 28 Wellesley St., Toronto, and Dr. Helen MacMurchy, 133 Bloor St. East., Toronto; and those who propose to present papers at this Congress are requested to notify one of these secretaries also in regard to that matter as early as possible.

Among the Convenors so far appointed for the different local committees are Dr. J. W. S. McCullough, Committee on Papers; Reception Committee, Dr. Adam Wright; Social Workers Committee, Dr. Helen MacMurchy; Ladies Committee, Mrs. A. M. Heustis; Laboratory Workers Committee, Dr. J. A. Amyot; Engineers and Architects Committee, Mr. T. Aird Murray; Dental Committee, Dr. A. E. Webster; Meat and Food Inspection Committee, Mr. A. R. B. Richmond; Medical Inspection of Schools Committee, Dr. W. E. Struthers; Medical Officers of Health Committee, Dr. C. J. C. O. Hastings; Military Sanitation and Hygiene Committee, Dr. J. T. Fotheringham; Life Insurance Officers Committee, Alderman J. O. McCarthy.

The advance during the last century in facilities for international communication have brought dangers to individual nations no less than advantages and the same ease and quickness of travel is now applicable to the bubonic plague, cholera, typhus or

other infections. So international discussions, agreements and arrangements for guarding the civilized countries from disease, rife among backward peoples, have become indispensable. The most important of these international public health congresses arranged for this year, following the Congress of the Canadian Public Health Association, is that of Hygiene and Demography, meeting in Washington, D. C., September 23rd to 28th inclusive. This international organization has now been meeting and working for fourteen years on behalf of the health of the world and it is anticipated that, as usual, its coming fifteenth congress will bring to Washington many noted sanitarians from every civilized country. Addresses and articles of international importance and of concern to every individual and community will there be presented, while the excellent exhibits which have been arranged are such as to appeal to non-technical laymen as the speeches and papers will to sanitary, medical, engineering and other professional specialists. Topics which will be discussed at the Congress of the Canadian Public Health Association during the preceding week will be thus treated from an international aspect, topics, including such practical and pressing problems as hygiene of childhood, industrial health and housing.

Another international meeting of most important bearing on public health affairs, the Congress on Tuberculosis at Rome, was inaugurated by the King of Italy, on the 14th of April this year and lasted until the 30th, being the seventh of the series.

Perhaps the most important in this series of Congresses against Tuberculosis was the fourth, since known as the British Congress Against Tuberculosis, held in London, 1901, because at that Congress was made the startling announcement by Professor Koch which led to the appointment of the Royal Commission to carry out the exhaustive researches since completed regarding the relationship of bovine to hu-

man tuberculosis. Following the 4th Congress, the Paris Congress of 1905 was distinguished by the attention it focused on the social questions which are involved in the eradication of the disease and the controversy between the Von Behring and Koch schools, concerning the avenues of infection. And during the next Congress in Washington in 1908 the questions of social defence against the disease and of organization of the anti-tuberculosis armament received that attention which would be expected from the influence of the practical and forceful nation under whose auspices this 6th Congress was held; at the 6th Congress the first announcement was made of the step towards compulsory notification in Great Britain which placed on medical men the duty of notifying all cases of the disease occurring in public institutions.

The programme of the seventh, 1912, International Congress against Tuberculosis, just concluded in Rome, was divided into three sections: (1) Social Defence; (2) Medical Pathology and Therapy and Surgical Pathology and Therapy; (3) Etiology and Epidemiology.—Looking over the subjects discussed one finds in the first section such important topics as Home Work in Manufacturing Towns in Relation to Tuberculosis—Notification of Tuberculosis; Its Objects and Limitations—Sanitation and Housing Policies in the Prevention of Tuberculosis—Tuberculosis in the School—The Role of Woman in the Fight Against Tuberculosis—Alcoholism and Tuberculosis—Insurance Against Consumption in Great Britain—Organization of Social and Benevolent Institutions in the Struggle against Tuberculosis with Special Reference to the Development of Children.—There was also an international exhibition on social hygiene on a large and useful scale, in a special pavilion in the grounds of the Castle S. Angelo, exhibits from all parts of the world demonstrating in the most practical way the building of healthy towns, a healthy house, or a curative establishment.

CURRENT PERIODICAL COMMENT AND WORKING NOTES

Milk as a Factor in Infant Mortality.

The current number of *Conservation* points out that clean milk is a mighty factor in the conservation of infant life. Infantile mortality statistics for Canada are lamentably incomplete, yet it is known that thousands of Canadian infants die every summer as a result of being fed diseased, dirty, germ laden milk. This is a national loss of very serious magnitude, and one that demands the immediate application of preventive measures.

The greatest danger occurs during the hot summer months. Milk constitutes a most favorable medium for the development of germ life. Two main points, therefore, require special attention. (1) Absolute cleanliness should characterize every part of the process of producing and distributing milk. In this way germs may be largely kept out of the milk. (2) By holding the milk at low temperatures the germ life that does gain access to it can be kept from developing.

The preparation of modified milk for infants in cities, is usually not a good commercial investment, although it has been produced at a profit in some large American cities. But the saving of child life is a matter of vital importance to the municipalities and to the country, and if private interests will not undertake this service, then the municipal authorities must, if they are to escape the ignominy of posterity.

A number of Canadian cities are already partly supplied either by private citizens or by the direction of the Municipal Boards of Health. But there is need for a very much more general adoption of this principle. The cost need not be very heavy, as can be seen from the really excellent milk service provided the Board of Health of the city of Rochester, N.Y. The initial cost for their equipment was only about six hundred dollars, for a population of 200,000. Dr. Goler, who has had charge of this work, has made his city

world-famous, on account of the results by these milk depots.

The following statement illustrating something of what has been accomplished by Dr. Goler in Rochester, is taken from Mr. John Spargo's work, "The Common Sense of the Milk Question:" The Rochester depots were first established in 1897.

"During the nine years, 1888 to 1896 inclusive, there were 1,999 deaths of children under five years of age in the months of July and August (in Rochester); but during the period of 1897 to 1905, the following nine years, distinguished by the work of the infants' milk depots, the number of deaths in the same months was only 1,000! The number of deaths was just half, notwithstanding that the population had increased something like 20 per cent! I know of nothing to equal this record in the history of any city in the world. And the cost of this great work to the city has been barely a thousand dollars a year; less than the salary of a good inspector."

The Health of the People.

It is gradually becoming recognized by the world at large, says the *Medical Press*, that thought and care are necessary to maintain good health. All medical men, however, are still familiar with the patient who will not listen to advice as to the management of his health, but who wants a bottle to cure him. Not by medicine but by effort is good health ensured, says science. The second annual report of the Women's Imperial Health Association shows that this society has been no small factor in the rationalization of vulgar ideas on health. The workers of the Association are using every means of teaching the fundamental principles of physical and mental well-being, in a manner which renders these principles intelligible to the masses. Health lectures, cinematograph exhibitions, and, better still, practical demonstrations in the homes of the people by

tactful persons, cannot do harm, and must do good. The absolute and hitherto unavoidable ignorance of young mothers, so potent a factor in infantile mortality, has been dealt with by the establishment of schools for prospective nursing mothers. In these institutions, when necessary, nourishing meals are dispensed, and the expectant mother is informed in a practical manner that healthy offspring depend primarily on healthy parents. We are glad to see that the Association has taken up seriously and with effect the agitation for free lavatory accommodation for women. So far, however, its efforts have not materially changed the conditions obtaining in this respect in the provinces. Inadequate urinal accommodation is still the rule and the fruitful source of mental distress and physical pain. Men have hitherto shown the callousness of ignorance in this matter, and false modesty has, as always, retarded reform.

Benefit of Fresh Air.

A factor of much importance in the success of the anti-tuberculosis movement has been the ease with which its principal lessons could be summarized in short, yet comprehensive, phrases, says the *Journal of the Outdoor Life*. "Fresh air," "good food" and the rest of them are cries about which popular gatherings have centered, lectures have been delivered, treatises have been written and whole campaigns have been fought.

Nowhere has the effect of this educational effort on popular opinion been more beneficial than in the change of attitude toward the value of fresh air both in health and disease.

And this is no mean achievement. Superstitions are notoriously hard to kill and the human race has wrapped itself for generations in inherited misconceptions as to its most valuable single commodity. Each advance in civilization has seemed to make it more difficult for its victims to breathe in comfort. The substitution of permanent dwellings for temporary camps gained warmth and protection at the expense of oxygen and the development of city life finds multitudes of us gasping for breath with relief waiting patiently just outside our windows and doors.

To make matters worse, we have bulwarked our pernicious housing habits with innumerable prejudices as to the dangers of night air, draughts, and other conditions chiefly notable for their health giving qualities.

It is all the more encouraging therefore that a saner opinion is gaining ground and that we are beginning to appreciate the value even of the open window as an approach to the still more desirable unwallled outdoors.

Emphasized first as an agent of cure the public is beginning to recognize fresh air as a mode of prevention. A sleeping porch on the house of a healthy family is a far more significant thing for the world at large than a shack at a sanatorium.

There are some signs that another generation may witness a general revolution in habits of living and methods of housing. But reforms come slowly and we may be forced to attain fresh air through gradually improving mechanical systems of ventilation aimed at a not too sudden realization of pulmonary salvation.

Unfortunately, the problem of fresh air seems to be present and pressing no matter what the locality or particular social status. Especially difficult to solve in the crowded quarters of our great cities it is surprising to many to find that the rural districts are equally in need of improvement in this respect. Attention has recently been called in these pages to the prevalence of tuberculosis in farming communities where the underlying causes are almost certainly lack of proper ventilation combined with neglect of the simplest rules of hygiene. The remedy is here so simple that definite results may reasonably be expected to follow closely on perception of the fact.

The apathy of the public is not to be wondered at when the slow awakening of the medical profession is considered.

It is one of the stimulating phases of the war on tuberculosis that in fighting its particular battle, it is fighting preventable diseases in general. Its methods are as applicable to pneumonia and typhoid as to its own selected enemy. And in its arsenal the trustiest weapon, simple, unadulterated, unmedicated fresh air, lies ready to the hand of every man.

Sanitation in the Canal Zone.

Everyone is interested in the rapidly approaching completion of the Panama Canal. Much has been said about the control of disease on the Canal Zone. The leading article in a current number of *The Journal of the American Medical Association* on "Sanitation at Panama," by Col. W. C. Gorgas, Chief Sanitary Officer of the Canal Zone, is therefore especially interesting. After describing the topography of the canal, Colonel Gorgas says, in part:

The health conditions at Panama when the United States took charge, in 1904, were very bad. For four hundred years this isthmus had been considered the most unhealthy spot in the world and the mortality records will sustain this opinion. The official pilot chart, in 1903, says:

"The Panama Canal District is one of the hottest, wettest and most feverish regions in existence. Intermittent and malarial fevers are prevalent, and there is an epidemic of yellow fever at times. The death rate under normal circumstances is large."

From the best information which I can get, and which I consider accurate, I believe the French lost 22,189 laborers by death from 1881 to 1889. This would give a rate of something over 240 per thousand per year. I think it due to the French to say that we could not have done a bit better than they, if we had known no more of the cause of these tropical diseases than they did.

The great discoveries in tropical medicine made during the time between the coming of the French to the Isthmus and the coming of ourselves, however, namely, that certain species of mosquito transmit both yellow fever and malarial fevers, have enabled us to protect ourselves against these and other tropical diseases.

The French, with an average force of not more than 10,200 men, lost in nine years 22,189 men; we, with an average force of 33,000 men, in nearly the same length of time have lost less than 4,000. The death rate among the French employes was something more than 240 per 1,000; our maximum rate in the early days was 40 per 1,000; our rate at present is 7.50 per 1,000. Malaria, from a maximum of 821 per 1,000 taken sick—i.e., that out of every 1,000 of our employees in the

course of the year we have 821 taken sick with malaria—we have reduced at present to 187 per 1,000. But most important of all, yellow fever has been entirely banished. We have not had a single case since May, 1906, now a lapse of almost six years. The general death rate has been reduced from a maximum of 49.94 per 1,000 to a rate, for the year 1910, of 21.18 per 1,000. Such a rate compares favorably with that of many parts of the United States.

One of the highest railroad officials in the United States has recently stated that the sanitary expenditures on the Isthmus would have been 5 per cent. of the total cost when the canal had been finished: that he thought that the sanitary results accomplished had been worth many times the amount spent, and that he believed that these same measures would, as a matter of economy, be adopted in all future works of this kind. How much more emphatic might he have been if he had known that, instead of costing 5 per cent. of the total appropriation, they had actually cost less than 1 per cent. of the total appropriation for all purposes.

While the great work in tropical sanitation, of Laveran, Ross, Reed, Finlay, Carter and many others, have enabled the sanitary department on the Isthmus to take a vital part in the work of building the canal, this is not the greatest good that we hope, and expect, will flow from this conspicuous object-lesson. We hope that our success at Panama will induce other tropical countries to try the same measures; and that thereby gradually all the tropics will be redeemed and made a suitable habitation for the white man.

Sanitation Wanted in Africa.

Sanitation is seen in its most primitive form in this colony, says *The South African World*. In fact, so primitive are the methods that it is not sanitation at all. There is a pressing need for a complete revolution in the disposal of sewage, and the sooner the Government awakens to this fact the better it will be for the health of the community. This is a very unpleasant subject to discuss, but it is a vital one. The present method of disposing of night soil is for prisoniers to collect it from all parts of the towns (we refer to all coast towns) and to empty it on the beach for the tide

to carry away. Unfortunately, the wrong side of the town is usually selected, Seccondee more especially so, the consequence being that the wash of the tide takes the refuse past the full length of the residential European town, so "treating" everyone to most obnoxious smells, sometimes several times a day. Surely the Government should consider some system of water-borne sewers, which are in existence in many other parts of the tropical world.

The objections of some people to this system appear to be due to their fear that an underground sewer is likely to conduce to the breeding of mosquitos, but we think there is no foundation in fact for this fear. Perhaps we are waiting for the completion of the water works scheme before getting a sewage system that will be an improvement of the present crude and unhealthy arrangement.

On Decay in the Art of Medical Prescribing.

What is a Prescription? asks a Retired Hospital Physician in *The Westminster Gazette*, and answers that an ordinary word is taken up and adopted by a profession; it is compendious and convenient; and it comes to denote (the *Oxford Concise Dictionary* says) "a physician's written direction for the composition and use of medicine." Dr. Johnson defined prescription as "a medical receipt."

Now, a medical prescription has (or ought to have) a central theme, which is represented by a substance of positive therapeutic virtue. Other substances may be grouped around it; they are intended to support the central idea, to resist any counteracting influence, or to make it more agreeable to the senses. And these substances are not written at random, as if occurring to the writer by chance. They are members of a procession in which the most important articles appear first; but all have a function of usefulness and honor.

Qualities being settled, quantities (or doses) are next considered by the prescriber. Age and sex and "constitution" of the patient are put in the critical balance. Just enough of the medical material is ordered for the specific purpose; more than that might be injurious, and is certainly wasteful. Lastly, the frequency of ad-

ministration, which is an imperative point, is determined by a crowd of circumstances.

When a prescription is thus furnished in the matters of qualities and quantities and times, it becomes a literary instrument, and it ought to be a more or less perfect work of art. It is the product of knowledge and experience; tact applies it and pilots it along.

But how are that knowledge and experience to be gained? Ah—that is the crucial difficulty.

In the former half of the nineteenth century nearly every general practitioner had his private dispensary; or, as it was most commonly termed, his "surgery." This was the home in which all medicines for his own patients were prepared, and whence they were sent out. After a round of visits the doctor returned to write the prescription* necessary for each patient in his "daybook," which always lay upon the surgery table. From these prescriptions the medicines were made up by a salaried dispenser or other qualified person.

Now, a young man who, as an apprenticed pupil, spent an industrious year† in the surgery of a general practitioner had opportunities for acquiring knowledge which could be gathered nowhere else so easily and so thoroughly. The first step in this special education was the reading and interpretation of prescriptions. Authentic models of prescriptions were always before him; the principles on which they were constructed were duly unfolded; the symbols of dry and fluid measure were learned; and the dull Latinity of directions for the patient was translated into plain English prose. All around him were the weapons of his future warfare; he saw, he handled, he weighed. He noted the physical properties of drugs, which is a necessary preliminary to their employment in a metaphysical or therapeutic sense. He welded pestle and mortar; he made decoctions, infusions, and tinctures; the niceties of Pharmacy were done under his eye; and he was taught the conditions of neat and correct dispensing. All these branches of the same subject were profitably studied. They did not make a man a pharmaceutic expert; but a fair acquaintance with them greatly helped the safe and pleasant conduct of private practice.

Some working experience in chemistry was gathered at the same time. The pupil

*An "elegant prescription" of mid-Victorian days (1850-70) was often only a flourish of professional rhetoric, in which utility was sacrificed to display and show.

†The term was generally much longer.

understood that chemical "incompatibles" (whatever their therapeutic alliance) must not be included in the same prescription, or a crude and repulsive compound would be dispensed. He understood also the necessity of handling important medicines with extreme accuracy and care. "As poison heals, in just proportion us'd" is a line from Pope which is sometimes quoted; but the "just proportion" may be defeated by negligence or ignorance, and then the "poison" strikes with destructive energy.‡

It must be confessed that the British Pharmacopœia (of which a revised edition is issued every fifteen or twenty years) is overladen with materials of varying therapeutic value. Some of the compounds are highly complex, little known, and rarely used. A large part of the Pharmacopœia is really never assimilated by the majority of our profession; it is outside the equipment of an ordinary working doctor, who carries in his memory just so much as he comfortably can. He has his favorite preparations—his pet formulæ and phrases. These are trotted out with automatic readiness; it is so easy to write what the pen has often written before! Yet this betrays a deep poverty in the arts of selecting and combining. Directly a doctor feels that the automatic habit is too strong for him, he should make a strenuous effort to escape from that bondage. He must be again a daily student of his Pharmacopœia if he wishes to save his medical life from becoming narrow and unfruitful. A venerable proverb warns us to beware of the man who reads only one book; but the duty is not less urgent to avoid the physician who gives you only two prescriptions.

Our argument is designed to prove that if medical men are to write sound and logical prescriptions they must be properly trained to do so. A gradual decay in the art of prescribing, which has been going on for years, is the natural result of defective teaching. Another operative cause of this decay is the manufacture and the sale of compound medicines, ostensibly to save the "busy practitioner" from the laborious pain of thinking for himself. Yet his battle with disease should be an affair of personal honor and skill; and if he is tempted to borrow other men's weapons his own armor is likely to become rusty and old-fashioned.

Alas, that it is impossible to revive most of the old machinery which worked so well and turned out such admirable workers! The pupil who was engaged for a while in the manner sketched above had ample leisure for continuing his study of the humanities, and for every lawful recreation. And he entered a London or a provincial medical school with a treasury of knowledge which was got by a wise economy of time, and was an excellent introduction to lectures on the Principles and Practice of Medicine.

A matter which is neglected inadvertently (may we say?) by a large number of medical men is the veiling of ugly tastes and odors of medicinal compounds. It is an ordinance of Nature that our most trustworthy aids in the mineral and vegetable kingdoms have their qualities of repulsion rather than of attraction: they do not tell their own message of a ministry of healing virtue. But whatever apology is possible for the misdeeds of doctors sixty or seventy years ago, there can be no valid excuse now. Who has not heard of the plaintive cry, "I had rather be ill than take such a disgusting draught!" The youngest scholar in our new school of apothecaries is glad to veil the draught by one of the fluid preparations of chloroform, as they are ordained in our Pharmacopœia. Yet hundreds of prescriptions have come under our notice in which this small mercy has been withheld, as if contemptuously passed by. But a judicious adviser scorns no trifle which may alleviate the burden of illness, or help an invalid along the thorny road of slow recovery. Observe the comfort and the satisfaction when a medicine is offered to a patient in the effervescent form; a petty kindness which is always thankfully appreciated. Rebellion and heresy are fostered by the doctrine that all medicines are naturally nauseous, and that this nauseousness must be borne with pious resignation.

Again: the medical management of sick children is a problem which is always by our side. Among the sharp troubles of nursery discipline the administration of physic holds the premier place. We recall with a shudder the austere things once prescribed for the maladies of childhood; the strange messes dignified as foods; the cruel leeches and blisters; and if the bribery of soft words failed to win obedience, the

‡Shakespeare knew that Medicine and Poison are near neighbors:

"Within the infant rind of this small flower, poison hath medicine and medicine power."
—"Romeo and Juliet," II. 3.

coarse artillery of threats was in the background. Here is an ample scope for pharmaceutical strategy. The old order has yielded to the sweet charity of a brighter age; and the doctors of to-day are tender almost to a fault.

Among the resources of our art which are not yet ranked as authentic usages is that of giving a potent medicine in comparatively small and frequent quantities, so as to obtain the *maximum* of its good with the *minimum* of its possible harm. The conventional rule of a specified dose every three or four hours has behind it the tradition of countless years, and a prophet of even the highest vision is not likely to disturb it. Yet we have the testimony of competent witnesses that the method of comparatively small and frequent doses may produce effects of a most remarkable kind in the treatment of both general and local diseases.

It is only fair to client and chemist that the penmanship of a prescription should be straightforward and clear. We have seen three or four prescriptions which looked like an assembly of crooked characters from an Oriental alphabet; and a few which were difficult to decipher and perilous in their uncertainty. Every prescription by a British practitioner should be current coin on British ground, wherever it is presented. Illegible writing, if persistently repeated, ought to be regarded as "infamous conduct" in the British Medical Council sense, and should disqualify a man for the catholic courtesies of his brethren.

About seventy years ago a little book was published, under Oxford auspices, entitled "Prayers for the Use of Members of the Medical Profession." The copy before us has been our companion for nearly fifty-eight years. Among many petitions three are noteworthy—(a) at the time of ordering medicine; (b) for grace not to go beyond one's skill; and (c) for carefulness in lighter diseases. These prayers are reverent in tone and practical in form, but lest it be imagined, we suppose, that a too lofty plane of religious thought is suggested, a thread of humor is put in, and we are invited to pray when we are "tempted to administer what is hurtful." But in our darkest perplexities, when the lights are few and dim, and all authorized methods have been exhausted, does the tempta-

tion to "administer what is hurtful" ever assail us? Is it a conceivable solution of a moral dilemma? Do we ever fire a random shot on the chance that it may cure and not kill? No such key unlocks any problem of true medical philosophy. A gracious Providence bestows our healing treasures one by one; we watch and wait; for, we know that all honest work is sure to bring a full reward.

Reference Guide to Other Journals.

American Journal of Clinical Medicine (Vol. XIX, No. 4)—"Gonorrhoea and Its Complications," by E. J. Angle; "The Medical Situation in Europe," by Maynard A. Austin, Part II.

American Journal of Public Health (Vol. II, No. 3)—"Studies in Air and Contact Infection at the Providence City Hospital," by Charles V. Chapin.

American School Board Journal (Vol. XLIV, No. 4)—"Essentials in Hygienic Instruction and Operation," by Frederick Bass.

Bulletin of the Ontario Hospitals for the Insane (Vol. V, No. 3)—"Health Problems," by Edward Ryan.

Canadian Medical Association Journal (Vol. II, No. 4)—"The Establishment of the Treponema Pallidum as the Causative Agent of Syphilis and the Cultural Differentiation Between This Organism and Certain Morphologically Allied Spirochaetae," by Hideyo Noguchi.

Canadian Practitioner and Review (Vol. XXVII, No. 4)—"National and Provincial Responsibility in the Tuberculosis Crusade," by Charles A. Hodgetts.

Dominion Medical Monthly (Vol. XXXVIII, No. 4)—"The Crime of the Century," by A. C. E.

Fruit Magazine (Vol. V, No. 1)—"High Cost of Living versus the Man Under the Mortgage," by O. J. Wigen.

Heating and Ventilating Magazine (Vol. IX, No. 4)—"New Thoughts Concerning Ventilation," A Symposium of the Views of Medical and other Experts.

Indian Medical Gazette (Vol. XLVII, No. 3)—"Convict Marriages in the Andamans" by J. M. Woolley; "Note on Complement Deviation in the Sera of Vaccinated Calves," by C. L. Dunn.

Journal-Lancet (Vol. XXXII, No. 7)—"Albumin Milk, the Technique and Indications for Its Use," by F. W. Schultz; (Vol. XXXII, No. 8)—"The New Public Health, fourth Paper," by H. W. Hill.

Journal of the Outdoor Life (Vol. IX, No. 4)—"The Treatment of Tuberculosis in the South-West," by E. S. Bullock.

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Journal of the Royal Sanitary Institute (Vol. XXXIII, No. 3)—"Infection of Measles and the Influence of School Closure," by J. Mitchell Wil-

son; "Local Public Health Administration and the Insurance Act," by T. J. Dabell.

Journal of State Medicine (Vol. XX, No. 4)—"The Local Specific Treatment of Experimental Infections," 2d Harben lecture, by Simon Flexner; "Zur Frage der Antitoxischen Wirkung des Dysenterieserums," von R. Kraus und St. Baecher; "Prevention of Plague in the Madras Presidency," by W. G. King.

Medical Council (Vol. XVII, No. 4)—"Habit Formation," by W. H. Baldwin; "Notes on Venomous Animals," by R. W. Schufeldt; "Service Water Pollution," by T. C. Wheaton.

Medical Officer (Vol. VII, No. 13)—"Class Room Environment," by Graham H. Skinner; (Vol. VII, No. 14)—"An Inquiry Into Still Births in the City of Aberdeen," first instalment, by Matthew Hay; (Vol. VII, No. 15)—"An In-

quiry Into Still Birth in the City of Aberdeen," by Matthew Hay, conclusion.

Medical Review of Reviews (Vol. XVIII, No. 4)—"The Opportunities for Professional Work Afforded to Medical Officers of the United States Public Health and Marine Hospital Service," by Rupert Blue; "The Sanitary Conditions in Russian Prisons," by Leo Deutsch.

Merck's Archives (Vol. XIV, No. 4)—"Treatment of Pellagra," by John A. Kimbrough.

O. A. C. Review (Vol. XXIV, No. 7)—"The Science of Living," by Tennyson D. Jarvis.

Public Health Reports (Vol. XXVII, No. 14)—"A Note on a Peculiarity of Plague on the Hamakua Coast of Hawaii," by George W. McJoy.

Sanitary Record (No. 1168, Vol. XLIX)—"Tuberculosis in Food Producing Animals, Its Scope and Prevention," by R. B. Blume.

REVIEWS AND ACKNOWLEDGEMENTS

[Any book reviewed in this department may be obtained direct from the publishers, or from leading booksellers, or through The Public Health Journal]

"The Key to Sex Control."

The author of this excellent little work believes, in his own words, that the problems of heredity, sex and development which so fundamentally affect the human race and which have so long baffled investigators, are based on invariable laws, the proper acknowledgement of which would have a far reaching effect on the future development of the human race. He points out that only within the last hundred years have the great laws of natural selection and survival of the fittest been understood with the result that man is beginning to supplement natural selection with intelligent selection and, cites the breeding of fruits, grains, and vegetables and animals in the domesticated class, mentioning the work of Burbank and others. In regard to the prevention of breeding by the deformed and criminal and the degenerate, it is possible, it is believed, to teach the people the fundamental facts and laws which govern the reproduction of the species so that all may know those conditions of health, nutrition, environment and physical fitness that control and determine this all-important phenomenon. The discussion of the subject is taken up in the following divisions:—Sex Control: Its History—The Male Generative Organs: Their Embryonic Development, Histology, Anatomy and Physiology—The Female Generative Organs: Their Embryonic Development, Histology, Anatomy and Physiology—The Spermatozoon: Its Develop-

ment, Anatomy, Histology and its Role in Production of Life — The Ovum: Its Development, Anatomy, Histology and Its Role in Production of Life — Menstruation: The Guide to Sex Control: Its Probable Cause; its Variation in Different Races and Classes—The Process of Insemination —The Cellular Determination of Sex: The Direct Cause and the Primary Laws Governing its Variation—The Paternal and Maternal Secondary Laws which Govern the Variation of Sex—Final Instructions: The Control of Sex in the Human Species; the Control of Sex in the Class Aves or Bird, Reptile and Fish Families.—*The Key to Sex Control or the Cellular Determination of Sex and the Physiological Laws which Govern its Control.* By Percy John McElrath, M.D., Bramwell, West Va. 232 Pages. Fully indexed and illustrated. New York City: Published by the Author. \$3.00 net.

"Productive Farming."

In this work the author endeavors and succeeds very well in meeting the demand for the teaching of agriculture in public schools; and the book will be found useful, not only in rural schools but in many high schools, desiring a less advanced course than is offered in more difficult books, as well as to farmers and other pursuing home reading courses in agriculture. The chapters are short and to the point and dispersed with numerous excellent illustrations; productive farming

being emphasized in contra distinction to ordinary farming. The following subjects are dealt with: "Plant Production, including the structure and physiology of plants, etc.; Animal Production, including improvement of animals—horses, cattle, sheep, swine, poultry, bees, etc.; Animal Products; Farm Management—business of farming. The appendix includes a bibliography, a list of experiment stations, insecticides and fungicides; tables of: Quantity of Seed per Acre and Legal Weights; Sample Pedigree of Pure Bred Cattle; Fertilizer Formulas; Average Digestibility of Seeds and their Fertility; Feeding Standards; Average Composition of Farm Manures; Distances Apart for Planting Fruit; Usual Distances Apart for Planting Vegetables. An index follows.—*Productive Farming, by Kary Cadmus Davis, Ph.D., Prof. of Agronomy and Principal of the Short Courses, New Jersey College of Agriculture; Instructor in Agriculture, University of Virginia Summer School; Member and Fellow, A.A.A.S., Active Member, N.E.A. Philadelphia and London: The J. B. Lippincott Co., Montreal: The J. B. Lippincott Co., Charles Roberts, Manager, 608 Lindsay Building. \$1.00 net.*

"Genesis."

The author of this practical and common sense book, Dr. B. S. Talmey, dedicates it to his baby daughter, Irene V. Talmey, thereby indicating the fact that it is written simply enough and scientifically enough to be useful to lay readers; and he explains the reason for writing this book—his belief that the majority of parents were not far enough advanced in culture to act efficiently as teachers to their children, that they needed a detailed lesson. And this lack in the parents he felt applied to other teachers, including many physicians and ministers of the Gospel. The book is written in the form of graduated lessons, starting with a discussion and a proof of the necessity for wider instruction in matters with which he deals; the ignorance of parents and the prevailing moral confusion, etc. The second part of the book consists of special lessons, first for infancy and early childhood and so graduated through five chapters, the sixth lesson being for the benefit

of children from sixteen to eighteen years of age, and dealing with the important question of gonorrhoea and similar diseases. The book ends with a bibliography and an index.—*Genesis. A Manual for the Instruction of Children in Matters Sexual. For the Use of Parents, Teachers, Physicians and Ministers. By B. S. Talmey, M.D., Former Pathologist to the Mothers' and Babies' Hospital and Gynaecologist to the Yorkville Hospital, New York. With nineteen cuts and forty-seven drawings in the text. New York: The Practitioners Publishing Co., 12 West 123rd St. \$1.50.*

"Prophylaxis and Treatment of Internal Diseases."

This is a valuable book for the thinking physician and is written for those in practice and for advanced students. It is the result of long experience on the part of the author and the methods, therefore, recommended for prophylaxis and therapy are such as can be carried out in private practice. In the first section, Dr. Forchheimer takes up specific infectious diseases; in the second section the differences produced by animal parasites; in the third section the constitution of disease; in the fourth section, intoxications; in the fifth section, diseases of the digestive system; in the sixth section, disease of the respiratory; in the seventh section, diseases of the circulatory system; in the eighth section, disease of the blood and ductless glands; in the ninth section, diseases of the kidneys; in the tenth section, diseases of the bladder; in the eleventh section, diseases of the male sexual organs, and in the twelfth section, diseases of the nervous system. A very useful appendix follows, giving a table of the composition of food materials and describing the general principles in the treatment of poisonings and a list of drugs, a list of prescriptions, index of authors and an index of subjects.—*The Prophylaxis and Treatment of Internal Diseases. Designed for the Use of Practitioners and of Advanced Students of Medicine. By F. Forchheimer, M.D., Professor of Medicine, Medical College of Ohio. Department of Medicine of the University of Cincinnati. Physician to the Cincinnati and Good Samaritan Hospitals. Member of the Association of American Physicians*

and American Pediatric Society, etc. 2nd edition. New York: D. Appleton and Co., 29-39 West 32nd St. \$5.00 net.

"Everybody's Guide to the National Insurance Act."

The author, Thomas Smith, a Barrister-at-Law of the Inner Temple, has compiled this book with the idea of affording help in simple language to those who desire an explanation rather than criticism of the British National Insurance Act. The work consists of 304 pages. It is divided into two parts with an appendix and index, the appendix consisting of a recital of the Act itself. The first part of the book explains the Act and considers the deductions from its provisions.—*Everybody's Guide to the National Insurance Act. By Thomas Smith, Barrister-at-Law, of the Inner Temple. Joint author of "Points for Guardians and their Officers."* London, England: Charles Knight and Co., Limited, 227-229 Tooley St., S.E. 1/ net.

"Woman."

This book is unique and will be found invaluable to the physiologist, gynaecologist, alienist and neurologist. It is written by a scientist of wide experience. The book is based upon a great deal of research, and the experiences of hundreds of other writers of various countries and at different times. The author, therefore, does not claim any credit for originality, except in regard to arrangement and lucidity of expression, dealing as he does in a clear-minded manner with the great sex problems of a woman's life and the facts upon which really helpful knowledge may be based. The headings of the eight parts into which the work is divided, together with an indication of the contents of the different chapters, will give one an idea of the importance of this book. Part I. is the introduction and takes up the question of the importance of love; sex worship; Christianity and love; love and fashion; general prudery. Part II. considers the evolution of sex, commencing with the protozoa and ending with ovulation in the human. Part III. considers the anatomy of the genitals and includes secondary sexual characteristics. Part IV.

takes up physiology and deals with the sexual instinct; centres of generation; children's affections; emotions of puberty, etc. Part V. considers pathology, including the classification of anomalies and the several forms of sex perversion. Part VI. deals with hygiene, including the essentials for a happy union; the question of prevention of conception, etc. Part VII. is devoted to psychology; the first chapter in this part being entitled The Creation of Woman and the last entitled Jealousy,—the nine intervening chapters dealing fully with other matters bearing on psychology. Part VIII. deals with morality; considers the criterion of morality; God in creation; the moral law; evolution of marriage, etc. The book ends with a very useful bibliography and a full index.—*Woman. A Treatise on the Normal and Pathological Emotions of Feminine Love. By Bernard S. Talmey, M.D., Gynaecologist to the Yorkville Hospital and Dispensary; Former Pathologist to the Mothers' and Babies' Hospital, etc., New York. For Physicians and Students of Medicine. With twenty-three drawings in the text. Sixth enlarged and revised edition. New York: The Practitioners Publishing Co., 12 West 123rd St. \$3.00.*

"Meat Hygiene."

Meat is one of the most important and most widely used of all foods, and it is at the same time the one most open to contamination from a multitude of sources, both before and after slaughtering. The almost universal recognition of this fact has resulted in the passage of laws by all enlightened governments designed to insure a healthy supply of meat and regulating its sale. The enforcement of these laws at once created a demand for a book of this character. The excellence of Edelmann's work in Germany has brought about the appearance of a second edition, and its translation was then undertaken by those best qualified for this task, namely, Drs. Mohler and Eichhorn, of the Bureau of Animal Industry, Washington, D.C. In its first American edition the work received the appreciation which it so well merited, and this led to the call for a second edition in a comparatively short time. In this issue the book has been completely reset in new type, many new illus-

trations have been inserted, and its important and active subject has been brought up to the latest date. Chapter titles are: Origin and Source of Meat Food; Morphology and Chemistry of the Principal Tissues and Organs of Food Animals; The Production, Preparation, and Conservation of Meat; Regulations Governing Meat Inspection of the United States Department of Agriculture; Organization and Methods of Procedure of the Inspection Force; Decisions of the Veterinary Inspectors and Disposal of the Condemned Meat; Abnormal Conditions and Disease of Food-Producing Animals; Infectious Disease in Food Producing Animals; Postmortem Changes of Meat; Examination and Judgment of Prepared and Preserved Meats, Chickens, Game, Fish, Amphibia and Crustaceans; Meat Poisonings; History of Meat Hygiene; Abattoirs and Stockyards.—*A Text-Book of Meat Hygiene. With Special Consideration of Ante-Mortem and Post-Mortem Inspection of Food-Producing Animals.* By Richard Edelmann, Ph.D., Medical Counsellor; Royal State Veterinarian of Saxony; Professor at the Royal Veterinary High School in Dresden. Authorized Translation Revised for America, by John R. Mohler, A.M., V.M.D., Chief, Pathological Division, U.S. Bureau of Animal Industry and Adolph Eichhorn, D.V.S., Senior Bacteriologist, Pathological Division, U.S. Bureau of Animal Industry. Octavo, 392 pages, with 152 illustrations and 5 colored plates. Philadelphia and New York: Lee and Febiger, Publishers. Cloth, \$4.50 net.

“The Origin of Life.”

Professor Bastian has been for many years the most active champion of the theory of spontaneous generation regarding lowest forms of life. His opposition has been such among other men of science that the present work under review, which was submitted early in October, 1910, to the Royal Society, was refused by them with the words, “Not considered suitable for acceptance by the Society.” About the only criticism, however, that could be made of the results of his experiments is that proof that the organisms he discovers are alive and the effect of spontaneous generation should be

stronger in order to be convincing. This criticism has been otherwise made by such men as Huxley in regard to previous experiments; Huxley's supposition being that such organisms as those found by Professor Bastian were present from the beginning. In this book, Professor Bastian points out that from the scientific point of view life is no entity but only the summation and aggregate result of all the properties of living matter, the sum total of which must vary with every particular living thing. And he asks a question, to which he makes answer later, as to whether the life giving process occurred only once or at all events in the very early days of the earth's history, or whether it is one that has been taking place since the period when it first began. The author acknowledges that the majority of scientific men seem to favor the former point of view and that others consider the life originating process may have been many times repeated over many parts of the earth, though not in recent times; while the third section, comparatively small, among whom he counts himself, inclines to the belief that life evolving processes are now and have ever been going on in suitable sites since the times when they first commenced. In this, of course, he does not class himself with the Greeks who admitted that every primate animal had a father and mother, but thought that some higher forms could arise *de novo*; nor, with the Romans who held similar views—views also generally held throughout the middle ages. Professor Bastian is apparently convinced that there are occasions and conditions at the present time favorable to the so-called spontaneous generation of the very lowest forms of life and looks upon the evolution theory as negating the opposite supposition because that theory implies that all living things owing, to the nature of the matter of which they are constituted and their tendency to undergo change, have, in fact, been constantly if slowly changing as evidenced by the past and present extraordinary diversity in the vegetable and animal kingdoms; while at the same time the lowest forms of life still exist all over the surface of the earth as might be expected were transition from the inorganic to the organic in the living sense taking place at the present time. The book is interesting, written in

a clear and logical style and deals with experiments made in 1906, experiments initiated in 1909, the effects of high temperature upon solutions, experimental conditions, the nature of the organisms found in the tubes, their cultivation and their thermal death points, experiments made in 1910, experiments made with pure colloidal silica prepared by Graham's method, thermal death point of such organisms as have been found in the tubes,—closing with the consideration of the results of experiments recorded as proving the de novo origin of living matter and describing the forms assumed by new born units of such living matter.—*The Origin of Life. Being an account of experiments on certain super-heated saline solutions in hermetically sealed vessels. By H. Charlton Bastian, M.D., F.R.S., Emeritus Professor of the Principles and Practice of Medicine, University College, London. With ten plates. Containing numerous illustrations from photomicrographs. New York and London: G. P. Putnam's Sons (The Knickerbocker Press.) \$1.50 net.*

“Dental Disease in its Relation to General Medicine.”

This is a well illustrated little book of 189 pages, including index, and is written with a view to placing before medical practitioners those portions of odontology which have a direct bearing on general medicine. The subject of dental caries and chronic periodontitis are treated at length; the book is arranged under the following headings:—Dentition, Normal and Pathological; Conditions which influence the Growth of the Jaws and the Formation of the Teeth; Caries of the Teeth; Disease of the Pulp Tissue; Diseases of the Periodontal Membrane; Oral Sepsis and its Influence on the Body; Diseases Arising from Reflex Irritation from the Teeth; Treatment of Dental Disease in Children; Dental Disease in its Relation to Life Assurance.—*Dental Disease in its Relation to General Medicine. By J. F. Colyer, L.R.C.P., M.R.C.S., L.D.S., Dental Surgeon to Charing Cross Hospital and the Royal Dental Hospital; Member of the Board of Examiners in Dental Surgery of the Royal College of Surgeons, England. With the*

Assistance of Stanley Colyer, M.D. (Lond.), M.R.C.P., D.P.H. Illustrated. London, New York, Bombay and Calcutta: Longmans, Green and Co. 4/6 net.

“The Military Law Examiner.”

This excellent little text book is arranged in the form of question and answer. Starting with two pages of definitions and a table of abbreviations it takes up the subject under the following headings:—History of Military Law; The Military Code; Military Custody; Investigation of Charges; Powers of Commanding Officers; Examples of Commanding Officers' Rewards; Jurisdiction of Courts-Martial; Composition of Courts-Martial; The Prosecutor and Judge-Advocate; Assembly of Courts-Martial; Challenges and Arraignment; Procedure at Trial; The Defence; The Finding; Proceedings Before Sentence; The Sentence; Confirmation; Crimes; Punishments; Charges; Witnesses; Evidence; Field General Courts-Martial; Courts of Inquiry; Martial Law and the Customs of War; Miscellaneous Regulations. The present edition, the eighth, has been brought thoroughly up to date and will be found of much assistance to anyone studying military law for British Service Examinations. The system of question of answer, we believe, excellent, and if worked through thoroughly would doubtless familiarize the candidate with the subject and prepare him very well for examination.—*The Military Law Examiner, containing questions set at examinations up to July, 1911. Together with the answers to them and references to the official books. By Lieut.-Col. Sisson C. Pratt, Royal Artillery (retired). Eighth edition. Revised and corrected up to July, 1911. London: Gale and Polden, Limited, 2 Amen Corner, Paternoster Row, E.C., Wellington Works, Aldershot, and Nelson Works, Portsmouth.. 4/6 net.*

“Manual for St. John's Ambulance Companies.”

This book is of a size suitable for the pocket and has appended to it several pages, following the index, for the purpose of making notes. It is written for the

guidance of Commandants and introduces the subject by stating fully the objects for which the companies are formed, describing the various medical units which the companies may be asked to establish. Then follows a consideration of laws and customs of war relating to the sick and wounded and to voluntary aid societies; description of buildings suitable for use as hospitals and their requirements; a discussion on nursing; proper feeding; rest; enemata; transport and improvisation. The book is well illustrated.—*Manual for St. John's Ambulance Companies.* By Lieut.-Col. George E. Twiss (retired, pay), R.A.M.C., M.R.C.P.I., F.R.C.S.I.L., M.D., C.P. and S. (Columbia), New York, Knight of Grace of the Order of St. John of Jerusalem in England. Honorary Life Member of and Lecturer and Examiner to its Ambulance Department and Honorary Secretary and Life Member of the Southampton Centre, Assistant Commissioner, No. 11 District, St. John Ambulance Brigade, Honorary Member, First Grand Legion American Red Cross, Life Member of the Red Cross Society of Japan. With Abridged Extracts from the Royal Army Medical Corps Training, Army Medical Service Regulations, Manual of Military Engineering, Allowance Regulations, Voluntary Aid Scheme of the War Office and Certain Army Forms. By permission of the Controller of H.M. Stationery Office. London, E.C.: The St. John's Ambulance Association, St. Johns Gate, Clerkenwell. 6/ net.

“The Kingdom of Dust.”

Here is an excellent little scientific book which gives the ordinary reader pleasure as well as profit in the reading; its clearness of diction and illustrations make it easily understood. It is one of the series of books on industrial subjects being published by The Popular Mechanics Co.; the object being to supply the growing demand for an accurate text book suitable for home study, as well as for class use. There are many things described in this little book which will be found to have been a mystery to the ordinary reader, and there is even information which is not known to many advanced students of science. It commences with a description of the vastness of the realm of dust, including the

subject of perfumes such as musk; the revelation of the sun-beam and the effect of rain and snow thereon. The discussion takes up the physical phenomena produced by dust; how it reaches us from beyond the earth's solar system; earth's winding sheet; the foe of the workman; the skeleton in the closet, including a description of the formation of molds; the friend of the housewife; the right-hand of death; perfumes and odors in the dust, and the wonders in the dust. Some of the questions disposed of in this excellent work are: dangers and benefits of dust; the dispelling of fog by means of electricity; the problem of tuberculosis and typhoid in relation to dust.—*The Kingdom of Dust.* By J. Gordon Ogden, Ph.D., Professor of Physics and Chemistry, Fifth Avenue High School, Pittsburgh. 128 pages, 40 illustrations. Cloth covered. Chicago: Popular Mechanics Co. Toronto: Copp Clark Co. 50c. net.

“Health and Medical Inspection of School Children.”

Dr. Cornell, writing under the above heading, has made his subject very interesting without detracting in the slightest degree from scientific accuracy. A number of illustrations have been introduced and the object of the book—to present a practical exposition of the work of medical inspection—is well carried out; it will be found useful to all those in any way professionally connected with children of school age. The author has had a long experience as medical inspector and has discovered what others in similar positions have also discovered, that parents are most easily reached from an educational standpoint through their children, and insanitary home surroundings thereby most easily eradicated. The author points out that the study of this subject is rapidly breaking down the artificial barriers which have been raised between the so-called specialties and general medicine to the benefit of the community at large. There are 195 illustrations and a number of useful tables. The book is fully indexed and the subjects considered are as follows:—Medical Inspection, taking up the object of inspection, administrative considerations, etc.; Hygiene, including the school, sanitary and personal hygiene; Defects

and Diseases, including disease of the eye, nose, throat, ear, the teeth, the nervous system, mental, the skeleton, nutrition, the skin, speech, followed by a consideration of the causation of infectious diseases, etc.—*Health and the Medical Inspection of School Children.* By Walter S. Cornell, M.D. Director of Medical Inspection of Public Schools, Philadelphia; Lecturer on Child Hygiene, University of Pennsylvania; Director of Division of Medical Research, New Jersey Training School for the Feeble Minded, etc. Philadelphia: F. A. Davis Co., Publishers. \$3.00 net.

“International Clinics.”

The first volume of “International Clinics,” twenty-second series, contains, among other good things, a consideration of the subject of Eugenics and Occupational Diseases. The Section of Eugenics is written by Meyer Solomon, of Washington, who quotes in its introduction a sentence from Victor Hugo’s *Les Misérables*:—“So long as there shall exist, by reason of law and custom a social condemnation, which, in the face of civilization, artificially creates hells on earth and complicates a destiny that is divine, with human fatality; so long as the three problems of the age—the degradation of man by poverty, the ruin of woman by starvation, and the dwarfing of children by physical and spiritual night—are not solved; so long as, in certain regions, social asphyxia shall be possible; in other words, and from a yet more extended point of view, so long as ignorance and misery remain on earth, books like this cannot be useless.” Dr. Meyer Solomon points out that Society has had to contend with such problems at all times and in all places and that it should be recognized that medicine and sociology are closely wrapped up in each other (an aspect of medicine which was considered editorially in the April issue of *The Public Health Journal*). Continuing, Dr. Solomon says: “At the root of all social conditions we need medical aid—in sanitation, public hygiene, personal internal and external hygiene, physical and mental; the science of Eugenics being built on the overlapping field of biology and sociology. The author then takes up his subject, by considering the Fundamentals of Biology; The Origin

of Species and Heredity; Biological Principles applied to Man, under this heading dealing with man’s place in nature; Species Forming in Man, etc.—Nat. P. Brooks, of Charleston, writes the Section on Occupational Diseases, in relation to coal mining; the other contents of the work being arranged under the following headings: Diagnosis and Treatment, the authors in this section being A. L. Wolbarst, J. S. Taylor, Edgar F. Cyriax, P. Tetens Hald, Daniel M. Hoyt, and J. H. Mudgett; Medicine, the authors being Simon Flexner, Eban C. Hill, James J. Walsh, F. Parks Weber, John Funk, and Nathan G. Bozeman. The section of Surgery is written by L. J. Hammon, August Schachner, and Aspinall Judd. S. J. Kopetzky takes up the Diseases of the Ear under the heading of Management of the Post-Operative Period of Mastoiditis. Walter E. Tobie in the section of Obstetrics takes up the Surgical Anatomy of the Female Perineum; and finally in the section, Historic Medical Places of America, an account of the College of Physicians of Philadelphia is given by G. E. DeSchweinitz. The editorial treatment is by Dr. A. A. Stevens, Edward Watson and Lucius Johnson on progress of medicine during the year 1911.—*International Clinics. A quarterly of illustrated clinical lectures, especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Paediatrics, Obstetrics, Gynaecology, Orthopaedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, U.S.A., with the collaboration of Wm. Osler, M.D., Oxford; John H. Musser, M.D., Philadelphia; A. McPhedran, M.D., Toronto; Frank Billings, M.D., Chicago; Charles H. Mayo, M.D., Rochester; Thomas H. Rotch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London, and Richard Kretz, M.D., Vienna. With regular correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels, and Carlsbad. Volume I. Twenty-second series, Philadelphia and London: J. B. Lippincott Co.*

Montreal: J. B. Lippincott Co., Coristine Building, Charles Roberts, representative.

"Health Readings."

Every chapter in this book is interesting to the grown-up, as well as to the child for whom it is written, the chapter on homes of beasts and of men especially so; the subject of health being developed naturally without loss of scientific accuracy and with regard to youth's point of view. An idea of the interesting character of "Health Readings" may be indicated by noting the several subjects taken up in the chapter on Homes of Beasts and of Men, Dr. Thomas pointing out that even amongst the lower animals there is often to be found a great love of home: he describes the animal builders, and architects; the beaver, the honey bees, the nomads, the hut builders, the rock dwellers, towers and churches and windows. Among the other chapters we find the following subjects considered: The Difference between Living and Dead Things; The Life Changes; Cooking; Water; Beverages, etc.—*Health Readings*. By C. J. Thomas, M.B., B.Sc. (Lond.), D.Ph., University Scholar and Gold Medallist in Medicine; Fellow of the Society of Medical Officers of Health, etc. London: Methuen and Co., Limited, 36 Essex St., W.C. 1/6 net.

"The Scientific Features of Modern Medicine."

"The Scientific Features of Modern Medicine" consists of lectures delivered recently at the American Museum of Natural History in the City of New York, and while scientific in every respect will be found interesting to the general reader. The subjects discussed are:—The Normal Human Body; The Nature of Disease and Methods of Diagnosis; Methods of Treating Disease; Bacteria and Protozoa and their Relation to Disease; The Treatment and Prevention of Infectious Diseases; The Problem of Cancer and other Problems; Features of Modern Surgery and the Role of Experiment in Medicine with a Consideration of the Relationship be-

tween the Public and the Medical Profession. In carrying out the modern policy of publicity in health work we think that this excellent little work is most timely.—*Scientific Features of Modern Medicine*. By Frederic S. Lee, Ph.D. Dalton Professor of Physiology, Columbia University. New York: The Columbia University Press. \$1.50 net.

Publications Received for Later Attention.

The following books are announced for future review: "How to Save the Babies"—"The Alphabet of the National Insurance Act"—"Milk and the Public Health"—"Some New and Interesting Points in Ships' Hygiene"—"The Doings of the Brambles and Other Stories"—"Immunity"—"Aiken's Home Nursing"—"Tomorrow's First Aid"—"Conduct and Its Disorders"—"Essentials of Health"—"Education"—"Hand Book of Military Sanitation for Regimental Officers"—"The Health Index of Children"—"A Manual of Public Health Laws"—"The Medical Annual"—"Smoke, A Study of Town Air"—"The Science of Hygiene"—"Tuberculin Treatment"—"Fourth Report of the Wellcome Tropical Research Laboratories and Supplement to the Same"—"The Home Hand Book,"

And receipt of the following publications not mentioned elsewhere in this issue is hereby acknowledged: "Papers Relating to the Application of the Sanitary District of Chicago for Permission to Divert 10,000 Cubic Feet of Water per Second from Lake Michigan," from the Department of Marine and Fisheries of Canada—"Brick and Clay Record" (Vol. XL, No. 9)—"Plumbers, Gas and Steamfitters' Journal" (Vol. XVII, No. 4)—"Oral Health" (Vol. 2, No. 4)—"Contract Record" (April)—"The Canadian Teacher" (April numbers)—"Protest Against Further Diversion of Water from Lake Michigan," from the Commission of Conservation of Canada—"Bulletin of the Department of Health of the City of Winnipeg" (Vol. 2, No. 4)—"Bulletin of the Department of Health of the City of Toronto," for April—"Monthly Bulletin of the New York State Department of Health" (Vol. VII, No. 3)—"Western Medical News" (Vol. IV, No. 3)—"Educational Record" (Vol. XXXII, No. 4)—"The Prescriber" (Vol. VI, No. 67)—"The Western Municipal News" (Vol. VII, No. 4)—"Canadian Municipal Journal" (Vol. VIII, No. 4)—"Federal and Provincial Gazettes—Memorandum of Cadet Corps Training" and "Notes on the Relative Cost of Criminal Statistics, etc., compared with the Cost of the Militia Force for Canada, etc.," from the Canadian Minister of Militia—"Canadian Red Cross Society Annual Report"—"Public Health, Michigan."

To the Editor, *The Public Health Journal,*
State Medicine and Sanitary Review:

Report of the Royal Commission on Vivisection.

Sir:—The recently issued final report of the Royal Commission on Vivisection which was appointed by King Edward in 1906 is of more than usual interest. Five volumes of evidence have already been published and the final report appeared on the 12th March, 1912. The Commission consisted of ten members with Lord Selby as Chairman. Lord Selby and another member died before the completion of the inquiry. The most striking and significant fact in connection with the report is that it is unanimous, a singular exception in Royal Commissions of to-day. Three members make reservations, which do not, however, affect the chief conclusions.

As the report is of considerable length, it is impossible to do more than briefly refer to the main conclusion to which the Commission came after holding over seventy meetings and examining every class of opinion interested in the subject.

It reviews much of the work of the last thirty years, the development of Pasteur's ideas and the work of the late Lord Lister. Although it refers to some of the splendid results of the investigations on tropical diseases, it unfortunately makes no mention of the more recent work of Bruce, of Flexner or of Ehrlich in their fight against disease and of the latest results in preventive treatment of rabies, typhoid fever, etc. The Commissioners state that they are compelled to accept the evidence to the effect that the study of animals infected with some diseases has been instrumental in saving much mortality and suffering in man and animals, and they believe that the discoveries already made justify the hope that by the same methods medical knowledge may be extended. Finally, they feel that as long as public opinion sanctions the infliction on animals of pain in pursuit of sport and in other ways it would be inconsistent and unreasonable to go further than they have done in limiting experiments designed to result in alleviating or preventing suffering.

The important conclusions of the Commission on the results of experiments on living animals are as follows:—

“(1) That certain results claimed from time to time to have been proved by experiments upon living animals and alleged to have been beneficial in preventing or curing disease have, on further investigation and experience, been found to be fallacious or useless.

“(2) That, notwithstanding such failures, valuable knowledge has been acquired in regard to physiological processes and the causation of disease, and that useful methods for the prevention, cure and treatment of certain diseases have resulted from experimental investigations upon living animals.

“(3) That as far as we can judge, it is highly improbable that, without experiments made on animals, mankind would at the present time have been in possession of such knowledge.

“(4) That, in so far as disease has been successfully prevented or its mortality reduced, suffering has been diminished in man and in lower animals.

“(5) That there is ground for believing that similar methods of investigation, if pursued in the future, will be attended with similar results.”

As a lover of animals I yield to no one, and, in common with others having similar sentiments, I regret exceedingly the practice of publishing in the press and other general publications, illustrations of animals used in experimental work. The publishing of such illustrations, which is a common practice of the opponents of vivisection, is calculated to mislead a public not in full possession of the facts nor understanding the circumstances. In this connection the Commissioners state:—“We desire further to state the harrowing descriptions and illustrations of operations inflicted on animals, which are freely calculated to mislead the public, so far as they suggest that the animals in question were not under an anaesthetic. To represent that the animals subjected to experiments in this country are wantonly tortured would, in our opinion, be absolutely false.”

Much has been published and believed concerning the charges of cruelty brought forward by certain persons, in particular Miss Lind-af-Hageby in her book, "The Shambles of Science." Miss Lind-af-Hageby appeared before the Commission and gave evidence. The Commissioners are polite in their reference to these accusations, in stating:—"After careful consideration of the above cases we have come to the conclusion that the witnesses have either misapprehended or inaccurately described the facts of the experiments." In reference to the twelve specific allegations made by Mr. Stephen Coleridge in reference to the administration of the Act, the Commissioners are not of the opinion that any of his complaints can be sustained.

In regard to the moral aspect, the Commissioners state that "At the present time the average moral sense of Christian communities is not offended by the sacrifice of lower animals for the food, clothing, adornment, and, within limits, the sport of man." The right to sacrifice for such purpose would if conceded appear to carry with it the right to experiment, if the operation is conducted under anaesthesia and the life of the animal terminated before consciousness returns. To prohibit this by law the Commission holds to be "inconsistent if not preposterous." A more difficult case is presented in which a practically painless inoculation is followed by much suffering attendant upon the results. The Commission conclude that "experiments on animals adequately safeguarded by law, faithfully administered, are morally justifiable and should not be prohibited by legislation," but that recognition should be granted to the reality and worthiness of the sentiment which would specially reserve the case of certain higher domestic animals.

Although the final report is unanimous and signed by all the Commissioners, it should be added that reservations are made by three of the Commissioners. The first related to the administration of the Act and points to the necessity of securing the undivided responsibility of the Secretary of State; the second calls attention to the need for a statutory requirement upon licenses forthwith painlessly to destroy any animals which has been experimented upon when obvious suffering supervenes.

As Lord Cromer truly said in a recent

letter to *The Times*, "I do not think that any impartial person will be able to read this illuminating report without coming to the conclusion that, broadly speaking, the supporters of vivisection have proved their case."

C. Gordon Hewitt,
Dominion Entomologist, Ottawa, Canada.

"Ozone Myths."

Sir:—My attention has been just attracted by the publication on page 204 of your April issue of a reprint of an editorial published in the *Journal of the American Medical Association* entitled "Ozone Myths." Do you really believe that the experiences with ozone to date are based upon imagination and that the management of the largest municipalities, banks and public buildings are being hoodwinked by the installation of ozone-producing apparatus?

My attention was called not so long ago to an experience in a municipal bath house, in the city of Brussels, I believe it was, in which the odors were decidedly unpleasant. It was suggested that the installation of an ozone-producing apparatus would modify this materially, and before it was done bacterial cultures from the air were taken showing many colonies. The installation certainly worked wonders in regard to the elimination of the odors, and, strange to say, in spite of the "myths" which surround this wonderful gas, the bacterial counts which were secured after the installation were almost zero.

It would seem to me that the study of ozone and its relation to the public health is a matter for much more consideration than that of those interested in manufacturing apparatus, or, for that matter, in buying it. And, under the circumstances, since yours is the only journal of its kind on the American continent, it would seem to me that you would be accomplishing something worth while if you would foster such an investigation.

Henry R. Harrower, M.D.,
Editor, American Journal of Physiologic Therapeutics.

Congratulations from Michigan.

Sir,—The Michigan Department of Public Health, through this office (office

of secretary), sends congratulations on your splendid journal, especially the number for April, 1912. This number is replete with good things.

Herewith you will find a copy of the Michigan Public Health Bulletin for March, 1912, also "Soil, Civic, Health Conservation," "Insanitary Conditions of Railway Depots and Hotel Surroundings" and "The Forward Movement in Michigan for Health Conservation." By the latter

you will observe that we are organizing a grand army in sanitation.

R. L. Dixon,
Secretary, State Board of Health,
Michigan.

—
The Public Health Journal heartily thanks Dr. R. L. Dixon and the Michigan Department of Public Health for the above kind expression of appreciation of our efforts. We shall later publish the excellent articles mentioned in Dr. Dixon's letter.—Ed.

HEROES OF DUTY

Sir:—The following offering to my fellow readers of *The Public Health Journal* has been suggested by the story of a Lachute, Quebec, doctor, who perished in a snow-storm, while crossing the mountains to attend a call from a patient, twenty-five miles away. He gave no thought to his own comfort, but went unquestioning to the call of duty—and to death. Not even the name of one so noble and self-sacrificing was given in the report—"A Lachute Doctor," that was all:

Has the age of the hero passed away from the earth?
Of men who dare do, dare we say there's a dearth?
Has the age of knight errants gone from the world?
Has his banner, deed-scarred, forever been furled?

'Tis not he alone who rides to the wars,
Who endures all the pains, and brings 'way the scars.
Full oft do we find in peace's humble walks,
Full as many brave deeds, of which the world talks.

The warriors who face the death-dealing steel,
Who heed not the onset nor the cannon's loud peal,
Have the glamour of war to dull fear of battle,
And the glory of war to deaden war's rattle.

But the far away call to the doctor, to come,
To leave his bright fire-side, his own cheery home,
Has nothing of glamour, of glory or fame,
And his going will add not a whit to his name.

The warrior goes forth to slay human kind,
The doctor to soothe, to assuage and to bind,
Up the wounds of the hurt—their ills to relieve,
By the potions he brings, or the words he may give.

Had we played the hermit from the day of our birth,
And known naught about this wicked old earth,
We ne'er could believe the honor paid one,
With no thought for the other, for deeds he had done.

To the one is erected huge shafts of hewn stone,
Because he has killed, has killed, that alone;
The other may perish, on a mission to save
The life of another, or deed full as brave,

And all that he gets, for a life nobly given—
Save the "Well Done!" that floats down from high heaven—
Are these meagre words, set in tenth galley form:
"A Lachute, Quebec, doctor was lost in a storm."

Toronto, Ont.

Anson A. Gard.

Meetings and Reports

[Material for this department to appear in any month should be transmitted before the 25th of the preceding month to The Public Health Journal, 43 Victoria St., Toronto, Canada.]

DOMESTIC

The Secretary General of the Fifteenth International Congress of Hygiene and Demography to the Canadian Public Health Association.

The letter to the Canadian Public Health Association from Dr. John Fulton, Secretary in General of the 15th International Congress on Hygiene and Demography, to be held in Washington, D.C., September 23rd to 28th, 1912, inclusive, read at the last Congress of the Canadian Public Health Association, runs as follows:—

“From several Canadian friends attending the meeting of the American Public Health Association in Havana, I learn that the meeting in September, 1912, of the 15th International Congress in Hygiene and Demography in Washington, D.C., has not been brought to the attention of the provincial and municipal authorities in Canada.

“I respectfully request, therefore, that this important international meeting may be announced to the Canadian Public Health Association about to meet in Montreal, and that the Association will take some action toward representation in that Congress, and some further action to bring the matter clearly to the attention of the provinces and municipalities.

“More than a year ago, the Government of the Dominion accepted an official invitation of the Government of the United States. If this invitation was extended to Canada in the same terms employed by my Government in inviting other countries, the Government of the Dominion was asked to understand that the Governments of provinces and municipalities were included. If, as I am informed, the provinces and cities have not been officially invited, this detail of the Secretary of State's letter must have been overlooked in Ottawa, or else the invitation lacked, through inadvertence, the inclusive phraseology of the invitations to other countries.

“We wish our invitation to be under-

stood in Canada quite as it is understood in other countries, and if it is necessary to repeat or amend our invitation to the Dominion Government, we shall be glad to be so informed.”

Demonstration Farms.

The Lands Committee of the Commission of Conservation will start a number of demonstration farms in Canada this year. One farm will be selected in each district where the Agricultural Survey work was conducted last year, for the purpose of putting into actual practice the best and most profitable farm methods for that locality. The farmers in the districts visited last year may look forward to a visit in the near future from Mr. F. C. Nunnick, Agriculturist to the Commission, and Mr. John Fixter, Agricultural Demonstrator, in connection with this work.

An Act to Create a Biological Board of Canada.

Bill No. 118, to create a biological board of Canada was assented to 1st April, 1912. The Act reads as follows:—

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as the Biological Board Act.

2. In this Act, unless the context otherwise requires,—(a) “Board” means the Biological Board of Canada; (b) “Minister” means the Minister of Marine and Fisheries.

3. There shall be a body to be called “The Biological Board of Canada,” which shall be under the control of the Minister.

4. The Board shall consist of two members appointed by the Minister and one additional member appointed by such Universities (to be named by the Minister) as may engage in the work of biological research.

5. The Board shall have charge of all biological stations in Canada, and shall have the conduct and control of investigations of practical and economic problems connected with marine and fresh water fisheries, flora and fauna, and such other work as may be assigned to it by the Minister.

6. The Board shall meet annually at the city of Ottawa, and at such meetings shall elect one member to be chairman and another to be secretary-treasurer, who shall hold office until the next annual meeting.

2. Other meetings of the Board shall be held at such places and at such times as are necessary for the work of the Board.

7. The Board may make by-laws for the conduct of its business, but no by-law shall be in force until it has been approved of by the Minister.

8. No member of the Board shall receive any payment or emolument for his services, but he shall be repaid all actual, reasonable travelling or other expenses in connection with the work of the Board.

9. From the moneys appropriated by Parliament for the work of the Board, or which the Board may receive through bequest, donation or the sale of specimens of natural history, the secretary-treasurer, under direction of the Board, shall expend such sums as are necessary for the work of the Board.

10. A detailed statement of the expenses of the Board up to the close of the preceding fiscal year shall be prepared annually by the secretary-treasurer, and such statement shall be submitted to and be examined by the Auditor-General.

11. A report upon the work done by the Board shall be made to the Minister as soon as possible after the close of each fiscal year.

Selection of Ten District Inspectors for the Province of Quebec.

On the 17th June next will begin the competition for the selection of 10 district inspectors.

Only physicians who can produce their Diploma in Public Health will be admitted to compete.

The competition will include written, oral, field and laboratory tests. The examination will also bear on the aptitudes

of the candidates for the administrative functions which the position of district inspector requires.

Candidates must speak both English and French.

Having obtained less than 50% of the points for the written test will exclude from the other tests.

Candidates may pass the written examination either at Quebec or at Montreal, but the rest of the examination will be carried on at the seat of the Provincial Board of Health, 9 St. James Street, Montreal.

Dates set for examination of candidates are:—

17th June.—Written examination simultaneously at Quebec and Montreal.

19th June.—(a) Inspections and written report. (b) Oral examination.

20th June.—Practice tests in Bacteriology and Chemistry.

These latter will be held at Montreal.

Amendment of Ordinance No. 26, of the City of Halifax.

Ordinance No. 26, of Horses, Cattle, Swine, etc., and Pounds is hereby amended by striking out the words, "1st day of June, 1912," in the 1st line of Clause 2 thereof and substituting therefor the words "22nd day of March, 1913."

2. (b) On and after the 1st day of June, 1912, hogs or other animals shall not be fed on slaughter-house refuse.

Ontario Fish and Game Report.

Commissioner Kelly Evans recently concluded his investigation into the conditions pertaining to fish and game in Ontario. It required over two years for Mr. Evans to complete his observations, the result of which is that he proposes that the Government establish provincial game farms in suitable localities for the purpose of raising deer and for the propagation and distribution of the indigenous game birds; "to demonstrate the practicability of such enterprises as profitable commercial undertakings, and to encourage the establishment of such enterprises by private firms or individuals throughout the province." He also suggests that a suitable area of marsh land be set aside by the Govern-

ment for the purpose of muskrat cultivation for the same reasons. In this, increased expenditure is inevitable if the conservation, and even perpetuation, of the fisheries, fur-bearing animals and game is to be achieved. But, he adds, it would be the height of economic improvidence to permit their annihilation for the sake of a paltry sum in the annual disbursements. He advises that the general reorganization of the fisheries and game protective services be undertaken without delay, and that an executive body be created by the Government to have charge of these matters. In connection with this proposal he recommends that two chief inspectors be engaged at \$1,800 each per year and four secret service men at salaries of \$1,200 each. He would further divide the province into six administrative districts, with a junior inspector at \$1,500 each in supervision of each. These inspectors would be responsible for the adequate performance of duties on the part of the wardens and overseers under them. Each district inspector should have six men assigned to him, at \$900 each per year, says the Commissioner. He would have the staffs in each district added to regularly as might be deemed necessary, and would eliminate underpaid and inefficient officers.

Other recommendations are as follows:— That no licenses be issued for commercial fishing in inland lakes which have not a clear water area of at least ten square miles; that no licenses for commercial fishing be issued in the inland lakes which are the habitat of black bass, speckled trout or maskinonge, except in very large lakes, and then only for the requirements of the local market; that all licensees be required to render monthly returns of their catch; that no net fishing of any description other than minnow seining or for bait purposes be permitted within five miles of any city or town; that the following areas be considered sporting fish reserves:—

The Rideau Lake System, the Bay of Quinte west of the bridge at Belleville and including Weller's Bay and Hay Bay; an area at the entrance to the St. Lawrence River, bounded on the west by a line drawn from the southwesterly extremity of Wolfe Island, to the easterly extremity of Amherst Island and thence northerly to the western end of Collins' Bay, and on the east by a line drawn from the eastern

extremity of Amherst Island to the town of Gananoque; the Kawartha Lakes; Rondeau Bay, and Long Point Bay in Lake Erie; Lake Simcoe; Muskoka Lakes; Lake Nipissing and French River; River Thames; Lake of the Woods within fifteen miles radius of the Kenora, and the district in the Georgian Bay defined by the Dominion Government Georgian Bay Fisheries Commission and recommended by it for the purpose of a sporting fish reserve.

Mr. Evans further recommends that a scientific research department be established to conduct investigations as to the practicability of introducing into one portion of the province fish from another part of the province; that further legal restrictions be attached to the size of catches of game fish; that special care be taken in the speckled trout regions north of Lake Superior to maintain a fringe of trees along the edges of trout streams to afford the shade necessary to the fishes' existence; that a special patrol officer be appointed to inspect the mouths and lower reaches of streams entering the northern border of Lake Superior; that hand trolling for maskinonge be prohibited; that the commercial exploitation of pickerel and lake trout be prevented in lakes of less than twenty miles square; that the law in relation to the pollution of waters by factories be rigidly enforced.

Regarding the protection of forests, Mr. Evans advises the appointment of a provincial forestry corps. In connection with the hunting of caribou and moose it is recommended that the season be limited to two weeks, to be coincident with the deer season; that the shooting of does be prohibited in future; that special steps be taken to prevent the use in lumber or other camps of deer or moose, meat illegally taken, by engaging reliable men to work in camps and report any infractions of the law; that a fine of \$100 be imposed upon any white man who causes an Indian to barter any game whatsoever, including the pelts of fur-bearing animals taken during the legal close season except among his own people within the limits of his own reservation.

Regarding the beaver it is recommended that, where sufficiently numerous, the animals be trapped by officials of the Government only, and that the pelts be branded with a Government mark and sold by pub-

lic tender for the benefit of the treasury. Mr. Evans has some suggestions as to changes in the open season for wild game of various descriptions. He proposes that all possible efforts be made by the Administration to bring about international regulations governing the taking of migratory game and other birds. He urges that the Government maintain the principle of not alienating the shooting privileges on Crown lands, marshes or waters in the wilder portions of the province to private individuals, clubs or corporations.

New Brunswick School Report.

Dr. W. S. Carter, Chief Superintendent of New Brunswick Schools, points out in his report just issued for the school year ending June 30th, 1911, that that year has been the best in the point of attendance in the history of the Province, and that no country does more in accordance with its resources than New Brunswick to provide schools for all its people. He thinks that a rearrangement and better definition of the boundaries of school districts should be made, however, with a more equable distribution of the rate of taxation; this taxation being as low in some districts as ten or twelve cents on the \$100.00, while in others, often, in the same parish, as high as \$2.00 or \$2.50 on the \$100.00. No district, he thinks, should contribute less than fifty cents on the \$100.00 and strong districts should help the weak.

The New Laboratories of the Toronto Department of Health.

The new laboratories of the Toronto Department of Health are now in operation. Last year some 22,000 specimens were examined in the old laboratories, and the addition to these laboratories allows the health officials of the city to have considerably more work accomplished. Dr. George D. Nasmith, director of the municipal laboratories, points out to the physicians of his city that the new health act makes the reporting of all cases of tuberculosis compulsory, and that, it being a well known fact that the tubercle bacilli may be obtained frequently very early in the disease, laboratory examination should be always resorted to as a precautionary

measure. Outfits for taking specimens for such examination may be obtained at any of the 45 culture stations distributed throughout Toronto. Dr. Nasmith also draws attention to the fact that outfits may be obtained in any of these culture stations for cases of suspected gonorrhoeal ophthalmia or gonorrhoea.

Ontario Educational Association.

Over 1,000 delegates attended this year's meeting of the Ontario Educational Association held in the University of Toronto, commencing on April 9th last. Several speakers criticized Ontario's educational system, Professor G. H. Needler declaring it a crime against the nation, while complaining that the public and high schools and universities of the province did not afford a complete sequence of instruction and that the public schools failed to afford a rounded education for the large number of pupils who were unable to attend the secondary schools and colleges; he proposed lengthening the public school course. Inspector J. H. Putnam, of Ottawa, asserted that the rural school system in Ontario was breaking down for want of teachers and for want of school population. William C. Froat stated that 1,400 more teachers were now needed in the Province, and an increase to 800 in the annual output of the training schools. Mr. Putnam, while attributing this situation to changing circumstances and not to the fault of the Education Department, proposed the establishment of county school boards, and the consolidation of schools. Other speakers suggested the formation of township school commissions to work with the local boards, increased salaries, provision of homes for teachers and the adoption of a superannuation scheme. It was suggested by W. L. Richardson that the consideration of the subject of industrial education should be made most prominent at the meetings of all the departments and at the general meeting of the association, at the next convention in 1913. Home education, Mr. Richardson thought, had been to a large extent superseded by compulsory school education, and in the school education there was a tendency toward uniformity, although pupils differed widely one from the other. The world's work, he

considered, divided itself into: business, agriculture and construction, these three branches providing employment for from seventy-five to ninety per cent. of the people. Vocational training in the past had been obtained from the apprentice system, but apprenticeship having largely died out, the schools would have to supply something in its place. James L. Hughes, of Toronto, was elected President of the Association for the coming year, R. W. Doan and W. J. Hendry, of Toronto, being respectively re-elected to the offices of Secretary and Treasurer.

Canadian Hospital Association.

At the 1912 meeting of the Canadian Hospital Association, held in the Parliament Buildings, Toronto, on April 4th, 5th and 6th, last an excellent programme was presented. The first session was open to the public and quite a number of persons interested in hospital work attended. This was on April 4th, at 8.15 p.m. At this session Dr. H. O. Byce, Superintendent of the General Hospital, Kingston, delivered his presidential address, and was followed by addresses from: Dr. Helen MacMurchy, on the Relation of the Hospital to the Public; Edward Stevens, A.A.I.A., of Boston, on The Influence of Hospital Architecture on Architecture in General; E. Munro Greer, of Toronto, the Hospital from the Inside and the Outside Points of View. On April 5th, at 10 a.m., a round table conference and question drawer was conducted by Dr. Bruce Smith, and an exhibit of hospital devices and apparatus was made, the uses of which were explained by Dr. W. J. Dobie, physician in chief of the Weston Sanitarium for Consumptives; Dr. E. H. Young, of the Rockland Hospital for the Insane at Kingston, at this session delivered an address on the Hospitalization of Asylums. On Friday, April 5th, at 2.30 p.m., a number of papers were presented, including: "The Construction of Small Hospitals," by H. E. Webster; "Problems in the Management of Small Hospitals," by Theodore McClure; "Hospital Housekeeping," by Miss Amy Armour; "The Hospital from the Physician's Standpoint," by James Third. And at the final session, commencing at 10 a.m., on April 6th, papers were

presented, including "Hospital Publicity Methods and Social Welfare," by Miss Charlotte Aikens, and the "Administration of the Smaller Hospitals," by Miss M. M. Carson. In Dr. C. K. Clarke's address it was pointed out that better women might be persuaded to enter the profession of nursing if the standard were raised; he declared that those of high ideals and conscientious purpose do not want to be associated with those who take up the work as a fad or who got their training at correspondence schools. Dr. W. J. Dobie, of the Weston Sanitarium, was elected Secretary of the Canadian Hospital Association in place of Dr. J. N. Brown, who resigned.

Regulations Regarding Health Districts in the Province of Saskatchewan.

Dr. M. M. Seymour, Commissioner of Public Health for the Province of Saskatchewan, writes *The Journal* that the plan providing for the different municipal organizations of Saskatchewan being created health districts, has been found to work very satisfactorily, as it subdivides the Province into different health units in direct communication with the Bureau of Public Health. The regulations are as follows:

1. In these regulations the expression "council" means the council of every village, rural municipality and local improvement district the area of which has been constituted as a health district.
2. The members of every council shall be the board of health for the health district, the boundaries of which correspond with those of the municipality or local improvement district. A majority of the members shall form a quorum.
3. The secretary-treasurer of the council shall be secretary of the board, and his duty shall be to keep a record of the proceedings of the board, and draft an annual report of the sanitary work done during the year for the consideration of the board, which report when adopted shall be sent to the commissioner of public health. The said report shall include the annual report of the medical health officer and shall reach the Bureau of Public Health not later than the fifteenth day of January.

4. The board of health of each health district shall appoint a qualified physician as medical health officer, and shall fix the remuneration to be paid for his services. If the board fails to make such appointment it shall be made by the commissioner, subject to the approval of the Lieutenant-Governor in Council.

5. Every board of health may employ the services of one or more sanitary inspectors and fix their remuneration. Two or more boards may unite in appointing such officials to serve their districts, mutually agreeing on and fixing the salary to be paid for such services.

6. When any health district attains to such importance in size, or when it appears to the commissioner that the services of a sanitary inspector are necessary for the proper carrying out of the provisions of The Public Health Act and regulations, he may call upon the council of such health district to appoint such official, and upon their failing to comply with his request within thirty days, may, with the consent of the Lieutenant-Governor-in-Council, appoint such sanitary inspector for the district, and fix the remuneration to be paid by the Board of Health of the District for the services of said sanitary inspector.

7. The council of each district shall provide and pay out of the moneys of the district such sum or sums as may be deemed necessary by the board of health for the preservation of the public health, care and maintenance of the indigent sick, and such other charges as are provided for by the terms or provisions of The Public Health Act.

8. Every medical health officer appointed under these regulations shall personally notify the commissioner of his appointment, stating the name or number of the health district, date of appointment and postal address.

9. Nothing in these regulations shall prevent the medical health officer of one municipality or health district from being appointed health officer for another district, but notification of same must be made to the commissioner.

Tuberculosis and Ontario Hospitals.

A bill has been introduced in the Ontario Legislature, which provides that no hospital receiving provincial aid shall refuse to admit a patient suffering from tubercular disease; that all private hospi-

tals must be licensed and must pay a fee of \$5 a year; and that public hospitals shall not charge a municipality or an employer more than one dollar a day for any patient treated in that hospital.

Advance Notices, Alphabetical.

Canadian Association for the Prevention of Tuberculosis, the twelfth Annual Convention will be held in Toronto, May 20 and 21, 1912. George D. Porter, M.B., Secretary.

Canadian Dental Association and Ontario Dental Society, Hamilton, Ontario, June 3-6, inclusive, 1912.

Canadian Industrial Exhibition Association, Winnipeg, July 10-20, inclusive, 1912.

Canadian Medical Association, Annual Meeting, August 10th to 14th, 1912, Edmonton, Alta. Particulars later. E. W. Archibald, M.D., General Secretary, Montreal.

Canadian National Exhibition, Toronto, August 24th to September 9th, inclusive, 1912.

Canadian Public Health Association 1912 Congress, Toronto, September 16th, 17th and 18th, inclusive, Charles J. C. O. Hastings, M.D., M.H.O., City Hall, Chairman; T. Aird Murray, M.C.S.C.E., Lumsden Building; Duncan Anderson, M.D., 28 Wellesley St., and Dr. Helen MacMurchy, 133 Bloor St. East, Secretaries, Committee for Local Arrangements; particulars later.

Child Welfare Exhibition, Montreal, October, 1912. The objects are: I. To present evidence of all the various activities—educational, religious, charitable, philanthropic, and medical making for the improvement of conditions of child life, so that their existence and special work may be advertised, their inter-relationship may be recognized and the public be further stimulated to support and advance their endeavors; II. To show the deficiencies in public and private organizations and to suggest remedies for the same, drawn from the experience of other communities, in this way supplementing and extending the work already being accomplished; III. To correlate the endeavors of many existing associations, developing thereby a body of concerted opinion sufficiently strong and influential to bring about the needed improvements in the surroundings and upbringing of the city child. It is proposed that the Exhibition shall have the following departments: 1. The Health of the Child; 2. The Home of the Child; 3. The Education of the Child; 4. The Moral and Religious Life of the Child; 5. The Recreation of the Child; 6. City Environment and the Child; 7. The Law and the Child; 8. The Social Life of the Child; 9. The Care of the Abnormal Child; 10. Philanthropy and the Child. The Executive Secretaries are: W. H. Atherton, Ph.D., 62 Beaver Hall Hill; Tel., Up 1380; and Rev. J. O. Maurice, L.L.L., 35 Ontario, East; Tel., East 925.

National Council of Canadian Women, annual convention of the 26 local councils and 18 nationally organized societies, which form the National Council of Women, London, Ontario, from 23rd to 31st of May, inclusive, 1912. Corresponding Secretary, Miss Agnes R. Riddell, 86 Spadina Road, Toronto, Ontario.

Ontario Medical Association, 1912, meeting, Toronto, May 21st, 22nd and 23rd. Dr. F. Arnold Clarkson, Secretary, Toronto.

See also Advertising Page XXX.

INTERNATIONAL

North American Fish and Game Protective Association.

The North American Fish and Game Protective Association, which held its annual meeting at Boston last month, elected Hon. J. D. Hazen, Canadian Minister of Marine and Fisheries, and honorary vice-president of the Canadian Public Health Association, as its president for the ensuing year. Many valuable suggestions were made at this international meeting along the lines of conservation and public health. The next annual meeting was arranged for at St. John, N.B.

Advance Notices, Alphatebical.

American Library Association, Ottawa, Canada, June 26th and 27th, 1912.

American Public Health Association Congress Washington, D.C., September 18th, 19th and 20th, 1912—particulars later.

Congress of Hygiene and Demography, Fifteenth, Washington, D.C., September 23rd to 28th, inclusive, 1912. Dr. Joseph W. Schereschowsky, Director, Dr. John S. Fulton, Secretary General.

International Association of Medical Museums and International Congress of Medicine, Conjoint Meeting, London, England. August 6th to 12th, inclusive, 1913, under the patronage of His Most Gracious Majesty George V., and Presidency of Sir Thomas Barlow. Dr. N. P. Harringham, Hon.

General Secretary; Dr. Thursfield and Dr. Woodwark, of St. Bartholomew's Hospital, and Dr. Kettle, of the Cancer Research Hospital, Local Secretaries.

International Eugenic Congress, London, England, July 24th to 30th, 1912. Address the Hon. Secretary, 6 York Buildings, Adelphi, London, England.

International Marine Congress, Philadelphia, July, 1912. This Congress met last year in Brussels, and when the United States authorities extended an invitation to the Congress to meet in Philadelphia, 1912, they, at the same time, invited the Canadian Government to assist in carrying out the honors of the North American Continent. The party will, therefore, be taken over by the Canadian Government at Port Arthur after the Philadelphia meeting, and will go to Montreal, stopping on the way at Owen Sound, Toronto, Kingston, and other lake ports.

International Red Cross Conference, Washington, D.C., May 7th to 15th, 1912. Address. Dr. C. R. Dickson, Secretary, Canadian Red Cross Association, 192 Bloor St. West, Toronto.

League of American Municipalities. The next convention of this league will be held in Buffalo, N.Y., and in 1913 it will likely be held in Winnipeg.

Sanitary Congress of American Countries, Fifteenth, Santiago, Chili, November, 1912. Dr. De Rio, President.

Milan Sanitary Engineering Exhibition, Milan, Italy, April to July, 1912, under patronage of the Royal Italian Society of Hygiene. To encourage and reward every progressive effort in the field of practical hygiene as applied to civil engineering and architecture.

UNITED STATES

A Private Practitioner in the Field of Prophylaxis.

With the difference that hereafter it will be carried on under private instead of public auspices, the work of Dr. Alvah H. Doty is to continue from now on along the lines pursued before Gov. Dix ended his sixteen years of service to the people of New York as the Health Officer of their chief port. Dr. Doty has picked out a set of offices in lower Manhattan, and has chosen the title of "Consulting Sanitarian."

Michigan Health Officers' Association.

The Michigan Health Officers' Association is being formally organized this month at the meeting to be held in Ann Arbor, Dr. T. M. Koon, of Grand Rapids, is vice-president of the committee in charge of the organization of the association.

The program as tentatively drawn for the first meeting is as follows:

"Shall Venereal Diseases be Reported?" Dr. Kiefer. Discussion by Dr. Warthin, Ann Arbor.

"Medical Supervision of Schools," Dr. E. K. Herdman, Ann Arbor. Discussion by Dr. Koon.

"Prevention and Control of Typhoid Fever," Dr. C. C. Slemmons. Discussion by Dr. W. H. Smith, St. Clair.

"Meat Inspection," Caroline Bartlett Crane, Kalamazoo. Discussion by Dr. A. H. Rockwell, Kalamazoo.

"Use and Importance of Public Health Laboratories," Dr. M. L. Holm, Lansing. Discussion by Dr. Fisher Hubbel, of Detroit.

"Control of the Milk Supply," W. H. Price, Detroit. Discussion by Dr. G. L. Alger, Saginaw.

"Medical Fakers in Relation to Public Health," Dr. V. C. Vaughn, Ann Arbor. Discussion by Dr. E. T. Abrams, Hancock.

Health Inspectors of San Francisco.

The health board of San Francisco has decided that the majority of the sanitary inspectors of the city must be qualified medical men, and must devote the whole of their time to the work.

American Academy of Medicine.

There were instructive papers presented at the April annual meeting of the American Academy of Medicine, at Lehigh University, on what should be taught, how it should be taught, teaching hygiene for better parentage and indirect methods of teaching the subject.

The all-important question of school lunches found an able defender in Dr. Ira Wile, of New York, who pointed out how necessary they have become. "School lunches," he said, "mean better digestion and less absences, better attention, less retardation, better education, less dropping from school."

Dr. William C. White, a Pittsburg physician, told how to prevent respiratory infection in schools, and that it will tend to lead to the extinguishment of the human race unless we progress faster along this line than we are now progressing.

That something is wrong with our present methods of teaching hygiene was the contention of Louis Nusbaum, district superintendent of the Philadelphia Public schools, and Dr. Percy Hughes, of Lehigh University, and they proceeded to show proper ways for the teaching of physiology. Mr. Nusbaum spoke, in part, as follows:

"We might profitably make an intensive study of a few school children the organs easily cared for, and easily abused, as, for example, the eyes and the teeth, so that when the rules of health concerning these organs are violated the child will almost automatically appreciate the probable consequence of his acts and instinctively tend to correct them.

"A brief introduction into the subject of bacteriology will, perhaps, lead the pupil

to give some wholesome advice at home as to the care of the baby's food, bottles, etc. Some simple, straightforward instruction concerning such topics as these and their immediate effect upon ourselves and those about us will often result in the creation of a set of personal habits which when once definitely formed will be almost as hard to break as it is difficult to depart from bad habits once formed."

Dr. Helen C. Putnam, of Providence, R. I., in speaking on "Teaching Hygiene for Better Parentage," urged the creation of commissions on continuing schools of home-making in every State.

The closing session was devoted to a discussion of the medical inspection of school children, it being argued that the inspection should be so complete and thorough as to eventually educate the parent and child to a sympathetic and co-operative relationship with the system.

Michigan to Inspect Summer Resorts.

The Michigan state board of health has authorized Dr. Robert L. Dixon, secretary of the board, to employ a sanitary engineer, whose duty it will be to inspect all the summer resorts in Michigan and make a public report on the conditions before the opening of the resort season.

Samples of water from each resort will be submitted to the state board of health for analysis, and every effort will be made to protect the health of the pleasure seekers during the coming summer.

Indiana in Line.

Indiana is to have a school of public hygiene, according to Dean Charles P. Emerson, of the Indiana University School of Medicine. The school probably will be provided for at the June meeting of the board of trustees of Indiana University, and will open its doors at the beginning of the fall term of the university this year. It has been known that university officials, members of the State Board of Health, including Dr. J. N. Hurty, State Health Commissioner, and other state officials, have been interested in the problem of establishing such an institution in the state for some time. The school will be one of

the pioneers in the United States. A degree of doctor of public hygiene will be given by the school as now planned, and the course, leading to the degree, probably will consist of a year's work added to the regular curriculum of the medical school as it now stands.

Georgia Association of Health Officers.

Dr. E. E. Murphy, chairman of the Augusta Board of Health, was elected president of the Georgia Association of Health Officers at the annual meeting in Augusta, in April. A. V. Wood, of Brunswick, was elected secretary-treasurer. Resolutions urging that the physicians' association in the state use every influence to get the passage of the Owens Bill now before the House, were adopted. The Owens Bill is one to authorize the establishment of a national health board. A similar resolution was passed regarding the Ellis Bill in the General Assembly. This is a bill calculated to give the health officers more liberal authority in the rural districts and districts not having a Board of Health. Those reading papers at the meeting were Dr. S. C. Benedict, president of the State Board; Dr. A. P. Fort, of the Rockefeller Commission; Dr. K. R. Collins, of Atlanta; Dr. A. V. Wood, of Brunswick; Dr. L. F. Osborne, Fitzgerald; Dr. Rhodes, Atlanta; Dr. W. W. Brown, Athens; Dr. Murphey, Augusta; Dr. V. H. Bassett, Savannah; Dr. H. F. Harris, Atlanta.

Clara Barton.

The death of Clara Barton has recalled the fact that she is entitled to be regarded as one of the greatest of earth's heroines. Miss Barton occupied in the United States a position somewhat similar to that of Florence Nightingale in Great Britain. Commencing her great work during the Civil War in the United States, she at all times thereafter took a great interest in the Red Cross Movement and secured the assent of the United States Government to that clause in the Geneva Treaty, which guaranteed war privileges to all who wore the "Red Cross"; Miss Barton organized the American Red Cross Society, which has done such good relief work.

New York State and the Sterilization of Criminals.

The bill introduced in the New York Legislature, which aims to eliminate as much as possible the transmission of criminal and mentally deficient tendencies from parent to child, has become a law through the signature of Governor Dix. It is the outcome of a movement on foot for several years. In adopting such a law New York is following the example of New Jersey, Illinois and other states. The new law provides for the sterilization of certain classes of male criminals and defectives confined in State institutions, and creates a board to be known as the Board of Examiners of Feeble Minded, Criminals and Other Defectives. The board is to be made up of one surgeon, one neurologist and one medical practitioner, each with ten years' experience.

Advance Notices, Alphabetical.

American Association for the Advancement of Science, Cleveland, Ohio, December 30, 1912, to January 4, 1913.

American Hospital Association, Detroit, September 24-27, inclusive, 1912.

American Institute of Architects, Washington, D.C., during December, 1912.

American Medical Association Meeting, Atlantic City, N.J., June 3-8, inclusive, 1912.

American Nurses' Association, Chicago, June 5-7, inclusive, 1912.

American Water Works Association, Louisville, Kentucky, June 3-8, inclusive, 1912.

American Woman's League, Second Annual Convention, St. Louis, Mo., June 20-21, 1912.

National Association for the Study and Prevention of Tuberculosis, Eighth Annual Meeting, Washington, D.C., May 30th to 31st, 1912. The general organization and the programme will be as follows: Clinical Section, Chairman, Dr. Chas. L. Miner, Ashville; Pathological Section, Chairman, Dr. William H. Park, New York; Sociological Section, Chairman, Mr. Frederick L. Hoffman, Newark. The Chairman of the Advisory Council for the annual meeting is Dr. Charles O. Probst, of Columbus, Ohio.

National Conference of Charities and Correction, Cleveland, Ohio, June 12-19, 1912.

National Conference on City Planning, fourth Boston, Mass., end of May, 1912. Flavel Schurtlef, 18 Congress, Secretary.

National Dental Association, Washington, D.C., September 10-13, inclusive, 1912.

National Education Association, Chicago, July 6-12, inclusive, 1912.

National Irrigation Congress, Salt Lake City, Utah, July 12-27, inclusive, 1912.

THE EMPIRE AND THE WORLD ABROAD

"Sewer" and "Drain" Defined in England.

A bill introduced by Mr. Harwood-Banner, M.P., at the request of the Association of Municipal Corporations and of the Urban District Councils Association, England, seeks to amend the definitions of "sewer" and "drain" in the Public Health Acts. The bill provides that a drain shall be one constructed on private land by the landowner or builder, and that a sewer shall be one which has either been constructed by the local authority or has been laid along a public street; with this important exception, however, that where a drain has been constructed by a builder or landowner along a private street — that is to say, along a street which has become a highway, but which is not repairable by the local authority — the drain is to be a sewer, provided it has been constructed to the satisfaction of the local authority.

Mortality Amongst Rand Miners.

The mortality and illness due to the inhalation of dust by workers in the Rand Gold Mines and on the surface is exercising public opinion in South Africa.

It would seem that the disease causing havoc to the Rand mine workers is identical or closely resembling "Ganister Disease." The remedies appear to be:—1. Application of a powerful water jet during boring. 2. Application of a fine water spray or steam during the process of crushing or breaking, such spray or steam to be applied at the points where the dust is generated. 3. Ample time to be allowed for dust to settle after blasting. 4. Efficient underground mechanical ventilation. Simple as this may appear difficulties have to be faced. Legislation of a very stringent character will alone cause the workers to use appliances for their own safety. Heat at the deepest workings will cause objection to moisture, for it is well known that work in a hot moist atmosphere is not only uncomfortable, but injurious to health. The Statutory Regulations dated December 21, 1911, applying to cotton cloth factories prohibit artificial humidification when the wet bulb of the hygrometer exceeds 75 deg. F. Yet miners accustomed to heat, and wearing little clothing, could pro-

bably work in a moist atmosphere exceeding this reading. Mechanical ventilation could doubtless be fixed by skilled ventilating engineers, which would produce a reasonable working atmosphere. Dead ends would require special methods of ventilation, but the difficulties do not seem insuperable.

We are informed that in many of the Rand mines the above suggested remedies are largely in force with excellent results; but if the life of the miner is to be saved, no partial or half measures can succeed. To the casual observer it appears that the many persons living close to, even at the very foot of, the dust mountains of slimes adjoining the mines, must, especially in windy weather, inhale enormous quantities of dust. This question probably will, and eventually must, occupy the attention of the sanitary authorities.

The Public Health of Peru.

As a manifestation of the progress of Peru in recent years nothing could be more eloquent than the important work accomplished by the service of national and international hygiene and by the increasingly active and effective intervention of the State in matters of public health.

Public hygiene, primarily in the exclusive charge of municipal institutions, whose local influence was necessarily restricted and lacking in combination, was later on directed by the General Health Regulation. This tended to organize the services more fully and comprehensively by bringing together the various elements of which they were composed and by authorizing the creation of a new body with directive powers, connected with the executive in order that it might be provided with the funds and the authority which it required.

This new body was the Supreme Board of Health, which controlled the departmental and provincial boards and whose legal principle was the regulation before-mentioned. But this first step in the direction of the true sanitary organization of the country had, for various reasons, but little result. Its establishment did not appreciably modify the sanitary conditions of the country, nor did it succeed in augmenting or making more effective the

means of preventing the ingress of diseases.

The fact was that the Boards of Health, by reason of their organization, were merely deliberative and consultative bodies, lacking in consequence the most important element — the executive element, provided with a proper technical personnel and with the authority necessary to enforce their regulations — and destitute also of special funds for their purposes.

But soon it became evident that the creation of a body which should combine all these conditions could no longer be delayed. The situation of the country did not permit of further postponement of the direct intervention of the Government in the administration of sanitary affairs, which should be in charge of a Governmental department represented by a competent scientific authority. The Legislative power, therefore, formed a new administrative entity, the Direction of Public Health, a dependency of the Ministry of Fomento, whose object was to organize upon a solid basis the sanitary defence of the country, and to establish amongst us the numerous and extensive applications of contemporaneous hygiene in its various forms, individual, collective, and social. The activity of this new institution, to which the Superior Council of Hygiene serves as a directive and consultative body, has rapidly made itself apparent, and the work which it has accomplished during its period of existence should be appreciated as an achievement of no common merit, and as one which has had many beneficial results. Through its agency it is now permissible to regard the defence of public health as established upon a sure foundation.

The organization of this new service was entrusted to the highly-esteemed Dr. Julian Arce, who from the outset has exercised his authority to the satisfaction of all concerned; and it may be said that in the field of international hygiene Peru can boast a complete service of preventive measures against exotic contagious diseases.

The Maritime Sanitation Regulation, which is its legal principle, is based upon regulations approved by the International Sanitary Convention held at Washington in 1906, to which Peru was a signatory.

As a result three sanitary stations, furnished with the necessary staff and material elements, were established and are maintained in efficient operation. The first of these, at the port of Paita, deals with all ingressions from the north; the second, at the port of Ilo, with those from the south; and the third, at the port of Callao, the central station, attends, besides, to those from the west. This last was established on the island of San Lorenzo, at the entrance of the bay, six miles from the city. The building, planned in England, has isolation halls for the sick, the infected, and the uninfected, in three different sections, for bubonic plague, cholera, and yellow fever, and also possesses disinfection huts, laboratories, and other adjuncts.

The Maritime Sanitary Service, moreover, maintains, among other dependencies, a corps of sanitary physicians in all Peruvian ports, and the medical inspectors of vessels which travel constantly up and down the coast of South America.

The efficacy of the services rendered by the maritime sanitary organization is appreciable from the fact that ships sailing from Peruvian ports are received in Panama without objection, and that all Peruvian ports, in spite of their being in constant communication with Guayaquil, notoriously a yellow fever focus, have up to the present been unaffected.

National or state preventive measures still remain, notwithstanding all the important work accomplished, matters of great difficulty, for even though, in the struggle with avoidable maladies, the triumphs achieved have been of the utmost value, the figures relating to sickness and mortality are still very high. The vast extent of the territory, its varied topographical conditions, and the diversity of climates in its three principal zones—coast, Cordillera, and *montana*—create the most complicated sanitary problems, requiring for their solution the employment of large sums of money.

Much has been done in this connection by the Director of Public Health. Censuses of the principal centres of population, plans and surveys for the sanitation of the chief towns, drainage, paving, and the establishment or improvement of drinking water supplies have been carried

out by medical commissions and by competent sanitary engineers.

But what has already been done in the matter of public health is worthy of mention. One of the most fruitful causes of mortality which existed in the inhabited Andean region of the country was, without doubt, smallpox, which also figured largely in the mortality register of the coastal population. Now, with the establishment of a Vaccination Institute, the enactment of a law making vaccination and re-vaccination obligatory, and the creation of a corps of vaccinators, distributed throughout the territory, this endemic disease scarcely ever appears as a cause of death in coast cities and has also lost its importance as a factor of depopulation in the mountain region.

Sanitary campaigns have also been undertaken in zones where malaria was very prevalent and destructive to life, and have been distinctly successful. The establishment of isolation hospitals and of public disinfection stations in the principal cities and towns has constituted an important step towards combating infectious endemic diseases in the country.

The protection of children, which up to the present has been attended to only by the charitable societies and private institutions, has derived considerable impulse from the fact that the Government has assumed the supervision of these establishments and is supporting them financially, undertaking at the same time to frame the legislative dispositions necessary to facilitate the task of combating infantile mortality.

Sufficient has perhaps been said here to demonstrate that in the Peru of to-day the subject of public health receives the special consideration which it merits, another proof, if proof be needed, of the degree of civilization and culture to which the country has attained.

Advance Notices, Alphatebical.

British Medical Association, Liverpool, England, July 14th to 23rd, 1912.

Congress of the Universities of the Empire, London, England, July 2nd, 3rd, 4th and 5th, 1912. Fifty-one universities have arranged to send representatives; and among the questions proposed to be discussed by them are the following: University Organization; Universities in Their Rela-

tion to Teachers and Undergraduate Students; Universities in Their Relation to Post-graduate Research Work; Universities in Their Relation to Schools and to Agencies for Higher Education. Other subjects for discussion will probably be: Whether any Common Understanding Will Be Possible Among the Universities of the Empire as to the Extent to Which They Could Recognize Each Other's Entrance Examinations; The Desirability of Increased Facilities for Post-Graduate Study; The Possibility of Some Plan of Interchange of Professors; What Could be Done by Universities in Regard to After Careers of Students, and the whole question of the Financial Support Given from Public Sources to Universities. Inquiries with regard to the Congress should be addressed to Dr. R. D. Roberts, at the Congress Office, University of London, South Kensington, London, England. *Imperial Conference of Teachers' Associations, London, England, July 12-16, 1912.*

Royal Institute of Public Health.—The Council of the Royal Institute of Public Health have accepted an invitation from the Chief Burgomaster of Berlin to hold their 1912 Congress in that city, from Thursday, July 25th, to Sunday, July 28th, inclusive. A Local General Arrangement Committee has been formed, consisting of representatives of the Royal Ministry of the Interior, the Imperial Board of Health, the City of Berlin, the medical officers of the Headquarters Staffs of the Army and Navy, the University of Berlin, the medical and hygienic societies of Berlin, and other societies, to promote the success of the meeting. The Congress will be under the presidency of Lord Beauchamp, his Majesty's First Commissioner of Works, and will be conducted in the following sections: State Medicine, President, Sir T. Clifford Allbutt, Regius Professor of Medicine in the University of Cambridge; Bacteriology and Comparative Pathology, President, Professor G. Sims Woodhead, Professor of Pathology in the University of Cambridge; Child Study and School Hygiene, President, Sir James Crichton-Browne, Lord Chancellor's Visitor in Lunacy; Military, Colonial and Naval, President, Sir Donald Ross, Professor of Tropical Medicine in the University of Liverpool; Municipal Engineering, Architecture and Town Planning, President, Mr. P. C. Cowan, Chief Engineer of the Local Government Board, Ireland. Facilities will be afforded for visits to be made to the various public health and educational institutions in Boston and other places.

Royal Sanitary Institute, Congress and Exhibition, York, England, July 29th to August 3rd, 1912. President, Most Rev. His Grace the Lord Archbishop of York; E. White Wallis, Secretary, 90 Buckingham Palace Rd., London, England.

The Royal Sanitary Institute, Henry Saxon Snell Prize.—This prize, consisting of 50 guineas and the silver medal of the Royal Sanitary Institute is offered, 1912, for an essay on "Suggestions for Improvements in the Ventilating, Lighting, Heating and Water Supply Appliances for an Operating Room and Its Accessory Rooms of 400 Beds" (No Students). For conditions of the competition applications should be made to the Secretary of the Secretary of the Royal Sanitary Institute, 90 Buckingham Road, London, S. W., England.

British Medical Association, Liverpool, England, July 19th to 23rd, 1912.