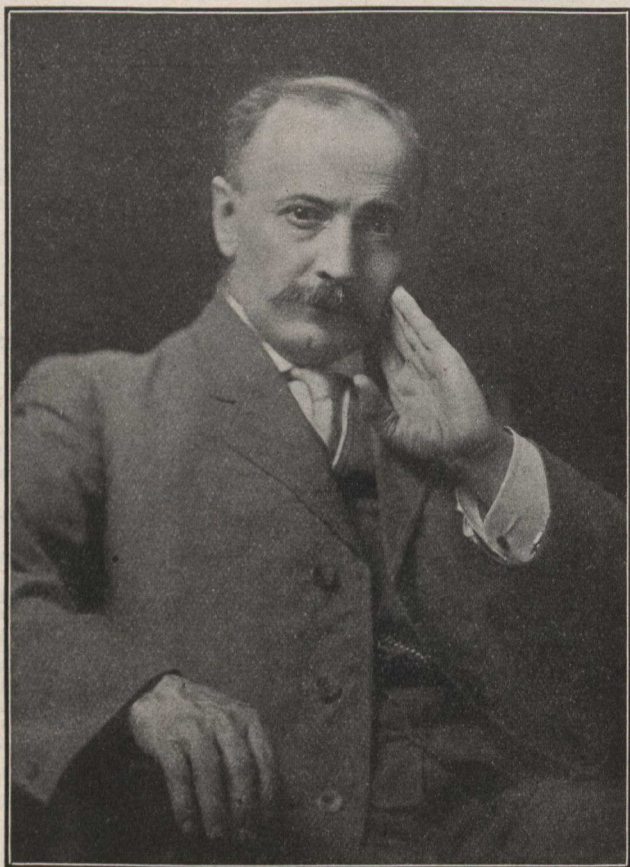


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Public Health Journal

This is the era of preventive medicine. It is no longer a specialty in the hands of the medical officer of health—it has spread into the domain of private practice. There is an increasing tendency to depend less upon drugs and more upon hygienic methods, less upon therapy of any kind, and more upon such attention to the laws of health as will prevent the inception of disease. Not that the possibilities of curative medicine are by any means exhausted, but that the infinite potentiality of preventive medicine is now being fully recognized.—*Alexander Bryce.*



T. H. WHITELOW

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of the Canadian Public Health Association.

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Special Articles

ADMINISTRATIVE CONTROL OF TUBERCULOSIS

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One of the most striking features of the social development in all civilized countries during the last twenty-five years has been the widespread interest and the increasing knowledge and intelligence among the masses of the people, in all matters relating to the public health and to the prevention of disease. In almost all large cities in the countries with a modern civilization, there has been a steadily decreasing general death rate, with a still greater decrease in the amount of sickness. Very few persons realize the very great influence that this decrease in morbidity and mortality has had in contributing to the unparalleled industrial progress of this time.

No feature of this great movement has been more impressive or more important than the world-wide campaign, which has been instituted for the prevention of that greatest remaining disease scourge of the civilized world—tuberculosis, and in no other matter have more definite results been obtained. The significance of the discoveries of Koch to the solution of the sanitary problems presented by this disease, was, perhaps, even more quickly recognized in America than in Europe, and various sanitary authorities as early as 1886 and 1887, began to make some attempts to deal with the problem.

In Germany, the movement for the prevention of tuberculosis first took form in the establishment of sanatoriums for the treatment of incipient cases of this disease, and this movement rapidly gained impetus. In England, also, numerous hospitals and sanatoriums for the special treatment of tuberculosis were early established, some of them even before the demonstration of the infectious nature of this disease.

Systematic attempts by the sanitary authorities to deal with the tuberculosis problem in a large and comprehensive way were first instituted in the United States, and in New York City as early as 1894, a fairly satisfactory system of control was in operation. It was nearly ten years subsequent to this, however, that the movement became widespread, and the various phases of the problem began to be generally dealt with in a more or less effective manner by sanitary authorities. During the last ten years really astonishing progress has been made in most of the larger communities in various parts of the civilized world, and in many cities most comprehensive organizations, both voluntary and governmental in character, have been built up.

I desire to describe to you here what, in my opinion, constitute some of the essen-

tial features of an ideal organization for the prevention and treatment of tuberculosis in any great municipality.

It is, of course, evident that in respect to any infectious disease a comprehensive system of notification and registration of all cases of the disease must precede any systematic attempts for its prevention, and yet this fundamental procedure has everywhere met with great opposition and has only recently been generally accepted. Even now the system of notification is often most incomplete, and in comparatively few communities is a determined effort made by the sanitary authorities to enforce the existing regulations. The opposition to this measure, however, both in the medical profession and among the laity is so rapidly decreasing and the recognition of its importance is becoming so general that the difficulties of enforcement should soon disappear.

In New York City we have had a system of compulsory notification in operation for fifteen years and preceding this a partly voluntary and partly compulsory system was in force for three years; so that at the present time, the registration of cases of tuberculosis is, I believe, more complete than in any other great city of the world. In 1911, 65,333 cases of tuberculosis were reported to the Department of Health, of which 23,513 cases were new and 41,820 cases were duplicates. The latter are cases which were reported more than once in the calendar year, or which had been reported in previous years.

Given a system of complete notification and registration, the sanitary authorities should possess effective measures for dealing with the cases notified. These measures include provisions for:

(a) Bacteriological examinations of sputum, to aid in the diagnosis and surveillance. This measure was adopted first in New York in 1894, and the example has now been very generally followed everywhere in this country and in Great Britain. In New York City, in the first year, 1894, 511 specimens of sputum were examined. In 1911, 40,048 specimens were examined. On the Continent of Europe there is still very little general recognition of the importance of the pro-

vision of means by the sanitary authorities for such examinations.

(b) Provision must be made for the renovation or efficient disinfection, or both, of premises vacated by death or removal, as well as, in some instances, for the periodic disinfection of rooms occupied by tuberculous cases.

(c) As tuberculosis is a very chronic disease, often extending over a number of years, during which time a case may be a source of infection to others, it becomes necessary to provide for the education and supervision of cases occurring in the homes of the poor during this long period. Experience has generally shown that this can best be effected through the visits of trained nurses, who shall instruct patients and their families in the measures of precaution to be taken and who shall report to the sanitary authorities on the sanitary conditions existing in the homes of the poor.

A better comprehension of the nature of the tuberculosis problem and the means necessary for its prevention, especially as applied among the working classes in a large city, has thrown more and more emphasis upon the importance of the provision of free public institutions of various types for the care of cases of tuberculosis of different organs and in different stages of the disease, and also for the care of anemic and ill-conditioned children in those families who have no definite evidence of tuberculous disease or only a closed inactive lesion. In New York City, a number of different kinds of institutions have been established to meet these various indications, and I wish to discuss them somewhat in detail, as I feel that they have come to play a most important part in the solution of the tuberculosis problem. Moreover, I think they are being developed in a better co-ordinated and a more comprehensive way in New York City than anywhere else in this country.

First I shall refer to the *Tuberculosis Clinic or Dispensary*. Little now need be said to urge the importance of the special tuberculosis clinic in this work. This has been so long accepted and the early work of Philip of Edinburgh has received such wide recognition that further emphasis is scarcely required. The organization of the

tuberculosis clinics in New York City is a very complete one. There are two associations of Tuberculosis clinics one covering the Boroughs of Manhattan and the Bronx and the other covering the Boroughs of Brooklyn, Queens and Richmond. The first is an incorporated organization and the administration is supported by voluntary contributions. The whole city is divided into districts numbering twenty-nine. Each district has its own clinic, and only persons living within the clinic district are cared for in the clinic. All other patients applying for treatment are referred to the clinic of the district in which they live. In this way better supervision of cases is possible and any reduplication of work is avoided. Each clinic has visiting trained nurses connected with it to visit the homes of the patients.

Second: Hospital Admission Bureau.—In any large city where a number of institutions for the care of tuberculous patients, exists, in order to ensure their being assigned to the institutions best suited for their care, as well as to keep in touch with the cases after their discharge, it is desirable that there should be some central authority or clearing house through which all cases pass. In New York City, about three years ago, such a bureau was established under the joint auspices of the Department of Health, the Department of Charities and the Department of Bellevue and Allied Hospitals. The bureau is conducted by the Department of Health. Through this Admission Bureau pass all cases of tuberculosis which are admitted to any of the institutions under the care of these three departments, as well as all cases which are admitted to institutions which receive a per diem allowance from the city for the care of such patients. These latter include also the State Hospital for Incipient Tuberculosis in the Adirondack Mountains, and the Tuberculosis Preventorium for Children at Farmingdale, New Jersey.

While the institutions thus included do not comprise all of the institutions which are available for the care of tuberculosis, they include all the public or semi-public institutions which receive grants of city funds. All other institutions are required to immediately report to the Admission Bureau the admission and discharge of patients, so that at all times the Admission

Bureau is in close touch with all of the institutional facilities of the city and is advised of the entrance, transfer or discharge of every tuberculous patient from every institution.

As soon as the hospitals for the care of tuberculosis cases, which are now under construction, are completed, which will add about 1,600 more beds to those now available, it is proposed to classify the patients, as far as possible, according to their social status, as well as in accordance with their physical condition and the extent of their disease, and it is proposed to segregate the homeless and destitute tuberculous patients, who are often vicious and inebriates, wanting in self-respect, from those who belong in a higher social plane, who are self-respecting and who have been compelled to accept charitable care only because of their long illness.

This Hospital Admission Bureau has been an institution of great value, systematizing and co-ordinating the work in New York City.

Third: Sanatoriums for the Care of Early and Hopeful Cases.—There are three kinds of free sanatoriums which are available for citizens of New York City:

(a) Semi-public institutions which, while not receiving grants of city funds, are free, but in which the admission to the institutions rests with the officers of the institutions and not with the city authorities.

(b) The New York State Hospital for Tuberculosis (situated in the Adirondacks), in which there are available for New York City patients about 160 beds. A per diem payment is made to this by the city for all patients cared for in the institution, and examinations for admission are made by the Hospital Admission Bureau.

(c) The Municipal Sanatorium at Otisville, New York. This is situated about seventy-five miles from the city. It now has 500 beds and the capacity is being increased as rapidly as may be. This institution is conducted by the Department of Health and is entirely free. To it are admitted not only cases of incipient tuberculosis, but also second and third stage cases, in which there is good reason to hope for marked improvement. It is proposed

eventually to provide for 1,200 or 1,500 patients here.

Fourth: Hospitals for the care of Advanced Cases.—The importance of adequate facilities for the care of advanced cases is becoming more and more generally recognized everywhere, and greater emphasis has been placed on this feature of the campaign in recent years than previously. In my judgment, it is doubtful whether in a great city like New York, with its overcrowded tenements, much further decrease in the tuberculosis death rate would have been or would be possible without a large increase in the facilities for the care of patients of this type. The necessity for the removal to institutions of cases with advanced disease who are living in the homes of the very poor, is evident enough. In the last stage of the disease, the patients themselves are unable to take the precautions necessary to prevent the exposure of other members of the family to infection and proper nursing cannot be provided. The earlier such sources of infection can be removed, the less is the probability of other cases developing. In New York the financial and sanitary authorities have long recognized the importance of this phase of the problem and have been increasing as rapidly as possible the facilities for their care. Twelve or fifteen years ago, the Department of Health first commenced making a semi-annual census of the cases under the care of public institutions, and at that time there were only about five hundred beds available for the care of cases of pulmonary tuberculosis. This number has been increased until at the present time there are nearly 3,500 beds, and there are now in the process of construction 1,600 or 1,700 more, which will for the most part be available during the present year. This will increase the number of beds to about 5,200. We estimate that we should have not less than 8,000 beds for the care of such patients. It is not necessary that all of the institutions caring for tuberculous cases should be under the direct control of the sanitary authorities, but it is necessary that they should have charge of, at least, one institution with adequate facilities for the care of such advanced cases of the disease as it becomes necessary to forcibly

remove to a hospital and there retain. This brings me to the next point.

Fifth: Detention Hospital.—There are several types of patients to be treated in such a hospital:

(a) Those who are discharged from other institutions because, from the institutional standpoint, they are undesirable patients, or because they have violated the regulations of the institutions. A moment's consideration will show that the point of view of the sanitary authorities and that of the managers of an institution widely differ. To maintain the discipline of an institution, patients who violate its regulations must be dismissed. From the sanitary standpoint these are, of all cases, those whom it is especially important to provide with institutional care because they are the greatest source of danger to others. Homeless, friendless, dissolute, destitute, dissipated and vicious persons suffering with this disease, are those most likely to neglect all the necessary precautions and to be most dangerous to the community. If not cared for in an institution, they wander from place to place frequenting saloons and lodging houses, sleeping in hallways or wherever shelter can be found; careless and negligent as to the disposal of their expectoration, they disseminate infection in every place which they visit. Such cases must be provided for by the sanitary authorities at any cost and must, when necessary, be forcibly removed to a hospital and there permanently detained.

(b) Tuberculous patients living in lodging houses or who are inmates of public institutions not having facilities for their care and being unwilling to enter any of the institutions available, must be forcibly removed, if necessary, and detained.

(c) It frequently becomes necessary to remove patients from their homes who are sources of great danger to other members of their families, that is, when there is great destitution or overcrowding and when the patients themselves are unwilling to enter an institution; then the health authorities must intervene and forcibly remove and detain such patients.

(d) Many ambulant and advanced cases who have already been in an institution become restless, discontented and dissatis-

fied with their care and are determined to return to their homes. They demand their discharge. In such instances, when the friends or families are unwilling or unable to provide properly for them, they should be removed by the authorities and retained.

It is apparent that the classes of cases which have been referred to and which necessarily come under the supervision of the sanitary authorities, are naturally very undesirable inmates of an institution and are difficult to control. The experience, however, of the Department of Health in New York has shown that rarely is any serious difficulty experienced in the management of these cases, if the accommodations which are provided and the food and the care given are of a superior character. It will be readily understood that only the sanitary authorities can adopt such measures as are here recommended and that such patients can only be retained in institutions under their control. The Department of Health of New York City established a Detention Hospital of this kind in 1902. It now has accommodation for about 300 patients and nearly 200 more beds are being provided in it.

Sixth: Open Air Camps.—There are a considerable number of patients who, for various reasons, cannot be properly removed from their homes or for whom places in institutions are not available. These can be well cared for in open air camps or roof gardens during the day, the patients returning to their homes at night. On account of the great scarcity and value of available ground in New York, disused ferry-boats have been utilized for this purpose and four are conducted by the Department of Health and Bellevue and Allied Hospitals. Two open air roof gardens for day and night camps are conducted by private associations. Between four and five hundred patients are thus cared for.

Seventh: Hospital for Patients with Tuberculous Disease of the Bones and Joints and Glands.—As is well-known, these patients require somewhat different care and somewhat different climatic conditions from those suffering from pulmonary tuberculosis. Aside from a State institution for crippled children, a small sea-side institution for this purpose was estab-

lished some years ago in New York. Its utility having been demonstrated, the city authorities have agreed to furnish a site on the sea-shore for a larger hospital of this type and to maintain it. The funds for the construction of the institution have been donated by a private individual. It will have about 200 beds.

Eighth: The Tuberculosis Preventorium for Children.—This institution was opened about three years ago. It is situated about sixty miles from New York in the pine region of New Jersey. New buildings for it have just been opened and the institution now has accommodation for 175 children. It was built and is managed by a private association, but the city makes a per diem allowance for children treated in it, and admission to it is made through the Hospital Admission Bureau. It is designed for the care of children from tuberculous families, who are anemic, and in poor physical condition, and who show a tuberculin reaction, but who have no open tuberculous lesion. Such children are kept in the institution for three or four months and during this period every effort is made to improve the home conditions so that when the children are returned in good physical condition, they will not again be exposed to tuberculous infection. We regard this as an exceedingly important adjunct to our work in the prevention of this disease.

Ninth: Day Nursery for the Care of Children from Tuberculous Families.—During the present year, a nursery has been opened by the Woman's Auxiliary of the Department of Health Clinics for the care of well children from tuberculous families, or, at least, for those children who have no open tuberculous disease. It is, of course, of the greatest importance, that young children in such families should be put in the best possible physical condition to resist infection and should be removed for as long a period as possible each day from their homes. This nursery has a roof garden where the children spend the larger part of each day and they receive a most generous dietary. A surprising improvement in their physical condition is produced.

Tenth: Open Air Schools.—Open air schools for three types of children have been established in New York. *First*, for

anemic and ill-conditioned children. *Second*, for crippled children. *Third*, for tuberculous children. Open air schools are conducted on each of the ferry boats and roof gardens for tuberculous children, and the Board of Education is providing a considerable number of open air schools for anemic and ill-conditioned children. In all of these schools, a full mid-day meal and a morning and afternoon luncheon are provided and striking improvement has taken place in the condition of the children.

Eleventh: Open Air Home for Tuberculous Families.—Through the generosity of Mrs. William K. Vanderbilt, during the present year, the East River Homes, open air homes for tuberculous families have been provided. These have accommodation for over 300 families. Each apartment has a sleeping balcony and the buildings have ample roof gardens. The lives of the patients and their families are under close supervision. The hygienic conditions are excellent and are as good as can be obtained for the poor in a great city. It is believed that these homes will be of great service in the tuberculosis work.

Twelfth: Home Hospital for Tuberculous Families.—In connection with the East River Homes, the Association for Improving the Condition of the Poor, has opened a home hospital for tuberculous families. Especially worthy and destitute families with tuberculous patients, often families in which there are several patients and in which the removal of the patients would result in breaking up the family, are provided with apartments and in connection with these apartments a hospital is maintained where the best nursing and medical care is provided. This is an experiment and was suggested because of the difficulties in extending adequate relief in many tuberculous families in their homes.

Thirteenth: Temporary Homes to Provide Shelter for Children and Young Women Suffering from Tuberculosis, Pending Their Admission to an Institution and After Their Discharge from an Institution until Proper Employment is Obtained.—Such a home has been established by the Woman's Auxiliary of Bellevue Hospital Tuberculosis Clinic and in connection with it is

maintained the centre for relief work for the Bellevue Hospital Clinic district.

Fourteenth: An institution which is greatly needed in New York and in connection with every large city and every sanatorium, is some sort of a farm or industrial colony, where arrested cases of the disease can be provided with occupation. Everyone who has had any experience in tuberculosis work has felt keenly the need of such a colony. Two years ago, I had the pleasure of being present in Edinburgh at the time of the opening of a farm colony established by Dr. Philip in connection with the Royal Victoria Hospital. So far as I know, this is the first attempt to meet this urgent demand. Our experience in New York clearly shows that a farm colony will not entirely meet the demands of the situation, for not only are many arrested cases quite unfamiliar with outdoor work, but they are physically unable to do such work and yet would be able to follow many occupations involving manual labor of a lighter character, providing only that they could live and work under proper conditions. The experience in the Municipal Sanatorium at Otisville, which is conducted almost entirely by the work of its inmates, has demonstrated this in the clearest way. To provide, however, such an industrial colony as would be necessary, in order that it could be made a financial success, involves a large expenditure of money and up to the present time this has not been available. This seems to me the most important unsolved problem in connection with the campaign for the prevention and treatment of tuberculosis.

The measures detailed include the more important provisions of a comprehensive scheme for the efficient control of tuberculosis in a large community. Many of these have been in force in New York for many years with gradually increasing stringency in their application. Somewhat similar measures, perhaps not as comprehensive, have been followed by the sanitary authorities of many large cities and the question may properly arise as to what the results have been and what is to be expected in the future in the prevention of tuberculosis.

As I have already shown, the death rate from pulmonary tuberculosis and from all

forms of tuberculosis in many large cities of the world has steadily declined during the last thirty years. The rate of decrease has not been uniform nor universal, but has been particularly marked where the most active tuberculosis campaigns have been carried on. In New York City, which has a population now of over five million people, the average death rate from pulmonary tuberculosis for the last five years has been 1.9; for 1911 it was 1.76. The average rate for the five years preceding 1892, twenty years ago, was 3.37. There has been a decrease, therefore, of about 40 per cent. in the twenty years.

Other cities have shown as great or a greater decrease than this; in London, particularly, the decrease has been most striking. The fall was more rapid in New York in the earlier than in the middle or later periods. For six or seven years, from 1898 to 1906, there was very little definite decrease, but in the last four years the decrease has been resumed and has been regular and continuous. New, more comprehensive and more effective measures have been in effect during this time and the results are apparent in the decreased mortality.

With the provision of more adequate accommodation in institutions for the care of advanced cases, the adoption of measures for the prevention of tuberculosis in children from tuberculous families, the earlier recognition of the disease and a closer supervision of the cases remaining in their homes, I believe that this decrease will be continued.

In New York these results have been attained in the face of extraordinary difficulties. As I have previously pointed out, nowhere else does there exist such great density of population as in New York, where there are large areas with a population varying from 600 to 1,600 to the acre. The Whitechapel district of London contains less than 400, and similar districts in Paris, Prague, Vienna, St. Petersburg, do not exceed this number. With this great density, the difficulties are still further increased because of the large foreign-born element composed of people of nearly every nationality in the world. The people of each of these nationalities tend to congregate in special districts or areas situated

for the most part, in the densely crowded portions of the city. They are often derived from the poorest and the most ignorant classes from their respective countries. They associate wholly with each other, continue to speak their own native tongues, and retain their native customs, at least through the first generation. Access to them by the sanitary authorities is extremely difficult and education is almost impossible. This great foreign population is constantly recruited by the arrival of tens of thousands of immigrants each year who still further increase the difficulties.

No such sanitary problem, I believe, is presented to any sanitary authorities in any other city in the world, as is presented in the sanitary surveillance of infectious diseases in the overcrowded, tenement house districts in New York City.

The whole problem of the prevention of tuberculosis is inextricably interwoven with various economic features in the lives of the working classes, but this applies to a much larger extent to the inhabitants of the great cities than elsewhere. It cannot be wholly solved until the questions relating to sanitary housing and the general welfare of the poorest classes have been satisfactorily answered. The tuberculosis campaign has been much more actively conducted and for a longer period in the large cities than in the smaller cities and towns and in the country districts and the results, notwithstanding the greater difficulties, have been much more striking. It is only in comparatively recent years, that the work has been carried into the smaller towns, villages and rural districts; but in the latter and among an intelligent English-speaking population, it seems to me there is but little excuse for the prevalence much longer, to any extent, of this disease. Under the conditions which should prevail in smaller communities and in rural districts and which can be made to prevail with the exercise of comparatively little intelligent effort, it should be possible to eradicate tuberculosis.

Those who have been most familiar with the problem in our large cities have been least hopeful of the extermination of the disease within any reasonable period of time, although some have most enthusiastically looked forward to such a time. I

have not yet been able to accept this point of view, but yet I am coming to a more hopeful attitude because of the absolutely unlooked-for results which have been attained in the reduction in the death rate in this and in other preventable diseases in our large cities.

I cannot help feeling, too, that in most of the infectious diseases, there has been a steadily decreasing virulence during recent years which is independent of the direct efforts which have been made in prevention, but is probably the result of general improvement in sanitary conditions of various kinds and to the increasing resistance of the individual units of the population. Not only have the morbidity and mortality rates decreased in the various diseases, but there has been a very striking decrease in the case fatality. The percentage of those dying who have been attacked by various diseases, has steadily decreased and the types of infection occurring now seem to be less virulent.

We have only to refer to the history of smallpox, typhus fever, typhoid fever, malarial fever, scarlet fever, diphtheria, and even measles and whooping cough, as they prevail in our large cities, to be impressed with the fact that, while individual cases may show as great virulence as was ever presented, taking the manifestations of these various diseases as a whole, there has been a very definite decrease in the severity. I think all clinical observers of many years experience have been impressed with this fact, and I do not believe that this can be ascribed to the improved methods of treatment.

I hesitate somewhat in expressing the belief that this same influence is exhibiting itself with reference to tuberculosis,

and I have not a strong conviction that it has, and yet the cases of tuberculosis which I have been seeing in recent years have left a definite impression that the disease pursues a slower and more chronic course, is less definitely virulent, is more amenable to treatment than it was twenty-five years ago when it first began to attract my serious attention.

The following tables give figures illustrating some of the points discussed above:

TABLE I.

Table Showing the Various Kinds of Institutions Caring for the Tuberculous of New York City.

- Dispensaries (Clinics).
- Sanatoriums.
- Hospital for Advanced Cases.
- Dentention Hospital (Forcible Removals—(Retained).
- Hospital for Tuberculous Insane.
- Day Camps (Roof Gardens and Ferry Boats).
- Hospital for Tuberculous Disease of the Bones and Joints.
- Preventorium for Children from Tuberculous Families.
- Day Nurseries for Children from Tuberculous Families.
- Fresh Air Homes for Tuberculous Families.
- Open Air Schools—
 - (a) Anæmic Children.
 - (b) Crippled Children.
 - (c) Tuberculous Children.
- Home Hospital for Tuberculous Families.
- Temporary Homes for Tuberculous Children and Girls (Awaiting Admission or After Discharge from Institutions.)
from Institution.)
Greatly Needed
- Industrial Fresh Air Colony.

TABLE II.

Tuberculosis Cases in Register for Week Ending May 11, 1912.

	Manhattan	Bronx	Brooklyn	Queens	Rich'd	Greater New York
Cases under care of private physicians...	1,542	315	963	224	45	3,089
Cases under care of non-department clinics	2,489	0	0	0	0	2,487
Cases in city institutions	2,910	255	634	54	62	3,915
Cases in out-of-town institutions	1,516	187	383	114	25	2,225
Cases not found at address given	6,368	362	1,455	52	19	8,256
Cases at home or attending department clinics	4,567	1,004	4,367	333	93	10,364
Total in register	19,390	2,123	7,802	777	244	30,336

TABLE III.

Table Giving Death Rate, Number of Deaths, and other Data Concerning Tuberculosis in the City of New York from 1881 to 1911.

Year	General Population	Total Deaths All Causes	General Death Rate	Total Tuberculosis Deaths	Death Rate All Tuberc.	Deaths Pulm. Tuberc.	Deaths Other Tuberculosis	Per Cent. of Tuberc. on Total Deaths	Death Rate Pul. Tuberc.	Total No. Cases Tuberc. Reported Inc Duplicates	Duplicates	No. Spec. Sputum Exam.
I.—Manhattan and the Bronx.												
1881	1,244,511	38,624	31.04	6,123	4.92	5,312	811	15.85	4.27			
1882	1,280,857	37,924	29.61	6,052	4.72	5,247	805	15.96	4.10			
1883	1,318,264	34,011	25.80	5,943	4.51	5,290	653	17.47	4.01			
1884	1,356,764	35,034	25.82	6,039	4.45	5,235	804	17.28	3.86			
1885	1,396,388	35,682	25.55	5,945	4.26	5,196	749	16.66	3.72			
1886	1,437,170	37,351	25.99	6,349	4.42	5,477	872	16.99	3.81			
1887	1,479,143	38,933	26.32	6,007	4.06	5,260	747	15.43	3.56			
1888	1,522,341	40,175	26.39	6,073	3.99	5,260	813	15.12	3.46			
1889	1,566,801	39,679	25.32	6,041	3.85	5,179	862	15.22	3.30			
1890	1,612,559	40,103	24.87	6,409	3.97	5,492	917	15.98	3.41			
1891	1,659,654	43,659	26.31	6,109	3.56	5,160	949	13.99	3.11			
1892	1,708,124	44,329	25.95	6,061	3.55	5,033	1,028	13.67	3.05			
1893	1,758,010	44,486	25.30	6,163	3.51	5,124	1,030	13.85	3.01			
1894	1,809,353	41,175	22.76	5,720	3.16	4,658	1,062	13.89	2.57	4,100		511
1895	1,873,201	44,420	23.18	6,283	3.35	5,205	1,078	14.47	2.78	5,824		1,147
1896	1,906,139	41,622	21.84	5,926	3.11	4,994	932	14.24	2.62	8,334		1,856
1897	1,940,553	38,877	20.03	5,751	2.98	4,843	948	14.89	2.50	9,735		2,703
1898	1,976,527	40,428	20.16	5,901	2.99	4,957	944	14.59	2.51	10,798	2,239	2,920
1899	2,014,330	39,911	19.81	6,209	3.08	5,238	971	15.56	2.60	10,484	2,472	3,115
1900	2,055,714	43,227	21.03	6,179	3.00	5,278	901	14.29	2.56	9,639	2,436	3,512
1901	2,118,209	43,307	20.44	6,049	2.85	5,233	816	13.07	2.47	12,135	3,005	4,307
1902	2,182,836	41,704	19.11	5,744	2.63	4,893	851	13.77	2.24	13,383	3,738	4,631
1903	2,241,680	41,749	18.56	6,086	2.70	5,250	836	14.60	2.33	15,787	4,698	7,764
1904	2,318,831	48,693	21.00	6,275	2.71	5,495	780	12.89	2.37	20,451	6,638	9,606
1905	2,390,382	45,199	18.91	6,348	2.66	5,678	670	14.04	2.38	24,142	9,106	11,431
1906	2,464,432	46,108	18.71	6,696	2.72	5,900	796	14.52	2.39	22,092	8,201	16,003
1907	2,541,084	47,698	18.76	6,809	2.68	6,030	779	13.49	2.37	24,363	10,746	20,595
1908	2,620,447	44,061	16.82	6,767	2.58	5,931	836	15.36	2.26	27,750	11,530	22,115
1909	2,702,633	44,387	16.42	6,654	2.45	5,828	826	14.17	2.15	32,877	14,397	26,684
1910	2,780,950	45,628	16.41	6,685	2.40	5,756	929	14.65	2.07	48,553	27,222	28,404
1911	2,872,428	45,324	15.78	6,760	2.35	5,793	967	14.90	2.02	51,211	33,851	27,695
II.—Greater New York.												
1898	3,272,418	66,224	20.26	9,265	2.69	7,724	1,541	13.97	2.25			3,945
1899	3,356,722	65,344	19.47	9,575	2.70	8,016	1,559	14.65	2.26			4,500
1900	3,446,042	70,872	20.57	9,630	2.79	8,154	1,476	13.59	2.37	14,433	2,456	5,289
1901	3,554,079	70,717	19.91	9,389	2.64	8,135	1,354	13.28	2.29	17,588	4,191	6,744
1902	3,665,825	68,112	18.58	8,883	2.42	7,571	1,312	13.44	2.07	16,614	4,268	7,820
1903	3,781,423	67,923	18.96	9,287	2.46	8,001	1,286	13.70	2.12	20,266	5,052	11,859
1904	3,901,023	77,985	19.99	9,744	2.50	8,495	1,249	12.49	2.18	28,444	9,721	16,971
1905	4,024,780	73,714	18.31	9,658	2.40	8,535	1,123	13.10	2.12	31,963	11,132	18,639
1906	4,152,860	76,203	18.35	10,194	2.45	8,955	1,239	13.38	2.16	30,826	10,741	21,779
1907	4,285,435	79,205	18.76	10,262	2.26	8,999	1,263	12.96	2.10	32,730	13,005	27,277
1908	4,422,685	73,072	16.52	10,147	2.29	8,870	1,277	13.88	2.01	36,782	13,457	30,092
1909	3,564,792	74,105	16.23	9,910	2.17	8,643	1,267	14.65	1.89	41,890	16,223	36,031
1910	4,803,264	76,742	15.98	10,074	2.10	8,692	1,382	13.18	1.81	65,088	33,023	38,844
1911	4,383,385	75,423	15.13	10,258	2.06	8,793	1,465	13.60	1.76	66,333	41,820	40,048

TABLE IV.

Year	NEW YORK		BOSTON		PHILADELPHIA		CHICAGO	
	Death Rate	Rate Pul. Tbc.	Death Rate	Rate Pul. Tbc.	Death Rate	Rate Pul. Tbc.	Death Rate	Rate Pul. Tbc.
1901	19.91	2.29	19.87	2.36	18.26	2.23	13.93	1.42
1902	18.58	2.07	19.07	2.16	17.70	2.11	13.93	1.41
1903	17.96	2.12	18.23	2.10	18.89	2.22	15.62	1.55
1904	19.99	2.18	18.21	2.16	18.56	2.23	13.85	1.65
1905	18.31	2.12	18.41	2.05	17.41	1.99	13.96	1.64
1906	18.35	2.16	18.61	1.93	18.86	2.18	14.50	1.61
1907	18.76	2.10	18.60	1.81	18.60	2.14	15.70	1.69
1908	16.52	2.01	18.30	1.70	17.50	2.04	14.57	1.59
1909	16.23	1.89	16.80	1.63	16.23	1.87	14.58	1.55
1910	15.98	1.81	17.18	1.73	17.29	1.85	15.14	1.53
1911	15.13	1.76	17.08	1.55	16.50	1.87	15.55	1.66

Year	LONDON		PARIS		BERLIN	
	Death Rate	Rate Pul. Tbc.	Death Rate	Rate Pul. Tbc.	Death Rate	Rate Pul. Tbc.
1901	17.24	1.81	18.3	4.32	18.00	2.18
1902	17.00	1.66	18.1	4.26	16.08	2.03
1903	15.23	1.59	17.2	3.89	16.38	1.91
1904	16.25	1.65	17.7	4.55	16.81	2.09
1905	15.15	1.45	17.40	4.21	17.20	2.09
1906	15.67	1.48	17.50	3.75	15.80	1.87
1907	15.16	1.40	18.5		15.43	1.86
1908	14.68	1.34	17.49	3.87	15.54	1.85
1909	14.0	1.32	17.4	3.71	15.54	1.85
1910	12.71	1.14	16.7	3.59	14.65	1.78
1911						

THE RELATION OF WATER SUPPLY AND TYPHOID

BY B. G. MICHEL, C.E.

TOWN ENGINEER, PEMBROKE.

The town of Pembroke may be included in the long list of Canadian municipalities which have suffered less or more from a domestic water supply contaminated with sewage. On the other hand the town of Pembroke must be included in the comparatively small list which has had the energy to deal with the problem in a firm and effective manner at considerable cost to the ratepayers.

There is no town in Canada which can boast of greater immunity from typhoid than Pembroke, but this has not always been so, as we shall see.

Visitors to Pembroke know it as one of the older Canadian towns, most picturesquely situated on the south banks of the

Allumette Lake, a large basin of the Ottawa River. Those commercially interested in Pembroke know it as rich in natural facilities, such as electric power, extensive lumber interests, etc., and municipally second to no other Ontario municipality in its civic financial standing. Swept by breezes of pure air, located on a stretch of water fed by the Ottawa river, which never becomes turbid, and is practically free from pollution above the town, Pembroke is, perhaps, the last place where one would anticipate an outbreak of typhoid as a water borne disease.

However, a system of water works was installed in 1893, by which the town was served with water under pressure. The

town is really located on a bay of the lake, the main channel of the river being some 6,000 feet to the north. The bay and practically the Allumette Lake may be said to be normally quiescent apart from a slight current away out in the main channel itself. Local wind currents, however, are set up, and with an easterly wind logs circle around in wide eddies from the east to the west in the bay.

The intake pipe, for the water supply taps the bay water at a distance of about 2,200 feet from the shore, at a depth of about 20 feet. It must have been obvious from the first that the system would at certain times draw both down stream water as well as upstream water, depending upon wind-produced currents.

As long as the town's ambition extended no further than water supply, all went fairly well, but not altogether, as intermittent cases of typhoid were more prevalent than they should have been.

The Muskrat River, a fairly large stream passes through practically the centre of the town, draining a populated area to the south of considerable magnitude, and discharging its waters into Pembroke Bay at a point about 2,550 feet east of the intake pipe. With an east wind this water is carried into the vicinity of the intake mouth, and undoubtedly at times the inhabitants were drinking Muskrat River water diluted with the purer water of the bay.

From 1893 to 1899, the above conditions existed and apart from occasional cases of typhoid, there were never a sufficient number of cases to warrant the use of the term "epidemic."

In 1899, however, the town was provided with a sewerage system, and a remarkable increase of typhoid cases resulted, when in 1908, during a period of low water, typhoid became epidemic. In November of that year the number of reported cases reached 400, and naturally public interest began to assert itself, in order to find a cause.

A sewerage system is the natural corollary to a water supply. It is up to any town obtaining an unlimited water supply, to provide some method of getting rid of the water after it has been converted into what is termed sewage. To lay sewers in the streets, connect the house drains with

the sewers, and joint all the sewers into one outfall sewer, and then discharge the main outfall sewer into the bay appeared the most feasible and practical plan. This was done under engineering advice, and no one appeared to anticipate any dire results from discharging this sewage water and filth into the very bay from which the domestic water supply was obtained.

There does not appear to have been any suggestion made to purify or in any way to deal with the raw sewage, but it was apparently thought sufficient to discharge the sewage into the bay at a point 2,800 feet, only, east of the intake mouth, into normally quiescent water, subject to currents from the east to the west under wind conditions.

We thus see that the bay water at the intake mouth was no longer subject only to the contaminating influences of the Muskrat River, but also to the town's sewage.

In 1908 sixteen citizens lost their lives to typhoid. In 1909 seventeen deaths occurred.

The townspeople after having spent considerable sums of money, first upon an adequate water supply; second, upon what was supposed to be an efficient sewage scheme, now felt that they had either got to calmly face gradual annihilation or else do something of a drastic character which would cause some further large expenditure. The Town Council not knowing the exact nature of what should be done, and feeling that they must get the very best advice possible regardless of expense, fell back upon employing the services of certain experts in water purification from the States.

The firm employed arrived in Pembroke on the morning of the 26th December, 1908, and submitted a report dated the 28th Dec., 1908, or two days after their arrival. So there was no time wasted by the experts in gathering together the requisite data and compiling the report. The report gave a very interesting and instructive treatise on slow sand filtration, with a list of the various representative places throughout the world where plants were installed and where a considerable reduction of typhoid followed such installations. The report regretted that there was no complete data to show the analytical character of the Ot-

tawa River, but concluded by advising a slow sand filtration plant as a sure safeguard against typhoid.

A by-law was submitted to the people and they were asked to vote a large sum for a sand filtration plant. In spite, however, of the prevalence of typhoid, and the necessity for immediate action, the people defeated the by-law, evidently under the impression that sufficient time and consideration had not been given to the subject and that the data stated, viz., analyses of water being wanting, should be obtained. There also appeared to exist in many minds an impression that good wholesome water was obtainable outside the zone of sewage and Muskrat River contaminating influences.

The by-law being defeated, it was up to the Town Council to submit some other scheme, which would satisfy the townspeople. The Town Council are certainly to be complimented, inasmuch as, they at once determined to introduce hypochlorite treatment of the water.

Hypochlorite was applied to the water early in 1910, with the result that typhoid at once decreased, and analyses of the water showed clearly that the water was being practically sterilized.

The hypochlorite treatment of the water in this case has proved very efficient owing to the low turbidity of the water, since the application of this chemical no cases of typhoid have been reported as originating from the town water supply. It has, however, required an abnormal quantity of chloride of lime in order to produce practical disinfection of the water and make it safe as a drinking supply. In fact, we have had to use as much as 50 lbs. of chloride of lime per each million gallons of water. The chloride of lime has averaged 33% of available chlorine, therefore, this is equi-

valent to 1.65 parts of chlorine per 1,000,000. The large amount of chlorine required we consider to be due to the (a) the normal high organic content of the Ottawa water, (b) the mixture of surface water from the Muskrat River, (c) the presence of organic matters due to sewage and the storage of lumber on the bay together with the amount of decaying sawdust in the bottom of the bay.

During the summer of 1910 an extensive bacteriological survey was made both of the bay water and the current water of the Ottawa Channel, in order to find out if better water was obtainable outside the bay and how far the zone of contamination extended.

It was clearly demonstrated that a wholesome and practically safe water was obtainable from the main Ottawa Channel at a distance of 6,000 feet from the shore, north of a point called O'Kelly's Point, about 1½ miles to the west of the present intake pipe.

Finally, a recommendation was made and a by-law passed to abandon the present intake pipe, install a new intake pipe at the point above named, with an entirely new pump house. A chlorine installation has also been provided, but it is not anticipated that this will be required continuously.

The town is now receiving its water supply from this point outside the zone of contamination, and is entirely free from typhoid. The alterations have cost \$65,000 but have provided an increased water supply.

The question of the purification of the sewage discharge is one which the Council will probably take up in the near future in order to further safeguard the purity of the water in the immediate vicinity of the town.

THE RURAL HEALTH OFFICER'S RELATION TO PULMONARY CONSUMPTION

BY A. P. REID, M.D.,

PROVINCIAL HEALTH OFFICER FOR NOVA SCOTIA.

The tuberculosis problem, which as a public health question still predominates in the field of preventive medicine, presents to the Health Officer of any district, except the larger town or city, phases coin-

cidings with those which the general practitioner is called upon to meet. Consequently a brief consideration of the disease from the standpoint of the average medical practitioner and a few suggestions as

to the objects to be kept in view by him and the method of their attainment will be sufficiently broad to include the duty of the Rural Health Officer relative thereto, and at the same time be more widely applicable.

Although the general problem is admittedly both complex and far-reaching, few phases of modern civilized life not having a more or less direct bearing on its solution, for the purposes of this paper its consideration will be limited to the disease as the physician meets it amongst his patients, with a few suggestions offered in the hope that they may aid him in fulfilling his duties so as to harmonize and co-operate with the great movement which is destined eventually to eradicate this curse and disgrace from civilized society.

Thus limited, the disease may be considered under three heads, its Detection, its Treatment, and its Prevention. The fact that these are interdependent will be at once evident.

Detection.—The detection of tuberculosis naturally involves more than the ability to make an early diagnosis, but on this ability it nevertheless depends. Although it may be held to be outside the realms of public health, the widespread lack of any attempt towards proficiency therein amongst many members of the medical profession, coupled with its vital importance with regard to the control of the disease, will justify its consideration here.

Volumes might well be devoted to the early diagnosis of pulmonary tuberculosis alone, but here there is only opportunity for reference to the more salient points.

The responsibility of rendering a negative diagnosis must be fully realized. Depending upon physical examination alone or some similar single line of investigation, the patient is often allowed to leave the physician's office with a false reassurance of unimpaired health, only to discover later that he is harboring a lung lesion in an advanced stage.

The only safe method to pursue when a suspect presents himself for judgment, is to make a thorough examination of his case from every side, and base the diagnosis on the combined results of every line of investigation. Whereas one examination may be sufficient for a positive diagnosis in a more or less advanced case, it is never sufficient to render a negative diag-

nosis where any ground for arousing suspicion has existed.

The history of the case must never be neglected, both the family history and that relative to other possible sources of infection.

The presence or absence of certain suggestive symptoms must be carefully noted, and the clinical course of the case traced from the onset of the first suspicious indication.

The physical examination must be thorough. This is not the place to fully discuss this matter, but allow me to lay emphasis on two important points often neglected. Never consent to make a chest examination without completely baring the surface by the removal of all the patient's clothing to the waist. With women a light shoulder drape may be employed, which can be easily shifted to facilitate the examination, but first all clothing must be removed from the upper portion of the body in fairness to both patient and physician.

No auscultatory examination to determine the presence or absence of tuberculosis in the early stages should be deemed complete without the employment of the "cough" and "expiratory cough" to detect rales. Rales heard on quiet breathing, if persistent, in themselves indicate that the lesion has progressed beyond the earlier stages.

Neglect of these two important precautions has undoubtedly been responsible for many a failure to make a diagnosis.

The necessity for the routine and repeated examination of the sputum is too well recognized to require emphasis. A negative finding should carry no weight.

The Tuberculin Test should never be considered as a short cut to diagnosis, but rather as a last resort when all other means of arriving at a definite conclusion have failed. Whereas the "Skin Test," whether Von Pirquet's or Moro's, is of value in the case of the infant or very young child, it cannot be taken as evidence of the existence of active disease in the older patient. The risk accompanying Calmette's conjunctival reaction is not justified by results. The subcutaneous injection of O. T., however, beginning with very minute doses, gradually increased, within limits, until a reaction occurs may be of vast assistance where other pro-

cedures have failed. Careful observation and intelligent interpretation of resulting symptoms are essential for a reliable conclusion.

Radiography in the hands of the expert may prove of value in detecting the presence of a lung lesion, but by itself can never determine its activity or otherwise.

So much for the detection of the disease in the suspect. The responsibility of the physician does not stop here. By the time the average case secures a definite diagnosis, the disease has usually passed the incipient stage, and it is the duty of the physician, especially if he be a Health Officer, to examine, and if possible keep under observation, the other members of the patient's family and household. In this way it is often possible to detect truly incipient cases before they themselves are aware of any departure from normal health. Where possible this examination would be extended with advantage to fellow employes of the patient in the office or shop.

Treatment.—The diagnosis made, the responsibility of inaugurating proper treatment cannot be shirked. It is not the intention here to discuss methods of treatment at length, but rather to indicate in a general way what this responsibility involves.

We are all familiar with the principles of rest, open air, and proper feeding which underlie the treatment of tuberculosis. It is their application to the individual case which is important, and it must never be forgotten that a careful consideration of the particular requirements of the patient under advisement is essential.

If good institutional care is unobtainable, a careful study should be made of the home conditions in order to adapt them as fully as possible to requirements. Then the patient and the family must be taken into the physician's confidence as regards the presence and nature of the disease, and a course of treatment worked out to the minutest details must be carefully impressed upon all with a full realization of the serious possibilities which any departure therefrom would involve.

It is often also of great assistance in judging the progress of the case, if the patient has been taught to keep a daily temperature record.

It is not to be wondered at that these details must be impressed upon patients and their families again and again before the proper routine is established, and the success of the treatment often depends as much on the repetition of advice until the proper mode of life becomes second nature as upon the giving of the proper advice in the first place.

While every encouragement must be given to the hopeful case, it is often a mistake to go too far in this direction, and thereby minimize his conception of the serious nature of the disease, which presents to the patient a most grave problem at whatever stage it may have been discovered. Warning must be given also that the external evidences of restored health will usually be apparent long before any permanent healing has occurred in the lesion itself.

In a word successful treatment must depend upon the fullest co-operation and the establishment of mutual confidence between patient and physician.

Prevention.—Diagnosis of a case of pulmonary tuberculosis also carries with it the responsibility of taking all possible steps towards preventing the spread of infection from the focus discovered. The patient must at once be impressed with the necessity of depositing his sputum only in a suitable receptacle and later destroying it, and of avoiding the danger of droplet infection by the use of gauze handkerchiefs held over the mouth when coughing or laughing.

If, in addition, the patient sleeps alone, refrains from kissing, and the table utensils which he uses are properly cared for, the rigid adherence to these few and simple precautions will render him harmless to his relations, or others with whom he dwells.

Whereas the danger of infection from the advanced case is generally recognized, it must be remembered that the ambulant germ shedder who is careless makes a much more widespread distribution of infective material before his condition is such as to confine him to bed or to warn those with whom he is brought in contact.

Neither does the absence of bacilli from the sputum permit the relaxing of precautions, for at any time they may appear or even be present though difficult to demonstrate.

The necessity and the reason for observing these precautions should be explained to all those in the household who come in contact with the patient, and the responsibility of their enforcement assumed by all.

On the other hand, every care should be taken to give the most emphatic assurance of the effectiveness of these precautions, and that their observance will render the patient harmless. Otherwise a phthisiophobia may be aroused which will so react on the patient as to cause him to attempt to conceal his condition by avoiding these very safeguards.

Conclusions.—The object of this brief and hurried survey of a great and complex question may be summed up as follows:

To impress upon every medical practitioner and more especially upon those who are avowedly dedicated to the service of the public health:

First, that when any case is brought before them where any suspicion of the presence of tuberculous disease exists, every means must be exhausted of establishing a definite diagnosis, either positive or negative, and that a negative diagnosis carries with it as grave responsibilities as a positive. Also that a positive diagnosis requires an investigation into the condition of health of the other members of the household.

Second, that when a case of tuberculosis is discovered no pains must be spared to determine the best course of treatment to pursue and to secure the adherence of the patient to the prescribed routine.

Third, that the discovery of a focus of infection carries with it the responsibility of endeavoring to at once block every possible channel by which that infection may be spread.

MUNICIPAL CONTROL OF MILK SUPPLIES

BY T. H. WHITELAW, B.A., M.B.

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It was with a sense of my inability to deal adequately with this most important problem that I consented to prepare a paper for this meeting of the *Canadian Public Health Association*. However, I trust that the deficiencies of my paper will be made up for by the discussion of what is probably one of the most serious and difficult problems our various municipalities have to deal with. When we consult our vital statistics, especially for the hot season, we cannot fail to be impressed by the appalling death rate from intestinal disturbance among young children, whose food supply must necessarily be to a large extent supplied by the retailers of milk in our cities. That this milk supply is in a vast majority of cases the exciting cause of cholera infantum on account of changes induced by uncleanly and improper handling in its devious course from the patient cow till it reaches the digestive organs of the infant can scarcely be doubted.

As a preliminary to discussing the question of control, a short sketch of the development of the milk supply of a rapidly

growing community such as Edmonton may be considered. In the pioneer days, about 1900, when the population was from 1,500 to 2,500, the demand for milk was met by a few local dairymen located close in, who not only kept the cows but who retailed their milk. While their methods of handling and delivering were primitive and crude, and visits of milk inspectors were infrequent, the fact that they were able to bring their product to their customers a few hours after milking probably had something to do with the comparatively low death rate of infants from infantile diarrhoea as compared with large centres of population. Many kept private cows also, as restrictions were not then so exacting. As the village became a town, and the town a city, the demand for milk continually outstripped the supply, and as a natural consequence a dairy company was formed to whose plant all the farmers in the vicinity were encouraged to send their milk in bulk, and from which the mixed product was retailed to the customers after undergoing a more or less per-

fect pasteurization. While a few local dairies with a limited number of cows still retail their own milk, it has come to pass that the company above referred to, has expanded and enlarged to such an extent that probably from 60 to 75 per cent. of the milk and cream supply of the city comes from this one company. Farther and farther afield have they gone for their supply, till, at the present time, the product of this dairy is derived from farms situated at a distance of from five to one hundred miles from the city. It is apparent, therefore, that the larger our municipalities become the wider is the area from which the milk supply is derived, and as a consequence, the time limit between production and consumption and the difficulties of efficient inspection of the different sources of supply by officials of the municipality are enormously increased. In spite, therefore, of the larger degree of attention now being given by municipalities such as Edmonton to improving the quality of the milk supply by the appointment of dairy inspectors, who devote their whole time and energies to the work, it is altogether unlikely that the quality of the milk supplied to our infants is uniformly as good as it was in the village and town stage of development.

I am probably correct in assuming, therefore, that generally speaking, the milk supply of municipalities is derived from two classes of dairymen:

1.—The local dairy farms situated close in to the city limits which retail their own product, having their own sterilizing, cooling, and bottling plants on their own premises.

2.—The centralization of the business in one or more large plants to which the product of innumerable farms scattered all over the country is brought in bulk by wagon, rail, or automobile, and from which it is distributed in household quantities to the consumer after mixing, treating by pasteurization or otherwise, cooling, and bottling.

How then are we to deal with these producers and dealers in milk in order to get the best possible results and secure for the public at least a reasonably safe milk supply? The essentials are:

1.—Each municipality should pass a clearly defined, explicit and reasonable by-

law regulating the sale and production of milk for public consumption, which by-law can then be distributed freely among the dairy farmers and milk dealers for their instruction and information.

2.—There should be appointed at an adequate salary a sufficient number of trained dairy inspectors whose whole time will be given to the work of inspection of samples, and sources of supply and distribution, and to encouraging and educating all engaged in the production and handling of this supply, to adopt cleanly and sanitary methods of milking, handling, and cooling the milk, and keeping the cows, stables and surroundings, milk houses and utensils in such condition as not to contaminate the supply.

3.—In the larger municipalities at least, there should be a well-equipped laboratory in charge of a competent bacteriologist, who can assist the dairy inspectors in the work of examination of samples by carrying out whatever bacteriological examination of the milk samples collected from the dealers, may be necessary.

In regard to the matter of passing by-laws regulating the sale and production of milk, the powers conferred on municipalities vary greatly. The Ontario Milk Act in this respect is to be commended, as it authorizes every municipality to pass by-laws dealing with the whole matter of the sale and production of milk and the licensing of vendors. The Alberta Health Act, on the contrary, gives no such authority, but compels every municipality if it passes by-laws relating to public health to follow to the letter the wording of the Provincial Health Act. If anything in this by-law should conflict with this Act, then and in every such case this Act shall prevail. The result is that all the weaknesses and inconsistencies of this Act are engrafted upon every municipality of the Province, and no allowance is made whatever for differences in local conditions and population, which may call for special provisions in any municipal by-law. For two years a dairy by-law prepared by the Edmonton Board of Health after careful consideration, and which was intended to replace the old by-law, now obsolete, has been before our Council, but up to the present has not been passed because the city solicitor calls attention to the fact that it must not

conflict with the Provincial Health Act in any detail. Attempts have been made by the Board to modify this by-law so as to comply with the Act, but hesitancy and doubt as to legal interpretations of the Act still appear to be causing delay. It is hoped, however, that these difficulties will soon be overcome, and when passed it is the intention of the Board of Health to distribute freely copies of the by-law among the dairy farmers and dealers in milk. Any such by-law to be effective and to bring about the best results must be reasonable in its requirements and should not impose on the producer such severe restrictions as to make it next to impossible for him to continue in the business without feelings of antagonism and resentment. There are of course some farmers who will not cooperate with the authorities under even reasonable regulations, and it is necessary to eliminate such from the list of those producing milk for public consumption, but the average farmer does not want to produce dirty milk, and if approached in a diplomatic and tactful way by the inspectors can usually be induced willingly and cheerfully to gradually improve his buildings, to adopt cleaner and more sanitary methods of handling and delivering his milk, especially when it is demonstrated to him that he will eventually profit greatly financially by so doing.

The question of enforcing the tuberculin test among dairy herds is one which one cannot approach without some degree of hesitation, so great has been the controversy, and in which a variety of opinions have been expressed by dairymen, farmers, veterinarians, physicians, and bacteriologists. There is no doubt that, if practicable, the carrying out of this test among all dairy cows would lessen the prevalence of tubercular conditions, especially among children, and prevent great economic loss from tuberculosis among our dairy and cattle herds by bringing about the isolation or destruction of the infected animals. The Alberta Act specifically states that local boards shall provide for the testing by "tuberculin" of every cow kept for the purpose of public milk supply, while the Ontario Act makes it compulsory only in the case of cows producing certified milk. While I know of no municipality in Alberta which is making any pretence of car-

rying into effect this provision at present, I am pleased to say that some of the better class dairy farmers are preparing to have their herds tested for their own private benefit, and it is altogether likely that the use of this test will become more common in the near future. Probably Alberta enjoys a greater immunity from this disease among cattle than other provinces, as our lately appointed food inspector who has spent several years as veterinary inspector at the Swift packing plant, Edmonton, informs me that he has very rarely found any evidence of tuberculosis among the cattle killed there, which passed under his inspection. Time will not permit of making comparisons or of going into the details of dairy by-laws, nor is this necessary, as most of these are very similar in character, and contain the essentials for producing clean milk, as well as safeguarding the public against milk-borne infectious diseases with which we are familiar.

The appointment of specially qualified dairy and milk inspectors is of special importance in controlling our milk supplies. To attain success it is not only necessary that they should be qualified by education and experience, but they should possess that fairness, tact, and judgment, which will command the respect of the farmers and gain their active co-operation in an endeavor to get clean milk.

The score card system of inspection as now used by most up-to-date municipalities is to be commended, and the visits of inspectors should be made at least once per month and not at any definite, specific time. Our inspectors, of whom we have two, endeavor as far as possible to visit each dairy farm at milking time, and the whole process from cow to can or bottle is scrutinized and the percentage figured out on the score card. It has been the custom to give a copy of this score card to the dealer each month, but it has been our experience that this score card need only be kept for the use of the inspector alone. The busy farmer or dairyman frequently does not care to unravel the fine points of this system, or if he does cannot quite understand why neighbor Smith or Jones, with whom he compares notes, should be given three marks where he only has two for any particular item. As a substitute for this

copy of the score card furnished the dealer, it is the intention to have a special form sent him by the inspector, calling attention clearly and definitely to any defects or deficiencies in equipment or methods and suggesting the remedy. Where an opportunity presents itself the inspectors are expected to discuss all phases of the question of producing clean milk, and at intervals to hold public meetings at which instruction and information are given. In this way the active co-operation and intelligent interest of the producer can be aroused and kept alive, with the very best results, as has been demonstrated of late years by the dairy inspection department of the city of Winnipeg. Any farmer who fails to respond to this co-operative plan, after being given a fair chance, must be eliminated as a milk producer for public consumption. Of the laboratory tests used in examination of samples by the inspectors, the Babcock butter-fat and the filtration tests are probably the most useful, as well as practicable, though the estimation of total solids, specific gravity, and the acid test, may occasionally be necessary for the detection of dilution or adulteration. The straining through a disk of absorbent cotton of a pint of milk and the preservation of this disk when dry, glued on to cardboard with a number attached as an index, affords a graphic method of exhibiting to the producer, which he can readily understand, the amount of unnecessary dirt, his faulty methods have allowed to get into one pint of his milk. The disk can be enclosed in a special envelope and sent to the producer with comments as to the probable source of the gross dirt shown on the disk. As a means of further eliminating dirt from the milk supply the use of a small-top milking pail should be encouraged, and, better still, where possible the adoption of one of the latest perfected milking machines. One of these was exhibited at the Edmonton Fair, and appeared to me to be so perfect and satisfactory that I had no hesitation in recommending its use to several dairymen who intend to instal it at once. Granted that the udders of the cows are properly cleaned before milking, that the tubes and all parts of the apparatus are kept properly sterilized, and that the facilities for immediate refrigeration of the milk to 50 de-

grees or less, and sterilization of all utensils used, are not only adequate but continually kept up to the standard of cleanliness required, the general adoption of the milking machine by dairies supplying milk and cream for public consumption is the ideal, in my opinion, to which we should endeavor to attain, and makes it easily possible to produce certified milk. The initial outlay is, of course, high, but the saving of labor and wages to hired help brought about by this invention would more than pay for the outlay in two years.

The general effect of eliminating gross dirt and impurities from the milk, whether by more careful straining or the adoption of the methods outlined to prevent dust and dirt from obtaining access to the milk, would be to greatly reduce the bacterial count. Simply straining the gross impurities from the milk will not, of course, eliminate the dissolved impurities or the bacteria to any great extent, and it is much better to encourage the adoption of methods which will prevent access of dust, manure, and other impurities, to the milk during the process of milking.

The Edmonton City Dairy, before mentioned, has some patrons, as indicated by the exhibit of disks, whose methods must be far from sanitary, but the manager of this company appears anxious to assist the health department in every possible way to improve conditions, and will at once refuse to accept milk from any source when notified that the conditions are not up to standard. He is further installing a clarifier through which the milk is to be put to remove gross dirt and chance impurities before pasteurization by the new and improved plant now in use. A new, modern and commodious dairy plant is now contemplated by this company to cope with the largely increased business, due to the phenomenal and rapid development of the city, and great improvement in the quality of milk supplied from this dairy plant may reasonably be expected.

The question of pasteurization need not be discussed under the scope of this paper. Suffice it to say the conditions under which milk is collected for this dairy at present, probably warrant the pasteurizing process, now efficient, in my opinion, as a safeguard of the public health. All other milk sold in the city is unpasteurized.

An important duty of inspectors not yet referred to is the inspection of milk depots, or stores where milk is retailed. In making these inspections in Edmonton, a small bulletin is posted up by the inspector for public inspection, giving Section 87 of the Provincial Health Act respecting the sale of milk from stores and depots, the date of inspection, name of storekeeper, dairy from which milk is supplied, and temperature of the milk, with a statement as to whether conditions were found proper or improper, signed by the inspector.

The third essential in controlling milk supply is the equipment of a laboratory under a competent bacteriologist. This is probably of greater importance in the larger centres, which can not only afford the expense but can keep a bacteriologist fully employed. Unless, however, the second essential, *i.e.*, the proper inspection of dairy plants and farms, is effective in eliminating gross dirt, and impurities from the milk, the use of bacteriology, and the employment of a bacteriologist, is a useless expenditure of time and money. It is a superfluous refinement to examine a specimen of milk for the bacterial count, when gross dirt and filth are visible to the naked eye on the disks of cotton, or as sediment in the bottom of bottles or milk containers. It is on this basis that the Board of Health of our city is prepared to recommend shortly the employment of an assistant at the Provincial Laboratory situated in Edmonton, whose duty it will be to devote special attention to city work, for which he will be remunerated by the city.

In conclusion, I desire to point out the

necessity of education of the consumer as well as the producer, by public bulletins issued from the Health Department. Many householders, either through ignorance or carelessness, allow good milk to spoil after receiving it from the dairyman, by allowing it to stand in the sun or hot kitchen exposed to flies or other sources of contamination. When the inevitable happens and it quickly sours, they curse the dairyman, and ring up the health officer. Frequently, too, they use the empty milk bottle during the day as a container for all kinds of fluids or leave it unwashed and exposed to flies, and return it to the dairyman in a filthy condition. At Winnipeg I saw a large basket of dirty bottles put aside, so dirty that the company preferred to lose the bottles rather than attempt to clean and sterilize them, even with the efficient and sanitary machinery provided for the purpose.

The difficulties of obtaining a good and safe milk supply for our municipalities are great, and are not easily overcome, but the exercise by health departments of patience combined with perseverance, tact with firmness, in an endeavor to encourage and educate the intelligent producer who is amenable to advice, to adopt clean and sanitary methods, and on the other hand to eliminate absolutely and entirely as milk producers those who cannot or will not adopt such methods, will gradually improve the quality of our milk supply, and remove this reproach of modern civilization which cuts off during the summer months so many young lives, *i.e.*, a contaminated public milk supply.

MILITIA SANITATION A CIVIL ASSET

BY MAJOR LORNE DRUM, M.D., D.P.H.

CANADIAN PERMANENT ARMY MEDICAL CORPS.

In a paper which I prepared under this title for the Public Health Section of the Canadian Medical Association at this year's annual meeting I endeavored to point out the benefits derived by all classes of the population from the sanitary lessons learnt by militiamen attending the annual militia camps of training. To-day I wish to lay stress on the advantages to the public health of our country from the sanitary training undergone at these camps by the

members of an important class of our population—the medical practitioners. To develop my idea properly I will briefly state that in my former paper I described how all sanitary measures in camp were taken on the initiative of the commanding officer, who is the sole source of authority to the people under his command and who is solely responsible for their health. The commanding officer has for an adviser in these matters his regimental medical of-

ficer, and the officer commanding all the commanding officers in camp, has a specialist sanitary officer as well as his administrative medical officer (Assistant Director Medical Services) to act in the same capacity.

As a general guide to all militiamen in our camps a sanitary routine is laid down to which all must adhere, in order to maintain the sanitary standard required. Methods for preparing installations of an extemporized character are described in our field regulations, for the disposal of the various camp wastes; and these are adapted and modified as found necessary to meet local conditions and available materials. It is the duty of the regimental medical officer to advise and explain how these methods may best be adapted to the local conditions, how to erect them, and when erected how to use them efficiently. To maintain a satisfactory standard in the sanitation of the unit he must impress his commanding and brother officers with the vital importance of these measures, so that they in turn will use all the powers that military discipline gives them to enforce their construction, care, and use by the men. Should the regimental officer be at a loss; or wish for any special information he has the specialist sanitary officer to appeal to for assistance, instruction and advice. But it is the regimental medical officer himself who is the keystone of the arch of military sanitation; for each unit is a separate community, and upon the way in which the regimental medical officer grasps and carries out his duties, the health of the unit depends. He is the guide, philosopher, and friend of his commanding officer in all things that touch upon the health and comfort of the men. He has no authority of his own—the commanding officer has all that. Therefore, his success will depend upon the influence of his own personality on his commanding officer, his brother officers and the rank and file. He must always be at work exhorting, explaining, and demonstrating. His actions must be firm but tactful, and his words simple, direct, and full of common sense. Plain words for plain people. He may use all the technical phraseology he likes when discussing sanitary problems and regulations with his confreres and the specialist sanitary officer; but when he is

impressing the vital truths underlying the proper use of sanitary constructions and the necessity of unhesitating obedience to sanitary discipline, he must use language that all will listen to and understand. To get results—and results mean health—he must gain the interest and active co-operation of all in authority from the colonel to the cook. This duty is no sinecure, and many a regimental medical officer has failed. He may advance many excuses—and some of these may be legitimate—but in most cases his failure is due to lack of personal influence. On the other hand the number of regimental medical officers who are becoming more and more interested and influential in the sanitary side of their duties is growing larger every year.

Let us think for a moment of what this means. For twelve or sixteen days every year some two hundred medical men are trained as regimental medical officers. During this period they are intimately engrossed with sanitary matters, with problems relating not to the care of the sick, but to maintaining the health of the well. What a different experience it must be for private practitioners after their every day routine work of healing the sick. Academically all members of our profession are interested in the public health, and in so far as the speedy, safe and pleasant curing of the sick is an asset to the public health of our country, they certainly do their share; but when it comes to practical work along other lines of public health activity, their time is too much occupied and their viewpoint too restricted by the constant problems of disease that absorb their attention, to always realize and exert their proper influence. What a different trend of thought their militia experience must give to many. True, the period is limited, but the change is so complete, and the work so full of interesting ideas to the medical mind. All thoughts of sickness and its cure are dismissed when the morning sick parade marches off to the hospital. For the rest of the day the regimental medical officer's mind and energies are devoted to measures that will provide for the comfort and protect the health of his military community. He thinks collectively—has to think collectively—and along new lines. It is medicine from another side, but medicine just the same. It is medical knowledge applied to

the community for the protection of each individual, under the simple but efficient conditions that must obtain in the field to maintain healthy troops. The very simplicity of it all is its chief value. To many a medical man it must prove an easy introduction to practical public health work. How many medical men in our cities take any real active interest in matters that directly concern the health of the community? How many are interested in city planning schemes, and in movements for the provision of better building by-laws and the eradication of slums? And yet such improvements are at the root of the fight against tuberculosis.

The communal life in modern cities is so complex that it is easy for individuals to forget and neglect, even if they ever properly realized, their individual civic duties. It is the same with the private medical practitioner; and yet his civic duties are far more important than those of the ordinary citizen. So important indeed are his public health functions that I do not consider it too strong a statement to say that just as the regimental medical officer is the keystone of the arch of militia sanitation, so the private medical practitioner is the keystone of the arch of any successful public health organization. He is the kingpin, and all depends upon him. Let the military sanitary authorities storm and rave, issue regulations and furnish material, yet if the regimental medical officer does not actively and sympathetically cooperate all will be of no avail. Instead, indeed, the only results may be sullen resistance, resentment, and discontent in the regiment. The soldiers do not understand. This is where the importance of the medical officer comes in as an active sanitarian. He is the translator of the meaning of sanitary regulations and measures to his brother soldiers. He simply must make them understand; and not only understand, but by force of character and power of personal influence, must be able to arouse the intelligent co-operation and willing obedience of his military community. His civic duties are very similar, but owing to the complexities of modern life they are not so easily seen, yet they are there just the same; and to my mind, successful public health administration must be built up on the active and intelligent co-operation of

the profession in private practice. The family doctors are the ones to whom the people among whom they dwell look for information on health matters. They are—or should be—the translators of the meaning of federal, provincial, and municipal sanitary regulations and measures so that their lay brothers may understand their importance, and give them ready obedience. How many realize this civic side of their duties? Do we not know that many are lax even in the carrying out of the few official duties laid upon them, as for instance, in the prompt notification of communicable disease. Yet these duties are there to their hand, and on the way in which they realize them and carry them out will depend the success of public health measures in their community. Legislatures and councils may enact sanitary laws and regulations, and health authorities may or may not enforce them, but unless the family physicians understand their real bearing and realize their vital importance, so as to translate their meanings to the laity in language which they will understand and in a way that will arouse their interest and claim their willing obedience, no great and enduring success can be expected. Too often, in fact, the enforcement of needed sanitary measures will only cause—as in military life under similar circumstances—sullen resentment and discontent; or worse still, active opposition.

Sanitary legislation can not work effectively too far ahead of the sanitary standards of public opinion; and the proper moulders of public opinion on sanitary matters are the medical men of the country. Just as the regimental medical officer has the specialist sanitary officer to appeal to for information, advice and assistance, so the private practitioner has the district sanitary officer and medical officer of health. The official frame-work is there and ready for proper development; but this development, for its fulness and success, depends on the intimate and active co-operation of the members of the medical profession. If their militia training tends to direct their thoughts to this intimate connection between their profession and official public health organization, and if it inspires in them a realization of the essential importance of their hearty co-op-

eration and active support, then it may be safely claimed that militia sanitation is a valuable asset to the public health of the country.

DUST IN THE HOUSE AND ON THE STREET

BY ADAM H. WRIGHT, B.A., M.D.

PROFESSOR OF OBSTETRICS, UNIVERSITY OF TORONTO; CHAIRMAN OF THE ONTARIO BOARD OF HEALTH.

Dust always was and always will be everywhere. In the beginning, "the Lord God formed man of the dust of the ground"; after the Fall, the Lord God said, "For dust thou art, and unto dust shalt thou return." The good housewife and her assistants are continuously endeavoring to get rid of dust, while the men folk frequently bring as much dust as possible into the house, and scatter it round most assiduously. The latter have perhaps been driving over some miles of dusty roads in the early spring. They pass through the front door and hang their overcoats in the hall. As they hang there, some of the coarsest dust will fall to the floor through gravitation. Some of the finer dust will be carried, hither and thither, by breezes and drafts. Next day these coats are dusted in the hall, or perhaps in a living-room or library off the hall. Thus more dust is scattered around.

Good housekeepers attempt to keep down dust, collect it carefully, and burn it immediately. Many are discouraged, and also puzzled, when they discover that notwithstanding their well-directed efforts, dust still remains everywhere. It enters boxes, cupboards, bureau drawers, settles on shelves, mantelpieces, furniture, books, and everything in the house. It comes from every substance in the house—the floors, carpets, curtains, and every other bit of matter. When we walk, we cause dust from the floors, whether bare or covered with carpets, oilcloths, or rugs. When we touch a coin, a chair, a table or any other substance, no matter how lightly, we create dust; of course the greater part of such dust is perfectly invisible. In fact, most of such particles are so small that they could not be seen through the most powerful microscope.

Although we were all taught in our early schooldays something about the divisibility of matter, few of us properly appreciate the fact that such divisibility is almost in-

finite. Professor Gordon Ogden, of Pittsburg, illustrates this fact in various ways. Let us borrow some of his illustrations. Absolutely pure water will not permit an electric current to traverse it. If a grain of salt is added to a hundred tons of perfectly pure water, the water becomes at once a conductor of electricity. The solitary grain of salt is divided into an almost infinite number of parts, and each of these tiny motes of salt acts as a ferry, by means of which the electric charge is enabled to cross the water. Let us consider, so far as possible, what this means. We have an immense tank, 25 feet long, 16 feet wide, and 8 feet high, containing 3,200 cubic feet or 360,000 cubic inches. Each one of these small cubic inches contains hundreds of millions of salt particles.

Another statement will be interesting to the small boy, and to some grown men. An average puff of smoke from a cigarette contains about four thousand millions of particles of dust.

Down at the bottom of the sea, under three miles of water, there is a very fine dust composed of the remains of the shells of plants and animals. It is estimated that one cubic inch of this ooze contains the remains of forty thousand millions of organisms, each as distinct in its individuality as is an elephant, and possessing a structure that is as perfect, so far as its use is concerned, as is the structure of the human body.

Dust is made up of a thousand or more disgusting things, together with a thousand or more things that are fairly clean, but more or less irritating—excreta of horses and dogs on streets, human excreta in tenement districts, human sputum, garbage, ashes, house sweepings, dust from buildings being constructed or demolished, earth from excavations, soot from chimneys, irritating powdered asphalt, often mixed into a slimy paste with mud, dung, and petroleum from automobiles. In the

dust arising from these different substances the germs of the following diseases are found: Tuberculosis, pneumonia, influenza, diphtheria, rhinitis (nasal catarrh), pharyngitis, tonsillitis, scarlet fever, whooping-cough, and some others.

Let us consider the expense of the dust nuisance. It has been estimated that the merchants of Chicago lose, through smoke and dust, a sum of money equal to the annual tax collected in that city. Toronto probably suffers proportionately as much as Chicago. The total money loss to the merchants of Toronto for this year will, therefore, be about six million dollars. The loss to people living in private residences will probably be about the same; but let us suppose it is only half, or three million dollars. Let us leave out of our estimates the value of the discomfort produced, but take into consideration the effects on the public health, and the money value of the injury inflicted. Gilman Thompson believes that nine-tenths of acute inhalation diseases and chronic catarrhal diseases are due to dirt inhalation. Our knowledge of the evils of dust is in some respects inexact, but the many clinical observations and laboratory researches now going on will give us more definite information in the near future.

It may be stated now that some health experts, especially two living in Toronto, think that Thompson attaches too much importance to dust in speaking of the causes of acute and chronic diseases of the air-passages. I shall assume, however, that Thompson is right (as I think he is), and express some opinions as to "common cold." These colds occur most frequently in November, December, March, and April—especially in the latter two months. The epidemics of colds in the late winter and early spring are due to the action of pathogenic germs in nearly all cases. A good deal depends on the amount of snow. The worst form of dust in Toronto is that which is blown in clouds along bare streets in comparatively cold weather, when perhaps we have some thawing during the days and freezing at nights. The microbes which come from filthy melting ice are the most virulent, and the other accompanying varieties of dust are the most disgusting that attack us as we go along our streets. These microbes as they "come off the ice"

are comparatively mild and placid, but when they get warmed up within our internal economies they become active, hungry and thirsty. The great sterilizing power of the sun's rays makes an immense improvement in these regards during the hot summer months.

Let us now go back to the money aspect. It is difficult to put a money value on health and disease. In fact, some people think that health has no special money value—until they get sick. As I have suffered much from dust inhalation, and have observed very carefully the evil effects produced by the same for about thirty years, I feel that I can speak with some authority. I consider the money value of the injuries inflicted on myself is one to five hundred dollars a year. Every man, woman, and child in Toronto suffers, to some extent at least, from the dust on the street and in the house. We may assume the average value per head of injury inflicted is at least ten dollars. This means a total of about four and a half million dollars. If we add this sum to the probable cost of dust to merchants—six millions, and to householders—three millions—we find the total money value of the injury done to Toronto by dust is over thirteen million dollars annually.

I have confined my rather rambling remarks to Toronto, because I have a more intimate acquaintance with its dust than I have with any other dust in the world. I have been carrying a considerable quantity of it closely attached to my person, both externally and internally, for over thirty years. While it appears to like me, I don't like it. I would rather shake it off, but my wife doesn't like me to "shake it off" in her best parlor. Our good women of Toronto know more about the treatment of dust than the men. They are discarding the old, dirty, dust-raising broom and feather duster, and are using instead the vacuum cleaner and moist dusting-cloth. It is to be hoped that our men will learn something from them, and adopt "dustless" methods of removing dust from our streets. It would be still better if they would endeavor to remove from the streets all substances which tend to become dust before they are ground into powder, that is, before they become dust.

Without going into details as to the construction and cleaning of the roads, we have pleasure in saying that much good work has been done in recent years in Toronto. But the appropriations have been so pitifully small, as compared with the large sums urgently needed, that the Commissioner has been sadly handicapped. However, it should be remembered that accidental circumstances often prevent the street cleaners from doing the best work. For instance, flushing asphalt pavements is excellent; sprinkling from watering carts is useless or worse than useless. Why, then, did the street cleaners relinquish their method of flushing a few weeks ago? The answer was simple: "Water shortage. We are now flushing again." The dry system of collecting dust in heaps, on macadam roads (if we have any such in Toronto), is of course antiquated and unsatisfactory. That fact is recognized by the Department, and various systems are being investigated. As a complete plant for a new system will be expensive, it seems fair and reasonable that the city authorities should have some time to investigate. Let us hope that that time has nearly expired, and that we shall see something new next year. We hoped for a time that the problem of street cleaning was solved on account of the good results obtained in some of the cities. We soon discovered, however, that methods admirably adapted for Berlin (probably the cleanest city in the world) might not be suitable for Toronto.

We have certain macadam (?) roads in Toronto which are kept fairly clean, and sprinkled with crude oil. When these two things are properly done the result is very satisfactory. We regret exceedingly that many ladies object because of the "horrid smell." Now, as a matter of fact, this smell is not "horrid" to a nose that can distinguish the difference between a clean and foul odor. It is almost certain that the air on these oiled streets is the sweetest, cleanest, and healthiest in the thickly populated portions of Toronto. However, there is still room for improvement, as the cleaning and oiling is not always properly done. We hope that when women consider these facts, and let their noses work "without prejudice," the smells will soon cease to be "horrid."

The other question of great importance now comes up. We know that after all our street and house-cleaning the air is still full of dust, although it may be invisible. What are the dangers from this dust? Fortunately, because of the knowledge we have obtained from the wonderful work of Pasteur and Lister, I think we can answer that question somewhat definitely. Although we cannot say that any dust is free from pathogenic germs, we may state that if the coarse dust, *i.e.*, the visible dust, is not allowed to rise into the atmosphere, but is properly collected and destroyed, the invisible dust will be very nearly, if not quite, innocuous.

THREATNED OUTBREAK OF TYPHOID FEVER AND MEASURES TAKEN TO AVOID IT

BY R. E. WODEHOUSE, M.D.,

DISTRICT OFFICER OF HEALTH FOR ONTARIO.

I proffer this paper as an evidence of the complicated situation and unfair position a civic health officer is often confronted with, in spite of which, he is expected to maintain a clear health bill for his municipality.

The water supply of the City of Fort William is obtained from a mountain lake (Loch Lomond), situated on Mt. McKay, about six miles from the city, and at an altitude 300 feet above the same. The wa-

ter is conveyed to the city by means of a mountain tunnel, over a mile long, to a forebag and thence by an iron pipe line to a reservoir, and from the reservoir by another iron pipe line to the bank of the Kaministiquia River, distal to the city. Here the iron pipe line ends in a "Y"-shaped joint, to which two iron pipes are connected. These diverge 200 feet, from which point they descend the bank and cross, on the mud river bed, to the city

side of the river. Here they converge to another "Y" connection, and from this the water is conveyed in a single pipe to points of distribution for city use.

The system is entirely gravity.

The idea of introducing the two "Y" connections, and having two separate pipe lines, 200 feet apart to convey water under river, over the river bed, was to diminish danger of interruption of city water supply, from breaking of pipes by ships dragging anchors, hoping that both would not be interfered with at the same time. The pipes lie on the river bed, quite exposed, uncovered in places and only protected by irregular coatings of mud.

The original cost of the system was nearly \$800,000. The original plans called for a reinforced concrete tunnel, containing four 18-inch pipes, electric cables and telephone conduits, with a space in centre permitting a man to examine the entire contents and make necessary repairs. This tunnel was planned to be placed 50 feet below the level of the river bed, thus avoiding injury from navigation. The cost of the system so exceeded the original estimates that the populace, then numbering 12,000 to 15,000, hesitated to shoulder the extra burden of the tunnel expenditure. Thus the city has depended for four years for domestic water supply, as well as fire protection, upon this uncertain source.

Loch Lomond water has been pronounced by Prof. Amyot, after examinations and numerous samples to be free from harmful bacteria, to contain one part chlorine to the million, and to be clear and soft. The city owns and controls the entire watershed of Loch Lomond, an area of 29½ square miles. It maintains a daily police patrol of this area to prevent contamination by picnic parties and other trespassers, such as fishermen. All these are prohibited by the law from being within the area. The river section of the pipe line has been condemned for three years by the engineering department, health department, and more recently by the fire underwriters, but with no avail. Through the publication of the health department and other reports appearing in the local papers, the attention of the Board of Health, City Council, and citizens, has frequently been drawn to the following dangers, which were always present:

The breakage in either pipe as it passed under the river, on bed of same, being exposed to contamination by the Kaministiquia river water, which is a veritable open sewer. The breakage of both pipes at once and the necessity of pumping filthy Kaministiquia River water into the city's clean mains for fire protection. The water would be supplied from the Canadian Pacific Railway Company's pumping station. The intake is situated at a point below the mouths of sewers, collecting from more than half of the city's population, at present 21,000.

This available supply of contaminated water for fire emergency purposes was arranged for, at the time the tunnel plan was temporarily abandoned. The C. P. R., owing to the uncertainty of the city supply of water, as well as the meter system of payment to the city for the water, used by them, has always maintained a pumping system and pipe distribution in their yards for ordinary water use, and fire protection. Their intake pipe is situated at the point related to the city sewage as mentioned above. The drinking taps are connected with a ramification of city mains in their yards. The city requested, at the time the tunnel plan was temporarily abandoned, the privilege of making a connection between the clean city pipes and the filthy C. P. R. private pipes. Two valves were placed here to be opened only by the city engineer or fire chief in case of emergency. The enormous quantities of water used in the C. P. R. yards for ordinary purposes necessitates their pumps being operated day and night. Thus fresh supplies of contaminated water are forced up to the valves at the junction of the city and C. P. R. pipe lines continuously. These connections had been condemned, by your humble servant, in a particularly strenuous manner, during the four months previous to the episode we are now discussing. It did not appear to me that the property of Fort William was more valuable than the lives of its citizens.

The predicted accident occurred on April 23rd, 1912. The river section of the gravity water system required repairs, necessitating turning off the entire Loch Lo-

mond water supply for six hours. At 4.15 a.m. fire broke out in the heart of the business centre. There was no pressure in the water mains, the C.P.R. were requisitioned to start all their pumps and the valves between their Kaministiquia water pipe system and the city's pipes were thrown open about 5 a.m. Owing to the largeness and numbers of the city mains in comparison to the capacity of the C. P. R. pumps, or to frosted pipes partly closed with ice, the water at first, scarcely flowed out of the end of the fire nozzles. Then a fire engine requisitioned from the neighboring city, was attached several blocks from the connecting valve of the two systems and a useful stream obtained. The C. P. R. pumps maintained 80 pounds pressure in their water pipes, and the fire engine forced out dirty water. Therefore, Kaministiquia water presumably got freely into the city mains.

Owing to the hopeless plight the firemen were in for over an hour, many special alarms were given, most of the inhabitants were awakened and brought to their windows. Once at their windows they saw the cause of alarm. There fortunately was an absence of wind, but in spite of this an enormous conflagration was making headway. Upon calling up the central telephone exchange, they informed me that Loch Lomond water was shut off. One immediately concluded that the C. P. R. water was or would be forced into the city mains. Upon interviewing the fire chief personally at 5.30 a.m. he assured me Kaministiquia water had passed through the city mains. This authentic information led to the following steps being taken (with the consent of the Chairman of the Board of Health): I.—The office of the morning daily paper was visited and there it was learned that a special fire addition was being run off, for sale on the streets only. A large space on the front page was reserved for a "Boil the water before using" announcement, and the reason for the same given, namely, that filthy Kaministiquia water had been forced into the city mains. II.—Two thousand five hundred copies were bought and arranged to be delivered to every English-speaking home in the city by their circulation boys before 9 a.m. Contract price, \$75.00. III.—5,000 red paper notices—"Boil water

before using and why," were printed for distribution by 9 a.m.

Then a visit to the telephone central was made, and 1,500 city users were notified immediately by 'phone, that filthy Kaministiquia water had been pumped into the clean city mains, and that the Health Department desired that the water be boiled before using. This was all that could be accomplished before 7 a.m.

At 8 a.m. four foreign interpreters were obtained and instructed to visit every house in the foreign sections, allotted to them, and give a copy of the red notices to the householders and interpret for them, what had happened and why we wished them to boil the water. This was important, because we have nearly 7,000 foreign inhabitants out of a population of 21,000. Next the schools were ordered to shut off all tap water supplies for drinking purposes—Separate, Public and High Schools. Finally, the red notices were sent to all three classes of schools and the teachers requested to verbally warn the children of the dangers of drinking unboiled water, and to ask them to take home a notice to their guardians and tell those at home to be careful, and why they should be.

Advertising space was taken in the evening daily papers and all the precautions taken by the Health Department, as recited here, were placed under the large type heading at the top, "Boil all water for domestic use," and these sentences added: "Please carry out this precaution diligently and conscientiously, even if you doubt the necessity. Insist on it being carried out until Sunday next."

Fort William during the next two months had two cases of typhoid fever, probably traceable to its water as the cause, but one of these might have been traced to other causes. Fort William had no typhoid deaths from this episode. It cannot be said that there were no extra cases of diarrhoea, but the head office gained no knowledge of any epidemic of same.

Knowledge or suspicion that civic water supplies may be infected with pathogenic organisms, warrants immediate action by the officers of health. Every resourceful avenue should be used of conveying quickly to the users of water the fact that it is contaminated. The dangers to life resulting from the contamination, if stated, will

assure almost universal adoption, of your precautionary measures, among Anglo-Saxon and foreigners alike.

There never was a more applicable field than public health for that old axiom: "A stitch in time saves nine."

SEWAGE DISPOSAL BY OXIDATION METHODS

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ENGINEER TO THE BIRMINGHAM, TAME AND REA DISTRICT DRAINAGE BOARD.

The condition of the river below the point where the effluent joins it is on the whole a safe guide to the designer of sewage passage plant, and should be the ruling factor in determining the degree of purification desirable. I suggest that the designer of the plant should aim at producing:

(1) A sewage effluent that will not putrefy on being kept for seven days at a uniform temperature of 80 degrees Fahr.

(2) That it should be the result of natural processes.

(3) That it should not contain more than 3 parts per 100,000 of suspended solid matter, and

(4) That it should not absorb oxygen from the stream into which it flows.

In purifying sewage by oxidizing methods it is essential first to separate the solid from the liquid impurities, not because it is impossible without nuisance to purify crude sewage on oxidizing beds, but because such a course is far from economical. The success of every oxidizing process is more or less dependent upon the efficiency of the methods adopted to eliminate solids; the most perfect design of oxidizing filters may be rendered abortive if the sewage is not suitably prepared before it is applied to the surface of the medium.

The evolution of the Emscher tank has given a fillip to the consideration of the sludge question which will bring us nearer the solution of the sludge problem. Care should be taken, however, not to clothe the tank with virtues which it does not pretend to possess. It has been designed to retain and digest solids, and render them at once inoffensive and capable of being readily dried at moderate cost, and I can bear testimony to its ability to do all this, but it does not follow that the Emscher tank will be a suitable medium by itself for preparing sewage for the bacteria bed.

It does not take the place of the settling tank, whose function is to equalize the quality of sewage arriving at the Outfall Works, nor does it pretend to eliminate colloidal or ferruginous matter which, if run on to a filter in excessive quantity would certainly impair its usefulness. The tank, however, has succeeded in keeping sewage from fermenting when that course is desirable, while the solid organic matter is at the same time resolved by the septic process into an inodorous and easily dried substance incapable of giving rise to nuisance.

When the sewage has been properly prepared by settlement, chemical precipitation, septic action, or a combination of them all, it should be exposed to the action of the friendly microbe, and if that action is sufficiently prolonged, the constituent matters of the sewage, such as albumen, are practically destroyed, or more correctly converted into carbonic acid, free ammonia, and nitrates. When everything is taken into account I believe it will be found that this can be best done on what are termed percolating filters, but contact beds are also capable of doing somewhat similar work, and if the production of a consistently good effluent were the only desideratum, land irrigation, and intermittent filtration, which is a form of the same thing, are capable of doing even better work.

Some years ago a well-known English expert, in speaking of the relative merits of percolation and contact beds, stated that contact beds were dead. His remark was somewhat premature, as Sheffield has since laid down 40 acres of those beds. At the same time he voiced an opinion which is being strengthened daily, and it may now be assumed that percolation beds are being constructed in England in preference to contact beds wherever the conditions are

suitable. A notable case to the contrary is Oldbury, where after a series of experiments extending over a considerable time, Professor Frankland and Mr. Silvester came to the conclusion that triple contact beds were more suitable than percolating beds for the purification of a sewage containing large quantities of acid, of which sulpho-cyanide formed a prominent feature.

In their Fifth Report the Royal Commission state that taking into account the gradual loss of capacity of contact beds, a cubic yard of material arranged in the form of a percolating filter will generally treat satisfactorily nearly twice as much tank liquor as a cubic yard of material in a contact bed. Percolation filters are better adapted to variations of flow than contact beds. The effluents from them are usually much better aerated than the effluents from contact beds, and apart from suspended solids are of a more uniform character. The risk of nuisance from smell is greater from percolating beds than from contact beds. The Commission also found that with percolating filters there is nuisance from flies.

No one has attempted to upset the dictum of the Commission, and where contact beds are adopted in future there will probably be found to exist special local and physical reasons for their preference.

The cardinal principle which has always influenced me in preferring percolation beds to contact beds is the belief that the oxidizing process is dependent upon the free admission of air into the heart of a bed. It is obvious that the air supplied to this form of purifying agency is restricted to the volume of sewage treated, whereas it may be equal to many times that volume in a well-constructed percolation filter.

A brief description of the percolating filter most recently constructed on the Birmingham Works may be taken as an indication of what I consider an oxidizing bed should be for the treatment of strong sewage. The filter area referred to is 6.6 acres, and is nearly equally divided into two portions. The floor is laid with concrete, 4 inches thick, on a foundation inclined at a gradient of 1 in 100 towards the effluent channels. The concrete floor is covered with semi-circular aerating tiles. These are carried through the enclosing

walls, so that the air may pass without hindrance from side to side of the bed. The enclosing falls are 5 feet in height and are built of rubble stone (Croft granite) laid without mortar. The thickness of the base is 2 feet 6 inches battering 5 to 1 on the outside face, and where the walls are built transversely to the line of aerating tiles the latter are carefully bedded and levelled on top with cement mortar to form a foundation for the walls. The top course is levelled up with stone bedded in cement mortar. The medium, which has an effective depth of 6 feet, consists of hard stone or ball slag of best quality, broken as uniformly as possible to pass a 2-inch ring and be rejected by a 1-inch ring. The main supply pipe, 21 inches in diameter, is laid alongside the eastern walls of the block, from which branch pipes, 10 inches in diameter, are led to the beds and extended on the opposite side, where they are connected up to the washout pipe. These branch pipes are laid across the beds in parallel lines, and at right angles to them 3-inch distributing pipes are laid, in which spray jets are inserted. The pipes are made of cast iron, and weight $6\frac{1}{2}$ lb. per foot; the thickness is not more than $\frac{3}{16}$ inch since the maximum head is only 10 or 12 feet. They are laid on the bacteria bed without special support, but Jones' expansion joints have been employed to couple them together.

The actual cost of constructing Block D, exclusive of any work or pipe connections beyond three feet outside the walls, is as follows: Excavation, £1,100; concrete floor, £2,250; collecting channels, £200; tile floor, £4,500; rubble walls, £850; medium, £19,860; distributing pipes £1,650; valves, £175; total, £30,585. On a net area of 6.6 acres this is equivalent to £5,900 per acre.

The filters first constructed at Birmingham cost £4,620 per acre, owing chiefly to the smallness of the unit area; as, however, each advance in size gave an equally well-oxidized effluent at less cost, the area has increased with the construction of each block of beds, and the latest now under construction is 7 acres. Engineering and economic reasons alone should determine the unit area.

Purification depends on various factors, but mainly upon the extent of bacterial surface—as Mr. Rudolph Hering has called

it—over which the tank liquor is made to trickle and the time it occupies in percolating from top to bottom. The question of the size of medium and depth of bed must have a direct bearing upon the volume and strength of liquor to be oxidized.

Theoretically a fine medium should be preferred to a coarse one. Dr. Reid has studied the virtues of small medium, and as the result of his study and experience, has consistently advocated its use. He can point to Hanley and other places where fine medium is used successfully; he can show that there is eight times the bacterial surface available for purification in 1/4-inch cubes as compared with 2-inch cubes, and he can show consistently good effluents from fine grain shallow filters. The Dorking experiments confirmed the main points of Dr. Reid's contention. At Birmingham and other places medium of a large size, approximating to 2-inch cubes is used.

Since it is admitted that with fine grain medium less depth is required, and a more brilliant effluent obtained, the question naturally arises, why not adopt fine medium? Chiefly because large medium of greater depth to do the same work is not more costly, and it provides greater security against pooling and clogging.

In large manufacturing districts sewage varies in composition, and an engineer in designing a purification plant should see that it is capable of giving that elasticity which is invariably demanded from purification plants in exceptional weather, and when unexpected rushes of trade waste arrive at the works.

The designer of oxidizing beds should not rely upon the infallibility of preliminary tank processes to free the filters of all unnecessary work. Mistakes take place in management, the composition of the sewage may permanently alter, and the colloids permanently increase, as at Manchester, where the albuminoid ammonia figure has in recent years gone up nearly 100 per cent. A town's manufactures may change entirely, as at Coventry, where silks and watches have given place to the motor industry. Aeration is often impaired by unfavorable climatic conditions, for instance, at Birmingham, where unsepticeized sewage was applied to the bacteria beds in cold weather it was found that the surface rapidly became "macintoshed" over with a

thick gelatinous fungoid growth. No doubt this is a condition capable of prevention, but the designer of the works may have no control over the management, and should see that a sufficient margin of safety is secured by constructing a filter which readily recuperates, otherwise the design is unjustly blamed.

Anxiety on the part of the public bodies to keep down initial expense in constructing bacteria beds should be met firmly, and, if possible, with figures to prove that cheap beds are not profitable. A medical friend, who holds a distinguished public position, once complimented me on the appearance of the massive masonry walls round the Minworth bacteria beds, but proceeded to question whether the expense was justifiable, and added that medium should be allowed to slope on a natural angle from the top of the bed. He was astonished when I gave him figures to show that his untidy method would cost double what the massive walls had cost. Later, he suggested that the nitrifying organism would do as good work on a heap of unscreened clinker as on a well prepared oxidizing bed, and he pointed to a case where beds had cost less than £2,000 per acre. I told him that I had constructed several acres of beds in this way at a cost of only £800 per acre. I was not able then, but I can now give the cost of treating one million gallons of sewage on those "cheap beds compared with the cost of treatment on the beds already described:—

	Slag and Granite.	Furnace Ashes.
Volume in million gals.	1,741	308
Capital cost per acre	£7,100	£800
Int. on capital cost at		
5 6 per cent. per		
million gallons ...	£1 10 3	£0 18 11
Working cost per mil-		
lion gallons	1s. 4d.	£0 9 9
Total cost per million		
gallons	£1 11 7	£1 8 8

This figure includes a proportionate share of the cost of supply and effluent channels, silt and separating tanks, railway wharf, etc.

The initial cost of the "dumped" furnace ashes bed, it will be observed, is low, and the maintenance charges high as compared with the carefully constructed stone and slag bed.

The furnlace ashes bed—as might be expected from 6 ft. of fine medium—produced a very good effluent, but the surface being dosed with strong Birmingham sewage clogs readily. Washing and replacing are not attempted, as this work would amount to 1s. 6d. per yard, or much more than new material would cost. Periodical scraping and removing the top layer is found to be sufficient.

It is urged against large medium that another process is necessary to separate the humus from the filtrate before it is fit to enter a river, but as this can be done in separating tanks for two shillings per million gallons, the objection is of comparatively small moment.

A fine medium bed has advantages where a brilliant effluent is a desideratum, where it would be difficult to get rid of humus from the filtrate, where a high cost for maintenance is not prohibitive, and where a temporary stoppage of the whole plant would not be a very serious matter; but it is not suitable for installations of any magnitude.

Unless where the upper layer of a percolating bed consists of very fine medium, as in Dr. Dunbar's filter at Harzburg, the sewage in its passage through a healthy filter emerges at the bottom immediately under where it drops upon the surface. The establishment of this fact emphasizes the desirability of feeding a percolating bed in such a way that each particle of

material receives an equal quantity of liquor.

Engineers have had varying success in their efforts to design appliances capable of fulfilling this important condition. Some excellent devices have been brought to the notice of the public by their makers, and a good deal might be said in favor of each, but the best are costly, and the worst are cheap only in name. It may be assumed that moving distributors are all liable to be prejudicially affected by wind, frost and snow, unless when they are power-driven, in which case they are more costly. On the other hand, wind, as it influences the spray jet—and it is rarely perfectly calm in this changeable climate of ours—tends to equalize the distribution when this type is used.

Absolute uniformity of distribution there cannot well be. Even the Scott-Monerieff distributor, the most uniform distributor I have known, which rotated round Bed C at Minworth with all the regularity that an electric drive could give, dropping as it travelled sewage so equal in volume that test trays 12 inches square placed close together in a straight line from centre to circumference resulted in collecting the same quantity in each tray, was no exception to this rule. Now compare the results of six months' working of this distributor with similar work by spray jets on adjacent beds dealing with the same tank liquor, and after both beds had been at work for about two years:—

	Distributor Galls.	Spray Jets. Galls.
Volume treated during 6 months	29,500,000	72,000,000
Rate per square yard per day whilst working	154.6	169.3
Capital cost of beds per acre, including subsidiary works	£11,148	£7,170
Interest on capital cost per million	£2 6 10	£1 4 7
Working cost per million gallons	£0 12 2	£0 12 10
Total cost per million gallons	£2 19 0	£1 17 5
	Parts per 100,000	
Oxygen absorbed in 4 hours. Filtrate	2,784	3,018
Ditto. Separating tank effluent	2,041	—
Percentage of purification. Filtrate	84.3	83.0
Ditto. Separating tank effluent	88.5	—
Albuminoid ammonia. Filtrate274	.370
Ditto. Separating tank effluent239	—
Percentage of purification. Filtrate	78.6	71.1
Ditto. Separating tank effluent	81.4	—
Nitrates and nitrate as nitrogen	2,208	2,089
Suspended solids. Filtrate	4.9	8.8
Ditto. Separating tank effluent. Scott-Monerieff	1.7	—

When it is borne in mind that the Scott-Moncrieff distributor rotated on a bed 7 ft. deep, and the spray jets were fixed on a bed only 6 ft. deep, the resultant effluents do not appear to justify the conclusion that the one is much better than the other. My contention is that the total effluent must necessarily be compounded of volumes which have undergone varying degrees of purification on different parts of a filter. If for mechanical or meteorological reasons the spray is not distributed uniformly, certain portions of the filter get more work to do than others, but this is got over to a large extent by changing the position of the jets periodically, and, of course, change in the direction of the wind constantly brings about minor changes automatically, which tend to even up the distribution. So long as these conditions obtain and water-logging is avoided the practical result is not unsatisfactory.

Nor should it be forgotten that even although the intermittency is irregular that part of the bed which for the time receives no sewage may be recuperating and adjusting itself to bear a strain later on. Assuming for a moment the worst possible case, namely, that a certain portion of the filter never received any sewage, the effect would be that a larger volume of filtering material would be required to achieve the same result, and thus the true engineering aspect of the matter appeared, namely, the question whether it was better economically to spend money on extra filtering material, or on extravagant methods of obtaining ideal distribution. This could be decided only by considering the total resulting purification of a given volume of sewage, in terms of the total cost of obtaining it, and not merely the cost of the distributing mechanism.

All forms of distribution on percolating filters are liable to give rise to nuisance from smell, if a strongly smelling liquor has to be dealt with. In the case of trays or tipping troughs the smell is confined

more or less to the immediate vicinity of the filter, and it may be largely done away with at small works by providing an inexpensive form of cover for the filter. The spray jet has been held to be the most liable to give rise to smell, but moving sprinklers are almost equally bad in this respect. This is bound to be more apparent during periods of prolonged heat, but the application of hypochlorite of sodium as used at Ostend in Belgium, or hypochlorite of calcium, as used at Birmingham, Hanley, Burslem and Stratford-upon-Avon, although costly, is fairly effective when mixed with the tank liquor before its application to the oxidizing filters. Care should be taken not to apply as much as will inhibit the life of the nitrifying organisms, or produce injury to the river into which the effluent enters. If it is applied before septic action is too far advanced, 1 part per 100,000 will probably be found to be sufficient, and this quantity will be more than enough to keep down the fly nuisance.

One word with regard to management. However well a plant may be designed, if it is not well and skilfully managed it will become a nuisance and bring discredit on the engineer who designed it. The disposal of the liquid filth of a great community has an enormous potentiality for evil, and if a town authority believes it necessary to avert this by expending large sums of money on constructional work, it is their bounden duty to see that the plant is placed in the most competent hands. Local authorities are by no means sufficiently alive to this aspect of the question, with the result that too many works are left to the management of untrained men. Hitherto anybody has been deemed good enough to look after a sewage work, but the day has now come when the manager should be a highly trained technical expert, if a local authority hope to get full value out of the sensitive entity which we call a bacteria bed.

Editorial

[Editorials speaking specially for any one association co-operating with *The Public Health Journal* are not published in this Journal until passed by the publishing committee of that association.—Ed.]

SANITARY SCIENCE

The profounder knowledge of sanitary science and its practical applications have played a conspicuous part in the great advances, which have made easier the every-day life of our modern era. Without such knowledge it is questionable whether the great populations of modern cities and urban areas could continue for any length of time to exist. Greece and Rome in ancient times, while having some knowledge of sanitation, yet were repeatedly visited by epidemics and plagues; neither people, in spite of the lofty ideal of physical beauty of the one and the elaborate system of public baths of the other, were sanitarians in any but a loose sense. Nor did the passing of time, and the numerous plagues and epidemics of the middle ages, until recently teach anything.

Consider the simple fact that the "black death" or great pestilence in the middle of the fourteenth century is estimated to have carried off 100,000 persons in London alone, and in Europe at large approximately 25 millions. And if any inquirer is curious to obtain what may be termed a psychological grasp of what a plague on an appalling scale really means by actual experience, there are the vivid observations by Pepys in the *Diary* on the plague of 1665, when he was about thirty-five years of age and the sharpest of observers; or, *longo intervallo*, the *Journal of the Plague Year*, by Defoe, one of the most remarkable of all instances of brilliant verisimilitude, for he was only a child of six when it ran its rampant course through the crowded tenements of the city of London of the Stuart regime. It is necessary in point of time to pass well into the eighteenth century before the science of sanitation or hygiene begins to assume some definite shape in a really practical advance in connection with the broad problem of public health, or the narrower, that of the individual citizen. Now many enlightened communities have well-organized laboratories for the study of the science of public health on the one hand, and on the other

the medical officer of health is an institution practically everywhere.

It is true that the *cloaca maxima* and aqueducts of the Romans indicate that Romans were alive to the importance of these conveniences. It is true that state physicians were appointed by them, their number varying according to size of the town, a definite district being assigned to each. But considering the paucity of basic medical and hygienic knowledge at that time, to which we have many clues in preserved writings, there can further be no serious comparison between ancient and modern practice in matters of public health.

It is also true that the Mosaic code of laws, sound in their import, and the rigid way—quasi-sacramental in practice—in which the Jews applied those laws in the entire round of physical well-being, form the most conclusive evidence of the true measure of sanitary knowledge in the past. Yet the eighteenth marks the opening of sanitary practice as it is understood to-day. Only then were systems of drainage organized, and vaccination, for instance, in connection with the ravages of smallpox used as a prophylactic. In reality it may safely be conjectured that the serious outbreaks of cholera from 1831-2 onwards gave the signal for the urgent need of putting sanitation on a sound basis everywhere. So late as 1856, the statement has been made on good authority, the arrangements for sewage and the drainage of towns were most defective. Sewers were rare and wrongly constructed, cesspools common, and house drains absent. *Nous avons changé tout cela!* But, despite everything now accomplished, much remains no better than before as a rule outside a radius of ten miles of the boundaries of the majority of cities and towns. The fact is notorious. The problem of the best sanitation is of cardinal importance to every member in every community without distinction, and to tackle it unceasingly and intelligently the first duty of every municipality and rural authority, larger or smaller.

INTER ALIA

It has been hopefully prophesied that if sanitary science and sanitary administration advance for the rest of this century as they have advanced for the last thirty years, there will not be a contagious disease left in a civilized country by the year 2012. There may still be sickness, for people may still violate the laws of health, either through ignorance or necessity. But the sickness would be personal or inherited; it will not be of a sort that passes from person to person, from community to community. It is hard perhaps now to imagine such a condition. Yet the world has been marching toward the conquest of contagious diseases ever since the days of Jenner, and in the last dozen years the advances made are amazing.

Human happiness is rapidly becoming recognized as a business asset. Employers of large numbers of human machines are realizing the surprising fact that, as a cold business proposition, it pays not in sentiment but in dollars to take care of their employes.

Business men are learning that well-fed, well-clothed, contented and happy men and women, working in well-lighted, well-ventilated quarters and on schedules arranged in accordance with modern knowledge turn out more work and better work than underpaid, discontented, overworked help, working under uncomfortable and unsanitary conditions. In many places large corporations are to be found spending money liberally in playgrounds, rest rooms, libraries, gymnasiums, sanitary lunch rooms, moving picture shows, safety devices, ventilating systems and similar undertakings for the well-being and enjoyment of their employes; and this is not charity, but good common business sense.

It is safe to predict that the conservation of the health and happiness of employes will be the fundamental principle of good business management in the future. When it is fully recognized by the industrial world that health is a realizable commercial asset and sickness is a material lia-

bility, contagious and preventable diseases will be hunted down and exterminated as relentlessly as modern industrialism now pursues counterfeits and other commercial criminals.

The chief means for preventing occupational diseases are being recognized as the installation of mechanical appliances, like ventilated apparatus, dust removers, blowers, respirators, etc.; thorough medical inspection; and, most important, the education of employers and employes. The education of the employers as to the dangerous elements in their business; as to the effect upon the efficiency of their working staff, and how to protect it; and the education of the workers as to personal hygiene, and the care which they must take in preventing occupational disease.

Close to the question of occupation conditions is the question of proper housing. It seems a fact that the people generally do not know what good housing is. Some are, of course, prone to denounce the dilapidated-looking building and accept the one of neat appearance, especially if it be detached, with a little bit of lawn in front of it. But few are aware that the essentials of good housing are those that provided abundant light and air for every room, an adequate supply of water, conveniently situated, sanitary toilet conveniences and possibility of privacy.

Good housing is possible, even in the most crowded centres, but there is much to recommend the superiority of the small house over the tenement. One of these is the matter of children's environment.

The average citizen is a good fellow, but his attitude toward social problems was too often that of the boy who said he had nothing against the ancient tyrant because he had done nothing to him; the politics of the citizen was too often "a lively sense of benefits hoped for," and the citizen who votes a ballot marked by his personal interest.

Library and Laboratory

CURRENT PERIODICAL COMMENT AND WORKING NOTES

Helio-therapy.

Of late years the treatment by direct sunlight, technically known as helio-therapy, has been largely used in Europe for various forms of tuberculous disease. Attention is now called by the *London Lancet* to the successful results obtained in France from the application of this method to one of the most distressing forms of tuberculosis, namely, that which attacks the throat and "voice-box" (laryngeal tuberculosis). It appears that by an ingenious arrangement of mirrors the rays of the sun are directed into the throats of those suffering in the way just mentioned, the eyes being protected by shades during the treatment. Undoubtedly the curative effects of bright sunshine are wonderful, but science seems scarcely less wonderful as evidenced in the modern devices for giving us the benefits of the sun's rays both inside and out.

Perfumes and Health.

Nearly all the essential oils distilled from plants have an effect on disease as powerful as carbolic acid itself, points out a *contemporary*. Pine oil, eucalyptus oil and oil of turpentine are among the most useful of disinfectants, but at the same time a great many of the choicer perfumes have an equal effect upon the health.

The use of scent on the handkerchief is likely to save its user from even the worst of diseases. Lavender water has frequently proved fatal to the microbe of consumption, and the perfumes extracted from rosemary, thyme and mint are all excellent antiseptics.

Then, on the other hand, there are scents which are equal to poison when used by certain persons. Patchouli, a perfume found in Indian ink, is sometimes extremely unhealthy. Women have often been known to faint in the presence of anything decorated with India ink, and a sachet containing this fragrant essence is to some persons almost rank poison.

Phul-nana often excites nausea, as do many other strong perfumes. Some Indian scents cause nervous complications, and anyone losing appetite or suffering from headaches that have no explained cause should consider the properties of the perfume she is using. On a few persons musk has a bad effect, while more frequently the odor of apples, oranges, bananas and other fruit is unpleasant to those of a peculiar temperament.

Persons who suffer from the bad effects of one perfume will generally find that some other kind is very beneficial. Pure violet essence is especially suitable for nervous dispositions, provided it is obtained from the flowers themselves and not from chemical imitations.

Heredity and Disease.

Heredity has afforded one of the most fruitful sources, in recent years, of medical controversy. From a widespread belief among physicians in the inheritance of disease, opinions have changed so much in the last few years that but few among the profession who speak with authority now hold to the old contention.

Prof. J. George Adami, pathologist of McGill University, is bold enough to declare a belief in the influence of heredity on disease. *The Medical Record*, commenting on this fact, remarks editorially:

"Our medical forefathers believed in the inheritance of disease, at any rate, to a very large extent. Gradually belief in the influence of heredity has waned, until recently the pendulum has swung almost completely in the other direction and it is almost heresy to assert that any disease can be inherited directly. The researches and teachings of Weismann have had much to do with the change of front, and other biologists have carried his views to the extreme.

"Karl Pearson has been perhaps the most conspicuous protagonist of the doctrine that acquired conditions are not inherited, and that no matter how greatly

the body is abused the germ cells are unaffected. Readers of *The Medical Record* may recall the statistics compiled by Pearson, some two years ago, showing that the children of alcoholics received no injury from the habits of their parents. This statement was apparently riddled by Sir Victor Horsley, and a heated discussion took place between the two eminent men, resulting, in the opinion of most authorities perhaps, in overthrowing Pearson's assertion.

"At the meeting of the Canadian Medical Association held recently in Edmonton another doughty champion of moderate views as to the inheritance of disease discussed the matter. J. George Adami, in the course of an able address, said that he was sufficiently old-fashioned to repudiate the new-fangled 'Westmannism' and still retained the belief that the sins so-called of the parents against the body, or at least a very important series of such sins, do influence the progeny unfavorably. And what is more, he believed that these new ideas had their origin in the narrowness, or, if the term might be used, Chauvinistic provincialism of the zoologists. He pointed out that the vitality of the offspring was gravely affected, and from observations of families of alcoholics observed by him he could not but feel that children of confirmed drunkards showed an increased susceptibility to the action of relatively small amounts of alcohol."

Dr. Adami added that the practitioner time and again had occasion to note the "relationship between chronic or acute infection suffered by either parent and their offspring. The ordinary practitioner time and again also had been convinced that the children of those suffering from tuberculosis and blood disease were not merely of lowered vitality or more liable to succumb to childish disease, but notably in the case of tuberculosis exhibited a peculiar liability to succumb to the same parental disease.

"Attention was drawn," the writer continues, "to the fact that inheritance of disease is far from being everything. From the point of view of eugenics, there were to be considered the terrible effects of congenital diseases. The speaker urged that one should no longer approach the subject with false modesty and self-consciousness, but should grapple the question boldly, and

with the knowledge of the origin of the scourges measures could be put into force which would eradicate the evil.

"However, the most interesting part of the address was that which dealt with inheritance of disease, and it is refreshing in these days to meet one bold enough to promulgate opinions in opposition to those of possibly the majority of authorities. There are signs that the extreme views held with regard to the non-inheritance of disease are beginning to be regarded with a certain amount of distrust, and the address of Adami will tend to hearten the doubters."

Air Prophylaxis.

Air, air, and then air! says *The Health Bulletin* of Chicago.

Those are the cures for our commoner ailments. Do you sleep well at night? How is your complexion? Do you ever get in the dumps? Are you afflicted with that "tired feeling"?

Air is what you need—it is "good for what ails you."

A catalogue of minor ills and afflictions, printed in this bulletin of the health department with the remedy in each case, is set forth as follows:

"For restlessness at night, try the open window cure.

"For fallow complexions, try exercise in sunshine and fresh air.

"For distress from overeating, take a walk of a mile or two.

"For the 'blues' go to the park and commune with nature.

"For headache get out in the open air.

"For that tired feeling go out on the back porch and try deep breathing."

All of which, according to the writer, is "relief for common ailments, and will leave you feeling like "a new man."

Old-Fashioned Morals and Science of Health.

The Minneapolis Journal remarks that perusal of the proceedings of the Health Congress held in Washington recently reveals the association between social health and personal morality.

When all is said and done, when all the knowledge and aids of science have been invoked, when every policy recommended

by the wise men has been applied, much depends upon the individual will to live correctly.

And most of that living correctly is contained in the simple precepts of old-fashioned morality concerning alcohol, concerning purity, concerning avoidance of indulgences and excess, not excluding excess of food.

A clean mind in a clean body. The ideal is as old as the Stoics. But it is as modern as it is ancient, and to-day it is the essence of sanitation, of social morality, of eugenics. He who follows the prosaic directions of common old-fashioned morality is already far advanced upon the science of health.

The Ventilation of Sewers.

The arguments in favor of omitting the house trap for the purpose of increasing the ventilation of sewers are stated by Mr. R. L. Fox, of the Batavia (New York) Sewer Commission, in the *Cornell Civil Engineer*, as follows: (1) Omission of the house trap permits a better discharge of house sewage and prevents solid matter from settling in the soil pipe. The air from house plumbing is usually worse than sewer air. (2) It simplifies and reduces the expense of plumbing. (3) It obviates the frequent clogging of the house connection which usually occurs at the trap. (4) It reduces the danger of illuminating gas from leaky mains reaching the house, as the omission of the trap allows the gas to pass freely up the stack and be harmlessly dissipated into the air. (5) Scientific examination in Paris, London, Boston and several of the largest cities in the world proves conclusively that the air in the trapped soil pipe is more dangerous to health than the sewer air, and free circulation of air throughout is the best remedy for both sewer and soil-pipe air, as they are harmlessly dissipated into the air above the roof, and the fact that there is a free circulation of air throughout the system prevents the formation of dangerous gases in quantity, for the reason that as rapidly as made they are dissipated.

Health Insurance.

Robert Lynn Cox, general counsel and manager of the Association of Life Insurance Presidents, writes an interesting

article for the *New York Times*, in which he expresses regret that the mass of the people do not more seriously interest themselves in such information upon the importance of hygienic living as has been recently put before the public by the meeting of the Fifteenth International Congress of Hygiene at Washington.

Says Mr. Cox:

"We come to the method of getting all of this scientific knowledge transformed into popular information for the public. To me it seems to be the duty of the magazines, the newspapers and large business concerns directly interested in the economic and industrial development of the people to take up this gigantic task.

"In the dissemination of such knowledge and in the situation of such interest life insurance companies and the press should work hand in hand."

The press is doing a good deal, and the life insurance companies are doing a good deal, and so are the magazines, to popularize interest in preventive hygiene and sanitation. While the work is necessarily somewhat slow, it is encouraging to see that progress is being made. The ready acceptance of the anti-public drinking cup laws in such places as have passed them is evidence of the fact that the life insurance companies and the newspapers and magazines are getting a hearing. Without "missionary" work in advance of its passage the law abolishing public drinking cups would probably have been ignored by the people and by the authorities. It has been accepted by a prepared public without a protest. It is rarely that anyone is heard saying that it is unnecessary legislation. Proper ventilation as a preventive of tuberculosis is also being widely appreciated. A fair proportion of the people, of large cities at least, are pretty well protected from typhoid fever by water filtration that reflects agitation upon the part of the press. Popular sentiment in behalf of legislation to prevent the pollution of streams by turning untreated sewage into them is growing as a result of the hectoring of the press. Eventually the application of health rules as a form of personal health insurance will increase the "expectancy" of persons born in an enlightened age. Life insurance premiums, as well as doctor's bills, will be reduced materially

Disease-Producing Parasites in Rhodesia.

Sir Ronald Ross and his coadjutors have issued a new number of the *Annals of Tropical Medicine and Parasitology*, published under their direction by the Liverpool School of Tropical Medicine. It contains two memoirs, one on the trypanosomes infecting game and domestic stock in the Luangwa Valley, North Eastern Rhodesia, and the other on the trypanosomes obtained by feeding wild *Glossina Morsitans* on monkeys in the same valley; and it gives details of many experiments and researches conducted by Drs. Allen Kinghorn and Warrington Yorke. They show the trypanosomes were of frequent occurrence in the game and domestic stock of the valley; and that at least 37.5 per cent. of the buck examined harboured them, six varieties having been found in different animals; while there is circumstantial evidence to show that one of these varieties, *Tryp. pecorum*, may be transmitted by biting insects other than tsetse flies. It has also been found that three species certainly, and probably two others, are transmitted, in nature, by *Glossina Morsitans* in the Luangwa Valley. The fact is of high importance, inasmuch as until quite lately trypanosomes were believed to be carried and communicated only by the fly *Glossina Palpalis*, and the implication of the more common and more widely diffused variety, *G. Morsitans*, points to an increased need for precautionary or preventive measures, and for the most careful study of the whole question of the disease-producing parasites and their hosts or carriers.

Unventilated Rooms at Seaside Resorts.

People go to the seaside in search of health, and so long as they keep in the open air their chances are good, and they are likely to have their desires gratified. Yet when they go into some of the houses, says the *Sanitary Record*, there are often circumstances which tell against them. Not a few of the seaside towns contain many old houses, built before the days of by-laws and sanitary inspection. Some rooms are small, but the worst feature is that they are absolutely without means of ventilation other than by the open window. So long as this is open no bad effects may be experienced. It is remarkable that even today there are thousands of people who

absolutely refuse to have their bedroom windows open during the night. This is not confined to Londoners—in fact, we believe country-born people are the greater sinners. We have before us a fine old country house, with people who have lived there all their lives. At night every window is securely fastened, and it is a novelty to see them open in the daytime, even in the midst of summer. Needless to say, the inhabitants are chronic invalids and always have "colds." This, however, is a digression. Some southern resorts need a thorough overhauling in this matter of ventilation, and no sleeping room should be allowed without either a fireplace or a ventilator whereby a constant change of air may be secured. Nor are these places confined to the south. We were at Aberystwyth a short time since, and right on the front we found houses with comparatively large bedrooms without fireplaces. Open windows do not bring satisfactory results, for the houses at the back are built so close that the two lower floors are comparatively dark. Fancy sleeping in these rooms shut up. A few hours under such conditions would more than counteract the good done by the sea breezes, and the darkness would also have a depressing effect upon the mind and spirits. We were told the houses had been built for some years, and we suppose the Authorities know of their faults. If so, it is decidedly short-sighted not to attempt to remedy the evil. Visitors may not complain; yet somehow they will not derive the benefit expected from their visit, and blame the town for their disappointment, whereas the town is all right—it is the ill-constructed sleeping rooms that are at fault. Well-ventilated bedrooms are as essential to health as the finest sea breezes of the western ocean. It will more than pay the owners, not only at Aberystwyth, but in all health resorts, to remedy the defects we have indicated.

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American Medical Association, Journal of (Vol. LIX, No. 14)—Syphilis Number; (Vol. LIX, No. 15)—"Public Health in America," by Henry P. Walcott; "Medical Progress," by Walter A. Jayne; "Intestinal Antisepsis," by Norman M. Harris; "Anti-typhoid Inoculation. Three Years' Experience With Its Use in Training Schools for Nurses in Massachusetts," by Lesley H. Spooner; "Some Results and Fields of Usefulness of Anti-typhoid Vaccination," by F. F. Russell; "Inocu-

lation Against Typhoid in Public Institutions and in Civil Communities. A Further Report," by E. W. Hachtel; "A Study of the Ultimate Results in the Dispensary Treatment of Tuberculosis," by H. R. M. Landis; (Vol. LIX, No. 16)—"The Hygiene of Swimming-Pools," by M. P. Ravenel; "The Relation of Interstate Waters to the Spread of Typhoid," by Allan J. McLaughlin; "The Purpose and Limitations of Bio-Assay," by Horatio C. Wood; "Pellagra Observations on Some of Its Nervous Manifestations," by David E. Hoag; "The Cases for Pasteurization," by Edwin O. Jordan; (Vol. LIX, No. 17)—"The Need or Genetic Studies of Pulmonary Tuberculosis," by H. E. Jordan.

American Medicine (Vol. VII, No. 9)—"Calvin and Servetus: An Episode in the History of Religious Persecution and Scientific Suppression," by John Knott; "The Preservation of the Teeth," by Norman Roberts.

Canadian Engineer (Vol. XXII, No. 15)—"A New System of Illumination to Avoid Glare by Diffusion," by Hans K. Ritter; (Vol. XXIII, No. 17)—"The Ventilation of Sewers," by T. de Courcy Meade; (Vol. XXIII, No. 16)—"Canadian Road Systems," by W. A. McLean; "Highway Engineering Education," by Arthur H. Blanchard; "Sewage Treatment versus Sewage Purification," by George C. Whipple; "Water Purification Viewed from the Hygienic Standpoint," by Allen Hazen.

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Canadian Municipal Journal (Vol. VIII, No. 10)—"Cleaning Water Mains," by F. W. W. Doane; "Moving Picture Shows," by George A. Waters.

Canadian Practitioner and Review (Vol. XXXVII, No. 10)—"Radium in Gynecological Conditions," by W. H. B. Aitkins in collaboration with F. C. Harrison.

Clinical Medicine, The American Journal of (Vol. XIX, No. 10)—"Food Adulteration and Sophistication," by Charles F. Lynch.

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Dietetic and Hygienic Gazette (Vol. XXVIII, No. 10)—"A Plea for Sterilization," by Paul E. Bowers; "A Sanitary and Health Survey," by George Thomas Palmer; "Modern Mechanical Means in the Treatment of Disease," by Max J. Walter; "Vaccine Treatment," by George Sanders; "Some of the Inner Relations of Medicine," by Charles W. Hitchcock.

Educational Review (Vol. XXVI, No. 5)—"What the Kindergarten is Good For," by Myra M. Winchester; "Nature Study of Animals," by Horace G. Perry.

Fruit Magazine (Vol. VI, No. 1)—"Irrigation Lessons from the Old World," by Sir William Willcox.

Heating and Ventilating Magazine (Vol. IX, No. 10)—"The Natural Ventilating Standard," by Konrad Meier; "The Attitude of Heating Engineers Towards the New Thought in Heating and Ventilating," Editorial; "Removal of Re-

fuse and Waste by Fans and Blowers," by F. R. Still; "Analysis of Operating Conditions of a Central Hot Water Heating System," by Ira N. Evans.

Indian Medical Gazette (Vol. XLVII, No. 9)—"Inoculation and the Prevalence of Enteric and Paratyphoid Fevers in the European Army," by R. H. Firth; "The Vaccine Treatment of Pneumonia," by C. H. Barber.

Journal-Lancet (Vol. XXXII, No. 19)—"Unifying the Medical Profession," by John A. Witherpoon; "The New Public Health, Seventh Paper," by H. W. Hill. (Vol. XXXII, No. 20)—"The Significance of Medical Inspection of School Children," Editorial.

Journal of Medicine, New York State (Vol. XII, No. 10)—"Some Common Results of Eye Strain," by William R. Broughton; "On Occupational Diseases of the Eye," by Ward A. Holden; "On the Role of Education in the Prevention of Insanity," by C. Macfie Campbell; "Responsibility of the Country Practitioner in Relation to Public Health," by Elliott T. Bush.

Journal of Nursing, The American (Vol. XIII, No. 1)—"The Treatment of Pulmonary Tuberculosis," by H. H. Weist; "Organizations of Tuberculosis Work in Small Cities and Counties," by Chloe Jackson; "The Enforcement of the Law," by Mary B. Eyre.

Medical Council (Vol. XVII, No. 10)—"The Relief of Pain Without Morphine," by A. L. Benedict; "Recent Methods in the Treatment of Tuberculosis, Second Paper," by Paul E. Bain.

Medical Officer (Vol. VIII, No. 13)—"The Public Health Service as a Career," by E. W. Hope; (Vol. VIII, No. 15)—"Medical Treatment of Poor Children Under School Age," by P. Boobbyer; (Vol. VIII, No. 14)—"The Influence of Defects of Hearing in Relation to the Mental and Physical Development of the Child," by J. K. Kove; "Test-types for Young Children and Illiterates," by H. B. Collins; (Vol. VIII, No. 16)—"The Hygienic Advantages of Gas Heating," by Vivian B. Lewis.

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Medical Record, South African (Vol. X, No. 17)—"Tuberculin in the Diagnosis and Treatment of the Pulmonary Phthisis," by D. P. Marais; "Malta Fever in the Goat, a Veterinary Note," by J. Muir.

Medical Review of Reviews (Vol. XVIII, No. 10)—"Remedial Conditions in the Feeble-minded and Backward," by Stewart Cornell; "The New Art of Ventilation," by C. E. A. Winslow; "On Some Rife Conceptions About Dreams and the Psychopathology of Every-day Life," by Tom A. Williams; "Neurasthenia and Psychasthenia; Differential Diagnosis," by A. T. Rucker; "The Treatment of Gonorrhoeal Synovitis," by Samuel Blumenfeld; "The Folly of Investment Insurance," by George W. Hopkins.

Merck's Archives (Vol. XIV, No. 10)—"Vaccine Therapy of Typhoid Fever," by W. C. Wolvertton.

National Health (Vol. IV, No. 43)—"The Evolution of the Health Visitor," by Mrs. Florence J. Greenwood; "Standard of Purity for Food-stuffs," by James Oliver; "Personal Cleanli-

ness," by E. N. Niel; "Boy Scout Movement and National Health," by M. L. Porter.

Our Dumb Animals (Vol. XLV, No. 5)—"Our Winged Martyrs," by Theron Brown.

Outdoor Life, Journal of the (Vol. IX, No. 10)—"After Care and After Cure of Tuberculosis Patients," by C. D. Parfitt; "Social Activities of Bellevue Tuberculosis Clinic," by Sara E. Shaw; "The Meaning of Rest," by Will M. Ross; "Examination of Employees for Tuberculosis," by Theodore B. Sachs; "Tuberculosis Carriers," by Gerald Bertram Webb; "A Sanatorium for Indian Children," by John N. Alley.

Practical Medicine (Vol. X, No. 9)—"Suggestions in Town Planning from a Sanitary Standpoint," by Sheo Narain Mathur.

Prescriber (Vol. VI, No. 73)—"The Relations of the Physician, Pharmacist and Patient," by J. Rutherford Hill.

Public Health Reports (Vol. XXVII, No. 39)—"A Squirrel Destructor," by John D. Long; (Vol. XXVII, No. 40)—"Fifteenth International Congress on Hygiene and Demography," by A. A. Moll; (Vol. XXVII, No. 41)—"Poliomyelitis," by Wade H. Frost; (Vol. XXVII, No. 42)—"The Occurrence of Plague in Havana and Measures Adopted or Its Control and Eradication," by R. H. von Ezdorf; (Vol. XXVII, No. 43)—"Transmission of Poliomyelitis by Means of the Stable Fly (*Stomoxys Calcitrans*)," by John F. Anderson.

Public Health, American Journal of (Vol. II, No. 10)—"American Public Health Association Presidential Address," by John N. Hurty; "Permissible Limits of Sewage Pollution," by George A. Soper; "Some Economic Aspects of Factory Hygiene," by Winthrop Talbot; "Points of Contact Between the Health Officer and the Social Worker," by Homer Folks; "The Prophylaxis of Bubonic Plague," by W. C. Rucker; "A Measles Outbreak in Chicago," by G. B. Young; "Diphtheria Carriers and Their Relationship to Medical Inspection of Schools," by Henry Albert; "The Treatment of Rooms After Diphtheria and Scarlet Fever," by C. L. Arms.

Royal Army Medical Corps, Journal of (Vol. XIX, No. 4)—"Preliminary Note on Immunization Against *B. paratyphosus A.*," by S. L. Cummins and C. C. Cummins; "The Treatment of Gonorrhoea and Some of Its Complications," by L. W. Harrison and C. H. H. Harrold; "The Philosophy of our Aryan Brother," by R. H. Firth; "Water-bottles and Mess-tins," by N. Dunbar Walker; "Sunstroke—A Heresay," by W. H. Ogilvie; "Sand-flies and Sand-fly Fever on

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Sanitary Record (Vol. L, No. 1191)—"Waterworks for Urban and Rural Districts," by Henry C. Adams; (Vol. L, No. 1192)—"Waterworks for Urban and Rural Districts, Continued," by Henry C. Adams; (Vol. L, No. 1193)—"Waterworks for Urban and Rural Districts, Continued," by Henry C. Adams; (Vol. L, No. 1194)—"Waterworks for Urban and Rural Districts, Continued," by Henry C. Adams.

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State Medicine, The Journal of (Vol. XX, No. 10)—"Child Study and School Hygiene," by Sir James Crichton-Browne; "School Medical Inspection in Rural Districts in Germany," by K. Bialski; "The Prevention of School Epidemics," by Prof. von Drigalski; "Eugenics and Elementary Education," by R. T. Bodey; "The Prevention of Tuberculosis among School Children," by Prof. Nietner.

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 Blood of Fathers."

G. Frank Lydston, in introducing his social lesson in dramatic form under the title of this review, asks in a spirit of humor to be excused for butting into the recognized field of Bernard Shaw; he believes, however, the dramatic form to be the most ef-

fective in driving home such social lessons as he teaches. Dr. Lydston, a Chicago physician, has been fighting on the purely sociological side so long and this literary offering of his is of so interesting a nature that we believe his request for pardon should be granted.

We are inclined to see a distant resemblance to Ibsens' "Ghosts" in this essay on inherited degeneracy set forth in play form, iconoclastic as it is of certain modern social ideals. The story is of a young physician who marries the wrong sort of a girl. The girl's foster-parents are wealthy, but before the marriage it is revealed to the physician that his fiancée is the daughter of a murderous housebreaker and of a suicidal dope fiend, etc., etc., and worse. The marriage, however, takes place in spite of this, with results, that might ordinarily follow, set forth cleverly in the dialogue and action of the play. Note this piece of dialogue from one of the scenes:

Hartwell—"The difference between us is largely a matter of illusions. I've lost mine, that's all. I haven't any family idols or—"

Dr. Allyn—"But your mother?"

Hartwell—"Oh, I had one, alright. Don't remember the evening we were introduced. The family doctor did it. I have her picture, inscribed—'From Mama.' I remember my foster-mother best."

Dr. Allyn—"Your foster-mother!"

Hartwell—"Yes; my foster-mother—Mrs. A. Bottle—the only mother in New York society who isn't ashamed of nature—too busy to nurse the baby—afraid of spoiling her shape or—"

Dr. Allyn—"Or a fountain of life gone dry, eh? It's a pity Mrs. A. Bottle couldn't be cleaner in her habits. She'd have the other society mothers beat all around."

Again Hartwell says "Yes, but what's bred in the bone—"

And Dr. Allyn replies—"That works both ways; and besides, every child has a right to be well born. He can't select his own parents, hence we should do some selecting for him. It is for society to say whether the marriage license shall be a ticket to hell for souls unborn. The sins of the fathers are visited only through the blood of the fathers. Even the sinless bad blood of one generation may be the criminal bad blood of the next."—*The Blood of the Fathers. A play in four acts. By G. Frank Lydston. Chicago: The River-ton Press. Sold by subscription.*

"Exercise and Health."

Woods Hutchinson writes this book in his usual happy vein. It will pay for its perusal, and covers many things, in a broad way in which we are all very much interested, under the following headings: Errors in Exercise; Athletics and the Heart; Muscle Maketh Man; Occupation and Exercise; The Real Danger of Athletics; Exercise That Rests.—*Exercise and Health. By Dr. Woods Hutchinson. New York: Outing Publishing Co., 70c.*

"Necessary Basis of the Teacher's Tenure."

We are glad to see this address published in book form. It was delivered some time ago before the rural education section of the New York State Teachers' Association, and deals very clearly with its subject; the author's conclusion being that the State might very safely, and probably with advantage to its schools, establish the principle that whenever a teacher is once employed the employment shall be permanent, thereby meaning that the teacher shall be entitled to the position until he or she resigns or is removed by the trustees for a cause recognized by the law. This position is qualified and exemplified. And finally the author remarks that the interest of teachers who deserve protection, and the interests of schools that deserve to advance are altogether consistent; and the complete reconciliation of these interests in the Education Law is likely to contribute as much as anything else can to uphold the honor and promote the progress of the state.—*Necessary Basis of the Teacher's Tenure. By Andrew Sloan Draper, LL.D., Commissioner of Education, State of New York. Syracuse, N.Y.: C. W. Bardeen, Publisher. 50c.*

"Modern Theories of Diet."

While this book is primarily written for the medical profession, especially those wise ones in this profession who are students of dietetics, we feel with the author that it will highly commend itself to all who are interested in the question. After acknowledging the present to be the era of preventive medicine, no longer a specialty

in the hands of the medical officer of health, the author points out that in no branch of this vast subject has greater advance been made than in that of dietetics. He does not fully subscribe to the Utopian faith of those who preach that by the adoption of a suitable diet it should be possible to so improve mankind, by building the bodily edifice of a more enduring and resistant material, as to confer a degree of immunity upon it that would render other branches of preventive medicine ultimately nugatory. He does, however, consider the subject of dietetics of incomparable importance, taking the subject up for the benefit of his readers in a most interesting way under the following divisions: Theories of Metabolism; Vegetarianism in Theory and Practice; Low-protein Theory and Practice; Purin-free or Uricacid-Free Diet in Theory and Practice; Hyperpyræmia in Theory and Practice; Dietetic Theories Associated with the Mineral Salts; Dietetic Theories Associated with Water; The Theory and Practice of Efficient Mastication; The "Curdled Milk" Theory and Practice; The "No-Breakfast Plan in Theory and Practice; Raw Food in Theory and Practice; Yeast-Free Bread in Theory and Practice; Forced Feeding in Theory and Practice; Fasting in Theory and Practice; The Practice of Moderation.—*Modern Theories of Diet and Their Bearing Upon Practical Dietetics.* By Alexander Bryce, M.D., D.P.H. (Camb.). New York: Longmans, Green and Company. London: Edward Arnold. \$2.10 net.

"Words to Wives."

Dr. Bingham writes for the laity in "Words to Wives," and he writes well, filling, in this book, a want which medical men have always recognized in the ignorance so often met with in young wives. Among the subjects taken up are the following: Pregnancy; The Care of Health in Pregnancy; Engaging the Doctor; Engaging the Nurse; The Lying-in Chamber; Preparing for Confinement; The Infant; The Eruption of the Teeth or Dentition; Weaning.—*Words to Wives on Pregnancy and Parturition.* By S. Bingham, M.R.C.S., Eng. London: George Allen and Com-

pany, Limited, Ruskin House: 44 and 45 Rathbone Place. 3/6 net.

"Gonococcal Infections."

It will be admitted, as the authors point out, that the potential gravity of gonococcal infections makes their prophylaxis a subject of the greatest importance. This admission would not have been made previous to the investigations of Neisser, Finger, and the others who have altered for us the aspect of this disease. An idea of the importance and convenience of this little book may be obtained from a recital of its chapter headings, which are: Pathology; Vaccine and Serum Therapy; Primary Infections; Treatment of Gonorrhœa in the Male; Complications in the Male; Gonococcal Infections in the Adult Female; Gonococcal Ophthalmia; Gonococcal Vulvo-Vaginitis of Little Girls; Gonococcal Septicæmia. Under these headings the authors give a concise account of the present state of our knowledge of this important subject.—*Gonococcal Infections.* By Major C. E. Pollock, Royal Army Medical Corps, and Major L. W. Harrison, Royal Army Medical Corps. London: Henry Frowde Hodder and Stoughton. Oxford University Press, Warwick Square, E.C. Toronto: D. T. McAinsh and Company.

"Smallpox and Its Diffusion."

The writer of this interesting work records his experience of the Eastern Hospitals which he believes entirely disposes of the theory of distal aerial dissemination in smallpox. He points out that the object of his monograph is to show that such hypothesis is unsupported by the evidence and that those who initiated and organized the smallpox and fever hospitals of London, England, rendered an inestimable service not only to London but to the world.—*Smallpox and Its Diffusion.* By Alexander Collie, M.D. (Aberd.) Member, Royal College of Physicians, London, Etc.; Late Pathological Assistant and Resident Surgeon, Royal Infirmary, Aberdeen; Clinical Assistant, Sick Children's Hospital, Great Ormond Street; Resident Assistant Medical Officer, London Fever Hospital; Clinical Instructor, Eastern Hospitals, Etc.; Medical Officer, Eastern Ambulance Station, and Smallpox Hospital

Ships, "Atlas" and "Endymion," Greenwich. Bristol: John Wright and Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent and Co., Limited. 1912. 2/ net.

"House Flies."

Our readers are familiar with much of the work of C. G. Hewitt in his capacity as entomologist for the Canadian Government, as a prominent member of the Canadian Public Health Association, and as one who has written most interestingly for this journal. We have before us a work of Dr. Hewitt's under the above title which we are able to highly recommend to those who wish to become familiar with the common house fly. About eight years ago, Dr. Hewitt says, on being asked for some information of a special kind regarding the house fly, he was surprised after looking into the matter that our knowledge of this insect was of the most meager character. He therefore commenced a study of its structure, development, and biology, with a special reference to its relation to the dissemination of the disease. "House Flies" contains the results of this study, is illustrated and indexed and is worth considerably more than its price of one shilling charged for it by its publishers The Cambridge University Press.—*House Flies and How They Spread Disease. By C. G. Hewitt, D.Sc., Dominion Entomologist, Ottawa, Canada. Cambridge: The University Press. 1/.*

"Making Good on Private Duty."

Believing, while the teaching in our schools grows better and more comprehensive, that the young nurse requires counsel and guidance in facing many of the old problems in private work, the author has written this book specially for young private duty nurses. The book is based on the experience of the author and of the graduates of the school of which she was superintendent. "Not to be ministered unto, but to minister," is the book's motto, and in her practical hints to graduate nurses the author considers, in a most interesting and instructive manner, the nurse and her patient, the nurse and her doctor, the nurse herself, the nurse and

her patient's family, friends and servants, general remarks on foods and feeding, the nurse as relating to her training school and to her fellow nurses, why do nurses complain? the nurse as a teacher, convalescence, how shall a nurse occupy her days of waiting? some hints for the obstetrical nurse, as to washing the baby, and the valley of the shadow.—*Making Good on Private Duty; Practical Hints to Graduate Nurses. By Harriet Camp Lounsberry, R.N. President of the West Virginia State Nurses' Association. Sanitary School Inspector for Charleston Independent School District. Philadelphia and London: J. B. Lippincott Company. Montreal: J. B. Lippincott Company, Charles Roberts, Manager for Canada.*

"Microbes and Toxines."

Not the least part of the interest in this work attaches to its introduction by Elie Metchnikoff and its attached frontispiece of Professor Metchnikoff. The frontispiece of the book is a photogravure Pasteur when a pupil at the Ecole Normale, 1843-46; the book further containing an index and glossary following a full dissertation in fifteen chapters on microbes and toxines, ranging in subject from the general functions of microbe to toxins, immunity, vaccines and sera and chemical remedies.—*Microbes and Toxines. By Dr. Etienne Burnet of the Pasteur Institute of Paris, with a preface by Elie Metchnikoff. Translated from the French by Dr. Charles Broquet and W. M. Scott, M.D. London: William Heinemann. 5/ net.*

"International Clinics."

The contents of volume III. (22nd series) of this excellent quarterly are arranged in divisions dealing with diagnosis and treatment, medicine, surgery, ophthalmology, obstetrics and gynaecology, and occupational diseases. Among the articles of special interest are Professor Ciesielski's Theory of Sex Determination; How It Happens That the Offspring of Plants, Animals, and Men is Sometimes Male, Sometimes Female; The Recognition and Treatment of the Complications of Gonorrhœa in Women; Occupational Hygiene in the Navy; and, Industrial Poisoning.

There are a large number of good illustrations, and the work is indexed.—*International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World.* Edited by Henry W. Cattell, A.M., M.B., Philadelphia, U.S.A., with collaborators. Volume III., 22nd Series. Philadelphia and London: J. B. Lippincott Company. Montreal: J. B. Lippincott Company, Charles Roberts, Manager for Canada.

"The New Physiology in Surgical and General Practice.

Here we have a successful attempt to bring the physiologist and the surgeon closer together. The author introduces, with but few exceptions, only the established and settled conclusions arrived at by many competent and independent workers. The book is written simply and will be found intelligible to those who have the most elementary knowledge of physiology, taking up: The Growth of Bone; Problems of Blood-pressure and Surgical Shock; The Thyroid and Parathyroid Glands; The Pituitary Gland; Studies in Digestion and Absorption; The Hæmorrhagic Diathesis; The Physiology of Uric Acid and Other Urinary Deposits; Acidosis, Acetonæmia, and Diabetes; Immediate and Remote Poisoning by Chloroform; Nerve Injuries; The Surgical Physiology of the Spinal Cord; Cerebral Localization; The Action of Cutaneous Anæsthetics.—*The New Physiology in Surgical and General Practice.* By A. Rendle Short, M.D., B.S., B.Sc. (Lond.), F.R.C.S. (Eng.), Hon. Surgical Registrar, Bristol Royal Infirmary; Senior Demonstrator of Physiology, University of Bristol. Second Edition. Revised and Enlarged. Toronto: The Macmillan Company of Canada, Ltd.

"Health in Home and Town."

In this work the author writes very attractively and from a teacher's point of view, intending the book to instruct the child to be intelligent not only about his personal home, but also about his greater home, the town or city. It is indexed, and this with the fine illustrations incorporated

will help the young student to a fuller understanding of the many important things considered. Among these things are: The Healthful Home; The Dwelling House; The Rooms of the House; How to Ventilate the House; How to Warm the House; How to Light the House; How to Use Running Water in the House; How to Finish and Decorate the House; How to Furnish the House; How to Care for the House; Some Enemies of the Home; The Healthful City; The Parks and Playgrounds; The City Food Supply; The City Water and Ice; The City Refuse; The City Streets; The Diseases Dangerous to the Public Health; The Great White Plague—Tuberculosis; The Prevention of Disease; The Safe City; A National Evil. At the end of the book is given a list of books for the teacher arranged in order under the heading of each chapter of "Health in Home and Town;" an index follows.—*Health in Home and Town.* By Bertha Millard Brown, S.B., author of "Good Health for Girls and Boys." Boston; New York; Chicago: D. C. Heath and Company, Publishers. Price 60c.

Publications Received for Later Attention.

"The Physiology of Faith and Fear." "The Psychology of Conduct." "Neurasthenia Sexualis." "The Mastery of Being." "Audel's Answers on Automobiles." "An Introduction to Psychology." "The Food Inspector's Encyclopædia." "Foods, Their Origin, Composition and Manufacture." "Current Educational Activities." "Fresh Air and How to Use It." "Post Mortems and Morbid Anatomy."

And receipt of the following publications not mentioned elsewhere in this issue is hereby acknowledged "Program and Invitation to the Dedication of the Medical Lane Library." "Annual Report of The Institute Bruchesi" (for 1911-1912). "The American Journal of Urology" (for October). "Measurement in Child Study," by Sir James Crichton-Browne. "The Bacterial Therapist" (for October). "The Canadian Teacher" (for October 1). "City of Winnipeg Bulletin," issued by Department of Public Health (for October). "The Busy Man's Canada" (for October). "Monthly Bulletin New York State Department of Health" (for September). "Growth: Somatic and Cerebral," by Sir James Crichton-Browne. "Oral Health" (for October). "Third Annual Report of the City Improvement League of Montreal" (for 1912). "The Canadian Teacher" (for October 15). "Monthly Bulletin Ohio State Board of Health" (for September). "Truth" (for October 2). "The Western Municipal News" (for October). "Official, State Provincial and Federal Publications" (for October). "Health Bulletin, Department of Health, Toronto" (for October).

Open Mail

To the Editor, *The Public Health Journal*:

Public Health and the Liquor Traffic.

Sir:—I intended to be at your meeting (Congress of the Canadian Public Health Association) and read a short paper which I had prepared, although professional cares did not allow me to prepare it so well and fully as I should have done. But I could not possibly go. I therefore take the liberty of sending you the paper. (Published last month.—Ed.)

I also enclose a resolution, a similar resolution I would have liked to see that the meeting take up and pass. Work for the public health and let the liquor traffic continue and you will never succeed; abolish the liquor traffic and half the work is done.

Fraternally yours,

Sig. Jul. Johannesson,

Wyngrave, Sask. Health Officer.

PROPOSED RESOLUTION.

Whereas, the aim of our association is to battle against disease in any form and maintain the public health, and

Whereas, it is known to us that a great percentage of all deadly diseases (as *i.e.* tuberculosis) is caused by poverty and uncleanliness, and

Whereas, it is equally well known by us that a great percentage of poverty and uncleanliness is the direct or indirect outcome of drunkenness or use of alcoholic drinks, and

Whereas, it is scientifically and statistically proven that alcohol as a drink is never beneficial to the human body, but most often very destructive, and

Whereas, it is our opinion that alcohol as well as other poisonous drugs never should be sold except by a qualified druggist when prescribed by a qualified physician as a medicine.

Be it therefore resolved by The Public Health Association of Canada in session at Toronto, 1912:

First—That we commence and continue an earnest and wholehearted warfare against the sale of intoxicating drinks in any form except as a medicine.

Second—That we as a body petition the

Dominion Government of Canada to inaugurate a law prohibiting the sale of intoxicating liquors.

Third—Should the government not feel justified in doing this or not willing to do so, then we shall demand that the question be voted on in the whole Dominion by the public within six months from now.

Soil, Civic, and Health Conservation.

Sir:—What a good old mother is Mother Earth. What a great teacher is Nature. This mother and this teacher were always the great sources of inspiration for Emerson, Longfellow, Bryant, Whittier, Tennyson; all who live in song, poem and ideals, and though dead, speak to us to-day. "How poor this world would be without its graves; only the voiceless speak forever."

Good old Mother Earth, from whose bosom springs the nourishment for the children of men, sacrifices the life of to-day that a larger, better, sweeter life shall bless her family, and if mankind would feed upon Mother Earth's offerings, health conservation would be greatly strengthened and advanced.

We believe the day is coming, has arrived, when soil conservation will go hand-in-hand with civic and health conservation. Soil conservation is the proper care of the soil that its fertility may not be exhausted. This means proper ploughing, harrowing, drainage, fertilization; the latter meaning the adequate feeding of the soil. All this is more urgent than it appears upon paper, since we have almost reached a crisis in soil production and consumption by the constantly increasing human family.

Soil sanitation means soil fertility, and the incentive that directs it will make civic and physical sanitation equal co-partners.

Centuries ago a murderer asked the question, "Am I my brother's keeper?" He asked the question that he might conceal his crime. Are we our brothers' keeper? The answer depends upon what we are doing to make better environments for our brothers and sisters, as well.

Lansing, Mich.

D. E. McClure.

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

Canadian Conference of Charities and Corrections.

The care of the unfortunate and mentally defective child formed one of the topics of discussion at the sessions of the Canadian Conference of Charities and Corrections last month in Montreal. A number of speakers dealt with the dependent or neglected child and with the defective child. Dr. Goddard, of the Vineland Institution, N.J., had striking facts to relate, and made statements in regard to the increase of feeble-mindedness and the menace of this fact to the nation.

"Placing Out in Ontario" was the subject handled by J. J. Kelso, of Toronto. The speaker stated that one-half the dependent children who found their way into orphanages and reformatories were there because they only had one parent, the father either being dead or having deserted.

R. B. Chadwick, superintendent of neglected children in Alberta, in a paper on "Dependent Children," read in his absence, advocated the private home system for normal children, and stated that the situation in Alberta was that there were more homes open than there were waifs for disposal. He also favored helping widowed and deserted mothers to keep their homes together by subsidies.

The work carried on in the Notre Dame de Montfort Industrial School was described by Rev. Father A. Winnen, the director, who pointed out that the views of the previous speakers were impracticable in Quebec at present in the absence of an adoption law.

J. E. Merritt, director of physical training of the Y.M.C.A., Montreal, took for his text that "work is a cardinal principle in life, but to this must be added play." Play was necessary to conserve the health of the people. Tuberculosis must be combated by good, healthy play. "Play is not a luxury, it is a necessity. This I would have ring in the ears of all," said Mr. Merritt.

A paper on the settlement as a social force was read by Miss Elizabeth Helm, head worker of the University Settlement, Montreal. She told of a meeting in Boston, at which there were only seven Canadians against fifteen hundred Americans; six of those seven were present to-day.

Winnipeg was represented by F. L. Woodsworth, who spoke on "The Wider Use of Schools."

Dominion Medical Council.

The first meeting to organize a Dominion Medical Council was summoned on Oct. 22nd by Hon. Dr. Roche, Secretary of State. The summons, which was issued under the Canada Medical Health Act, called for a gathering of delegates at Ottawa on the morning of Thursday, Nov. 7th. The meeting comprises representatives of the several provincial medical councils, representatives of the universities, representatives of the homœopathic physicians, and three members yet to be appointed by order-in-council.

The Canada Medical Health Act was passed in 1902, after years of effort, by Dr. Roddick, formerly M.P. for one of the divisions of Montreal. It could not go into effect until all the provincial legislatures had approved it, and this has taken ten years. Now the way lies open to the formation of a Dominion Council, and the formulating of rules regarding examinations, etc. The Act commits the work of organization to the Minister of Agriculture, but Mr. Burrell has asked Dr. Roche to take it over, he having been one of the champions of the Act when it was before the House.

The delegates from the provincial councils are:—

Ontario—Dr. W. Spankie, Wolfe Island; Dr. R. J. Gibson, Sault Ste. Marie.

Quebec—Dr. L. P. Norman, Three Rivers; Dr. Arthur Simard, 59 Rue d'Antenial, Quebec.

New Brunswick—Dr. A. B. Atherton, Fredericton; Dr. Walter W. White, St. John.

Nova Scotia—Dr. A. W. H. Lindsay, Halifax; Dr. John Stewart, Halifax.

Manitoba—Dr. R. S. Thornton, Deloraine; Dr. J. S. Gray, Winnipeg.

Alberta—Dr. R. G. Brett, Banff; Dr. John Park, Edmonton.

British Columbia—Dr. R. E. McKechnie, Vancouver; Dr. R. E. Walker, New Westminster.

Those of Prince Edward Island and Saskatchewan have not yet been selected.

The representatives of the universities are:—

Dalhousie—Dr. D. Fraser Harris, Halifax.

Manitoba—Dr. J. R. Jones, Winnipeg.

Queen's—Dr. J. C. Connell, Kingston.

Western—Dr. H. H. McCallum, London.

Laval, Montreal—Dr. E. P. Lachapelle, Montreal.

Laval, Quebec—Dr. D. Brocher, Quebec.

McGill—Dr. F. J. Shepherd, Montreal.

Toronto—Dr. J. M. McCallum, Toronto.

The representatives of the homœopathic body are:—

Manitoba—Dr. Chas. E. Sugden, Winnipeg.

Ontario—Dr. E. A. P. Hardy, Toronto.

Quebec—Dr. E. M. Morgan, Montreal.

Royal Edward Institute.

At the third annual meeting of the Royal Edward Institute in Montreal recently, Lieut.-Colonel J. H. Burland, its founder, suggested that the most important sanitary reforms on which all public bodies could concentrate at the present time were to attack the dusty streets and the imperfect ventilation of public buildings. So great was the first evil that he felt inclined to suggest that citizens should wear masks of the same kind as those required by the Factory Act for the protection of those whose occupations are considered dangerous on account of the dust they raise.

As regards the ventilation of many of the churches, theatres, restaurants, street cars and other public meeting places much would have to be done before they could be counted as other than strongly contributing causes to the general reduction of vitality, which in turn caused a predisposition to many forms of disease, and especially to tuberculosis.

Lieut.-Col. Burland thought that possibly the increased mortality from tuber-

culosis in Montreal at present was due to the fact that the population had increased, and that doctors better realized their duties in the matter of registration. Canada was lagging, however, far behind Germany, which had reduced the mortality from this cause from 30.8 per 10,000 in 1880 to 15.25 in 1910, with a strong expectation that in another thirty years the disease will be practically extinct. The tuberculosis problem was so inextricably woven with other problems of housing reform, city planning, immigration laws, school system, the cost of living, charity organization, the minimum wage and labor conditions generally that attention is being brought to bear upon it from all sides.

Lieut.-Col. Burland thought that the most crying need of Montreal was a hospital for advanced cases, in order to isolate them, and so remove from the community one of the most fruitful sources of the spreading of the infection. The province and the city were still considering representations that had been made to them to undertake the maintenance of such an institution promised by the founder to be erected at a cost of \$100,000 if others would undertake the maintenance at a yearly cost of \$20,000. He referred to the decision arrived at in collaboration with the Bruchesi Institute that in order to avoid duplication of work the Royal Edward Institute would open a branch dispensary at the north end, and the Bruchesi Institute one in Maisonneuve. It was also proposed to establish an open-air school for their patients between five and fifteen, twenty to be selected from those considered curable, and a teacher appointed if the Protestant School Commission will undertake it. These classes would be held on the roof or verandah. In Chicago such a class of thirty children in thirty days showed an average increase of four pounds per pupil.

In the course of some complimentary words regarding the Child Welfare Exhibition, Lieut.-Col. Burland emphatically pronounced himself in favor of a museum of hygiene to permanently perpetuate the benefits of the exhibition, according to the proposal of Dr. Pelletier, of the Quebec Board of Health. He also referred to the Tuberculosis Day established in the United States, when 100,000 churches or religious

societies will deal with the subject, and said that next year Canada would do likewise.

Lieut.-Col. Burland and the other speakers during the meeting paid a tribute of respect to the memory of Inspector Mireault and the devoted work he had given to the institute up to the day of his death. Tributes were also paid to Mr. William James, of West Dean Park, the host of King Edward VII., when the institute was opened by cable; Miss Mary Dow, Messrs. John Allan and F. W. Thompson, and two of the elective governors, Messrs. J. Alex. Stephenson and H. C. Scott, all of whom had been removed by death.

The report of the secretary, Dr. E. S. Harding, on his return from a six months' study in Europe of the tuberculosis problem as it is dealt with there, was to the effect that Montreal has one of the finest tuberculosis dispensary buildings and equipment in the world, but that since Montreal did not possess anything else than this she was most inadequately equipped for fighting this great evil. Dr. Harding described the work being done, and agreed with the president that the increased number of cases of tuberculosis reported was a matter for congratulation, for it showed an increasing tendency among medical men to call this disease by its name. He suggested that a commemorative tablet of Inspector Maxime Mireault and his work should be placed on the tuberculosis map, which was his work, and which hung in the board-room.

The financial statement showed receipts of \$11,892 and disbursements of \$12,285, leaving a deficit of \$393, smaller than for years. The net capital is \$95,920. Reports from the Ladies' Committee, the Medical Board, the Publication Committee, the Lecture Committee, and of the Relief Committee were then made and adopted.

The officers of the previous year were re-elected with a few changes. Mr. Ross H. McMaster takes the place of Mr. R. Lloyd Jones on the Board of Management, and the name of Dr. J. E. Laberge was added. Dr. V. Cleroux takes Dr. Francis' place on the Medical Board. Hon. Robt. Mackay and Mr. J. W. Pyke are appointed life governors, and Dr. E. S. Harding, Mrs. Bacon and Miss Barry were appointed life governors as an evidence of apprecia-

tion of their work. Mrs. James Ross and Mr. A. Joyce were appointed governors, and the elective governors are:—Mr. F. L. Wanklyn, Mr. E. F. Hebden, Mrs. Alfred, Hon Wm. Owens, Lieut.-Col. A. E. Smart, Mrs. Benson, Theo. Labatt, Mr. F. N. Southam, R. MacD. Paterson, and Miss McLennan.

Domestic Notes.

The British Columbia Board of Health gives notice that such medical inspectors of schools as are appointed by the Provincial Board of Health in rural and assisted schools, under authority of section 3 of the "Schools Health Inspection Act," are to be paid by the Provincial Board of Health at a rate of 50 cents for each pupil examined, and that they are to be allowed for each annual inspection of a school, traveling expenses to the school at a rate not exceeding 50 cents per mile. Inspections other than the regular annual inspection, when made upon written request to the Provincial Board of Health by the Board of School Trustees, are to be paid for at the same rate as the annual inspection. Vouchers for payment of these fees and traveling expenses are to be sent with the report of the inspection to the Secretary of the Provincial Board of Health.

The securing of a general sanitary survey dealing particularly with water, sewage and drainage for every city, town or village in Ontario, with the exception of centres of over fifty thousand population, is to be embarked upon by the provincial health authorities through the district officers of health.

The district officers have practically completed their preparatory work in Toronto, and it is expected that they will leave for their respective districts on Nov. 15th. They will at once start upon the preparation of sanitary surveys of the municipalities under their charge. It will be their duty to examine the source from which the people of the municipalities get their water to determine whether it is being contaminated, and to find out whether sewage is acting as a source of danger at any point. No survey of the kind has ever been attempted before, and the provincial authorities are prepared to find conditions existing in some places that were never sus-

pected, and which may call for vigorous action.

The district officers will never be out of touch with headquarters. They are given fairly wide authority, but will be required to report to the Provincial Board daily.

Although the officers for each district have been appointed to work in home territory, with which they are familiar, the final arrangement of central points from which they are to operate makes it necessary for several of them to move. Dr. D. B. Bentley, of Sarnia, will have his headquarters in London. The northern district will be taken care of from Harriston, where Dr. T. J. McNally, of Owen Sound, will move. Dr. George Clinton, of Belleville, will look after the central counties from Peterborough, while the eastern end of the province will have its health centre at Kingston, where Dr. P. J. Maloney, of Cornwall, will have charge. Dr. McClenahan, of Hamilton, will stay where he is, nor will the officers placed in charge of the two Northern Ontario districts—Dr. C. E. George, of North Bay, and Dr. R. E. Wodehouse, of Fort William—have to change their place of residence.

Notice appears in the Canada Gazette of the fixing of standards of quality in a number of products. This step is taken under the Adulteration Act, and among the products defined as to quality are honey, fruits, dried fruit, evaporated fruit, evaporated apples, canned fruit, preserving jam, marmalade, fruit butter, fruit jelly, canned peas and flavoring extracts. In cases where jam and marmalade, etc., contain fruit or fruit juice other than that which gives its special name to the article, the fact is to be stated on the label in letters as large and distinct as those used in naming the fruit principally present. The presence of glucose instead of sugar is to be noted. Canned peas are to be prepared of peas from the harvest of the year in which they are prepared, and are to be prepared as a rule from unripe peas. If ripe peas are used the fact must be plainly stated.

A slight improvement in the general health of the Province of Ontario for October compared with a year previous is shown in the monthly reports of local

boards. Despite the fact that communicable diseases, particularly tuberculosis, are being more thoroughly reported the number of cases for October is fifty-one less than in October, 1911. The most decided improvement was in the reduction of diphtheria cases. The summary of the reports shows:

	1912.		1911.	
	Cases.	Dths.	Cases.	Dths.
Smallpox.	5	0	20	0
Scarlet fever	144	1	155	8
Diphtheria.	200	22	315	26
Measles.	126	1	65	2
Whoop. cough	34	4	35	8
Typhoid.	173	36	182	26
Tuberculosis.	101	67	68	49
Infantile paralysis	13	1	0	0
Spinal meningitis. .	2	2	9	9
Totals.	798	134	849	128

The Toronto Housing Company has purchased the Wilson farm of 200 acres, situated two miles north of Danforth Avenue and four miles east of Yonge Street, at a figure slightly under \$100,000. It is to be developed into a model garden suburb, and the idea is, if practicable, to give each tenant a quarter of an acre to be used as a market garden. The soil is well suited for this. This means that on the 200 acres 800 families may be housed in sanitary and comfortable homes, and have their own little garden plots to grow their vegetables by intensive farming. The new site is crossed by the C. N. R., and the company is negotiating for a station both on the upper and lower levels of the railway, and a commuters' service to and from the city. If this be secured, it would mean a thirty-minute trip from the model suburb to the centre of the city. It is also hoped by the promoters that the new civic car line on Danforth Road will be extended to the north to give them accommodation.

Toronto has been selected as the next meeting place of the Canadian Highways' Association, at a date to be fixed later. Regarding the financing of the organization it was proposed that districts and cities should contribute from \$10 to \$200, according to population, and a graded scale of distributions from public bodies was outlined.

Inspector Walter H. Elliott, in his annual presidential address to the Toronto Teachers' Association in Convocation Hall recently, urged the necessity for revision of the educational system to meet its rapidly advancing needs and requirements. He said that an educational system to be vital and useful must have its roots in the life and needs of the people, must be shaped in accordance with the demands of the present and the ideals of the future. To that end he strongly advocated the organization of a well-equipped department of medical inspection as an integral part of Toronto's system of education, open-air schools, vocational and industrial training, special provision for the mentally defec-

tive and a segregation of the backward.

An innovation in connection with the admission of students into McGill University goes into effect this week. Hereafter all students before being allowed to enter the university must pass a physical examination. The McGill authorities, in announcing this new rule, state that it has been introduced in order to promote the physical welfare of the student body. Where weaknesses are discovered advice as to how to correct them will be given by the medical director of the university.

Advance Notices, Alphabetical.

Canadian Public Health Association—1913 Congress, Regina. Particulars later.

INTERNATIONAL

Congress of the Great Lakes—International Pure Water Association and the National Association for the Prevention of Pollution of Rivers and Harbors.

Pure water for drinking and domestic purposes for the cities of both the United States and Canada was discussed last month at the meetings of the Great Lakes International Pure Water Association and the National Association for the Prevention of Pollution of Rivers and Harbors.

Dr. Chas. J. C. O. Hastings, Medical Officer of Health of Toronto, spoke in opposition to the practice of making the Great Lakes the depository of municipal sewage. He favored some plan of concerted action between Canada and the United States, holding such action indispensable to the prevention of typhoid and a reduction in the mortality rates.

"It is surprising to note," Dr. Hastings said, "that notwithstanding the progress made in recent years in other problems pertaining to public health, the primitive method of discharging sewage into a common water supply still continues. In the light of present knowledge it is difficult to conceive of a more unpardonable offence against public health being tolerated by civilized men. Of the various methods of disposal of sewage that by dilution is the most universally adopted. By it millions

of gallons of filth are dumped into a large body of water, such as the Great Lakes. The sewage being dumped into the lake the municipality is rid of it, and trust is placed in Providence for the rest."

No sewage should be permitted to enter the lakes within ten miles of a water supply intake, Dr. Hastings maintained, and far better still would be the universal adoption of sewage disposal systems other than that of dilution.

Those attending these conventions, however, found themselves divided on the question of sewage disposal. Dr. Allen J. McLaughlin, of the United States Government Health Service, discussed sewage-pollution of the Great Lakes. He declared for a guarded and regulated discharge of refuse into those bodies. His stand was opposed by Canadians, who favor a general law in both countries that would forbid the discharge of sewage into the lakes.

As between the purification of the water supply of a city and the purification of the sewage discharge into the source of that supply, Dr. McLaughlin sanctioned water purification, holding that it is both cheaper and more effective.

Officers of the Pure Water Association were chosen as follows: Dr. Chas. J. C. O. Hastings, Toronto, President; Dr. Guy Kiefer, Detroit, Vice-President; Dr. Paul Hanson, Chicago; Secretary-Treasurer. Chairman of the Executive Committee, Dr.

C. E. Ford, Cleveland; editor, H. A. Whitaker, Minneapolis.

Toronto was selected as the next meeting place.

Brigadier-General George Torney, Surgeon-General of the United States Army, was elected President of the National Association for Preventing the Pollution of Rivers and Waterways.

International Notes.

A charter has been granted in the Supreme Court of New York to the Society for Promoting Efficiency, an organization formed by business and professional men, educators, economists and publicists "to promote efficiency in commercial and industrial enterprises of all kinds, including public service corporations." While the territory in which the organization will work is stated in the petition for a charter as New York State and the City of New York, the directors live in various parts of the United States and Canada. Those who signed the petition include James G. Cannon, President of the Fourth National Bank, New York; B. J. Arnold, Chicago; M. E. Cooley, University of Michigan, Ann Arbor; H. R. Hatfield, University of California, Berkeley, Cal.; Melville W. Mix, Misnawka, Ind.; ex-Senator W. A. Clark, Phillips Andrews, Navy Department, Washington, and H. E. Smith, Montreal.

The first International Congress of Compared Pathology took place in Paris at the Faculty of Medicine, from Oct. 17 to Oct. 23. It was held under the patronage of the French Government, and many eminent scientists. M. H. Roger, Professor of Experimental and Compared Pathology in the Paris Faculty of Medicine, presided. Among the questions discussed were not only the whole series of diseases common to men and animals, but also the relations that may exist between the disease of different species. Papers were also read on vegetable pathology and the possible relations between certain diseases of plants and animals.

"A woman that would not nurse her baby if she could, deserves to eke out a

monotonous existence as a spinster," was the dictum pronounced at the fifteenth International Congress of Hygiene and Demography by Dr. Henry B. Fry, one of the leading physicians of Washington and a practitioner among the ultra smart of Washington society. According to Dr. Fry, the woman who forsakes the natural office in order to be spared the inconvenience of nursing her baby does not deserve to have the baby. Bridge, afternoon teas, motoring, the country club and matinees are blamed by Dr. Fry for many ailing babies and held responsible for most of the deaths of infants from mal-nutrition by reason of improper substitutes for the "mother's milk."

Advance Notices, Alphabetical.

American Public Health Association Congress in the fall of 1913 at Colorado Springs, Col.—particulars later.

Council of Nurses' Congress, San Francisco, in 1915. President, Miss Annie Goodrich, New York City.

Geological Congress.—Twelfth Annual Meeting to be held in Canada during the summer of 1913. Secretary, W. S. Lecky, Victoria Memorial Museum, Ottawa.

International Congress of School Hygiene, Buffalo, N.Y., August 25th to 30th, 1913; the fourth but the first held on the American continent.

Roads Congress.—The Third International Roads Congress will be held in London, England, in June, 1913. Secretary, W. Rees Jeffreys, Queen Ann's Chambers, Broadway, Westminster, London, S.W., England.

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.

Prison Congress, Quinquennial, London, Eng. 1915. Secretary, F. Simon Van der Aa, Groningen, Holland.

Relief, Committee on Public and Private. London, Eng., 1915. Secretary, Charles S. Loch, Charity Organization Society, London, Eng.

Surgeons of North America, Clinical Congress of. Third Congress, Chicago, November 11 to 16. Franklin H. Martin, General Secretary.

Unemployment, International Association for Fight Against. Ghent, Belgium, 1913. American Corresponding Officer, John B. Andrews, 1 Madison Avenue, New York.

UNITED STATES

Fourth National Congress on Conservation

Arrangement with the fifteenth International Congress on Hygiene brought many foreign delegates to the fourth National Congress on Conservation, held at Indianapolis last month. Among those who contributed to the proceedings were: Dr. Harvey W. Wiley, Professor Irving Fisher of Yale University, Prof. L. H. Bailey, national authority on agriculture; Dr. Livingston Farrand, Dr. William P. Hornaday, preserver of wild animal life; Gifford Pinchot, and others of equal note.

An address on the "Conservation of the Human Race," was made at the congress by Dr. J. N. Hurty, of Indianapolis, ex-president of the American Public Health Association. He said in part:

"High authority says we are only fifty per cent. efficient; that we live out less than one-half the natural duration of life; that we consume twice as much food as is needed to maintain efficient life; that we waste as much as we use, and that one-half of all human beings born either die before reaching maturity or fall into the defective, delinquent or dependent classes.

"In these facts we find reasons why we waste the major portion of all our resources, and call it development. In these facts we find reasons for the existence of robber taxation and predatory business.

"For, a people who waste themselves will, of course, waste their natural resources. Therefore, the first, the most important, the fundamental conservation, is the conservation of human efficiency.

"A people who cannot be brought to a realization of the fact that they lead only half lives, and, who realizing will not mend will show the nations to come what fools the present mortals were."

Dr. Hurty denounced the indiscriminate use of patent medicine, and said: "At present we are in the patent medicine stage of ignorance from which we must emerge before real conservation of human life and energy can be realized."

We must learn the science of living, Dr. Hurty said further, and "the science of living begins at the mouth." All drugs, poisons, and improper foods should be kept away from the mouth, he advised, and that over-fatigue is another element which

causes great loss of human vitality and weakens the body so that it is attacked by diseases. The question of heredity should also be more thoroughly studied and the production of the hereditary insane and idiotic should be prevented.

Another interesting and important paper presented before the fourth National Conservation Congress was written, not by a physician nor a sanitarian, but by a business man, Mr. E. E. Rittenhouse, of the Equitable Life Assurance Company. Mr. Rittenhouse, in the opening paragraphs of this address, recognized the crucial point in the present situation. He said: "It takes money to carry on a great educational movement and it takes money to conduct a public health service. The war between preventable disease and death is therefore a struggle between the dollar and the death rate."

New York Association for Improving Condition of the Poor.

To ascertain why families sought its aid the New York Association for Improving the Condition of the Poor made inquiries of applicants between Oct. 1, 1911, and June 30, 1912. There were 6,565 families questioned, and of these 1,605, it was found, were forced to seek aid through illness.

Tuberculosis caused 555 applications and accounted for 34 per cent. of those who gave illness as a cause. Rheumatism was next in the list of diseases, with 187 families affected by it. Then, in order, followed: Illness attending births, 161; kidney and heart disease, 156; anæmia, 156; operations resulting from injuries, 106; pneumonia, 99; children's contagious diseases, 48; paralysis and epilepsy, 48; eye and ear diseases, 45, and cancer and tumor, 41.

It may be argued that tuberculosis is as much a result as a cause of poverty, but as a cause its effects are apparent and indisputable. The conclusion of the association, from the figures, is that "some plan of effective home treatment must be found" for tuberculosis, for "it will be many years before there will be enough hospitals and sanatoria to accommodate all tuberculosis patients." That this condition is not pe-

culiar to New York is shown by the further statement that "a comparison of the hospital provisions in the United States with the need and growth of population shows that the demand is increasing twice as fast as the supply."

When we all live with proper regard to health there will be no need of either hospitals or home treatment for tuberculosis. The public must study the prevention as well as the cure of this disease.

Conference of the Illinois Association of Charities and Corrections.

A crowded programme covering a wide variety of subjects occupied the attention of the delegates to the seventeenth annual Illinois State Conference of Charities and Corrections on Oct. 21st.

The work of the association opened with a meeting of the Illinois Association of County Farm Superintendents, at which interesting addresses were delivered. Alexander Johnson of Fort Wayne, Ind., spoke on "The General Construction and Management of County Poorhouses," while Dr. George Thomas Palmer, health officer of Springfield, spoke of the need for uniform records of the physical condition and social history of inmates of county homes.

At the morning session of the conference attention was given to the blind and the prevention of blindness, with a demonstration by Harry Virden of Chicago.

"The Rights and Duties of the State Toward the Criminal After His Conviction," was the subject of a round-table talk following a luncheon at the Leland, given under the auspices of the American Institute of Criminology and Criminal Law. Among the speakers were Justice Orrin N. Carter of the Illinois Supreme Court; O. A. Harker, dean of the Illinois College of Law; Robert H. Gault of Northwestern University; Charles G. Vernier, secretary of the Illinois College of Law; and E. A. Snively of Springfield, member of the State Board of Pardons.

A luncheon was given at the St. Nicholas for those interested in sanitary and social surveys in the interest of public health, and was addressed by Paul Kellogg of the Pittsburgh survey, Professor Edward C. Hayes of the University of Illinois, and Frank E. Wing, Professor Graham Taylor, and Sherman E. Kingsley, all of Chicago.

It was decided to hold the annual conference of 1913 in Rockford.

Ninth Massachusetts State Conference of Charities and Corrections.

Delinquent children and the housing problem were matters discussed at the ninth Massachusetts State Conference of Charities recently. J. Randolph Coolidge, Jr., of Boston, was chairman of the session which considered housing.

The announced speakers were: Carol Aronovici, director of Bureau of Social Research, Providence, on "Studying Housing Conditions"; Charles S. Rackemann of Boston, on "The Real Objects of Town Housing Laws and Their Supporters"; and Frederick C. Howe, director of the People's Institute, New York, on "The Foundations of the Housing Problem."

Edwin Mulready, Massachusetts State Deputy Commissioner of Probation, presided at the session in which "The Delinquent" was the topic. The programme included addresses by William R. George, founder and director of George Junior Republic, Freeville, N.Y., on "The Delinquent Child and Education"; Mrs. Julius Andrews, president Boston Council of Jewish Women, on "The Delinquent Child and Home Training," and the Rev. John J. McCoy, rector of St. Anne's Church, Worcester, on "Delinquency, a Community Problem."

Infantile Paralysis in Massachusetts.

A report has been issued by the Massachusetts State Board of Health dealing with the epidemic of infantile paralysis which commenced in that State in 1907. The report, which consists of a series of articles by expert authors, covers the years 1907-10 inclusive. A most interesting resume of the general question of infantile paralysis as well as of the special outbreak is given by Dr. Robert W. Lovett, of Boston, whilst Dr. Philip A. E. Sheppard, also of Boston, deals with the epidemic in Springfield, one of the worst centres of the disease. In both articles a careful examination is made of the manner in which the disease may have been transmitted. The evidence is, however, inconclusive, and the deductions more suggestive than convincing. Thus the situation of the houses in relationship to

the railway, roadway, and waterway is carefully examined. The condition of the houses with respect to age, dampness, dust, and vermin is taken into consideration; while the deficiency of rainfall, which was considerable in the years under consideration, the mean temperature in relation to the incidence of the disease considered month by month, the possible and most probable means of the spread of the disease by contagion—all receive attention. Of the possible factors involved the available evidence suggests that direct contagion by contact at large local gatherings or the presence in the house of biting insects are the most probable. The children in large institutions appear to have been singularly free from the disease. A consideration of the age incidence shows that out of 897 cases 600 occurred in children under 6 years of age, and 745 in children under 10, the mortality being least between the ages of 1 and 10. As a whole, boys were rather more affected than girls, but no marked degree of sex differentiation could be traced. An account is also given of the symptomatology and course of the disease, with tables showing the part of the body affected and the results left by the attack. About 25 per cent. of the cases examined after four years showed complete recovery. It had been shown by Osgood and Lucas that the virus remained in the naso-pharyngeal mucous membrane of the monkey when infected with the disease. Attempts were made upon 18 persons who had suffered from the disease to obtain evidence of the presence of the virus by taking washings of the mucous membrane of the nose, mouth, and pharynx; the results were negative, but for various reasons cannot be regarded as conclusive. Some degree of evidence was obtained, showing the probability of the occurrence of a slight leucocytosis in the early stages, but it is naturally difficult to get the cases in the very early stages. Further investigations were to be carried on on a larger scale, as a result of which further light upon this important subject may be hoped for. Meantime, the present report, which is illustrated by numerous diagrams and tables, is most interesting, and contains much valuable material. In a paper read before the Medical Officers of Schools'

Association by Dr. F. E. Batten on Nov. 8th last the question of the spread of infection of poliomyelitis by schools was fully discussed, and the conclusions arrived at were that the danger from this source was slight, though the possibility of such an occurrence should be carefully borne in mind by the responsible medical officers.

United States Notes.

At the recent Minnesota Conference of State Charities and Correction, Judge E. F. Waite of the Juvenile Court, Minneapolis, was elected president of the conference for the next year, and Minneapolis was chosen as the place of meeting, the time to be designated later by the Executive Committee. Other officers chosen: First Vice-President, G. A. Franklin, superintendent of the city schools, Austin; Second Vice-President, Mrs. C. G. Higbee, St. Paul; General Secretary, Miss Jean A. Poirtier, Dublin; Enrolling Secretary, Otto W. Davis, assistant secretary of the Minneapolis Civic and Commerce Association. The following were named members of the Executive Committee: C. E. Vasaly, St. Paul, member of State Board of Control; Dr. H. M. Bracken, St. Paul, executive agent of the State Board of Health; Miss Caroline M. Crosby, resident director of Unity Settlement House, Minneapolis; Miss Grace Johnston, secretary of the Wilder Charities, St. Paul; Dr. Walter J. Marckley, Minneapolis; John J. O'Connor, secretary of the Associated Charities, Minneapolis.

The sanitary taxicab is the latest innovation in the trade, and is proving popular wherever it has been tried. A progressive taxicab company, operating in Chicago, has recently ordered a number of cabs equipped with removable upholstery. The cushions, seat backs and sides, instead of being tacked to the backs of the seats, are attached to boards, which in turn are keyed onto the body. They may be instantly removed and cleaned by sponge or vacuum in a short space of time after each trip. The car has proved so popular that the company is planning to put on a larger number of them.

The traveling public hereafter will have

to carry their own drinking cups or go thirsty. The common drinking cup, already placed under the ban by many states, has been officially barred by the United States Government from all trains, vessels or other conveyances used in interstate commerce, and from all depots and waiting rooms of common carriers. Treasury officials recommend that the traveler equip himself with a clean sheet of white paper, which, by adroit folding, can be turned into an impromptu drinking cup. Common carriers may now provide drinking cups only in case they are thoroughly cleansed by washing in boiling water after use by each individual.

School baths are the latest innovation in New York City. There is no gainsaying that some of the pupils need them and that health conditions generally in the schools would be promoted by them.

Milwaukee street cars are to be heated by what is considered a much superior system than heretofore employed, as soon as the device can be installed. It is said to have proven abundantly satisfactory in Cleveland and Detroit, because ample warmth is secured, and also car ventilation effected automatically, by the operation of the heating plant. Coal is fed into the fire-boxes through magazines, and the heat circulated by blowers. Fresh air is drawn from the outside continuously and empties from pipes under each seat. The stoves will be placed at the sides of the cars midway between ends.

Sanitary inspection of all trains and vessels in interstate traffic is to be begun immediately by the public health service. All commissioned medical officers of the service, when traveling under official orders, will inspect the sanitary conditions of the conveyances on which they travel and of the stations, terminals and wharves at which they stop. The officers will report to headquarters at Washington for "attention" the names of railroads and steamship companies on which bad conditions are found, with full details of the conditions. Among the first to be considered will be emigrant trains. Ventilation on first-class trains, absence of sanitary precautions on cars, fumigation and a host of other de-

tails affecting the health of travelers will be considered.

The right of the Board of Health to exclude milk from Detroit was upheld by Judge Murphy recently in the case of John Day, Rochester dairyman, who sued Dr. Guy L. Kiefer, of the Board of Health, and Dr. Wm. H. Price, milk inspector, for \$30,000. Day charged that Drs. Kiefer and Price, by barring his milk, had ruined his business. Day, who sent from 600 to 800 quarts of milk to Detroit daily and sold it at 5 cents a quart, refused to let the representatives of the Health Board inspect his dairy farm unless they gave him an hour to prepare for the visit. Hence the ban on his product. He had been selling milk 16 years, and there was no charge that the milk was impure. Judge Murphy, in dismissing the suit, held that inasmuch as the Board of Health inspectors have authority to go outside the county and exclude milk from the city, "the discretionary exercise of those powers of inspection and exclusion is not reviewable by a court."

The National Association of Master Bakers, at its annual convention recently held in Louisville, adopted the following "Ten Commandments of Sanitation":

1. Building well lighted in every part with natural light, and thoroughly ventilated; air supply kept free from contamination by surface dust.

2. Floors, walls, and ceilings of impervious materials with smooth surfaces and kept in good order. Sanitary toilets, shut and screened against flies.

3. Plumbing, drainage, etc, ample to remove waste and prevent dampness, and kept in good order. Sanitary tollers, shut off entirely from bakeshop and storeroom.

4. A plentiful supply of pure water. Convenient and adequate washstands and supplies.

5. Garbage, refuse, etc., stored in tightly covered cans and disposed of quickly.

6. Machinery, tools and other equipment so made, installed and used as to facilitate cleanliness and safety.

7. Stables to be disinfected and so located as to prevent odors from them reaching the bakery.

8. Methods of distribution such as to protect bakery products from contamination between the oven and the home.

9. A health certificate, showing freedom of all employes from skin diseases, tuberculosis, venereal and other contagious diseases. Spitting and the use of tobacco in the bakery prohibited.

10. Employes of bakeries to be properly clothed in clean, sanitary garments.

The following out of this standard has not been made a condition of membership yet, but there is every likelihood that it will be in the near future.

People are often inclined to look on these large industrial associations as mere organizations for the easier accumulation of wealth, but the action of the bakers in the adoption of this standard, which will cause them considerable outlay to comply with, and with no direct returns, would indicate that the improvement of producing conditions to benefit the consumer is also one of the aims of such bodies.

It is very probable that some bakers will think it an imposition if the law finally makes them live up to practically the same standard as give above, and which their more progressive brethren have adopted voluntarily, but the consumer has the right to demand these things. Consumers ought to encourage the men, who, of their own accord, set their sanitary standards high, whether they belong to such an association or not. Yet it should not be forgotten that a certificate of membership in that kind of an organization is in the nature of positive evidence that the baker possessing it does stand for the best things in baking, and, other things being equal, he should be given the preference.

The Presbyterian Synod of Indiana has taken an advanced stand on the marriage question by passing a resolution favoring a stringent law forbidding the issuing of a marriage license to a man or woman who could not furnish with the application for the license a certificate from some registered doctor of medicine, showing absolute freedom at the time from all private diseases and tuberculosis. The clerk of the Synod was instructed to send a copy of the resolutions to the representatives from the various districts of the state, urging them at the next session of the State As-

sembly to use their best efforts to obtain the passage of such a law. The resolution was given the unanimous vote of the 150 ministers and elders attending the Synod as delegates.

Certain that the success of the plan has been proven from an experimental and theoretical standpoint, the members of the Utah State Medical Association, in convention last month, went on record as favoring a law which would provide for the sterilization of habitual criminals epileptics, imbeciles and the insane.

According to statistics compiled by the Michigan State Board of Health the death rate in the State for the past eight months is 13.4 per 1,000 estimated population. The death rate in the principal cities is as follows: Ann Arbor 26, Pontiac 24, Traverse City 22.5, Jackson 16.5, Grand Rapids 13.5, and Lansing 11.5. The secretary says the death rate in Ann Arbor, Pontiac and Traverse City is unusually high because of the high mortality in the state institutions.

The requirements demanded by the Board of Health of the City of Tacoma, and the rules that apply to all places where food is manufactured, kept, prepared or sold are as follows:

1. Every person being in charge of such place shall keep it in clean, sanitary condition.

2. Shops must be well lighted, ventilated and free from offensive odors.

3. Shelves, trays, baskets or other receptacles for food must be kept clean and free from decayed matter.

4. All provisions must be raised two feet from the floor unless in glass case.

5. Dogs are prohibited in food stores.

6. There must be lavatory conveniences for use of employes.

7. Toilets must have outside ventilation.

8. Personal cleanliness must be exacted of employes and no soiled clothing kept in the shop.

9. No person suffering from tuberculosis or other communicable disease shall be employed where he or she will come in contact with food or foodstuffs.

10. Smoking and expectorating must be prohibited and signs to that effect exposed.

11. All garbage must be covered and removed as frequently as possible.

12. Shops must be closely screened during the fly season.

13. Refrigerators must be kept clean and free from odor.

The State Board of Health and the Department of Public Instruction of Minnesota wish to lend their aid to the schools of the State in promoting health supervision of school children. To this end the State Board of Health has engaged the services of Dr. Ernest B. Hoag, formerly of the University of California, to help Minnesota towns and cities to organize health work in schools.

Dr. Hoag will travel about the State, spending from one day to two weeks, as may be required, in the various places needing his services.

It is proposed to demonstrate to towns, cities and counties that rational conservation of the mental and physical health of school children is possible and practical with the means already at hand. Three plans will be proposed:

- (1) Organization with a medical officer and nurse or nurses.
- (2) Organization with school nurse or nurses only.
- (3) Organization by the employment of

a simple non-medical health survey on the part of the teachers only. Such a survey is provided by a series of questions based upon ordinary observation of physical and mental conditions. The outline for this purpose will be furnished by the State Board of Health—one for each child. No community need wait for the employment of a medical officer in order to begin sensible health observation of school children.

Dr. Hoag will be available for lectures on Child Hygiene, Medical Supervision, and related topics for clubs, institutes and various other organizations. The State Board of Health will maintain in its office in the Capitol Building, St. Paul, a clearing-house of information concerning child hygiene, medical supervision, the teaching of school hygiene, sex hygiene and the like.

Advance Notices, Alphabetical.

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

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

Municipal Improvement, American Society on, Dallas, Texas, November 12-16. Secretary, A. Prescott Folwell, 50 Union Square, New York.

Red Cross, American, Washington, D.C. December. Secretary, Charles L. Magee, Washington, D.C.

Road Builders' Association. Ninth annual convention, Cincinnati, December 3, 4, 5 and 6, 1912. The Secretary, 150 Nassau St., New York City.

THE EMPIRE AND THE WORLD ABROAD

The Cost and Construction of Isolation Hospitals.

The report by Dr. H. Franklin Parsons to the British Local Government Board on his inquiry, made at their request, into the cost of construction of isolation hospitals, is in part as follows:

Joint Hospital Areas.—Dr. Parsons, in recommending the combination of districts for the provision of large central hospitals rather than small local buildings, shows that by the establishment of a single hospital in place of two or more hospitals, one site only has to be obtained, and the number of possible or feared foci of infection is limited; the duplication of various buildings and appliances is avoided, and the cost of fencing and other requirements, proportionately to the number of beds, is

reduced. Thus, an isolation hospital, however small, would require provision for: (1) A ward block for patients, (2) quarters for the staff, (3) laundry and other out offices, and these, it is recommended, should be in separate buildings. Hence, having regard to the need for placing these buildings at a proper distance from the boundary and from each other, and, it may be, for ground on which to dispose of sewage and refuse, the site for a hospital, however small, can rarely be less than one acre. But the administrative and laundry accommodation which would be required for a hospital of only one small ward block would suffice, with comparatively small increase, for a larger ward block, and a site of two acres would thus afford space for buildings capable of holding many more

than twice the number of patients, who could be placed on a site of only one acre. A site of one acre, if rectangular and measuring 40 yards by 121 yards, would require 322 yards of fencing to enclose it, but a site of the same length, if 80 yards wide, would contain 2 acres instead of one, and yet would require only 80 yards additional fencing. Similarly with water supply, sewage disposal, and other matters, works which would be necessary for a hospital, however small, would serve with comparatively small additions for one considerably larger.

Local authorities sometimes contend that they can provide their district with sufficient means of isolation at less expense by separate action than by entering into a combination. This, however, generally means that they consider that a cheap temporary or existing building will suffice, or that some makeshift arrangement can be extemporized when infectious disease has broken out. Such expedients, however, are rarely satisfactory. The cost of procuring and adapting a site, providing water supply and drainage, and procuring furniture and other necessary equipment, greatly reduces the apparent advantage on the score of economy of a wooden or iron building over a permanent one; existing buildings erected for other purposes cannot readily be adapted to make satisfactory hospitals; and extemporized arrangements, such as tents and huts, which have to be erected when an outbreak occurs, are frequently not ready until too late to be of much use.

Structural Details.—Commenting on the suggestion that for the sake of cheapness the walls of hospital buildings might be constructed, in lieu of brick or stone, of the more recently introduced materials, such as concrete, concrete blocks, Frazzi, etc., Dr. Parsons says: "The Local Government Board have in one instance (at Acton) sanctioned a loan for the construction of a ward block built of blocks of clinker concrete, keyed together in cement mortar and rendered outside with a coat $\frac{3}{4}$ in. thick of cement and sand, the structure being supported by steel stanchions 12 ft. apart, which carry the roof. The cost of the walls was 5s. 10d. per square yard complete, and the total cost of the block for thirty-six beds, including roads and drains, but not furnishings, was £4,000, or

£111 per bed. The cost per cubic foot was 4.66d., that of the original pavilions, which have hollow walls of brick, having been 6.9d. per cubic foot. But the comparison is not quite fair, as the new block is much longer, the main wards containing eighteen and sixteen beds respectively, whereas those in the older blocks contain only six and eight, and, the centre and ends of the block being nearly similar in each case, increased length of the wards does not add to the cost of the block proportionately to the increased number of beds."

The Question of Site.—The most frequent cause of excessive cost of isolation hospitals, and the hardest to avoid, is the difficulty of obtaining a suitable and convenient site. A local authority desiring to erect a hospital, in order to get a site at all, often has to buy a larger and more costly one than is necessary for the purpose, to give a higher price per acre than the land would be worth for any other purpose, and to incur heavy legal expenses in meeting opposition, and any site obtainable is often so situated as to involve much further expense in adapting it for hospital use.

The influence of the site upon the cost of an isolation hospital is by no means eliminated by reckoning the cost per bed as exclusive of site. If the site is remote from sewers and water mains, the cost of drainage and water supply may run into several hundreds of pounds, whether these wants are supplied by making connections of considerable length with the nearest public service or by constructing independent works on the site. Similarly, remoteness from gas or electric mains may involve expense in works for lighting. If the site is not on a good road expensive works of road-making may be needed in order to secure a proper access. Sometimes the only site obtainable has been an old quarry or other excavated ground, where much expense was involved in clearing and leveling the surface and in securing stable foundations; or, in other cases, the soft and treacherous nature of the ground or the risk of subsidence from undermining has added to the cost of foundations. If the site is far from a railway station, with bad or hilly roads, the cartage of building materials will add much to the cost of building, and may render it difficult to procure

labour. All these extra expenses are liable to be debited to the cost of the buildings, and are not included in that of the site.

Concerning Competitions.—On this subject Dr. Parsons writes: Our experience would lead us to agree with the Board of Education report that competitions for plans are, as a rule, a waste of time and money. If the criterion adopted by the adjudicators be that of economy, there is a risk that the cost of the scheme may have been under-estimated by the successful competitor; if the criterion be theoretical completeness, it may tend to adoption of schemes having features not useful in proportion to their cost. In some cases, schemes which have been adopted after competition have been found by the board to require modifications which have brought them into resemblance with other schemes which had been passed over, and this has caused dissatisfaction.

Lighter Buildings.—Apart from special circumstances, there may be advantages in the adoption of a somewhat lighter form of hospital construction with a shorter period of loan, as changes in the incidence of a disease, or in the methods of dealing with it, may affect the future usefulness of a hospital, so that it may be obsolete for the purpose for which it was erected before the time when, as a building, it is worn out. The useful life may be shorter than the structural life. Durability for all time need not therefore be aimed at in the construction of an isolation hospital. For the same reason a period of loan longer than thirty years for a brick building appears undesirable. As regards the durability of frame buildings covered with wood or corrugated iron, much will depend upon the original strength and careful construction of the buildings, and much also upon the care taken of them and the due execution of repairs as the need arises.

Timber buildings deteriorate more rapidly than brick or stone ones when unoccupied. For a frame building covered externally with weather-boarding or corrugated iron, and lined internally with plaster or incombustible material (not match-boarding) a period of loan of ten or twelve years, or perhaps even fifteen years, might appropriately be allowed. (The period allowed by the Board for a building of brick or stone is thirty years.) But in the

later years of its life a frame building would require frequent expenditure on repairs to keep it in a habitable condition, and it would be undesirable that instalments of repayment of loan should have to be made at the same time.

Cheaper Materials.—The Board would no doubt be willing to sanction the use in hospital construction of the more recently introduced materials and methods in any case in which they could be shown to be cheaper than the ordinary materials in use in the locality. The report of the Departmental Committee of the Board of Education recommended that local education authorities should be encouraged to submit proposals for the use of novel materials or methods of construction for public elementary schools, and that a loan period of thirty years should be regarded as normally appropriate to such cases, instead of the period of fifty years allowed in cases where ordinary methods are used, but that it should be made a condition of approval that provision should be made for the periodical inspection of the structure.

“It must be remembered,” says Dr. Parsons, “that as many of these special materials are not impervious to moisture, buildings constructed of them require to be coated with cement on the outside, and that, owing to the thinness of the walls, more ample provision for warming is necessary than in brick or stone buildings. Until experience has been obtained of their durability, the loan period for such buildings should probably be shorter than for those of brick.”

The Standard of Air Space.—Dr. Parsons does not feel justified in recommending a less distance than 12 ft. between bed and bed in wards for acute cases, unless the beds are separated from one another by a fixed screen; but perhaps some concession might be made in other dimensions. It will be observed that the Board's present standards are not commensurable one with another, and that while a ward 24 ft. wide might conveniently afford 12 ft. of wall space and 144 sq. ft. of floor space per bed, it would have to be made nearly 14 ft. high (13 ft. 10.36 in.) in order to give 2,000 cubic ft. per bed. But in practice the additional space required in order to obtain the required 2,000 cubic ft. per bed is more useful if given as width of ward than as

additional height above 13 ft., and the dimensions commonly adopted are therefore 26 ft. in width and 13 ft. in height, which give 156 sq. ft. and 2,028 cubic ft. per bed. But an increase of which from 24 ft. to 26 ft. involves a corresponding increase in floor, and wall and roof, as well as a longer bearing and consequently increased strength of roof timbers.

Seeing, therefore, that the Board's standard would be complied with by a floor space of 144 sq. ft. per bed, with a height of 14 ft., and that the additional height from 13 ft. to 14 ft. is of comparatively little value for purposes of isolation and ventilation, I suggest that the Board might allow a standard of 1,872 cubic ft. instead of 2,000 cubic ft., with a floor space of 144 sq. ft. and a wall space of 12 ft. as at present. In single-bed wards, or compartments in which one patient is entirely separated from another with efficient cross-ventilation, a less amount of space might be allowed. Thus, in appendix to the Board's Hospital Memorandum, the dimensions of the single-bed cubicles are 12 ft. by 12 ft. and 10 ft. high=1,440 cubic ft.

The British Insurance Act.

The provisional regulations as to the administration of medical benefit under the Insurance Act have been issued. They set forth that every insurance committee shall as soon as may be make arrangements for securing the treatment of insured persons resident in the county by such practitioners as are willing to undertake the treatment. They go on to describe the negotiations which the committees are to carry on with the approved societies in regard to medical benefit.

It is prescribed that, with a view to making arrangements with doctors for the purpose of administering medical benefit, the committee shall, after consulting the local medical committee, determine the conditions of service upon which it is proposed to invite practitioners to undertake treatment, and the methods and rate of remuneration. These latter are:

- (a) Capitation system.
- (b) Capitation system *plus* payment for special services.
- (c) Capitation system *plus* payment for services.

(d) Payment for special services *plus* capitation system.

(e) Payment by attendance.

In the case of (b) the capitation fee has priority over the payment for special services; in the case of (d) the payment for special services has priority over the capitation fee.

Before approving any arrangements submitted to them under the regulations the commissioners are to consider any representations made to them by the local medical committee, and, subject to alterations, due to the requirements of the Commissioners, any arrangements made by the committee and approved by the Commissioners are to have effect.

The committee may fix an income limit for the purpose of the administration of medical benefit, and may require any persons whose income exceeds that limit, in lieu of receiving medical benefit, to make their own arrangements for treatment.

Public Health of Dublin.

The annual report upon the state of public health in the City of Dublin prepared by Sir Charles Cameron is an interesting and informative return. For instance, those interested in old Dublin will find in the long list of names of representatives of the City Guilds in the Corporation of 1726 ample evidence of how largely at that time the various trades were dominated by men of English blood. Again, when dealing with the question of the housing of the poor, Sir Charles mentions the names of many of the noble and distinguished persons who at one time lived in what are now tenement houses. Many of these houses, with their lofty, spacious rooms, would, he says, be beautiful dwellings if kept clean and in good repair. It, however, requires the attention of forty sanitary officers, including six ladies, to efficiently inspect the tenement houses. A list of the number of reports made by these officials, and of the orders which followed shows that they are certainly not lacking in energy and attention to their work. The owners have, in very many cases, been required to execute extensive repairs and alterations, but the report states "it is to be regretted that so many of the tenants are indifferent to the condition of their dwellings, and make but little effort to

keep them in a cleanly condition." Willing tribute is paid to the excellent work done by such voluntary Associations as the Alexandra Guild, the Social Service Society, and the Association for the Housing of the Poor, and in reference to their property it is added that "if the tenement houses throughout the city were kept in as good order the state of public health would be better than it is." Still, much has been accomplished, and the Dublin death-rate, which was 37.8 per 1,000 in 1880, the first year of Sir Charles Cameron's tenure of office as Medical Superintendent Officer of Health, fell fairly steadily until it was 21.2 per 1,000 in 1910. This is, however, a very high rate; still it shows a great improvement in thirty years, and the Public Health Department is entitled to credit for its share in the good work.

Final Terms Offered to the Medical Profession Under the British National Insurance Act.

Before making his recent statement in the House of Commons, Mr. Lloyd George addressed members of the Insurance Act Advisory Committee in London on the final terms which the Government offers the doctors for giving medical benefits under the National Insurance Act. In an official report of the proceedings issued later the address is given in extenso.

Early in his speech the Chancellor of the Exchequer expressed the opinion that most of the doctors' six points had been already conceded, either in the Act or the regulations, but made it clear that the Government were not prepared to accept the proposed income limit. The doctors demanded remuneration at the rate of 8s 6d per head apart from drugs and extras. In its entirety their demand was equivalent to a charge of 13s per head of the insured population. Upon examining the books of representative practitioners, Sir William Plender found that the cost of treating the injured class under existing contract systems was covered by a sum of less than 4s 5d per head. But the Plender report was not a sufficient basis for computing medical remuneration, because service under the Act would be better and more extensive. The contract practice, which the friendly societies had organized in the main, only covered something like 4,000,000 of the em-

ployed population of this country. In the year 1905 the British Medical Association examined into the question of contract practice. The revolt of the medical profession against contract practice did not start with the National Insurance Act; it started many years ago; there was a good deal of dissatisfaction. He had no doubt that the National Insurance Act brought it to a point, and he was not sorry for that, although he had been the victim of it. It had, he thought, answered a very useful purpose. It was about time that the medical profession and the working classes should be brought face to face with the inadequacy of the service under present conditions.

In the course of the present protracted controversy, the Government asked the medical profession to appoint a committee with authority to negotiate for an increase on the 6s provided for under the Act as originally drafted. The doctors' reply was to break off negotiations. Fortunately some eminent medical men remained on the Advisory Committee, and the advice which they had offered largely influenced the Government as to the proposals which they proposed now to submit to Parliament. The Government had never regarded 6s as a final figure, and had now decided to substantially increase the amount available for medical attendance upon condition that there was some security for an improved medical service for the industrial population of the country. In order to relieve the anxiety of those who had the financial responsibility for the control and management of the approved societies he desired to say at once that the Government recognized that the margin which was available for increasing the pay of the medical profession, the margin which they had provided in the figures of the bill, had been encroached upon to such an extent by the proceedings in Parliament that they had not felt justified in breaking into it for a single penny of the increased grants which now they proposed should be available for an improved medical service. Therefore, the Government would submit to the House of Commons a proposal that this grant should be found out of public funds.

What, he asked, were the suggestions that came before the Government as to the best method of dealing with the diffi-

culties of the situation, and as to the best method of distributing the amount available for medical attendance? The first one was the one indicated clearly in the Act, that they should invite every doctor in the country to place his name on a panel, and that they should give every employed person free choice amongst the men who appeared on that register. The second method, in the event of the panel failing, was that they should hand over the money for medical attendance to be dispensed by the approved societies. The third method was a method which was very fully discussed at the last meeting of the advisory committee, and found very great favor amongst the members—that they should use the money for the purpose of organizing a national medical service.

I should like (continued Mr. Lloyd George) to say a word at this stage upon those three alternatives. As to handing the money over to approved societies, I think, on the whole, although there may be friends of mine who dissent from what I am saying, the general feeling of the advisory committee was against that. On the other hand, the majority were in favor of starting a national medical service in the event of the panel system failing. Others went beyond that, being in favor of starting, from the outset, on the principle of establishing a medical service. There is no doubt that during the long time the medical question has been before the public opinion has grown in favor of organizing a wholetime national medical service, and the feeling found remarkable expression, as I have already said, at the last meeting of the advisory committee. Well, I must admit that to any social reformer such a project is very alluring. It would be possible, if the amount of the additional grant which the Government proposed to make were added to the money already available under the Act, to organize a service which would have many advantages. But we are here to administer an Act of Parliament, and it is an Act of Parliament which was passed a year ago.

At the time the bill was under discussion in Parliament the demand had not arisen for a national service, and, therefore, Parliament, with absolute unanimity, decided in favor of the panel system. We

are here to administer that Act, and the first thing we have to do, unless that Act is amended, is to set about establishing the panel system. If the panel system were for any reason to fail, then no amendment of the Act of Parliament would be necessary in order to establish a national service. The provisions of the National Insurance Act are adequate in that case to enable us to proceed with the establishment of a national service.

Proceeding, the Chancellor of the Exchequer indicated the actual proposals of the Government. They had, he said, decided that out of 1s 3d per head provided for sanatoria, 6d should be allocated for paying the general practitioner for all tuberculosis work. The doctors ought to be paid for extra work, but it was almost impossible to check a bill for extras. They could not give a blank cheque for extras to any profession. The Government proposed to assure 7s as a basis of the amount which was to be paid to the doctor. That would be inclusive of extras and tuberculosis. Then there would be 1s 6d—a reasonable allowance—for drugs, which brought the amount up to 8s 6d. They were going to reserve another 6d between the doctor and chemist; that meant 9s in all for the non-institutional treatment of all diseases amongst the insured population. This 6d would provide £320,000 which would be available for drugs if the bill exceeded 1s 6d, and where it did not exceed that amount it would be available for the doctor. The doctor would say, supposing there is an epidemic in a given district and there is an abnormal demand for drugs, "It is rather hard on me that the 6d should be drawn upon just when I am worked harder." He (Mr. Lloyd George) thought his case was a good one. The Government therefore proposed to provide a central fund to deal with abnormal cases of that kind. When they were satisfied that there had been an epidemic which had made an abnormal demand for drugs in a given district they would make a grant from the central fund in respect of the abnormal amount of drugs needed. This was outside the 9s.

Finally the Chancellor said: If the remuneration is increased the service must be improved. Up to the present the doctor has not been adequately paid, and,

therefore, we have had no right or title to expect him to give full service. In a vast number of cases he has given his services for nothing or for payment which was utterly inadequate. There is no man here who does not know doctors who have been attending poor people without any fee or reward at all. I have got three conditions which I am going to lay down as the result of this increased provision. One is that the doctor who acts on the panel shall agree to give, without further charge, those medical certificates which an insured person will require to enable him to get sickness or disablement benefit; the certificate, in the first place, that he is unfit for work; the certificate, where necessary, that he continues to be unfit for work; and when he is returned to health, a certificate from the society to this effect. Secondly, we also ask that those practitioners who act on the panels will keep simple records of the patients whom they treat, the illness from which they suffer, and the attendances given. That is new in respect to the industrial practice of this country. Though we are providing increased remuneration, I frankly admit we are also asking for increased service.

We know that doctors dislike book-keeping above all things, but we know also that they desire the advancement of medical knowledge, and we feel confident that they will co-operate with us in this matter. We on our part undertake that the records required shall be of the simplest character that will give us the necessary information. Thirdly, and chiefly, the service must be improved in certain definite respects, as compared with what it has been possible to give in the past.

It will be the duty of the Commissioners when setting out the conditions for the new grant and disbursing it to the committees, to see that a proper standard is reached and maintained, not merely in respect of the amount of time and attention given, and also that where necessary the practitioner should resort to those modern means of exact diagnosis, the importance of which I am advised is increasingly recognized in the profession.

We think it is better that we should try these arrangements as an experiment, and see how they work. I propose, therefore, that the arrangements which are made on

this basis shall be made for a term of years, not too long, and not too short, otherwise we do not get the experience. It is no use trying a year's experiment. I think you must have at least three, and I suggest, therefore, that the financial arrangements shall be for three years, made on this basis, and that at the end of that period there should be a reconsideration of the whole position.

We submit these proposals to you for your consideration; we think they are fair in the interests of the medical profession; we wish to be fair to that profession; I say so in spite of everything that has fallen in controversy, and I think we are fair; indeed, I venture to say that our proposals are liberal. I do not say that we are proposing anything in the way of remuneration which is beyond their merits or deserts, but we want a good efficient service for the industrial population of this country.

Sir Clifford Allbutt, in thanking the Chancellor for his statement, said he could not but think they had now before them a scheme which ought to be acceptable to members of the profession at large.

Indian Sanitary Administration.

In November last, replying to Lord Curzon's criticisms on the proposals for the abolition of certain Imperial posts in India with a view to promoting the policy of decentralization, Lord Crewe stated that the Government of India had recommended that the office of Sanitary Commissioner should be merged in that of Director-General of the Indian Medical Service, thus returning to the arrangement existing before 1904. The Secretary of State announced that the India Council held it was desirable to retain the Sanitary Commissionership, but the question of its relations with the Director-General of the Indian Medical Service was to be reconsidered, since the complete separation of sanitation and medical research had created a great deal of difficulty.

The decision of the Government on this question has now been announced by a resolution published at Simla. It points out that his separation has led to the loss of administrative efficiency and also to the unpopularity of the specialized bacteriological and sanitary departments. More-

over, the time of the Sanitary Commissioner was so occupied with office and bacteriological work as to cut short the period of touring, thereby rendering it difficult for him to be in such close touch with the local authorities as was desirable. While the pay and terms of tenure of the office will not be altered, the Sanitary Commissioner will in future be subordinate to the Director-General of the Indian Medical Service, and work connected with bacteriological research will be placed directly under the latter officer. With regard to administrative questions and matters affecting the *personnel* of the sanitary service, the Commissioner will be in the position of a staff officer to the Director-General. He will be given independent authority in technical sanitary matters, with power, as at present, to correspond direct with the Government of India. The office establishments will be amalgamated, and a separate secretary will assist the Director-General in the control of the sanitary section of the office as well as in that of research work and of the bacteriological department.

Notes of the Empire and World Abroad.

In many cities of the new world the complaint of insanitary and otherwise objectionable housing conditions, with the suggestion that they be improved, is generally met with the reply that there is no adequate remedy at hand. Abroad they apply a wholesale remedy. When a section becomes congested with dilapidated and unwholesome abodes these are ripped out bodily and replaced by others that are fit to live in. A remarkable example of this work of municipal rehousing is found in Liverpool. Year by year for the past ten years the committee in charge of the work cleared away 500 unfit houses. Many of the inhabitants are now rehoused in sanitary houses on the same areas, which have been transformed by the widening of the streets, the provision of ample open space at the rear of the dwellings and of suitable open space as playgrounds, the latter in many instances having been equipped with gymnasia for the children. Under these new conditions the general death rate has fallen by more than one-half and the average annual death rate from consumption has fallen to 1.9 per thousand.

In its annual report for the past year the ex-Medical Officer of Health for Hampstead (Mr. G. F. McCleary) refers to the gradual disappearance of the horse from London streets, and considers this to be a valuable sanitary reform effected without the intervention of sanitary authorities. "The motor-car is rapidly delivering London from its horse manure, which has for years constituted an intolerable nuisance, especially in hot weather. In Hampstead the improvement has been marked. During the past few years seven large stables which accommodated some hundreds of horses have been converted to other purposes, to the great advantage of the dwellers in the neighborhood, and many mews-dwellings have been transformed almost beyond recognition. It is time it should be realized that the presence of the horse in a large modern city is incompatible with cleanly civic life, and any measures that tend to hasten its disappearance should be welcomed by sanitary reforms."

The conference of the National Union of Women Workers at Oxford has produced some startling expressions of opinion, one speaker going even so far as to defend polygamy. This was the well-known novelist of Anglo-Indian life, Mrs. Flora Annie Steele. While delivering an address on the work of mission ladies in the Punjab, Mrs Steele was asked what the advantages of polygamy were. She said most housekeepers would recognize the enormous advantage of having one wife to order the dinner one week, and one the next. It was impossible, she said, for the mission ladies, most of whom went into the highways and byways with disapproval, bound up with their Bibles and prayerbooks as an appendix, to see the undoubtedly good points of polygamy. They could not admit that the position of Indian women was nearly as black as was generally painted. As a whole, English women were so saturated with self-sufficiency regarding their own standard of sex-relations that they could have nothing but pity for that most beautiful, most sublime spectacle on earth—a childless wife lavishing life love on her husband's children by another living woman. It was the acme of self-abnegation. Some of them might be ready to admit this; the majority, as she had said, would

sink admiration in pity. It was no use studying the position of Indian women when they had already passed judgment on its debasement.

Dr. J. L. Prichard, reporting on the dental conditions found amongst school children in the Aberdeen Urban District, has urged the provision of a dental clinic. He states that with the exception of children under the care of the Poor Law guardians, none of the scholars receive the benefit of conservative dental surgery. It appears that in South Wales colliery districts teeth are attended to by three varieties of practitioners: (1) qualified dental surgeons; (2) dental mechanics; (3) artificial teeth dealers. "The practice of qualified dental surgeons," writes Dr. Prichard, "is almost entirely amongst the well-to-do, and there are very few of them, as they are unable to compete on equal terms with the unqualified men. Qualified men are not allowed to advertise, neither is it their custom to display flashy cases of artificial teeth in front of their houses in order to attract patients. Dental mechanics are often found practising as dental surgeons, and although these men have had no hospital training in dental surgery, yet some of them are excellent mechanics, and are able to establish remunerative practices. Artificial teeth dealers are generally men who have learnt enough about mechanical dentistry to be able to take wax impressions of the mouth. These impressions are sent away to dental mechanics, who are able from the impressions to supply sets of artificial teeth. These operations were made possible by the introduction of vulcanite into dental work, this substance being much more easy to work with than metal. The *modus operandi* of this type is to extract the teeth and supply the patient with artificial ones. He never attempts to save a tooth by a filling, as this operation requires knowledge and skill, and is not so remunerative. Nitrous oxide gas has been largely supplanted by local anæsthetics in dental work, and therefore it is easier for and untrained man to induce people to allow him to extract their teeth." Dr. Prichard adds that for some time it has been felt that the time taken to inspect

the teeth of school children is so much time wasted inasmuch as the only result of the advice given to parents is that they go to some person more or less competent to have their children's teeth extracted. It is true that occasionally a dental mechanic is met with who has some knowledge of the filling of teeth, the treatment of a cavity that does not involve the pulp being comparatively easy, but despite these facts he finds that the local elementary school children do not receive any dental treatment except the radical operation of extraction.

Children in the public schools of Stavanger, Norway, are treated with the aid of American dental apparatus by a dentist who received his post-graduate dental education in the United States. This year two rooms were fitted up as dental clinics. Twice during the school year the children are to have their teeth examined. If any defects are found the dentist will hand to the child a note to take home to the parents, asking their consent to treatment, the work to be done for the child free of charge. The 800 children in the first grade whose teeth are under observation this year will continue to be treated when they pass into succeeding grades, so that eventually the plan will spread automatically to the entire school system. The dental rooms are open every day, 9 to 11 a.m. for boys, and 3 to 5 p.m. for the girls.

Advance Notices, Alphabetical.

Chambers of Commerce of the British Empire, Toronto, Ontario, in 1915.

Sanitary Institute Congress at Exeter, 1913.—The Council of the Royal Sanitary Institute have issued an invitation from the City Council at Exeter to hold the next Congress and Exhibition of the Institute in Exeter from July 7 to 12, 1913.

The International Congress of Medicine.—The summer of 1913 will witness the 17th International Congress of Medicine in London, England. Further particulars regarding this congress will be given later, when received from the Honorary General Secretary, Prof. H. Burger, Vondelstraat 1, Amsterdam. Prof. Burger states that he will be glad to receive any propositions regarding this Congress addressed as above.