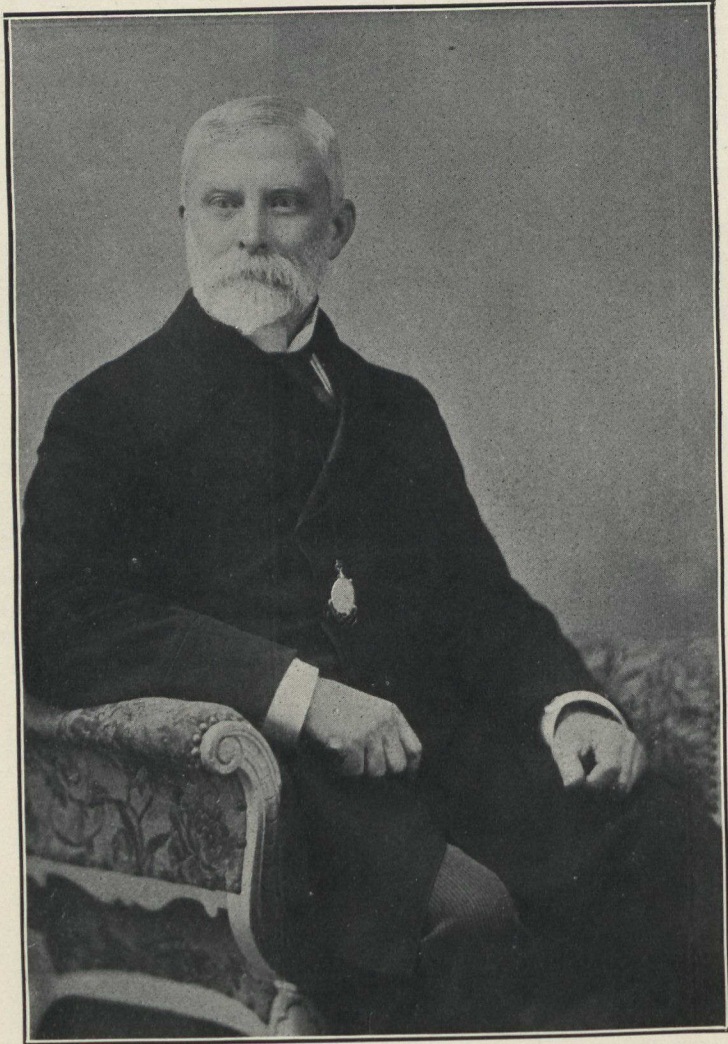


PAGES

MISSING

Seldom ever was any knowledge given
to keep, but to impart: the grace
of this rich jewel is lost in
concealment.—*Bishop Hall.*



SIR LAUDER BRUNTON

Largely instrumental in the inception and continued success of the International Congress of School Hygiene, the next meeting of which will take place in Buffalo in 1913.—See page 58.

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Special Articles

UNEMPLOYMENT FROM THE HYGIENIC STANDPOINT

By DOCTOR RAMBOUSEK, ROYAL DISTRICT MEDICAL OFFICER AT PRAGUE.

In the literature of unemployment, its causes and prevention, points which appear to me to be important, are only lightly touched upon and indeed not in any way discussed in most of the comprehensive works on the subject. The sad results of unemployment on the health of the community are well known and have been often discussed. It is not necessary to prove that unemployment and consequent deficiency of earnings, mean want, and that the sufferer lacking the very necessities of life is unable to give hygienic matters any individual attention. His constitution is weakened by insufficient, hap-hazard nourishment, and his power of resistance to the unhealthy conditions of living—in which circumstances place him—is diminished or completely broken down. Hunger, bad air, dark overcrowded dwellings, indifference in matters of cleanliness, indifferent care of children, and neglect and moral corruption of youth, plant the seeds of organic diseases, or supply an opportunity for the spread of contagious sickness and plagues. The children of the poor and impoverished,

are carried off in tender years by infantile diseases and contagious sickness. Rachitis and scrofula demand the most numerous victims and make cripples of many. Venereal diseases flourish amongst adults, tuberculosis especially empties the ranks of those who suffer from unemployment and insufficient earnings.

But it is it not of the terrible results of unemployment and its significance in relation to hygienics which are sufficiently well known that I now desire to treat; nor yet do I wish to discuss the hygienic measures, such as improvements in dwellings, the war against tuberculosis, adequate care of children, and so forth, which tend to ameliorate these results. Let us turn to the causes of unemployment and there seek for points which hygiene (the public care of health) can attack. We may thus grapple with the evil at its source instead of merely attending to its bad results.

One of the important causes of innocent unemployment which we are discussing, lies, speaking generally, in the physical in-

capacity for the occupation selected by or forced upon the individual by external circumstances.

This point plays a decisive role in regard to business application and business energy of the most differing classes of people and is often the reason why the individual is not able to fill his place satisfactorily, and why he suffers on account of his occupation so as to quit it or soon end in ill-health or breakdown under it. Physical incapacity is the general cause of sickness incurred in the pursuit of one's employment. No instrument is fit for all classes of work, and no material for every instrument. If it be not well selected it will soon become dull, soon break. It is well known that everyone is not adopted to be a physician, a sailor, a soldier, a discoverer. Many who might have succeeded in their callings in life have failed because of the physical handicap. It is not necessary to elaborate these ideas to show that through such incapacity many a life amongst the more cultivated classes is threatened, endangered, or destroyed, or loses its hold, and falls into line with the "intellectual proletariat." Much of what we have to discuss concerns these classes. There are conditions injurious to health incident to every or nearly every calling requiring certain physical qualifications to offset them. This is especially so in the work of the laborer, in the narrower signification of the term; here we see the many trade conditions injurious to health, many of them characteristic of and specifically incident to particular trades—conditions of which trade-pathology has much information, and against which trade-hygiene should protect.

We now face an important point of view of our subject, the choice of occupation.

It does not seem to me to be necessary after what has been said to expatiate on the hygienic significance of a proper choice of employment. It plays unquestionably an important role as a cause of involuntary unemployment, and is amongst the sources of the social misery of a part of the working classes. Insurance against sickness protects in an insufficient manner or temporarily only against the physical results of physical incapacity for an occupation, especially as this incapacity does not always mean sickness in a physical sense, or sickness as defined by the laws relating to insurance against sickness. Physical in-

capacity predicates frequent, in fact, continuous change of location—the incapable workman is discharged and seeks again and again the employment for which he is unsuited until he succumbs. A remedy or at least an improvement in conditions might be devised and prevention might be offered to great social wrongs.

The dangers to which everyone exposes himself in the pursuit of certain occupations or trades are known; they are investigated and studied by pathologists who deal with the conditions of professions and trades. But these dangers to health are not known to the man who devotes himself to an occupation. It has also been demonstrated that certain physical characteristics signify slighter resistance to these dangers, that such characteristics predispose to contracting sickness, that the man who has this predisposition exposes himself to disproportionately greater danger than another in pursuit of any particular employment. Apart from deficient muscular strength, apart from general physical infirmity, it is only necessary to call to mind the often distinctly recognizable predisposition to tuberculosis. For example, a man predisposed to tuberculosis, enters an employment in which dust is raised, and, without taking into consideration the fact that he endangers his fellow workers, infallibly succumbs. The man physically unfit for such employment, however, knows nothing of this predisposition nor of his infirmity—he has besides no opportunity nor reason for informing himself about it before he feels signs of weakness, when in most cases it is already too late.

The remedy may follow two lines: Either by proper instruction about an occupation and its dangers, or by possible proper information about the worker's own constitution and physical fitness for the occupation by means of a thorough medical examination; at all events, by selecting the physically suitable and directing them to the several classes of employment.

What opportunity is there for realizing this and in what manner can it be brought about? The school offers the best opportunity, both for instruction and for the medical examination suggested. Mischler, speaking on the first day of the session of the Austrian Institute for Assisting Labor at Vienna (1907), has already complained of the unregulated, unintelligent choice of

employment and drawn attention to the experiments made at Graz. Results might certainly be expected from the instruction of pupils of the technical schools as to the dangers incident to the several employments, and, at all events, from the examination of pupils by school physicians, as to physical fitness for the employment any pupil might contemplate entering—and, indeed, such an examination in the Public and High Schools and even in the advanced schools with a view to choice of employment would unquestionably be useful even if difficult to carry out. I find additional help in this direction in the reports which have come to us through Krejci, of the assistance to apprentices attempted with good results at Prague. As Mischler has proposed, and, in fact, attempted to do, apprentices and their parents, the managers of orphan asylums and educational institutions, and so forth, should also be informed as to the meaning and duties of the public labor bureaus and labor directories. By means of these institutions special opportunities are afforded to set energetically to work along the lines suggested, and on the one hand to influence those looking for work by instruction, and, on the other, to secure a direct selection by medical recommendation and examination, for example, recommendation of the particular employment for which the labor seeker is suitable. That there is nothing Utopian about his idea, but that, on the contrary, it has been practically thought out and attempted, is seen from a paper in the "Labor News," published by the Labor Institute at Graz (Labor News, 1907, page 28).

The proposition I make is to put to such use the hygienics of trades, and the pathology of trades, that applicants for situations in certain classes of employment shall be examined before being recommended to ascertain the absence of the physical conditions that would be detrimental in the pursuit of the contemplated class of work. There is no doubt but that by this means greatly to the advantage of charitable institutions, to the advantage of relief funds, and of employees and employers, much misdirected assistance might be avoided. Besides, I consider that this method of physical selection, this method of producing a judgment by neutral, impartial officials, would be more satisfactory than a selection made by workmen induced as it would be

by varied business influences. It would, no doubt, be made crudely and frequently be mistaken. In the constitution of impartial labor bureaus—I refer particularly to the labor bureaus which are not the tools and machines of a political party organization—in the giving of the most effective and comprehensive constitution to these institutions appears to me to be the gist of these matters. These institutions are by no means to merely register mechanically the openings for employment to direct and assist, they must decisively influence the proper judicious distribution of work and the correct choice of occupation. This will only be possible, if they, being provided with expert equipment, are constituted as genuine public bureaus of information. Naturally—as I have already indicated—only neutral non-political institutions can gain the confidence of the people; and only such institutions can claim, to be assisted by the powers that wield influence and must wield influence over parties and by the Government, the rural and city communities and to enter into alliance and reciprocal relations with them. Such an understanding is necessary. It is not in the least doubtful that these institutions would, under such circumstances, be powerful leavers to improve the health of the nation. The establishment of such institutions would, of course, be of the greatest importance, not only to the laboring classes, but also to the more cultivated.

Special attention is directed, because it is of eminent importance to public health, to the value of co-operation between labor bureaus and general dwelling house agencies. This probably requires no further proof. It is necessary that a man seeking employment should be assisted to the choice of a healthy and adequate dwelling worth the price demanded, and so there is further a connection which I shall not elaborate, between our complex subject and the subjects of dwelling sanitation and dwelling reform which are in the forefront of the socialistic efforts of later times in the direction of hygienics. I content, myself, with indicating the necessarily reciprocal relationship of these problems to the solution of which the establishment of the labor bureaus offers assistance. But the hygienic importance of guiding the selection of employment, the judiciously assisted finding of employment is by no means thus ex-

hausted. It is to be remembered that the directing to employment and public finding of employment make possible hygienic control, which, as in the case of waiters, waitresses, nurses, etc., is of public importance.

But let us return to our subject. Instruction and information, with a view to choice of employment, may in other ways be powerfully assisted. The labor organizations should especially be in a position to develop a decided activity in this direction. Again a general dissemination of knowledge and advice would be possible by means of articles in that part of the press which enjoys the widest circulation, as well as in other publications. An attempt in this direction which has come under my notice is Sommerfeld's Booklet, "The Choice of Employment," in which hygienic considerations and the disadvantages which are to be considered in connection with certain occupations, besides advice as to choice of employment, are dealt with. Moreover, I believe that it would be possible to give attention to hygienic considerations in the analysis and classification of employments or by means of a scientific dictionary of matters relating to occupations, as suggested by Mischler (*Labor News*, 1907, pages 79 and 204).

Again it would undoubtedly be possible to interest the guilds and labor organizations and unions to assist influentially in the matter of instruction and choice of employment.

The suggestion which also comes from Mischler, to direct large numbers of those possessing special physical qualifications to agriculture regarding them as agricultural apprentices and educating them for agricultural pursuits, is deserving of consideration from a hygienic standpoint.* This plan would unquestionably be suitable, not only to elevate the agricultural class by creating a healthy, sound and strong class of laborers, but would also do much to improve the health of the people generally.

Another method of attacking unemployment, well known and frequently resorted to, is by means of public works, municipal or State; an effort to meet the increasing unemployment by so-called emergency works. After what has been said it is clear that here, too, respect should be had to the physical capacity, the health of the needy as otherwise the evil might readily be increased and the needy injured. We

know that these emergency works consist for the most part of building, excavating and so forth, and, naturally, it is not every constitution that is adapted to such work. Selection—at least, of a sort, would assuredly be proper.

There is, besides, another point which I shall at this time only touch upon, of which I spoke at the meeting of the Austrian Institute for assisting labor at Prague, 1908, in support of a report by Furer. Upon the scarcity of suitable work at home there results very naturally the search for work abroad, that is to say, emigration. From a social hygienic standpoint there would be nothing to object to in an international exchange of workmen, I mean workmen suited to the respective requirements, but, as a matter of fact, the practice is very different. It is not necessary to waste many words on this point. The desire to emigrate is cleverly excited, the emigrant is often persuaded by promises and representations of unscrupulous agents influenced solely by desire for gain to quit the work which he is accustomed to in his home, the work to which he is adapted and for which he is physically fit to look for a utopia where he often succumbs or deteriorates, physically, because he is not adapted to foreign circumstances nor to work in the foreign country, and is carried off under unfavorable climatic conditions by contagious diseases, sicknesses peculiar to the tropics, and so forth. Foreign countries defend themselves in many ways against immigration of the physically unfit, and many a one is turned back and must, because of the health regulations of those countries, return. Of all this the emigrant is for the most part not informed and has scarcely any opportunity to inform himself. How much evil, which arises from what may actually be the merely supposed scarcity of suitable work at home might be avoided if bureaus were established where emigrants might be correctly informed as to the circumstances and laws affecting health in foreign countries and as to their own physical fitness for emigration to foreign countries, and if at the same time they could inform themselves thoroughly as to relative opportunities for work at home and abroad. Those who know the misery of emigration as I do will not doubt that it is the duty of all concerned to assist in this direction and to make such arrangements.

* Compare the suggestions above referred to, with those of Krejels regarding apprentices generally.

We now take a step forward. We know by experience that the means which we have hitherto been discussing suitable to obviate unemployment are insufficient to completely prevent innocent, involuntary unemployment and that the number of the unemployed is very large. Unemployment would still remain to be reckoned with, and means must be taken to provide for its occurrence. Insurance against unemployment is the most effective institution. Let us consider the significance of this suggestion from a hygienic standpoint without criticizing the several schemes of insurance which have been attempted or proposed. From the standpoint of trade hygienics the chief place must decidedly be given to insurance against unemployment whether it be fraternal insurance in the meaning of the system in vogue at Ghent or compulsory or involuntary insurance, such as compulsory savings, etc., and for the following reasons: A very important consideration in the matter of protection of the workmen and one frequently very effective in dangerous occupations and especially in such as involve danger of poisoning is the promptest possible separation of the endangered workmen from the dangerous work, the change of work, the change from dangerous to uninjurious occupation, that is to say, a temporary separation from the dangerous work.*

As will be anticipated, it will rarely be possible to carry out this suggestion within the limits of any one business that is without requiring the workman to seek a new situation. It may be to some extent possible in the case of industries carried on on a large scale where several processes are involved.

It must be remembered that in this case sickness insurance is no complete protection as it must be emphasized that a workman must quit the occupation before he takes sick, that is before he is sick within the meaning of the laws relating to sickness insurance, when he shows the tendency to sickness or the premonitory symptoms (first indications). Hygiene must prevent the actual taking sick; this in many cases is possible only when the dangerous occupation is dropped at once and when, after a proper time for recuperation a new employment is sought. For such cases I emphatically recommend insurance against inno-

cent unemployment, due to a consideration of health, and, therefore, involuntary. We are now dealing especially with cases of chronic poisoning, due to the nature of certain trades, where poison is stored in the system, and which in the case of lead poisoning can be recognized from symptoms in the early stages. By quitting the employment time and opportunity may be given the system to throw off the poison. There are, moreover, other sicknesses such as tuberculosis in its early stages, but not sicknesses as defined by the laws relating to sickness insurance, which demand the prompt relinquishment of an occupation, which promotes tuberculosis such as a trade process creating quantities of dust. This is the special reason why I as an expert in trade hygienics feel it my duty to support insurance against unemployment or some substitute (compulsory savings, etc.), quite apart from the general social hygienic considerations already touched upon.

Not to become diffuse and so obliterate the impression I have sought to make as to this, which seems to me to be the most important point of view of our subject, I shall not close without pointing out again the general significance of providing for the welfare of laborers with the object of contending with unemployment. Such provisions for the welfare of laborers in the narrower sense—as I style them—those arrangements for the well being of labor which go beyond the behests of the laws protecting labor are intended to elevate the general condition and well being of the laborer to confirm his domestic and social existence in brief, to create a contented, healthy, independent labor class which will not suffer from unemployment. I know that by such an expression I may appear to come into conflict with some of the designs of organized labor, but that would be a misunderstanding. We are not dealing with a conflict of social classes nor with a political problem; these considerations should be laid aside when we desire to accomplish social hygienic aims. In this case emulation should take the place of discord and assuredly the labor organizations are not prohibited; it will, indeed, be their duty, to emulate the employers in providing for the welfare of laborers.

*In considering this point, complete tabulation of the dangerous occupations, especially of those in which there is danger of poisoning, would from one standpoint be very desirable. (Krejel)

THE FOURTH INTERNATIONAL CONGRESS OF SCHOOL HYGIENE

By HELEN MACMURCHY, M.D., C.M.

The Fourth International Congress of School Hygiene, which will take place at Buffalo in 1913, will be an event of great importance to Canada as well as to the United States. Its significance, of course, is world-wide, but there can be no doubt that its influence will be chiefly felt in the United States and Canada.

It was in the year 1904 that the First International Congress of School Hygiene was held at Nuremberg, in Germany, and the man who summoned it, with the aid of all interested in the movement, was Professor Griesbach. Its success was marked, indeed, it seemed as if all who are interested in School Hygiene had but been awaiting the call to meet. It was there arranged that the Congress should assemble once in three years, and the next President elected was Sir Lauder Brunton, the meeting place being London, and the time 1907.

With characteristic goodwill, tact, and energy, the new President devoted himself to secure the utmost benefit to the children of all the nations of the world from the London Congress. His great personal prestige and influence, both in France and Germany, were of immense value, and he undertook a journey through Canada and the United States largely for the purpose of arousing interest in the Congress and securing general co-operation. The researches and discoveries which have made his name famous in therapeutics and in clinical medicine will not be longer remembered, and, perhaps, will not do more good than the influence he has already exerted in promoting national vigor, in uniting medical with educational authorities in efforts to secure the best conditions for school children, and to recognize their needs and in stimulating legislation for these ends.

Persona grata wherever he goes, the London Congress had in its President a great leader, a man for whom everybody would do anything, and it is an open secret that when disaster threatened to overwhelm the Congress, but three weeks before the date set for its assembling, that disaster was averted by

means of a personal interview between His late Majesty King Edward the Seventh and Sir Lauder Brunton, in consequence of which the Royal assistance was graciously vouchsafed to the Congress. This was the real reason of that dramatic moment at the Paris Congress of August, 1910, when Sir Lauder Brunton, in the course of his remarks, referred to "le roi Edouard, le bien aimé." These words were received at first in sympathetic and almost breathless silence, and then when the leaders of the Congress remembered what the dead King had done for the interests of School Hygiene, there followed a demonstration of spontaneous interest and applause which no one who knew the circumstances was at any loss to interpret.

This was at the "Ouverture Solonelle" of the Paris Congress, a meeting which was exceedingly interesting and helpful, and advanced such questions as open air schools, practical methods of medical inspection of schools, the Hygiene of Residential Schools and other subjects to an encouraging extent.

It is hoped that at the Buffalo Congress, plans for which are now being carefully considered and matured, there may be a good representation of Canadian teachers, inspectors, municipal authorities, and Government representatives and officials, both from the Dominion and the Provincial Governments, as well as of the general public, upon whom the success of any such movement must chiefly rest. Buffalo is a large, progressive and growingly beautiful city, and it is easily accessible. Indeed, it was given as one of the reasons why the Congress should meet at Buffalo, that Buffalo was "so near Canada."

The officers and members of the Canadian Branch of the International Congress of School Hygiene will doubtless interest themselves in making the Congress widely-known and popular. The President, Sir James Grant, of Ottawa, and the Secretary, Inspector W. J. Chapman, of Toronto, have already done much to forward the interests of School Hygiene in Canada,

and the meeting of the International Congress in Buffalo in 1913 will be a further means of arousing public interest.

It must be remembered that British Columbia is the only Province where there is effective legislation for medical inspection of schools. In Ontario and Manitoba

the Acts are permissive only. Yet in Great Britain such inspection became compulsory in 1908, and before that date it was compulsory in Germany and other Continental countries. And in Australia, New Zealand and Tasmania they are also in advance. So we are not moving too rapidly in Canada.

MUNICIPAL SERVICE IN ENGLAND

By PERCY ALDEN, M.P.

Perhaps the most significant of all developments during the last fifty years is the growth of the municipality and the extension of the sphere of local government. It is true that in England those who are entrusted with the work of administration in connection with our Local Authorities, are more restricted than is the case in Germany, but even a cursory examination of the powers obtained by Act of Parliament, reveals the wide and far-reaching nature of their scope.

Let us look at some of the positions which any Local Authority must fill with good men and women if the work of government and administration is to progress. We all know that a Town Clerk has an extremely difficult and responsible post. He is naturally, therefore, perhaps the best paid officer in any municipality. In the case of a big town, remembering the responsible nature of his work, the large salary is none too large, for he must possess not only good legal training, but also a knowledge of Acts of Parliament which is encyclopædic. The main Acts under the terms of which he advises the Local Authority are the Local Government Acts of 1898 and 1894, the Municipal Corporations Act of 1882, and the very important Public Health Act of 1875, which consists of over 2,000 pages of notes and references to over 600 other Acts of Parliament. The Municipal Corporation Act again implies the understanding of innumerable other Acts of Parliament. The big positions are nearly always filled from the smaller towns after many years of experience.

Next in importance to the work of the Town Clerk is that of the Borough Engineer or Surveyor, who must of course be

an engineer or an architect, and is frequently both. Indeed, there are illustrations to be found of men who are engineers, architects and barristers, men, of course, at the very head of their profession. A Borough Engineer may begin in a small town at a salary of £300 or £400 a year, and gradually work his way up until in the big cities he will be getting £1,000 or £2,000. The Borough Engineer would be responsible for all the work in connection with sewerage, the highways, the buildings and often such public services as the tramways. The post of Borough Engineer is more likely to be obtained if a man is a member of and possesses the diploma of the Institute of Civil Engineers and of Mechanical Engineers. The Incorporated Association of Municipal and County Engineers holds an examination, and candidates over 21, by the payment of four guineas, can enter for this examination, and receive a diploma if successful. They are examined first on engineering proper, tramway and bridge construction and water supply, together with sewage disposal, and, secondly, on hydraulics, road construction and maintenance. The next section is building construction and building by-laws, together with public baths and hospitals. Then comes sanitary science as applied to towns and buildings, dealing especially with heating, ventilation, drainage, scavenging and disinfection; and, lastly, municipal and local government law. An assistant engineer is paid from £150 to £400 per annum.

The work of a medical officer is too well known to need any detailed description. In addition to being a fully qualified doctor, a medical officer is more likely to obtain a

first rate position if he is a barrister. The medical officer is responsible for the public health of the town and must be present at the meetings of the Public Health or Sanitary Committee. Under his control are the Inspectors of Nuisances, both men and women, and also the women health visitors, who are often qualified as sanitary inspectors. In addition to the sanitary administration of a town are certain duties transferred to the Health Authority by the Factory and Workshop Act of 1891, such as the supervision of premises where women are employed. A medical officer's salary may be anything from £150 a year, which would be a part time office, to £1,500 a year in the biggest towns. These latter positions are only filled from the ranks of those who have had previous experience, and they are usually men with very high qualifications.

Before going on to deal with some of the other officials who occupy positions of considerable importance in the municipal service it would be as well to refer briefly to the subordinate officials in these three departments. The deputy or assistant Town Clerk is frequently a man without legal training, whose salary would commence at £150 and would rise to £350 or £400. In some large towns the deputy Town Clerk holds an extremely high place, and is a fully qualified man—e.g., in Manchester, he is paid £1,000 a year. A big municipality expects that any applicant for this post should be experienced in Local Government Board practice and have an intimate knowledge of the Town Clerk's Department. He must also be able to act as advocate in conducting important cases before magistrates.

Municipal Clerkships are usually filled by those who occupy junior positions in a municipal office, boys who have been well educated and have a good knowledge of figures. These juniors are promoted gradually to the positions of cashiers, collectors, district clerks, accountant and ledger clerks, etc., with salaries from £100 to £180 a year. The Chief Clerk or a Departmental Accountant would get a salary ranging from £250 to £500 a year. In the Town Clerk's Department a fairly high standard of education is required, and the salary is somewhat larger than the salaries prevailing in other departments. It is now necessary in most municipal offices to insist upon typewriting and shorthand, and if

this be combined with ability to deal with large figures, accurately, there is always a good chance of promotion. A Borough Surveyor has under his control not only an Assistant Engineer, together with a staff of clerks, but he is also responsible for the Clerks of Works engaged by the Municipality, and to a large extent for the officials in charge of any Works Department. The manager of the Works Department in a big city is a first-class official, and the probability is that this position will become increasingly important in the future. The salary may range from £600 to £1,000 a year.

Under the Medical Officer's Department are the Inspectors of Nuisances, who must obtain a certificate which is granted by the Royal Sanitary Institute, if they are ever to qualify for the best posts. The Local Government Board regards the certificate of the Institute as evidence that the person possessing it is fully qualified to act in any Urban or Rural District Council outside London. It is also recognized by the Local Government Board both in Edinburgh and Dublin. The examination deals with the methods of inspection of various dwellings and trade establishments and nuisances connected therewith, the character of good drinking water and how it may be polluted, the pollution of rivers, the characteristics of good and bad food, regulations with regard to infectious diseases, methods of disinfection, builders' and plumbers' work, drain testing and scavenging, etc. Those applying for these posts have to submit satisfactory testimonials from a man holding an official position, and they also have to furnish satisfactory evidence of a practical knowledge of sanitation. The fee for examination is three guineas, and the salaries to be obtained in the provinces range from £100 to £500 a year, although the assistants rarely rise above £150 to £250. The Inspector of Nuisances in London must have, as a rule, the qualification of Inspector of meat and other foods, even though he may not be required to take up this department. Often special inspectors of food and drugs are appointed, the salaries ranging from £160 to £220 a year, or in the case of the chief inspector, £300 a year. Many municipalities have also a Shop Hours Inspector, who must be well versed not only in that Act, but also in the general work of sanitation and ventilation.

The salaries range from £150 a year to £250 for men; for women from £80 to £150 a year. Lady sanitary inspectors are increasing in numbers. They are under the immediate supervision of the medical officer of health, and their special work is in connection with the reduction of the high rate of infantile mortality, the inspection of laundries and workshops, the inspection of midwives, house to house inspection, the supervision of houses let in lodgings and certain duties connected with notifiable and non-notifiable infectious disease.

Just a word is necessary about "health visiting" which is extremely difficult and trying in respect of its duties. The Health Visitor has no legal status and no right of entry unless she be at the same time a sanitary inspector. Many Health Visitors have been nurses who feel drawn to this special kind of work; other things being equal, sanitary authorities show a tendency to appoint candidates with nursing qualifications. Since infant mortality plays so large a part in the work of a health visitor, it is a good thing for a candidate to have training in a children's hospital. If inspection under the Midwives Act is a part of the duties of a health visitor it is clear that she must be a certified midwife. The salaries range from a £100 to £120, and are quite inadequate considering the valuable nature of the work that is performed. A health visitor must have considerable tact, especially in dealing with mothers in connection with the Notification of Births Act, and the reduction of infant mortality. Apart from the certificate of the Royal Sanitary Institute the diploma of the National Health Society is valuable.

Coming to some of the more important positions outside the three main services, we have such officials as the Chief Librarian and his assistants, the electrical engineer, the school doctor under the Educational Committee, the superintendent of the public baths, the Manager of the Tramways Department, and many other posts, the number of which tends to increase almost every year. Anyone who wishes to be a librarian must either enter as a junior at £25 to £30 a year and work his way up, or he must be qualified by virtue of some experience in other non-municipal libraries, together with educational certificates, and possibly a university degree. Assistant librarians are paid anything from £80 a year without

rooms to £300 a year with a house, while a chief librarian, of course, may receive double this amount. The service is, however, not well paid. The Library Association, Whitcombe Street, Pall Mall, gives lectures to candidates for library work and awards certificates. The subjects of study are history, bibliography, cataloguing, classification of books, and practical library administration. Women are often employed in subordinate positions in libraries, with salaries ranging from £30 to £80 a year.

The electrical engineer is, of course, only to be found in boroughs of a fairly large size. The position is an important one, and until recently, owing to the dearth of able candidates was extremely well paid. It is needless to say that all applicants for these positions must be fully qualified by examination, and must possess certificates. To obtain the highest position it is necessary, as a rule, to accept a post in a small town and acquire there the practical knowledge which is almost indispensable in dealing with very large work. Many men get their appointments from the big electrical engineering firms. The salary ranges from £250 to £800 a year.

The school doctor is usually under the control of the Medical Officer of Health, although in some cases he has been appointed definitely by the Education Committee and is independent of the Public Health Department. In most towns the school doctor does not at present give his whole time to the work of medical inspection, and, therefore, his salary is proportionately small; but where whole time is given he will commence with about £350 to £400 a year. As medical treatment and the school clinic become more common the work of the school doctor will tend to increase in proportion and whole time appointments will be common.

The superintendent of public baths and wash-houses must be a good organizer and competent to take charge of building and machinery, with a sound practical knowledge of hydraulic and heating apparatus. The salary varies according to the town, but, is usually from £200 to £300 a year. Assistants receive about £120 a year.

Generally speaking, it may be said that the opportunities for municipal service are increasing rapidly year by year, and that as time goes on the number of candidates for these positions will tend to increase, not merely by reason of the permanent charac-

ter of the posts that are offered, but also by virtue of the honorable nature of the work. Some of the most important positions in Government departments are now occupied by men who were once officials of some borough council. To have been at the head of a department in connection

with some big municipality is a guarantee that the man who held the position is a man of knowledge and experience, while even the subordinate posts, as specialization increases, will tend to be occupied only by those who possess considerable mental calibre and efficiency.

THE SCHOOL CLINIC

By L. HADEN GUEST, M.D.

In my last article (October Public Health Journal), I sketched the organization of the school clinic on its medical side, and indicated how it would deal with medically and surgically remediable ailments and defects. But among the poverty group children the worst disease, upon which the others do indeed largely depend, is poverty itself. Lack of boots, lack of clothing, and lack of food are not matters with which the doctor can professionally concern himself. But the school clinic is to work in the closest touch with the Care Committee, and when the clinic doctor has done all that is possible to put the ailing child straight from his point of view, the Care Committee agency must be called in to remedy poverty defects which otherwise would render (and do now render under present circumstances) all the medical labor in vain. The underfed child must be fed, the under-clothed child clothed. The doctor at the clinic will certify what social factors are likely to cause or allow a relapse to the illness or defect, and it must be the business of the Care Committee to take precautions accordingly.

This will mean in practice that the Care Committee must have a fund for supplying the needs of school clinic cases. The Committee must go even further still. In many cases what is required by poverty group children is carefully adjusted feeding, adjusted, that is, to their damaged and deteriorated digestive systems. This remedial feeding will inevitably be an important part of the school clinic's prescriptions, and will have to be something very different from the present hap-hazard meals now provided under the Provision of Meals Act. These meals will be framed on the lines of a medi-

cal prescription, and might well (in some cases, at least), be distributed on the plan used by the excellent invalid kitchen in Southwark, which provides meals of different kinds to suit invalid digestions.

The prescription of school meals by the clinic doctor will be an important adjunct to treatment. It will be essential, therefore, to see that the meal serves its purpose of feeding the child adequately and not that of merely staving off starvation. If the school meal now provided for necessitous cases was improved so as to become a really physiologically good meal it would be unnecessary to have invalid cookery. If the meals are not so improved it is difficult to see how otherwise the proper feeding of ailing and debilitated poor children is to be obtained.

When one turns from feeding to consider the question of boots and clothes, it is clear that very much requires to be done. A school clinic will have only one answer to the conundrum as to whether it is better to treat recurrent attacks of bronchitis and throat trouble or provide a stout pair of boots and warm clothing. The drug bill and the bill of clinic salaries and general expenses will be balanced against a bill for clothes and boots, and found to be much heavier. The bill is heavier now, but different pockets pay the different bills and the hospitals that appeal for subscriptions do not consider it part of their duty to prevent the need for some of their subscriptions by subsidizing boot and clothing clubs for schools.

It is the same with another important aspect of Care Committee work, that of providing for country holidays. The knowledge gained at the school clinic will

be of immense help in determining what children need this kind of holiday and what that. At the present time the question of country holidays and of convalescence after illness, or sanatorium treatment are in a rather unorganized condition. Multitudes of children who would benefit by country holidays do not get them, many children who need seaside convalescence or sanatorium treatment do not get it, while, at the same time, unsuitable (financially speaking) children are allowed to take advantage of charities which are needed by others less well able to pay. The conditions at present are unavoidable, but how a school clinic would simplify them and make it easier to apply the charities to the best result! Given, then, that the Care Committee is working in close touch with the clinic, it should be possible to arrange for the optimum use of the agencies at their disposal and probably for the holidaying of all those children whose condition urgently require it, and especially those threatened with tuberculosis.

Very much valuable work is done by voluntary and paid health visitors who endeavor by home visits and by plain talks to impress on the homes of poor people, the common-sense lessons of modern hygiene. The school clinic will do much to fortify and reinforce this health missionary work. For the clinic will not only act as a centre, a rallying point and a reference on all questions connected with the health of the school child, but it will train the children and the parents themselves as health missionaries on their own account. As I have before pointed out, the discussion of a practical point of hygiene, say that of open windows or of personal cleanliness, becomes not only concrete, but vital, the ailment or delicacy of a beloved child as its object lesson. The lesson (it is a way with lessons) may have to be repeated, but ultimately it will be effective. A school clinic properly conducted should spread principles of hygiene very rapidly throughout its district.

I have above endeavored to point out how the school clinic will enable all cases of ailment or defect in school children to be adequately treated. How it will link the school organization with the present school doctors and school nurses and with the special and with the general hospitals. How, again, all the activities which have to do with feeding, cloth-

ing, holidaying, may be naturally grouped and co-ordinated with the clinic's medical work. And how, further, the activity of the clinic and its co-ordinated helpers will stretch outside the school, and penetrate by means of its missionaries into the home itself, bringing the sweetness and light of hygiene to the parents of school children (particularly of the poverty group), clothed in the garb of their own thoughts and ideas, and exemplified by the occurrences of the daily lives.

Nothing here suggested is Utopian, nothing here suggested is more than the grouping together of isolated and uncoordinated practical activities. The school clinic, by medically studying the child provides the natural centre and rallying point for all these activities. All these agencies which are now working in a scattered and incoordinated way for the helping of school children, will be centralized by the clinic, organized, and made a hundred per cent. more effective than they can now be. And we may hope for great and almost unrealizable changes when the school clinic pours out health and help and kindness in every congested and poor district, for then the growth of child life, which now sinks down into the abyss, will spring up and grow healthily with the light and air of good human existence.

If you are severely practical, reader, you are conjured not to read this; it will not be "practical" until to-morrow, when some of the preliminary work of clearing out the awful morass of slum child life shall have been performed. To-day it is only a dream. A dream of the time when the child at school shall grow as sweetly and as happily as a flower in a garden, when it shall stretch up its mind for knowledge as a flower for sunlight, and when all the strange and impish deformities and etiologies, medical inspectors have to catalogue are relegated to infrequent hospitals and sanatoria with but very few beds in their wards.

The School Clinic will aim to get the level of all children up to the low "average" or "normal" of the relatively healthy in present Council schools, and then we can begin our real work of devising means whereby that low, that all too low average, may be transcended, the lethargic body grow supple, nimble and good to look upon, the dulled senses quick, true and responsive and the narrow mind actively growing and

expanding. All these things are within the sphere of the school doctor, all these things are within the scope of present-day medical knowledge. The knowledge is here in reality, it is only the accomplishment in fact that is in Utopia—to-morrow.

In the good time when the poverty-group child has grown into a sound average and the average developed a step further I look forward to a new kind of standard being introduced in schools. Standards of imagination. In the present day children are only sent to the doctor when they are obviously deaf, or blind, or halt or maimed. In the future the tests will be more subtle, and I confidently anticipate the time when

“Peter Pan” or “The Blue Bird,” or some such fairy tale will be a compulsory subject of the ordinary Council School curriculum. At that day any child failing to reach, at any rate, the “Peter Pan” standard of imagination will promptly be sent to the school clinic. It is after all a rather serious reflection that there are many thousand “average” children to-day who do not reach this level.

The first steps towards the raising of the standard must be taken by raising the lowest, and by pouring so much health, help, and kindness into the poverty-group children that their all too low grade finally disappears.

SANITARY MILK SUPPLIES FOR CITIES

By ROBERT A. BLACK, M.D.

To the layman the medical profession may seem idealistic demanding things that are not practical, yet we are on the firing line and certainly see the damage resulting, and can usually figure up the ultimate cost of carelessness.

In the demands we make on the dairy-men we feel that we are not asking more than we have already done.

That there will be an increase in the cost of milk we know. We also know that there can be an increase in the cost of almost any other commodity without serious remonstrance, yet there are loud, wild outcries of “trust” the moment a progressive dairy-man declares that his production of pure, clean milk means an increase in cost of 1 or 2 cents per quart.

If, however, the consumer were told plainly that cheaper milk means disease germs and dirt, I do not think there would be any complaint about the increased cost, which should be cheerfully borne by the consumer.

From a medical standpoint we ask: That there be clean milk with an absence of large numbers of germs and entire freedom from pathological germs or the germs which produce disease; a constant nutritive value of known chemical composition with a uniform relation between the fats, sugars, and albumens; an unvarying resistance to early

fermentative changes, so that it may be kept without extraordinary care.

In our first requirement, I say absence of large numbers of bacteria, because aseptic milk is practically impossible and would add a needless expense to the dairyman. Also it would appear from experiments that certain germs are comparatively harmless in small numbers and may be even beneficial.

That milk should be entirely free from disease producing germs is shown conclusively by a summary of epidemics prepared by Busey and Kober, of which I cite only a few to show the most intense need of this requirement.

A typhoid epidemic in Clifton, England, showed 244 cases, of which 230 came from one dairy.

A scarlet fever epidemic in Boston in 1907 produced 227 cases. Of these 195 came from the same dairy and occurred in four days' time.

A diphtheria epidemic occurred in Ash-tabula. Of 111 cases, with 23 deaths, 100 cases came from families that used milk from one dairy.

Statistics on tubercular infections directly transmitted are harder to find, yet we can be on the safe side by taking the conclusions of several able workers who have

recently gathered proof.

Anderson in 223 samples of milk showed that 6.72 per cent. of the samples contained tubercular germs virulent to guinea pigs.

Trosh examined 7,097 samples of market milk and found tubercular germs in 594.

Schroeder says whatever chances we ourselves may take as adults, yet we have no right to neglect our duty to children. When we examine the reports of a host of investigators we find, though there may be two morphologically distinct types of the tubercular bacillus, that they are connected by transition forms, and if the two commoner types (human and bovine, but neither restricted to man nor cattle) really differ in an important way, it is that the type commoner in cattle is of much higher disease producing virulence than that common to man.

This shows why milk should be produced only from tuberculin tested cows, and the more so since Salmon, after a careful study of all facts in regard to the tuberculin reaction on cattle, says: "It is an accurate method of determining whether the animal has tuberculosis."

That by its use the diseased animal is detected and removed from the herd, thereby protecting other cattle.

That tuberculin has no ill effect on the healthy animal.

Already we see the progressive dairyman taking advantage of this test. Let us help him along by demanding it for all our milk cows.

That milk must have a constant nutritive value and definite chemical composition is already recognized by law for protecting the consumer from fraud and dangerous dilutants and preservatives and also for the use of infants. Without a definite standard it would be impossible correctly to modify milk.

Certified milk commissions have adopted a standard of 3.50 per cent. proteids—3.50 to 4.50 per cent. fats and 4 per cent. sugar. Should milk for drinking purposes show a higher per cent. fat than this it should be so labeled or enough milk of lower composition should be introduced to bring the food value down.

To obtain the ideal milk for infant feeding we should take one step farther and demand that the dairyman use cows which produce a small size fat globule in their milk.

Our third requirement, an unvarying resistance to early fermentative changes, demands as little handling as possible.

Rosenau experimentally shows that clumping or clustering is one of the factors that cause an apparent decrease in number of germs. Milk that is shaken or stirred vigorously shows more germs growing on culture media.

The next reason for fewer handlings is that each handling only adds another source of infection.

Milk should be subjected to a steady cool temperature, apparently best around 40 degrees Fahrenheit.

Rosenau found that freezing milk for ten minutes had no effect on the germ destroying power, that freezing for twenty-four hours before inoculating with bacillus typhosus had no influence on its restraining power as far as the bacillus was concerned, but apparently lessens this power for the bacillus forming lactic acid.

Yet freezing does produce changes in milk, for each winter we see cases of food poisoning in infants which can be attributed to thawed frozen milk, hence doctors usually warn mothers against permitting babies to have such milk.

That it should not be allowed to stay at a temperature much higher is shown by Freudenreich, who subjected a sample of milk containing 153,000 germs to the cubic inch to a temperature of 59 degrees Fahrenheit and one hour later found it to contain 539,750 germs, and at the end of twenty-five hours to contain 85,000,000 germs.

The effects on milk of higher degrees of heat sufficient to kill bacteria (which is conceded to be with few exceptions around 140 degrees to 165 degrees Fahrenheit) is still the subject of much controversy.

It is generally agreed that milk has a germicidal action, and that this action is present only in raw milk, and continues according to Meinemann for eight to ten hours.

Boiling or heating to about 80 degrees centigrade destroys this action, lesser degrees of heat vary with the micro-organism to be destroyed.

The effects of heat 140 degrees to 165 degrees Fahrenheit on the various ferments is also a subject of controversy, and the bulk of the evidence seems to be that pasteurization done in scientific laboratories and by ultra scientific men is not in the least

injurious, yet in my opinion commercial pasteurization of a dirty milk supply is to be condemned as is the dirty milk supply.

Mildly stating it, it is far from the ideal method, and I think it is positively harmful in the manner in which it is now commercially carried on.

With the amount of advertising that pasteurized milk has received, expended on demanding clean milk, we certainly would be closer to our goal, which is, Clean, Pure Milk.

Many times do I hear, when baby is taken ill with enteritis, and the milk is investigated, the mother reply, "O, it cannot be from the milk, because the label says Pasteurized." Such is the false sense of security which is now developed that the mother is often absolutely careless with her part of feeding pure milk to the babe. And it is only too late when she realizes the real import of commercially pasteurized milk. Why have we not taught her in the beginning to demand pure milk?

Having a desire to see what was the condition of this pasteurized milk when it reached the babe, I had my assistant, Dr. W. P. Curtis, collect samples. These samples were taken directly from the baby's bottle, with the exception of three taken from hospital, and taken during the last month, when the weather has been ideal to keep down germ growth; you can imagine what they might be during the warm summer months.

For a three low count we found 3,400, 7,140, 22,540.

For a three high count, 2,580,330, 426,520, 864,640.

Such a varying of counts certainly fails to impress us with the efficiency of commercial pasteurization.

In talking to the manager of one of our larger pasteurizing plants, he gave the following description of their method:

"Our milk is first run through the separator to remove any sediment." Imagine what the sediment of milk may be. Imagine our permitting any sediment of manure, dead flies, and hair in any other articles of food. Does this straining out of sediment and pasteurizing not tend to make the

dairyman careless?

Then when the milk enters the pasteurizer it has a temperature of about 60 degrees. Just the temperature that Frendenreich showed to produce 85,000,000. Then heated to a temperature of 165 degrees for one and one-half minutes or two minutes, then run through a water cooler at 50. Rogers has recently shown that a temperature of 185 is the lowest at which this flash pasteurizing can be effective, yet I know from talking to various dairymen that they consider 165 degrees sufficient. Of course they have to, for a higher temperature would destroy their cream line and make their milk a marked, disgraced, dirty milk and place it where it really belongs.

Does that sound like a method warranting us physicians in recommending pasteurized milk, or does it not sound more like a commercial way of keeping milk sweet till it can have a chance to kill some babe?

Dr. Freeman, of New York, after a careful study of milk from a medical standpoint, concludes that while milk is in no way changed by pasteurization for forty minutes at 140 degrees, yet commercial pasteurization is to be condemned.

Dr. Evans, of Chicago, in an examination of five large pasteurizing plants during the month of May, found two plants, using the flash method of pasteurizing, averaged about 750,000 and the three using the holding method averaged about 575,000 germs.

This certainly leaves a most dangerous milk when we consider how from various experiments it has been shown that the lactic acid germ is one of the easier killed, although a few hardy strains remain.

Dr. Koller's work at Rochester certainly speaks for itself, and if I have his figures right, they certainly show a reduction in infant mortality far in excess of any figures, yet shown by commercial pasteurization of a dirty milk, so that instead of contending and temporizing with improper pasteurization, or pasteurization of improperly procured milk, or improper care of pasteurized milk, let us demand and work for Pure, Clean Milk.

SMALLPOX REVIEWED

By FREDERIC J. HASKIN

Comparatively few people in these careful days of compulsory vaccination and rigid quarantine can realize what a frightful scourge to humanity smallpox has been. In its total of devastating effect on human life it has probably equalled any of the great plagues and distempers of history, owing to the melancholy fact that from probably the earliest times it always has raged in some quarter of the globe with greater or less mortality. It is always epidemic somewhere.

Formerly smallpox was considered inevitable and incurable, while the rude medical science of antiquity and of the middle ages down to the last quarter of the eighteenth century was powerless to prevent its ravages. Even to-day there is no cure for the filthy disease. The modern weapon consists wholly in prevention.

Smallpox is said to have prevailed in eastern countries from the most remote antiquity, but its early history is shrouded in obscurity. Aaron, an Alexandrian priest, who lived in the early part of the seventh century, is said to have first described the disease. Some have traced an allusion to it in certain passages of the Old Testament. The Greek writers included smallpox and measles under the same head or class of diseases.

The first appearance of smallpox in Europe is supposed by some to have been the epidemic described by Gregory of Tours as having prevailed in France in the reign of Childebert about 520. It is more generally considered, however, that the disease was first brought to Europe by the Saracens about 710. Spreading from Spain, it soon overran Europe, but spared for a time certain isolated countries, such as Denmark, where it did not appear until 1527. It was carried to the West Indies in 1517 by the adventurers who hastened to profit by Columbus' discovery of the new world. It reached Mexico in 1520 and Brazil in 1563. Farther north it first appeared in Maryland, having been brought there by an English ship in the early part of the seventeenth century. Thence it rapidly spread through Virginia, the Carolinas, New England and other portions of the

American colonies. Strangely enough, the disease is more than usually fatal to aboriginal peoples, such as the native Indians of the West Indies, the inhabitants of Polynesia, our own American red men and the Eskimos of the Arctic circle.

Neither palace nor hovel formerly was immune from the ravages of smallpox. Royalty itself perished in the persons of Queen Mary of England in 1694, the Emperor of Germany in 1711, the Dauphin and Dauphiness of France in 1712, the Emperor of Russia in 1730, the Queen of Sweden in 1741, and Louis XV. of France in 1774. In the middle of the eighteenth century 2,000,000 perished in Russia. In London in 1723 one out of every 14 deaths was due to smallpox, while in France in 1754 the rate was as high as 1 in 10.

Up to the beginning of the nineteenth century, when its ravages were decidedly checked by vaccination, smallpox continued its course as a deadly pestilence almost always and everywhere present, sparing no age, sex, condition nor nationality. No one was safe from it except by virtue of having already passed through its perils. Its history, like that of other acute contagious diseases, is that, while always prevailing to a certain extent, especially in large cities, it raged as an epidemic every few years. This periodical recurrence is doubtless due chiefly to the fact that each epidemic exhausts nearly all the subjects then susceptible to the disease, so that a certain time must elapse for a sufficient number of others to be born into the world to afford the material for a fresh outbreak.

This theory explains the recurrence of such scourges as the plague and the sweating sickness through so many centuries. As has been noted, up to the latter part of the eighteenth century there was no known method of rendering people immune from smallpox. It looked as if the human race was doomed to suffer indefinitely from its awful ravages. But about the year 1773 Dr. Edward Jenner, an English physician and a pupil of John Hunter, began the search for a prophylactic. Some time previously he had investigated the cowpox, being led thereto by accidentally hearing

of a curious rustic legend or axiom to the effect that milkmaids or dairymaids who had contracted the mild and almost harmless cowpox were exempt from smallpox.

On May 14, 1796, Dr. Jenner vaccinated a boy eight years old with lymph from the hand of a dairymaid who had been ill with cowpox, and on July 1 following inoculated the same lad with smallpox virus. The experiment was successful and an account was published in June, 1798. The practice of vaccination gradually gained ground, though not without strenuous opposition, which has continued up to the present day. Wherever it is practiced the ravages of the smallpox scourge have been controlled and almost stopped, and most civilized countries now enforce compulsory vaccination.

According to the best medical authority we know nothing of the original cause of smallpox, but it never occurs save as the consequence of infection conveyed from one person to another. The contagion exceeds in virulence that of any other disease. The infectious principle is known to reside in the fluid contents of the pocks and in the crusts resulting from their desiccation, and it is probable that it is also contained in many of the fluids of the body. Moreover, it pervades the emanations from the person, so that actual contact with the sick is not necessary to the conveyance of the disease.

To what distance the volatile contagium may extend is uncertain, but it is known to have crossed a river 1,500 feet wide. In its fixed condition, attached to articles of clothing, bedding, merchandise, mail matter, paper money, etc., this infectious principle is very energetic and persistent. The disease is communicable at all periods of its course, even in the period of incubation before any symptoms have occurred, and as late as the close of the stage of decrustation, but probably it is most intensely contagious during the vesicular stage of the eruption. Even a dead body is capable of conveying infection. It may also be carried from one person to another without the person who carries it himself suffering from an attack. But, undoubtedly, those surroundings where poverty, squalor and dirt abound are favorable to the spread of smallpox. Fresh air, sunlight and cleanli-

ness are its foes.

The treatment of smallpox, according to proper authorities, consists in conserving the resources of the patient, and in early detecting and combating complications, such as chill or cold. No sort of medication or regimen exerts any curative effect in the proper sense of the word. Many so-called specifics have been vaunted, but there is no satisfactory proof that they have ever accomplished anything. Vaccination, although of such signal efficacy in preventing smallpox, is utterly powerless to cure it. No treatment will prevent pitting, although many persons who have undergone an attack are not permanently disfigured in this way.

Avoidance of exposure to the contagion will also prevent the disease, but this is difficult and often impossible to manage. All clothing, bedding, etc., which may have become infected are destroyed by fire, or, if too valuable to be sacrificed, are disinfected by heat as high as 212 degrees Fahrenheit, or by the fumes of burning brimstone. Everyone exposed to the disease usually is required to be at once re-vaccinated. Patients are capable of conveying the infection until all the crusts have fallen off.

The last great epidemic of smallpox, which literally overran all Europe and North America, began in 1870 and abated in 1873. Although there are, and always will be, sporadic cases, and even lengthy visitations of the scourge here and there throughout the world, modern methods of prevention and segregation in civilized countries at least may be relied upon to stop all threatened epidemics.

While there are many who still doubt the efficacy of vaccination, its value is probably as well proved as anything can be, short of a multiplication table. The experience of the Philadelphia Municipal Hospital, but one instance of thousands, might be cited. Although 9,000 cases were treated there during a term of years, not a single physician nurse nor attendant who had been properly vaccinated contracted the disease. Of 3,500 cases treated during one outbreak, not a single case was of a person who had been vaccinated within the recognized term of years.

World Views

An Anomalous University.

The medical faculty of the University of Toronto, whose graduates have to be re-examined by another Ontario college, the College of Physicians and Surgeons, before being trusted to practice medicine in that Province, wants to be freed from such control of said other college. Dr. C. K. Clark, Dean of the Faculty, writing in the report of the Board of Governors of the University to the Government, describes the present relations as anomalous and humiliating. Dr. Clark says:

"Possibly the greatest hindrance to the highest development in the teaching of medicine in the University has been caused by the fact that we are not able to adopt the most advanced and most desirable methods, owing to the demands of the Medical Council of Ontario. It is an anomaly that medical educational standards and methods in a Provincial university must be determined very largely by another Provincial body out of touch to a great extent, with university ideals and requirements of modern medicine. That the Medical Council is a necessity no one denies; that its chief function is to direct medical education, set standards, and conduct examinations, rather than protect the general public from quacks and dishonorable and criminal practitioners, is a very different matter. To many the latter function seems to be the all-important one. At all events, the time has come when we must consider the advisability of endeavoring to establish the University Medical Faculty in such a position that it may develop, unhampered by narrow and humiliating restrictions."

In comparison with ruling methods elsewhere, the position in which the Ontario Government has placed its State University, is, to say the least of it, unique.

The Rat Menace.

For the first time in 250 years the bacillus of the bubonic plague is acknowl-

edged to exist in England. On December 12th, 1906, a woman living in a cottage in the village of Shotley, situated on the south bank of the Orwell, some miles southeast of Ipswich, and isolated from the adjoining country by the estuaries of the Orwell and the Stour, died of what was then thought to be pneumonia. Two of her daughters later took the disease, one recovered and one died. Two weeks later a woman in the next cottage who had nursed her neighbors, died of pneumonia; a few days later after this her husband died of the same disease, and in January her mother. Two of her children had pneumonia and one died about the same time.

A short time afterward, at Trimley, on the north side of the Orwell, two more persons died within a month of a disease, now believed to be the plague. A third outbreak occurred in September, 1910, at Freston, a village a few miles south of Ipswich, and more than six miles south of Shotley. On September 11, a little girl of nine was taken ill and a cat which she had fondled died the same day. The mother of the child died on the 23rd, her father on the 29th and a woman who had helped the father to nurse his wife died on the 29th. Bacterial cultures made from the blood of two of these four persons revealed the plague bacillus, and that they died of pneumonic plague there is now no doubt.

The remarkable fact, discovered when the Freston cases were shown to be pneumonic plague, was that for some years past, in the peninsula south of the Orwell, there was an extraordinary mortality among rats, which have been dying in large numbers since 1908, and probably before that. One man testified that he had seen as many as 300 dead rats in the field in a single morning. Examination of these dead rats disclosed that they had died of the plague. It was found that as many as five per cent. of the live rats were suffering from the plague. The significance of

this figure can be understood when it is said that in Bombay during one of the most virulent epidemics of plague, the proportion of live rats found in the proportion to the plague-stricken rarely reached six per cent.

The theory is that the infected rats which caused this trouble were thrown on the English coast from a wrecked vessel from India. Owing to the peculiar conditions of the country where they landed, the disease has not yet spread very far. Inasmuch as the pneumonic plague can be caught from the breath of a patient, the possibility of damage in the thickly peopled districts of great cities like London and New York, where the rats in the dock area swarm by the million, is as hideous as can be imagined. Apart from the danger to human life, the consequence to trade of any city from an outbreak of the plague is beyond calculation.

The Government knows that each rat costs at least a dollar a year for the food it steals and the property it destroys; when to this is added the possible danger from death and the loss to business, the necessity for considering plans to guard against rats, which not only carry plague but other diseases which can be spread by animals, is apparent. San Francisco has had its little scare and found it economy in making buildings rat-proof.

"Specialism."

A contemporary, in discussing the habit which many physicians have acquired of devoting their attention to some special branch of the medical profession, remarks that one of the most striking features in regard to the development of the healing art at the present time is the increasing tendency towards "specialism," and there are indications that the present year may witness the initiation of a professional movement which may place the various "specialties" on a much more independent basis than they have been before. It seems quite clear that the public will be pleased with this, for, according to the opinions of many general medical practitioners, patients in this country have never before been so anxious to consult specialists, a very good thing for the latter, no doubt, but rather hard on the family physicians, who have to bear the chief responsibilities of illness at ordinary times.

It can scarcely be said, however, that the remarkable growth of "specialism" in recent years has only served for the relief by "specialists" of minor disorders of the throat, nose, ear, eye, and so forth, which used to be very well treated by the family physician, but rather that the rapid development of technique and new methods of treatment during the past decade has made it practically impossible for the family physician to deal with more than a limited number of disorders of special organs in an up-to-date way. Subsequently the number of men who have particularly studied the affections and treatment of particular parts of the body, and so become "specialists," has steadily increased. And one of the most remarkable of the later developments of this movement has been the establishment of what are practically specialties within specialties; thus an ear specialist, for example, may devise a means of successfully treating one particular disorder of the ear, and soon confines his practice to that only; sometimes he soon has no time to do anything else. In addition, it must be remembered, a number of quite new principles of treatment have come into use within the last few years, each requiring considerable special skill and knowledge. Of these, perhaps, the best known are medical electricity, X-rays, and the radium treatment.

Thus it is obvious that an increased "specialism" has been forced on the medical profession by necessity of circumstances arising from within, whilst the movement has been aided from without by the discovery of the public that, as a specialist can be obtained for almost any disorder nowadays, the individual patient can make his own selection as to what authority he will consult directly without going first to his family adviser. As a matter of fact, medical opinion in this country in the past has been strongly against the assumption of a "specialty" by men of first-class standing, but specialism had to come, and now is in some danger of advancing to an absurd degree unless it is controlled by new professional regulations.

It is recorded that in ancient Egypt there was such a craze for specialists that each physician treated one disorder only, and was subject to penalties if he went beyond his clearly-defined sphere of activ-

ity; and at that time the condition of a patient suffering from a variety of complications must have been an unfortunate one unless the individual physicians who had him parcelled out were of a particularly agreeable disposition. Under those circumstances, anyone suffering from such an ailment as influenza, which may, of course, upset every separate system in the body, was liable to have perhaps a dozen physicians each treating his special department, and the result must have been chaotic.

One of the signs of the times in this connection is the proposed establishment of special diplomas and degrees for physicians who wish to specialize, on the lines of the "L.D.S."—the license in dental surgery which is the distinguishing qualification of our dentists—and some progress has been already made in this connection. Thus, quite recently, the University of Oxford, England, instituted a new diploma in ophthalmology, and it is probable that in the future most eye specialists will endeavor to obtain this distinction, which can only be obtained by passing an extremely rigorous and seaching examination. A well-known throat and nose specialist has lately entered a very strong plea for the establishment of a similar diploma for those who wish to take up the particular field of practice in which he has himself become distinguished, but, so far, no definite steps have been taken in this direction. And so, if this movement goes on, it may lead to the definite separation of a great number of different forms of practice from general medical and of surgical work.

Some reflection of the modern tendency to "specialism," both in practice and investigation, is to be found in a new post just created at the London Hospital, England, in connection with the special study of heart disease, and called the "Lecture-ship in Cardiac Research." This important appointment has been filled by the election of one of the foremost medical scientists, an investigator whose recent work on disorders of the heart is well-known and whose theories have excited admiration in every centre of medical learning. The duties of this new member of the staff will be to conduct investigations in his special branch of study both in the wards of the hospital and in the labora-

tories connected therewith; he will also deliver series of lectures on the heart and its disturbances in the London Hospital Medical College, and it may be anticipated that such lectures will attract a large number of medical men.

In some respect, this lectureship marks a new departure in hospital procedure, for, in the first place, there appears to be no other appointment of the kind; and, secondly, the distinguished physician invited to fill it has made most of his important and original observations on heart disease in private life, unaided by the facilities offered to workers in the big modern hospitals, and without having held the usual junior and senior hospital appointments which conventionally lead to posts of such distinction. The system in vogue, by which a man who wants to become a hospital "consultant" has to attach himself to such an institution very early in life, and to follow a recognized line of progress at his hospital, depending on seniority, practically bars a man who has spent many years in general practice, or abroad, from obtaining an important post at one of the leading hospitals should he subsequently wish to set up as a consulting physician or surgeon.

Another departure in the direction of the development of special "treatments" is to be found in the recent establishment of an "inoculation department" at Westminster Hospital, London, England. This has been placed under the direction of one of the hospital physicians, who has specially studied the treatment by injection of vaccines, and there is no doubt that not only will this new department enable patients to have the benefits of the latest advances in bacteriological methods, but it will form a centre of research from which much useful information will be given to the profession at large from time to time.

British Physician v. Chemist.

The chemists of the United Kingdom of Great Britain and Ireland, have not been long in devising a counter-stroke to the action of the medical practitioners with regard to the practice of medicine and surgery by unqualified persons. The report recently issued from the Privy Council Office setting forth the results of an exhaustive inquiry among medical officers of health (reviewed in this issue),

undertaken at the request of the General Medical Council, in which the chemists of that country were severely criticized for their disposition to enter into competition with the medical practitioner. This report has been considered by the Parliamentary and General Purposes Committee of the Pharmaceutical Society of Great Britain; and at the last meeting of the General Council of the Society the following resolution was adopted:

"That having regard to the grave dangers attending the dispensing of medicine and the handling of poisons by unqualified persons, and to the fact that at the present time the precautionary measures imposed by Statute upon chemists and druggists do not apply in the surgeries and dispensaries of medical practitioners, the Privy Council be urged to authorize an investigation into the conditions under which the storage, compounding and dispensing of medicines, and their distribution, are carried on in various surgeries, dispensaries, and similar establishments in Great Britain."

A member of the Pharmaceutical Society, in close touch with the activities of that body in defence of its members' interests, writes that the questions at issue between the physicians and the chemists of the kingdom at this juncture were arousing the keenest interest among the members of the two professions.

"The complaint of the medical men and our counter-attack," he said, "constitute together the latest phase of a very old quarrel. For at least three hundred years there has been trouble of this kind between us in all parts of the world; and I do not suppose the Privy Council, while acting in the interests of the general public, will be able to find a satisfactory settlement of the dispute."

"The General Medical Council, it must be confessed, have secured in this report of the medical officers of health, a strong argument in support of their demand for a Royal Commission to inquire into the practice of medicine and surgery by unqualified men; but the Pharmaceutical Society was bound to protest against the strong attack upon chemists and druggists which the report contains. Not only is a general charge of prescribing made against us, but we are accused of overlooking infectious diseases in connection with the people who

come to us for advice and treatment. It is also affirmed that the faulty treatment of infant diseases by chemists has some bearing upon the rate of infant mortality."

"How do the chemists propose to meet these charges?"

"When the Privy Council sent our society a copy of the report a sub-committee of the Parliamentary Committee was appointed to consider the matter; and, as an interim recommendation, it is proposed that the Privy Council should include the methods of medical practitioners within the scope of their inquiry."

In further explanation of the chemists' point of view, it was pointed out that physicians are not adequately trained in dispensing. "As a rule," writes the chemist already quoted, "the medical student's training in pharmacy is confined to a three months' course of quite a perfunctory character; and when he starts practising his healing profession he is allowed to handle the deadliest poisons quite free from the supervision of the inspectors who are employed to keep a watchful eye on the bottles and labels of the chemists and druggists. Our ideal finds expression in the demand that all medicines should be dispensed by a registered pharmacist or under his supervision; but, in the meantime, we are on safe ground, from the public point of view, in calling for an extension of the regulations as to the storage of poisons so that they may apply to "doctors' dispensaries" as well as "chemists' shops." We have to keep our poisons quite clear of all other drugs, and securely locked up when not required; but the physician may keep his strychnine in a bottle by the side of one containing distilled water, and he may even use his discretion as to whether he employs any distinguishing label.

"Of course, if a chemist should happen to make a fatal mistake in dispensing, the subsequent coroner's inquest gives full publicity to the affair, with serious consequences to the chemist; but we have always contended that the physician is at present in possession of too many facilities for hiding his blunders. If the Privy Council accede to our demand for an inquiry into the management of the physicians' dispensaries, a strong case will probably be made out for more equal treatment as between physicians and chem-

ists. Speaking generally on the question of the alleged poaching upon the physicians' preserves by chemists, we claim that the practice of diagnosing a case in a chemist's shop is of much rarer occurrence than the report just issued appears to make out; and we are perfectly certain, in any case, that the physicians keep a good deal more work from us that legitimately is ours than we take from them."

Ontario and the Tuberculosis Exhibit.

The Ontario Provincial Board of Health has had its Tuberculosis exhibit placed in a railway car and for the last two months has shown it in many of the towns and villages in the Province. With this there is also a fine series of lantern views which are explained to the public by the local medical men at the evening meetings. Large crowds have attended these meetings in many places, and the results of the campaign ought to be very beneficial in awakening the public to their obligations in the matter of preventing the spread of this disease.

The Secretary of the Canadian Association for the Prevention of Tuberculosis has also lectured in many of the places in conjunction with the exhibit.

The car is an altered baggage car and bears on its side a large sign indicating its use. On entering the car one notices first of all the numerous warnings to consumptives and their friends, which, interspersed with photographs and drawings of sanitariums in different parts of Europe and America, cover the walls of the car, among the latter may be mentioned the King Edward VII. Sanitarium in England, a notable one at Edinburgh, Scotland, the Stony Wold Sanitarium at Lake Kashagua, N.Y., some of those in the Adirondacks, N.Y., and the one at Lake Muskoka, Canada. On desks suitably placed are pamphlets addressed to consumptives and their friends, both in English and in foreign languages, containing advice and warning. Through the centre of the car placed on stands are models of many styles of houses suitable for living in the fresh air, one of which has a rustic lower portion with canvas walls and roof, others of a lean-to description that may be taken apart for removal. There is also shown a canvas attachment for a sleeping apartment in which the occupant while indoors,

may enjoy all the advantages of sleeping out of doors, without being annoyed with a draft. On an inclined table are shown many varieties of sputum cups for the invalid, made of paper, metal, crockery and india rubber, of many designs. Model cans for the pasteurization of milk, made of tin and capable of treating six bottles at a time, were on view. They are intended for home use. Among the pictures on the wall are portraits of celebrated persons who have died of this disease. Among them are Weber, Chopin, Schiller, and Baskirshift. There are numerous photographs of children sufferers from tuberculosis. The purpose of the exhibition is to impress on those afflicted, the fact that fresh air and sunshine are enemies of consumption, while a close atmosphere and dirt are the greatest aids to its dissemination, as so many of the mottoes displayed point out such as "Sleep with your widow open and don't be afraid of cold air." "Don't live in a room without fresh air." "Don't sleep in a room without fresh air." "Don't work in a room without fresh air." The majority of people don't allow sufficient fresh air and sunshine to enter their homes. Further the necessity is pointed out of taking preventive measures at the earliest indication of trouble.

Value of Pure Air in the Store.

The "Michigan Tradesman" remarks that one of the matters to which every merchant ought to give attention during the winter months is that of proper ventilation of the store. The effect of impure air upon the employees is far from conducive to their giving proper attention to customers, for carbon dioxide, or carbonic acid gas—a prominent constituent of impure air—is poisonous, and when unmixed with air is fatal to animal life. Even when comparatively small quantities of carbon dioxide are present in the air the effect is numbing and depressing. While the clerks are thus affected, the customers, on the other hand, soon lose the "ambition" and energy with which they entered the store, and are apt to cut short their purchases, or go elsewhere.

To put it briefly, the sale and purchase of goods, especially at retail, certainly can not be properly effected in a badly ventilated store. Hence, the fact that this problem of ventilation is a difficult one is no

excuse for "side-stepping" it. In the largest and most modern establishments one finds an elaborate ventilation system in connection with the heating apparatus—proving that such stores are sparing no effort to find a satisfactory solution of this problem.

Open windows and draughts, as a rule, are inseparable. Yet open windows there must be, unless some better form of ventilation can be devised. One great aid to ventilation is the installation of exhaust fans at one or two points in the store for the purpose of sucking out the vitiated air. There ought, however, in addition, to be some provision for the admission of outside air in some part of the floor, where a draught will not cause inconvenience. Preferably, the air should be admitted through ducts connected with a large upright shaft which will permit of the taking in of the upper air, rather than of air which is impregnated with the dust and odors of the street.

Especially is some device of this character essential at the present time, when revolving doors or double sets of swinging doors are the rule. For such portals carefully guard against the admission of fresh outside air to the interior of the store.

The problem of ventilation on upper floors, of course, is much simpler than that affecting the main floor. On the other hand, the matter of ventilating basements is even more complicated than that of the street floor. Even in the basement, however, ducts and exhaust fans can be installed at a moderate cost, and the result will certainly be of material benefit.

Frequently the effect of the impure atmosphere is intensified by the high temperature which is allowed to prevail in the store. Most American stores are too warm during the winter. The management seem to forget that visitors or customers are clad in heavy wraps and have their heads covered. There is little excuse for having the temperature either so high as to be uncomfortable to customers or so low as to cause suffering to the clerks. A uniform temperature of about 68 degrees, with a due amount of ventilation, would make the place comfortable to all.

New Jersey Sewage Treatment.

The disposal of sewage is one of the most

interesting sanitary problems with which the average municipality has to contend.

In the prevention of stream pollution New Jersey is in the forefront. An account of what has been accomplished in this line in that State is interesting. The twenty-third annual report of the Board of Health of New Jersey, which has recently been issued, contains among other very interesting matter brief descriptions of all the sewage plants of any importance which were in operation or under construction in the State at the time the report was prepared. It shows that there were 63 public and semi-public purification plants in the State, with 14 additional plants then under construction, and nearing completion. The report states: "Purification works are being installed on various sewerage systems which are already in operation, and the Board has wisely refused to approve plans for new sewerage systems unless disposal plants are provided for therein. It is no vain boast that this State is far in advance of all others in this work of cleaning up its streams, the Passaic River, for which this Board is not responsible, being the exception."

The report contains a list of these plans. All but 12 of these employ septic tanks, and one of these 12 has what is called a "settling tank." Two plants, one at a factory in Burlington (The Thomas Devlin Manufacturing Company) and one at a sanatorium in Glen Gardner, have sprinkling filter installations. In the former Taylor's sprinkling nozzles are used, and in the latter splashing disks. Quite a percentage of the plants rely upon septic tanks alone for purifying the sewage sufficiently to permit its discharge into streams. Eighteen plants give the effluent a second treatment in contact beds, double contact being applied in several cases. Most of the others employ intermittent sand filtration or broad irrigation. Ten plants subject the sewage to a third treatment of sand filtration or to disinfection, in addition to septic tank treatment.

A most satisfactory decrease in typhoid death rates is shown by the records for the past thirty years, a part of the credit for which is probably due to the decreased pollution of the streams, part to increasing attention to purity of water supplies and part to general sanitation.

Deadly Atrophy.

"The average age at which a thesis for the doctor's degree is presented is twenty-eight," says the Westminster Gazette. This is supposed to be the first productive work. But the thesis "is likely to be the working over of the old ideas of an old professor. In the meantime the creative instinct has atrophied." The best educational method is that in which the beginner assists the expert. Professor Wilberforce has stated, as the result of the experience in the Cavendish Laboratory, that the more advanced students appear to work best when their teachers are in difficulties. This is, of course, inspiring to the teacher. But he does not get the same stimulus in teaching large classes. Three-fourths of the leading scientific men in America earn their living by teaching. The professor at the university will receive about one-third of the salary enjoyed by the president, and his position is tenable only by the favor of that luminary. The scientific man in the service of the State receives the salary of a clerk and is treated as a clerk. Thus "we are in danger of sliding down the lines of a vicious spiral until we reach the stage at which the professor and his scholarship are not respected because they are not respectable." Some day the difficulty may be met by the establishment of research positions in the universities, &c., well paid and free. Senator Vilas has left funds to the University of Wisconsin for the foundation of ten professorships with salaries of \$2,500 a year and freedom from routine teaching, the position and the salary being for life. Such posts should attract men of exceptional ability. "Poverty, celibacy, obedience, and obscurity are exotic ideals which cannot be used to make the scientific career attractive." And if the men are not to be found in the country, why not import them? Nine leading men of science have in the past seven years returned to the countries of their birth, and but one has in that period been attracted to America—"one scientific man among seven million immigrants." Seven years ago a list of the first thousand Americans of distinction in science was prepared, and this has now been revised for studies of the conditions of heredity and environment. Of these 126 were foreign born, seven being in the first hundred. There were twenty-

five Englishmen in the 1903 list, and none in that of 1910. An analysis of the new list shows clearly that the cities of America are failing to produce scientific men, "and presumably other men of intellectual performance, to an extent that is ominous." The centres of vast wealth and richly endowed universities show "a sinister record." The southern States can claim but five men in the thousand.

America ought soon to be in the van as far as medical research is concerned, if great endowments will attract the right men. There is the Rockefeller Institute for Medical Research, in New York, with an endowment of close on seven million dollars. The State of New York is enlightened enough to support a laboratory for the investigation of cancer at Buffalo. There is an institute at Philadelphia for the study of tuberculosis, founded by the benevolence of Mr. Phipps. And Mr. and Mrs. McCormick, of Chicago, have established a school of research for the investigation of infectious diseases. But the feeling seems to be growing up that, after all, the State rather than public-spirited men and women is the right source to which appeal for funds and organization should be made in the case of matters so intimately connected with the interests of the whole community. Of the forty-three State and territorial legislatures in session two years ago, no less than twenty-eight passed laws with reference to tuberculosis. And since then ten States have spent some \$100,000 for the sole purpose of educating the public as to the nature and treatment of that disease. Indirectly, of course, much is done by public departments. For instance, the Bureau of Chemistry, through the Acts which have been passed relative to the purity of food and drugs, has rendered signal service to the public health. In April last the President recommended Congress to vote \$50,000 for the establishment of a cancer laboratory. But the most important sign of the trend of public opinion in America is the recent Bill for the rounding-up of all these activities of Government, and the formation of one great department, with the prevention of disease and the safeguarding of the public health as its main objective. Americans are not at all disposed to forget such facts as those upon which Professor Townsend recently dilated in a speech before the

Biological Station, at Illinois University. The average annual expenditure for the last eight years on the national army and navy would suffice to establish a three million-dollar Rockefeller Institute in every State and territory in the Union, and still leave enough to provide even a more lavishly endowed home for research than the wealthy Pasteur Institute in Paris. It looks as if some day Eugenists will get what they want from the sheer force of circumstances. It is incredible that in Illinois nearly 40 per cent. of the total revenues of the State are spent in caring for the morally, mentally, and physically deficient. How long! is becoming an exceeding bitter cry.

Among the great epidemic diseases of the world typhus fever takes an ill-omened place—ill-omened because but for man's inhumanity to man it would cease to exist. It is the child of war. It revels in overcrowded and unsanitary slums; it accompanies misery and want. One hears of it but little in this country nowadays, but it still has its deadly centres elsewhere. In days gone by, during a certain period, out of over 1,200 physicians attached to Irish institutions almost half succumbed to this frightful malady. To no disease under the sun are nurses and physicians less immune. In Mexico its annual holocaust of victims may be numbered by hundreds. There must be many French soldiers still alive who can remember its awful ravages during the Crimean War. The new edition of Black's Medical Dictionary states that no specific organism has yet been clearly identified in the case of typhus fever. Since last December six American scientists have been studying the disease in Mexico. Three have been stricken down and two have died. It is true that until recently little or nothing was known as to the cause and mode of transmission of this plague to the human race. Almost the only fact that emerged was the danger to all concerned of infection when the patients are massed in the wards of the hospital. Dr. Ricketts, whose loss, with that of his colleague, Dr. Conneff, American medicine is now mourning, joined in 1902 the Bacteriological Department of Chicago University. After his first few weeks in Mexico he began to get valuable results. He found that Rocky Mountain fever was not the same as typhus, though

in many respects similar. He communicated Mexican typhus to the monkey. He discovered that it can be transmitted by an insect, *pediculus vestimenti*, whose English name we can guess. By April 23 Dr. Ricketts and his volunteer assistant, Mr. Wilder, announced that at last they had found, in the blood of this insect and of the patient, a new micro-organism, a bacillus. And, says "Science," there is good reason to believe that this bacillus is the actual cause of typhus fever. Shortly after, and before control experiments could be completed, he was stricken with the fatal disease. Another name has now been added to the long roll of those who, knowing the risks, have counted life as nought in the endeavor to be of some value to their own and to future generations. The remembrance of Ricketts and those predecessors who have sacrificed themselves on the altar of duty are written in letters of gold upon the hearts of their fellows.

Clothes and the Bath.

Is it necessary to undress in order to go to bed?

Writing under the pen-name of "Lawrence Beesley," a physician, who in his professional capacity of ship's doctor and also on pleasure journeys has travelled over a considerable part of the inhabited globe, is of opinion it is not.

He says:

"How often does one hear the remark: 'How tired I am of dressing and undressing, of getting up and going to bed!'

"I have made the same remark myself, and of late have simplified the minor details of my daily routine considerably.

"Why should we all undress and take off all our clothes every night, with the consequent redressing the morning? Why?

"I have lived on board ship and in the tropics, in Canada, and in the desert of Arabia; and I say this, that I have been as healthy and as fit and infinitely more satisfied with life under conditions which practically compelled me to sleep in my clothes—minus boots, coat and collar.

"In so-called civilization, where I live now, I have to remove every 'rag' at night, put on cold pajamas and get into colder sheets, and shiver (during the cold weather) for ten minutes or more, with

the knowledge that in the morning I have to dress once again and am supposed to have a bath.

"I cannot for the life of me see why two hot evening baths per week should not be sufficient for anybody—and personally I have quite given up undressing at night, with the exception, as I said before, of boots, collar and coat.

"It is well known that men who 'rough it,' who sleep in their clothes, and who have not the eternal worry of dressing and undressing, of cold baths, cold sheets, starched collars and all the paraphernalia of the 'town man,' are infinitely happier, freer, healthier and stronger than their city brethren.

"Try it. Sleep in your underclothes—flannel shirt and socks; have two hot baths a week, and save hours per annum and oceans of bad language.

"I am speaking as a medical man of twenty years' experience.

"I believe many chills are caught by the sudden change from thick, warm flannel clothes to thin pajamas and ice cold sheets, which is the general custom in this country.

"I am further of the opinion that it is not a benefit to the individual to open the pores of the skin by constant bathing or to close them suddenly by rapid changes of surface temperature in a climate such as ours—particularly such as it has been lately."

Open Spaces in Cities.

The unbuilt spaces among the forests of houses in large cities are the lungs that give fresh air to a city. The importance of such unoccupied spaces is proved by statistics recently published by Georges Risler in a French review, in which the percentage of deaths from tuberculosis is compared with the percentage of unbuilt spaces in London, Paris and Berlin.

According to these figures, London, with 14 per cent. free space, has a percentage of 1.9 per cent. deaths from tuberculosis; Berlin, with 10 per cent. free space, has 2.2 per cent., and Paris, with 4.5 per cent., shows a death percentage from consumption of 5.1 per cent. In other words, London, with three times the percentage of free space that Paris has, loses one-third the percentage of deaths by tuberculosis, and Berlin shows the same proportion.

This would seem to prove that the sums spent in providing parks, playgrounds, etc., are well repaid by the improved health of the city. In Paris itself the districts around the Champs Elysees, which are surrounded by woods and parks, show a death percentage from tuberculosis of only 1 per cent., while the congested areas show 10.5 per cent.

Improving Car Ventilation.

Dr. W. A. Evans, Commissioner of Health of Chicago, and Professor of Sanitary Science in the Northwestern University Medical School, has been writing a series of articles on ventilation for the Medical Record. His latest contribution concerns the ventilation of cars.

"A railroad car (passenger, Pullman, baggage, express, or postal)," he says, "hurling through the air at the rate of fifty miles an hour, has an air pressure of ten pounds per square foot, and this furnishes more power than any other blower fan in use. If a ventilating duct has its open face exposed to this current of air, a volume will drive in many times the need of the inhabitants of the car.

"The requirements, then, are these: (1) To regulate the volume of air taken in for the different car speeds; (2) to keep down the dust content of the air taken in; (3) to warm the air before it is introduced into the car; (4) to introduce it at the right place; (5) to provide properly located exits for the foul air.

"1. Discussing the first of these points: Sometimes the amount of air taken in is regulated by cutoffs operated by the brakeman. Such is the case on the Pennsylvania Railroad. Here the brakeman sets the ventilation soon after the car leaves the station. A better system is that in use on the Northwestern Elevated in Chicago. They use a small cutoff device in their intake. When the car is standing still the blade hangs vertically and the duct is fully open. As the car speeds up the blade rises toward the horizontal and diminishes the size of the duct proportionately. There is never any question as to getting air enough when the car is under way. The provision must be to keep the quantity down.

"2. In a railroad train the dust is from two sources. The smoke tends to hang along the top of the car. Ducts at this

level are liable to catch a good many cinders and much smoke. The pounding of the cars raises a good deal of track dust. The Pennsylvania Railroad takes in its air above the roof of the car and uses screens to keep out cinders.

"3. In the case of elevated trains the ducts are advantageously located in the floor of the car and take air from below the floor line. The question of the location of the ducts in surface street cars is somewhat more difficult. The short ducts, when the inlets are below the floor level, present great advantages. The only disadvantage is the dust. The swirl of dust raised by a street car can be seen to hang a little in the rear of the car except when it is stopping. The dust at the floor line of the car is far less than superficial observation would indicate.

"3. The keynote of car ventilation is warming the air as it is taken in. A street car jammed with passengers will have only ten cubic feet of air per passenger. If, then, 2,000 cubic feet of air per passenger per hour is furnished the air must be changed 200 times per hour, or, say, three times per minute. No passenger will allow such a volume of air on a cold day without the air having been previously warmed.

"On the other hand, the radiation in the car is usually placed under the seats or in out-of-the-way corners of the car. The result of this is that the seats are usually scorching hot and the remainder of the car is uncomfortably cold. The proper solution is to introduce the fresh air into the car through the radiation. In this way the air is warmed to a point where the passengers will tolerate ventilation. The radiation is cooled and the cold parts of the car are warmed; the car temperature is made more nearly uniform; the efficiency of the radiation is increased.

"4 and 5. In the installations commonly in use, the air is theoretically taken in through the deck sash. The most efficient intakes we have found in such installations are the leaks around doors, windows and joints.

"Deck sashes will sometimes act as inlets, sometimes as outlets, and sometimes as neither, according to the direction and force of the wind, and according as the car is gaining speed, speeding, or losing

speed. The great volume of air which comes in through those sash openings which are acting as inlets will flow straight across and out of other sash openings acting as inlets.

"Now, cold air must be heated by something. The heating agencies in a car are the passengers and the radiation. Putting the air in at the deck sash and having the heat of the car heat it before it reaches the passenger, may add to the passenger's comfort. It does not save any in the expense of heating. If the fresh air is warmed enough to keep it from being uncomfortable and is then discharged into the car below the seat level and the foul air is taken out through ducts around ceiling lights, a somewhat uniform upward flow of air is maintained in the car. The partial separation of the fresh from the foul air makes it possible to reduce the volume of air required for each passenger.

"With such an arrangement of inlets and outlets, the Chicago Department of Health thinks it is safe to reduce the air requirements to 400 cubic feet per passenger per hour, and has had ordinances drawn along these lines."

Open Air Schools.

Three years ago the first open air school on this continent was established in Providence, R.I. It was modeled after similar institutions in Europe, and it was then predicted that the idea would one day get a good hold here. While the progress has not been rapid it has been highly satisfactory. In Orange, N.J., such a school is run under the joint auspices of the Board of Education, the Health Department and the Associated Charities. These supply respectively the teacher, medical inspection and supervision of the special diet. A somewhat similar plan is considered for Philadelphia. There are twenty-seven open air schools in America at present, some fifteen or sixteen cities have adopted them as a feature of their educational system and a dozen others are about to take the step.

A gratifying report comes from Chicago, where such a school was opened last year. Its report says that there are now forty-one bright youngsters, who went in as weaklings, and who represent an average gain in weight of four pounds each. The transformation is said to be remarkable in

every respect. Each of these children, ranging from six to seventeen years of age, was afflicted with tuberculosis. Most of them came from poor parents in the tenement districts. They were underfed, debilitated and far behind in their studies. To-day, some of the most backward pupils in the beginning are proving the brightest and all have shown remarkable progress in their school work, besides improving in health, energy and spirits.

The open air school is among the probabilities in every city. It is in line with the conservation of health, and though it is most necessary for those who are forced by circumstances to live in close quarters, there are plenty of cases where the children of those in better circumstances need the benefits of fresh air as greatly as the children of the poor.

A Search Light on British Meat.

An English physician has attacked the conditions of meat selling in London, apparently with facts to back him.

"Meat is handled by unlicensed workmen called 'pitchers,' with filthy hands and reeking clothes," he declares. "The vans in which it is carried are revoltingly dirty, not having been washed since they were manufactured. Many of the carcasses are dragged through the mud and accumulations of vile refuse. When carcasses are hung on the hooks in the general stall a ridiculous effort is sometimes made to remove the dirt by means of filthy rags. The so-called 'humpers,' who handle the meat, smoke and spit at random, and the hooks smell with neglect and rotting serum. Some parts are thrown on the dirty floor, which never is scrubbed, and the meat is carried on the bare heads of the men.

"Customers are compelled to tip the scalesmen and shipmen or see their meat wantonly dropped and rolled in the dirt. When the carcasses are leaving Smithfield for the shops of the buyers they are again carried on bare heads, dropped, and often wilfully trodden on."

Some of these facts were hinted at the time of the American stock yards excitement following the publication of Upton Sinclair's "The Jungle." But at that time the search light was turned towards America.

Slums.

Lawrence Veiller writes in substance in "The Survey" that America has at last awakened to the consciousness of her slums. Throughout the land a new sense of social and civic responsibility is stirring. Social workers are now seriously asking themselves, "What shall it profit a man to go to a hospital if he must soon return to some vile slum?"

There is a growing conviction in our cities that poverty is curable, and even preventable. We are beginning to see, as never before, the blighting effect of adverse circumstance upon both the weak and the strong. We refuse longer to believe in the innate depravity of the human race, and seek outside of the individual for the cause of human depravity.

We are rightly charging to our travesties of homes the responsibility for much of poverty, crime, insanity, disease and industrial inefficiency and political degradation. The shame of the cities is upon us.

North, south, east and west share in this awakened conscience.

Strange to say, these beliefs are being translated into action.

Staid New England towns, like New Haven, have awakened with a start to the fact that one-third of their population is of recent foreign importation, that they have not only slums, but a serious housing problem. Aristocratic Baltimore has discovered that she has been "Barbarous Baltimore," and now rises in her wrath, determined to slay the hydra-headed monster that has been sapping her vitality.

Milwaukee, stimulated by her new Socialist leaders, is not only going to stamp out the slums, but proposes to build for its workmen new homes on the city's outskirts.

Los Angeles is wiping out its small slum nucleus. In San Francisco public-spirited men and women are alert and on guard.

Ohio is aroused and militant. Cleveland, the city of civic spirit, and Cincinnati of civic shame, are joining hands with Columbus in sounding the death knell of the slum.

Buffalo, with its miles and miles of small houses, now shows that what has seemed so fair may be most foul, and how the problem of room crowding is inseparably bound up with the problem of race

in her "city of huddled Poles."

Detroit is now fighting her incipient slums; St. Louis, partly aroused, is at work.

Washington, whose blind alleys have for years been the nation's shame, is soon to show the country how a city may deal with its plague spots and make them into gardens of delight.

New York, distinguished for having the worst housing conditions in the world, but long the leader in housing reform in America, continues the leadership. Her 7,000 privies are now a thing of the past, and her 100,000 windowless bedrooms are fast disappearing.

The outlook for the future is hopeful. The old idea that the housing problem could be solved by building a "model tenement" is fast disappearing. In its place one finds emphasis laid upon housing laws which will control the situation for all time; on efficient and vigilant sanitary inspection; on garden cities and model small houses in place of huge tenements; on instructive visitation of our immigrant population, and the teaching of the elements of hygiene in the Public Schools and in the home.

Ozone Purification.

United States Consul William Dulany Hunter, of Nice, France, in a report to the Bureau of Manufactures, tells of the method of purifying that city's water supply by the use of ozone. He says:

"As the water used here for drinking and other purposes was considered to be unwholesome, a new method of sterilization has been adopted. There is an electric power plant worked by water turbines, the force being the water which is afterwards sterilized. The two dynamos are run separately, so that there can be no stoppage while one of them is being cleaned or repaired. The force produced is 110 volts, 500 periods a second, which is transformed into an alternating current, with a potential power of 17,000 volts. This high-power current is conducted to a so-called ozone battery. Each of the five batteries composing a system consists of three vertical copper plates two feet square and one and one-half inches thick, with a space of eight inches between each. In one of these spaces there is a pair of glass sheets, between which the electric sparks

decompose the air, which is forced through them by a sucking machine. The decomposed air consists of ozone and azotic acid. The azotic acid is retained and pure ozone made available by passing the decomposed air through a vertical vitrified pipe containing charcoal dust and pieces of cement. The water, under a pressure of a fall of twelve feet, flows through a system of earthen tubes about one inch in diameter and having thirty-three holes each; these tubes pass through a space filled with ozone, which the water absorbs.

"After the first process of sterilization the water flows into a tank in which there is a wire netting supporting about three feet of pebbles. These pebbles divide the water so that it falls like a heavy rain to the bottom of the tank, and a strong ozone current, coming from the sides of the tank, is absorbed by the falling water. The ozone is then extracted by having the water fall on stone steps. Medical authorities declare that, after having undergone this process, the water is absolutely germ-free and that it is impossible to produce any kind of germ culture in it.

"Two ozone plants were built in 1909; one of them gives an output of 39.61 gallons a second and the other 72.99 gallons. Each of these plants is composed of two separate systems, so that there can be no possibility of a shortage of water. A new plant is under construction which is to be large enough to supply all the towns and cities between Nice and Mentone, a distance of twenty-four miles. New water-works are also to be constructed in the near future at both Cannes and Grasse."

"Common Colds."

The Committee on Prevention of Disease of the Boston Chamber of Commerce has just concluded a most interesting study of over 3,000 individual cases of common colds, occurring in that city in the six months from December, 1909, until June, 1910.

This investigation was begun to show that colds are not due to insufficient clothing, to low or thin shoes, changes from heat to cold temperature, to the breathing of night air or any of the usually accepted reasons why we snifle during the winter.

The report reads that the Chamber of Commerce seemed to prove conclusively that colds are spread from victim to vic-

tim. Since the slightest cold may make progress to the throat and lungs, end in pneumonia, the importance of proper understanding of this subject is apparent.

A summary of the report shows that the average loss of time for the persons investigated was about two weeks a year, with a loss in money, not including individual expenditure for medical treatment, of \$44.34 each per annum. The most common cold is the head cold, and March is the most dangerous month.

The remedy lies in ventilation, whether in office, public building, sitting-room or bedroom. Night air in the city is much purer than day air; there is less smoke belching from city smokestacks, much less dust from street traffic, so that windows should be opened from top and bottom in every sleeping room. Both prevention and cure may be obtained by nourishment and general hygiene and proper clothing, particular importance being placed on the isolation of persons suffering from infectious colds from the rest of the family, or those working with them.

Status of South African Sanitary Inspectors.

Dr. Anderson, President of the South African Centre of the Sanitary Inspectors' Association, speaking at the annual meeting at Cape Town recently, said the status of the sanitary inspector in South Africa was at present by no means what it should be, and, in consequence, he was not able to perform the good service which he otherwise would be able to do. He noticed, however, signs of increase in the estimation in which he was held by the public, and this by ordinary processes of evolution was bound to be brought about. One of the objects of the Association was to increase the rate of that development. Fortunately, during the past nine years it had become more and more the practice to appoint as inspectors men who have gone to the trouble and expense of passing through some course of training for the duties, and have afterwards submitted themselves to examination by a Board of Experts appointed by recognized institutions, and have been awarded a certificate. This had been hastened by the possibility of obtaining in South Africa a certificate from such a well-known body as the Royal Sanitary Institute of Great Britain. After

giving an instance of an inspector who was dismissed because of the zealous carrying out of his duties, the speaker said unless such officials, who had to discover offences against regulations, were adequately protected, there was likely to be inefficient and unequal administration. Anyway, an instance such as he had quoted would not *serve pour encourager les autres* to be active in sanitary reform.

Nine Thousand Cases of Smallpox.

Public Health Notes tabulates the cases of smallpox in the United States for the six months ending December 30, as 9,262 cases, with 203 deaths, a record that is not particularly creditable when one realizes that in July last there was not one case in all Japan. In the United States there were seventeen of the States that had more than one hundred cases each, North Carolina in the lead with 1,665, and seven reported deaths. To the credit of the authorities it should be said that they are alive to the situation and are doing their best to persuade the people to be vaccinated. This is a difficult matter with the kind of people who constitute so large a proportion of the citizens. Three other States run to 1,000 cases or more each, Oklahoma with 1,187, Kansas with 1,049, and Michigan with 1,000. Texas comes next with 881 cases, and 28 deaths. Here the State authorities have made such excellent regulations concerning the public health, defining "public buildings" in a very broad way, and making proper rules for their care as well as establishing good standards for cattle, that one is surprised to see so high a rating in what is so truly a preventable disease. In a group are the Middle-Western States, an evidence that conditions there are much alike in all, Ohio 245, Indiana 242, Illinois 276, Minnesota 224, Iowa 187, and Wisconsin 142. Somewhat higher are the States farther west, Colorado 306, Utah 312, Washington 199, and Montana rather low at 123. The Southern States range much the same, excepting Alabama, which records only 52, but the figures from Louisiana, Mississippi, Arkansas and Kentucky are defective. These States show how little the importance of reporting infectious disease is understood in some places, whereas it is one of the most important factors to the good health of the commu-

ity, and one which advanced sanitarians would like to see extended even beyond the limits of strictly infectious disease.

Fresh Air for Living Rooms.

W. H. Symons, M.D., medical health officer of Bath, England, presents in an English journal a number of suggestions concerning the ventilation of rooms by means of windows. In this age of free admission of the outside air into living and sleeping-rooms, there is always the very practical question of how to do it inexpensively and at the same time avoid direct draughts. One of the plans suggested by Dr. Symons is available for the French windows which open out in leaves like doors. Opening these partially, a third window may be affixed to the other two so that the three form a bay window, open at the top and bottom, and affording excellent opportunity for the circulation of air. The arrangement may have a partial roof if desired, and is easy to adjust and comparatively inexpensive. For another class of windows, those having sashes, an adaptation of the upper one may be made to form a "double fan." Here the regular sash is shortened and instead of its upper portion two horizontal swing sashes may be made, one hinged at the top and the other at the bottom. A special rail will be needed at the top of the regular sash with two rabbets, and a similar one at the top of the window frame. From the outer top rabbet and the inner bottom one the swing sashes are hung. The two sashes when closed cover both of them the same opening, and when opened, one out and the other in, afford a weather-proof aperture for free ventilation, the size of which is easily regulated. The third plan suggested by Dr. Symons is sometimes seen in principle in this country the baffle-plate. A portion of the glass of the upper sash is cut away across the entire width, and on the outside of the window frame, or to the stonework of the house, is affixed a plate of glass corresponding to the slot in the sash-pane, but somewhat deeper. Similar baffle-plates of wood or of glass are not infrequent here, the sash being raised to give them their efficiency. All three devices are inexpensive means of gaining a continuous supply of good, fresh, outside air.

The Question of Draughts.

Mr. Ronald Campbell MacFie, M.A., M.B., enters the lists in favor of draughts in the "British Medical Journal." "They should be favored rather than feared," he says.

"I sat in a draught and caught a cold," is," he says, "an ordinary statement which one must be chary of accepting, although draughts under certain conditions may be potent factors in the production of a cold.

"But they are merely auxiliaries unless they succeed in cooling the blood unduly, and unless certain germs are present they are quite ineffective.

"It is true that if a man live constantly in a moist, warm, still atmosphere, and if his skin be continually protected from the normal stimulation of cool, moving air—it is true that under such circumstances the skin reflexes, if unexpectedly called upon, may forget their business and respond sluggishly and inadequately to the stimulus of cold, and that heat may thus be unduly lost, with deleterious consequences; but the natural well-fed well-clad mammal has active, ready reflexes, and is not likely to be unduly chilled by draughts.

"The skin," he continues, "is certainly meant to be exposed to moving air currents and to vicissitudes of heat and cold; it is surely meant to have a blood supply that ebbs and flows according to the thermal needs of the tissues; it is surely meant to perspire and to transpire, and accordingly to shut off from wind currents and to enclose it in a motionless layer of moist air is to depart very far from the ways of physiological righteousness.

"The bracing effects of dry air and of seaside breezes are largely due to their stimulating effects on the excretory and reflex functions of the skin, and the man who endeavors to avoid colds by avoiding all draughts will not only catch more than his share of colds, but will possess much less than his share of health and vigor."

We may coin a proverb, Mr. MacFie says. "Shut a window and open a grave," to express the modern opposite to the old-fashioned Italian proverb, "The air of a window is like a shot from a crossbow."

Editorial

Disposal of Garbage.

A most important matter, from a sanitary standpoint, confronting large cities, and, in fact, smaller ones, is the disposition of garbage. Two means have been adopted which consider best the health of citizens: incineration and reduction. Burial of refuse except in small quantity, as well as the spreading of it on, or ploughing it into land, or feeding it to hogs on special farms, has proved unsatisfactory.

In Great Britain, the process of incineration has been largely followed and in many instances the apparatus used has arrived at some state of perfection. On this continent the utility of the reduction method is becoming more recognized. Perhaps each method has its particular advantages.

The argument against the incineration method has hitherto been that of incomplete combustion. One of the first incinerators, if not the first to be used in America for municipal purposes, was Andrew Engle's. The central idea here being to burn the garbage on transverse grates by a strong primary fire, and then to re-heat and re-burn, or attempt to re-burn, the smoke and gases, resulting from the first combustion, with a secondary fire. It has been found, however, that the gases released from the primary fire are not wholly retained nor re-heated to the point of ignition unless by an expensive apparatus not a part of the Engle incinerator.

But later advances have been made upon the construction of incinerators. In 1906, a Meldrum furnace was built near Montreal, and demonstrated that it could consume fairly well, garbage, ashes, and refuse in the first burning, at a cost of about eighty cents per ton, including labor, fixed charges and sinking fund and with the production of but inconsiderable nuisance. In Vancouver, about 1907, Heenan and Froude installed a destructor which gives considerable satisfaction at a cost of about 46 cents per ton of refuse consumed. A later furnace of the Heenan and Froude make is in use at Buffalo, and it is there proposed that the power therein developed

be used for the pumping of sewerage. These furnaces supercede the Engle type, and their use can result in the development of considerable steam power and electrical energy, and in a profit to the municipality in which they may be installed. In many instances even the clinker as a by-product is marketable for the construction of highways; and there may be a possibility of the recovery of ammonia from later types of destructor furnaces, while the dissemination of noxious gases and odors seems now to be largely avoided.

The inadequate elimination of odors and gases, as well as the liability to injury from explosion and fire, have hitherto been the great objection to reduction plants. To a considerable extent, however, these faults seem to have been recently overcome.

The reduction method first adopted with a view to the utilization of by-products for fertilizing purposes and as greases, is known as the "Vienna, or, Murtz." It might briefly be described as a system of cooking for a period of from six to eight hours, under steam pressure in cylindrical tanks; the garbage being thus macerated and afterwards discharged in the shape of pulp, containing grease, water and oil. From this pulp the water is allowed to escape, and the remainder treated with naphtha to dissolve the grease. The tankage left is then subjected to a drying process and the grease and other products sent to market in crude form.

By another process, the "Arnold," the grease is successfully extracted by steam, but the nuisance element is less avoidable. For this reason the first described, or solvent process, seems to be more satisfactory.

Reduction plants are being worked successfully in a number of cities, notably in Cleveland and Columbus. In Cleveland, the reduction plant is a municipal undertaking, and seems to be operated without the creation of nuisance and at a profit to the city. The Cleveland plant has been in operation some five years, at a total expenditure of about \$225,000; and while the city began with a revenue of about 7 per cent. upon its investment, it later re-

ceived over 22 per cent., and last reports indicate that the net profit per ton of garbage treated is about \$3.46.

Columbus has improved upon Cleveland in making the reduction process almost wholly automatic. And here the danger of nuisance from the escape of odors has been most largely avoided, because the process is what is known as a closed one.

The Cleveland and Columbus reduction plants seem to point to the possibility of further progress in this direction, and the entire elimination of smell.

It appears, then, that both the incinerator and reduction methods of garbage disposal may be made unobjectionable from the standpoint of nuisance, and may be profitable to the municipality in which they are installed. And in regard to utility, the only difference between them seems to lie in the fact that the by-product market is a home market and a constant one where the incinerator is concerned, but may be variable in regard to the reduction process.

Inter Alia.

The question of sanitation in disposal of the dead is one of moment. Considerations of public health no longer admit in populous centres of the unhygienic habit of earth burial, a habit which originated in the warring carelessness and ignorance of the darkest part of the middle ages, and has resulted in the present co-operative and pollution spreading graveyard as a substitute for the Roman method of cremation or the more ancient custom of entombment. Of the three methods, cremation is immediately the most available from a sanitary standpoint and in cases of necessary haste as the interception of plague is perhaps advisable. But while sanitary, cremation is not strictly burial; it is rather a quick destruction departing largely from religious custom and usually opposed by those directly bereaved.

Entombment, on the other hand, is the ancient method of burial, historically the most commonly adopted and of educative value contemporaneously and to succeeding generations through its encouragement of architectural and religious development. It is the instinctively favored

method of disposing of the dead, and while not as immediately available at present where it may be required as the careless method of earth burial nor as available as fire where great haste is necessary, entombment in modern mausoleum practice is comparatively sanitary. This practice consists of crypt disinfecting ventilation, tending to exclude sentimentally objectionable influences from the crypt and at the same time prevent what might otherwise result in disagreeable outside effects.

When one looks back on the year recently ended, it is possible to recall a number of events that have had a most important bearing on the question of public health, for although the actual discoveries of new means of treating or preventing disease may not have been remarkable, great progress has been made in the development of principles previously discovered and in their application to curative and preventive medicine. Again, a vast amount of very important medical research work was carried out in 1910, the full significance of which cannot yet be brought home to public realization owing to the highly technical nature of the investigations in question; but there is no doubt that these laborious researches—particularly those in connection with cancer, bacteriology, radiology, and tuberculosis—will eventually lead to results of the utmost value. Indeed, the investigations of many well-known bacteriologists and others have now gone so far in certain directions that startling discoveries might be made at any time.

The radium treatment is one of the methods of dealing with disease in which considerable progress has been made. Twelve months ago it was beginning to be realized that radium had very great possibilities from the medical point of view, but there was considerable uncertainty as to the directions in which the investigations on radiotherapy might be pursued to the best advantage. The treatment of cancer by radium has been investigated by our own specialists, but not to the extent that it has been abroad; the results obtained in Paris, and demonstrated in London, certainly gave an impetus to researches of the same kind in this country. Further developments in the radium treatment have

been obtained by the use of "radium-water" and the establishment of resorts where "radium baths" can be had.

A good deal of work was done last year in regard to consumption and tuberculosis generally, not only from the technical and bacteriological point of view, but also in the matter of its prevention amongst the poor and crowded communities of large towns. Considerable progress has unquestionably been made during last year in respect of our knowledge of tuberculosis in children, and as to its beginnings in the human system. A well-known Austrian authority, Dr. Franz Hamburger, in an address to the National Association for the Prevention of Consumption and other forms of Tuberculosis, maintained that nearly everyone is really infected with that disease in childhood, but that the liability for its development decreases with every year of life; his conclusions have not been upset so far. Debates in this connection have revealed a notable prevalence of abdominal tuberculosis in children, said to be derived from tuberculous milk.

Further progress has been achieved in regard to the prevention of consumption by the development of the dispensary system of dealing with this disease. A "tuberculosis dispensary" possesses an organization which not only provides for the advice and treatment of patients, but which gets into touch with their home conditions, and endeavors to remedy these as far as possible, wherever it is found that such home surroundings predispose to the spread of tuberculous disease. So far not many of these dispensaries have been established, but it is likely that the efforts of the Associations for the Prevention of Consumption will shortly lead to the establishment of numerous others.

Then bacteriologists have been largely concerned with the further investigation of the treatment by vaccines. Such preparations, when injected into the system, have been found by practical experience to increase the resisting powers of the blood in many conditions. So far the bulk of the medical profession, represented by the general practitioners, cannot be said to have warmly taken up this treatment; a special-

ist in "vaccine inoculations" told the writer that progress with this important treatment would probably be much more rapid if the physicians in general practice were more ready to take advantage of it; as it is, they appear to be inclined to try it as a sort of last resort, and only in very difficult cases.

In one important respect last year was marked in a somewhat disquieting way, namely, by the unwonted activity of two Oriental pestilences that we had come to regard as practically out of the sphere of possible dangers to public health in northern latitudes. The rapid extension of Asiatic cholera from Russia to contiguous countries, further to Italy, Northern Africa, and ultimately to Maderia, can only be viewed with a feeling of misgiving; it must be borne in mind, of course, that the cholera epidemic in Russia raged more extensively than at any time during the past eighteen years, it being estimated that over 100,000 died from its effects during the year under review. Again, definite signs of increased activity of plague made themselves evident in various parts of the world during the year. It must be admitted then that the past year has closed with a distinct threat from these Eastern dangers, and whilst there appears to be no cause for alarm now, extra precautions may have to be taken to keep cholera and plague from gaining a foothold in this country during 1911.

An interesting innovation in medical science which came under notice last year was the application of the cinematograph to the life-history of certain parasites which, on occasion, infect the blood of mankind. Remarkable exhibitions of such "living pictures" of the blood and tissues in various diseases were shown at St. Thomas' and King's College Hospitals, in London, England. The great magnification obtained enables the movements of parasites, which had entirely escaped observation up to comparatively recently, to be viewed with the greatest ease; such a parasite is that which produces the deadly "sleeping sickness" of Africa, and rejoices in the name of "trypanosoma gambiense."

In considering last year's work in sanitary engineering, it cannot be said that anything startlingly novel has been

brought to light. Indeed, we shall not be far wrong in saying that there is nothing really new to report. We think, however, that it may be justly remarked that a great deal more common sense is being brought to bear year by year on the question of sewage disposal. Any one process is not being employed in such wholesale fashion as was formerly the case just because it was fashionable to use it, but our engineers are getting more and more to understand the principles underlying the science of sewage disposal. So expert are they becoming in this direction—that is to say, in the manipulation of the organisms beneficently provided by Nature—that it is difficult to see how there can be any very great improvement in the processes at present extant. It is, however, by no means always that full advantage is taken of existing knowledge. Then, again, the question is frequently brought up as to whether, in treating sewage as we do, we are really proceeding on the right lines. Nature clearly intended the earth for the disposal of sewage, and though we have learnt very accurately to reproduce artificially the action of the earth, we are losing the enrichment of the soil which would ensue from the proper application of sewage to land.

A series of experiments, however, have been carried out by Drs. P. Remlinger and O. Nouri to ascertain (1) whether pathogenic germs in the soil are absorbed into the tissues of plants growing in such soils, and (2) whether such germs are carried on the stems and leaves of growing plants. Such vegetables and fruits as beans, celery, cress, cucumbers, onions, peas, radishes, salads and strawberries were investigated. The experiments were only of a laboratory order, but were carried out in such a manner as to approximate as nearly as possible to natural conditions. The soil was freely contaminated with pathogenic bacteria, the vibriion of cholera, the bacillus of anthrax, *B. typhosus*, and *B. prodigiosus*, &c. In the first set of experiments the seeds were allowed to germinate, and when the shoots were about 3 inches above the soil cuttings were taken and cultivation made of the juices. In no case was there any result, and the experimenters consider themselves justified in stating that microbes do not penetrate into the interior of growing

plants. As regard outer contamination, the results were not so conclusive. Some of the germs, notably those of anthrax and *B. prodigiosus*, were found more or less frequently on the surfaces of the plants. Apparently, however, those of typhoid and cholera were not found, and that of tuberculosis but seldom. The chances of contamination appeared to decrease with the age of the plant.

There is pressing need of improving the sanitation, or rather, the lack of it, in most of our schools. We have scarcely one school in the county where there is a properly arranged and managed drinking system. Many of the schools are still clinging to the primitive and unhealthful bucket and dipper. A few have barrels and faucets to provide the pupils drinking water, but there you will find the public drinking cup. The worst thing of all, however, is our antiquated and in many cases actually repulsive and dangerous system of providing closets and lavatories. Of course we had to have buildings and equipment first of all. Now the great problem comes in the conservation of the health of the pupils—and that means also the conservation of morals and decency. Sanitation of the schools has been sadly neglected. This is so because of the lack of funds sufficient to erect the buildings and equip them and at the same time arrange surrounding conditions as we would have them. But we know that if the School Improvement Associations and the Mothers' Clubs and the patrons of the schools generally will take the trouble to investigate these vital matters concerned with the health and sanitation, there will be such an aroused public sentiment for better lavatories and closets in the schools that their provision will certainly be made soon.

It has been suggested recently by those familiar with the work being done by the School Improvement Associations and Mothers' Clubs that these excellent organizations deserve much credit for their interest expended for the most part upon the interior of the school rooms and the immediate surroundings, such as fences and lawns and playgrounds, but that if some of the ladies would take it into their heads to examine the vitally important conditions existing in closets and lavatories at

the schools and would devote more attention to sanitation, they would see that their work has only begun.

Towels are used infrequently in the public schools of a city. The children come directly from home in the morning where they have had the conveniences of the home with which to wash. They go home for lunch and after the afternoon session return home immediately. Consequently there is small opportunity for towels to be used.

Any movement to provide the school with a number of towels is said to be superfluous. It would be a needless expenditure of money. About the only place that towels are used is in the locker room and baths, and individual towels are provided there.

Paper towels as the remedy for any insanitary conditions that may exist, are thought to be unsatisfactory. It has been determined from samples which have been received that from two to six towels are required to dry the face and hands after washing. A great litter of paper would accumulate from the use of so many. Paper also fails as an absorbent.

It is well to urge Boards of Education to build school houses fit for children to live and work in. It is well to urge them to employ janitors who understand how to keep school rooms in a sanitary and healthful condition. But good school buildings and good janitors alone do not insure healthful conditions for the children. Very much depends upon the attitude of the superintendent and teachers. If a teacher insists upon maintaining her own standards of temperature and ventilation and light whether they agree with the general plan or not, the children can hardly escape discomfort and injury. Temperature is indicated by thermometers and not by individual feelings. Ventilation and light should be regulated by definite laws and rules and not by personal whims and opinions.

Parents are becoming more and more anxious about the health of their children. They are asking for the building of good school buildings, well lighted, well heated,

well ventilated, and well supplied with pure water and decent toilet facilities. They are demanding the employment of janitors who know what dirt is and who know how to get rid of it; who know how to heat and ventilate the school rooms, and who will see that it is done. Now, some of these same parents are discovering that some of the ills which they have complained of, lie at the door of the teacher. In the same building may be found two rooms very different in cleanliness, in the wholesomeness of the air, in the evenness of the temperature, and in the general conditions of health and comfort. The difference cannot be charged to difference in structure and location of the rooms or to the difference in janitor service.

The real cause of the difference is found in the two teachers, in their different knowledge and attention to the matter. Often this difference in the teachers is accepted by a different attitude on the part of the janitor toward these two teachers. He finds that one of them joins with him in keeping boards and desks and floors free from dirt and in maintaining the proper physical conditions. He finds that the other adds to his burdens and seems indifferent to his efforts to keep the room in a proper condition. Very naturally there is a difference in the way he attends to the two rooms. Where his efforts are appreciated and supported there he does his best work.

The health of the school children is a prime consideration in the management of our common schools. The time has come when the parents of these children are demanding that those in authority, Boards of Education, superintendents, teachers and janitors shall join together and work together to establish and maintain such physical conditions as are essential to the health and comfort of the pupils.

One of the chief benefits to be derived from games on the part of children is the development of the love of fair play. The play teaches them to be honest, and to be good losers, for they are taught that it is as manly or as womanly to lose with good grace as it is to gain victories.

Without the exercise necessary to health in childhood the pupils can not be expected to show the proper advancement in

their studies. Boys like to work with tools and there should be shops provided where they could do little jobs of carpenter work. A child has energy that wants an outlet and the work provides such an outlet. But when they work they think, and the workshop thus serves in the double capacity of aiding in building, both the body and the brain. There should be plenty of room provided for play grounds for each school. There should be plenty of room for the boys to play ball and their rougher games without interfering with the quieter play of the girls. Part of the grounds should be used to teach the pupils the rudiments of agriculture, which could be done by having them work in a patch of garden which they could take care of. Above all the teachers must remember that play is absolutely essential to healthful development of a child, and they should superintend and aid the children in their play.

The medical inspection of schools, the open air school room and the open air recovery school are matters of public health conservation, whose virtues have been demonstrated in other countries. The medical inspection of school children means the detection and isolation of contagious diseases, nipping the bud of epidemic and preventing unnecessary sickness and death. It means the correction of physical defects of teeth, eyes, ears, nose and throat acting as handicaps to general health and progress in grade work.

School hygiene is not spectacular, displaying its virtues in the beauty of public buildings. It is displayed rather in physical health the basis of mental and moral progress.

When we attempt to remedy one form of social evil to the neglect of all the rest, the results will not be satisfactory to the myopic reformer, who would drive prostitutes to prison, suicide or even segregation. No one social impurity can be eliminated from a community while the business and social life remain corrupt in a thousand different ways.

People should be taught the extreme importance of light and air to life and health.

A crusade should be started against useless curtains. Every house has show curtains which are never used. Blinds, also, are drawn to keep out the least peep of sunshine in order to save the carpet and incidentally ruin health. In every bed-room there should be a clear opening in the window at night for pure air, free of blinds and curtains summer and winter.

The veil is another device for swallowing impure air and lowering vitality. It is principally worn, not because it is necessary to keep the hat on, but because it is supposed to be "becoming."

Further, to improve the general health, and thereby to keep consumption at bay, more work and less food are required for one section of the community; vice versa for the remainder.

Bad housing begets low ideals of living. If children are reared in an environment of filth, litter, dampness, darkness, putrid odors, and immodest family and neighborly relationships, the future citizenship will consist of men and women willing to content themselves, if not cheerfully, at least without protest, with such conditions. Many a child of the tenement has grown to a noble and conspicuous career, but the vast majority are content to reproduce through long and tedious lives, the conditions under which they made their advent into the world.

Bad housing sows the seed of immorality, of betrayed womanhood and of fallen virtue. The more bad housing, the more Florence Crittenden homes, the more reform schools, the more jails, the more police, the more divorces, the more blighted homes.

Dr. Woods Hutchinson says we are winning the war against tuberculosis because we are providing for better housing, more playgrounds, better food, decent shops, cleaner workshops and shorter hours. We have laid low the bugbear of the transmission of the disease by meat and milk and heredity while concentrating the fire on the infected house and tenement room—the place where we now look for new

eases is the place where the old case existed.

Many tenants make a better tenement as much worse as they are themselves. But it is oftener the case that better families are made worse in both their habits and character by bad tenements. Some of the better and some of the worse landlords are those that live in the houses which they own, rent and sublet. Many of them share the discomforts of their tenants and are kept almost as poor as the latter by their efforts to pay the interest or the principal of the mortgages on the building, which they are trying to purchase.

An increasing proportion of city born and city bred people are so accustomed to a crowded district that they prefer to live in it. They are "lonesome" when by themselves and fear they would "die of homesickness in the country."

Badly-ventilated cars are the most effective pneumonia exchange that menaces the public health. Pneumonia is one of the most prevalent and most deadly of the easily communicable diseases. The germ of it is so small that it floats easily in the atmosphere. It is tolerant of cold temperatures which moderate the virulence of some of the other pathogenic cocci. It is to be found at all times and almost everywhere, particularly in the noses and throats and upon the tongues of the human species. Pack fifty people in a close car, half of them afflicted with slight, moderate or severe colds, and every breath exhaled and inhaled is loaded with poison. The loading is a continuous process. In a close apartment, made foul by the breathing of many people there is a hothouse condition for the dissemination and propagation of pneumonia and other communicable diseases.

A large percentage of the measles, scarlet fever, diphtheria, mumps, whooping cough, tonsillitis, and many other easily communicable diseases, are undoubtedly exchanged in badly ventilated cars. Any individual coming from a household where such diseases exist may bear the infection

and communicate it to other individuals, who, at the inopportune moment, happen to be particularly susceptible to it. Car ventilation is no complex problem like the ventilation of a house of many rooms. The car contains but one large compartment. It is most of the time in rapid motion, so that fresh air will be taken in and foul air carried out by merely providing inlets and outlets of proper location and capacity. These may be installed with little expense. The chief expense involved in ventilation is through increased coal consumption, for where the air is changed rapidly more coal must be used to heat the greater volume to a comfortable temperature.

All city governments should be free from partisan control. Municipal politics is largely responsible for corrupt administration in any municipality. This is demonstrated by the recent scandals in Montreal and other cities.

Our cities should be run on business bases like large corporations. Political graft then would cease and the welfare of all the people at all times would be attained. The manufacturing interests of the city should be fostered with much care.

We glory in our great industrial systems, but forget the workingman in our pride and boastfulness. The laws ought to be enforced with vigor with regard to the sanitation of the laboring man's home. It is the duty of the authorities to make a more careful inspection of tenement house districts. The workingman who is a principal cause of our great industrial work, is being neglected.

We advocate the establishment of special parks for the workingman, not the parks for the automobile of the millionaire or the carriage of the fashionable society woman, but breathing spots where the man of toil can rest and enjoy himself after the day's work is done. These would be oases in the city's desert for the workingman. The sooner these are planned in large centres of population, the better for the citizen and the country at large.

Library, Laboratory & Clinic

British Quacks and Public Health: Information of considerable interest as to the extent to which unqualified persons are usurping the functions of the accredited medical man is furnished by a Blue Book issued from the British Privy Council office. The volume embodies the replies of 1,600 medical officers of health to an official circular inviting their opinion "as to whether the practice of medicine and surgery by unqualified persons is assuming larger proportions, and as to the effect produced by such practice on the public health." The opinions thus obtained are presented in the volume which has just been issued.

As the result of the replies, says a prefatory memorandum, it is difficult to say categorically whether the practice of medicine and surgery by unqualified persons is increasing. In some districts the evidence is distinctly in this direction, while in others there seems to be very little of such practice. The report states that "prescribing by chemists" is "so common as to be practically universal throughout the country. Chemists are resorted to especially by the poor, and it is 'comparatively rare' for a general practitioner to see the child of working-class people until it has been medicined for several days by a prescribing chemist."

With regard to the effects of the practice on the public health, complaint is made by various medical officers of health that chemists do not know, or only imperfectly know, the diseases they treat, and that consequently their prescribing is for the most part superficial and directed only to the symptoms. Infectious diseases are frequently overlooked, and the treatment of infants' diseases is regarded as having some bearing on infant mortality.

With reference to herbalists, these, it is stated, are especially prevalent in the populous boroughs of Lancashire, Yorkshire (West Riding), Nottingham, and Derby. In one city the herbalists are stated to number between forty and fifty, and to have more than doubled during the last twenty-five years. They treat "practically all diseases," and their practice is lucrative.

According to the report, they seriously diminish by the delay, which occurs, the chances of cure, in tuberculous or chronic phthisis, by their indiscriminate prescribing of cough mixtures for respiratory diseases. They cause, in the view of one medical officer, "a great amount of unnecessary pain and suffering and premature death by their treatment of tumors and cancers, and spread infectious disease by wrong diagnosis.

The bonesetter has a "very great vogue" in Cumberland, Northumberland, and Durham, and does a large amount of work in Lancashire. Many bonesetters also practise in the Welsh mining districts. In one large town in the North of England they are stated to have increased at least 40 per cent. during the last ten years. The increase in their practice is attributed in some cases to the Employers' Liability Act.

Bonesetters in some districts enjoy a large amount of public confidence. "The Northumberland and Durham Miners' Permanent Relief Fund, a very large friendly society, of which practically every coal miner in the two counties is a member, has recently decided to accept certificates from bonesetters in cases of accident as equivalent to certificates of medical practitioners. In Wales, belief in these men is said to be implicit.

A relatively small amount of harm, it is stated, is done by bonesetters who undertake minor surgical cases only, but "irretrievable" injury is sometimes caused by the treatment of more complicated cases. Their lack of knowledge prevents them from distinguishing tubercular bone disease from an ordinary dislocation.

In most places where the matter is referred to at all it is stated that the "practice of dental surgery by unqualified persons" is on the increase. Christian Scientists and Faith Healers are also increasing, mainly in Sunderland, Manchester, Rochdale, East Sussex, Halifax and Bradford.

A long section of the report deals with proprietary medicines. It is pointed out that not only are such medicines largely purchased by the poorer classes, but the

"well-to-do have recourse to them in a large measure." The facility with which they can be obtained is strongly condemned. Many of them, it is stated, "contain powerful poisons."

As to their effects on public health, they have "enormously increased the amount of self-drugging," and, in cases of incipient phthisis their use may give rise to delay resulting in the disease becoming incurable. The practice of giving such medicine to infants and young children is "strongly condemned as harmful," and some medical officers allege that the use of such drugs as teething powders "has an important bearing on the question of infant mortality." The replies received on this matter make these among other suggestions:

1. The composition of all advertised remedies should be stated.
2. Their prescription and analysis should be determined by Government analysis, at the vendor's expense.
3. The sale of headache powders and such like drugs should be prohibited.
4. The sale of infants' foods should be regulated.

Unqualified practice in eye diseases is strongly condemned in all quarters. By the unscientific methods that have been employed, it is stated, eyesight has been seriously injured, and even where no apparent injury has been inflicted the spectacles supplied have been quite worthless. This is especially the case in respect of school children.

A "mass of evidence" on the connection of unqualified practice with the spreading of infectious disease has been received, and reveals that "throughout the country the public health is to some extent prejudiced by unqualified persons treating" such cases. These, amongst other instances, are given of expensive mistakes:

Small-pox. — (1) Outbreak spread through diagnosis by a herbalist as chicken-pox. (2) Herbalist treated a case as "acne," leading to serious outbreak. (3) Treated by chemists and not recognized. Five persons infected, of whom one died. (4) Treated by chemist as skin disease. At least one other person infected. A similar instance at another town was much more disastrous and resulted in at least one death.

Diphtheria.—(1) Outbreak largely kept up, in medical officer of health's opinion, by unqualified practice. Mild cases treated

by chemists or herbalists for "ulcerated throat," "enlarged glands," or "mumps," and never isolated. Children returned to school, and disease spread further. (2) Treatment by untrained medical enthusiast (a schoolmaster) resulted in death. (3) In 1907 a serious attack in a village continued for three months, attended by an unqualified practitioner. No notification made, and outbreak only discovered at inquest on a fatal case.

Scarlet Fever.—(1) Spread owing to a chemist treating children in whom it was not recognized. (2) Outbreak in 1902 undoubtedly spread owing to district nurse attending first child attacked during several days for what she called "rose rash." (3) Unrecognized case treated for "want of blood" with patent pills.

A case of measles was treated before eruption by a herbalist as consumption, and a case of chicken-pox was wrongly diagnosed by a chemist, with the result that an outbreak occurred, and over sixty persons suffered.

"Wise women," says the report, still do a certain amount of medical and surgical practice in rural districts, and in a few cases belief in witchcraft is still held by people.

—
"Induced Cell-Reproduction v. Cancer."
 By Hugh Campbell Ross. London: Murray: Five years ago Dr. Campbell Ross (a brother of the Prof. Ross whose name will for ever be connected with the story of tropical diseases) was a naval surgeon. His ship was stationed in the Mediterranean. He was experimenting with blood, which he was cultivating at various heats for definite purposes. After gun-practice one day, thinking himself secure, he heated some blood in tubes at a temperature of 37 deg. (Centigrade). Suddenly an extra gun was fired, and most of his apparatus was thrown into utter confusion. Thinking the experiment hopeless, he did not look at the tube of blood in the incubator till the next day, when he discovered that the shock had mechanically increased the temperature to 60 degrees, without otherwise damaging the apparatus. As a result "the red cells, which had been resting on the surface of the jelly, were now diffusing as a cloud through the jelly itself." That trifling and not very inspiring mischance discovered to Dr. Ross (who acted upon a suggestion by

his brother) a new method of examining blood corpuscles, and so paved the way to the most momentous piece of physiological investigation since the equal civil war which makes up the republic of man was first revealed.

To put it shortly, Dr. Ross claims, by this accident, to have discovered a new mode of observation, and by it to have found the cause and cure of cancer. His results are not of a broadly, boldly striking kind, and it is not always easy to follow their tendency. But once they are grasped, the overwhelming importance of them is obvious.

Organic disease of the human tissues, it has been long established, is an over-balance of the well-poised war between the beneficent white blood-cells (the leucocytes or phagocytes) and the malignant germs. Sometimes the leucocytes win, but win too vigorously (or "over-proliferate"), and become themselves malignant, as in cancer, according to the theory of Dr. Ross. Leucocytes multiply, or proliferate, by division: their normal multiplication is called "the proliferation of healing:" the process of division has been seen taking place in the kindred white cells, the lymphocytes. The problem of cancer-research—indeed, of all cytology—is threefold, if it be stated properly, without the esoteric claims of ultra-physiology: (1) to discover how the leucocytes divide; (2) to find what makes them do so; (3) to control their proliferation. Dr. Ross appears to solve all three issues.

First of all, the new "in vitro" method has enabled him to see microscopically, and to record by microphotography, the vivid action of the living leucocyte, instead of merely (as hitherto) a dry stain of dead blood. The blood is allowed to suffuse a thin jelly, on a microscopic plate, and is kept alive—for ten minutes perfectly, for longer, imperfectly—by regulating by the temperature and by adding alkaloids (especially atropine) to the staining dye (azur), which makes the movements plain. Dr. Ross seems to prove that the stimulating alkaloid causes division; and he states that he so manipulated his apparatus and his formulae that the possibility of unknown elements was eliminated.

So much for method. Dr. Ross then noted carefully the exact movements of the dividing leucocytes. He found them practically uniform under the stimulus of azur

stain:

"The method of division of leucocytes and lymphocytes is so constant that we thought it was reasonable to expect that the proliferation of healing would be ultimately proved to take place by a similar process, and that if so there must be produced in an injured tissue some chemical substance very similar in its effects to that contained in azur dye."

He examined the blood of cancerous persons. It exhibited precisely similar movements, more especially in regard to the reduction of granules composing the nucleus of the white blood-cell. He had, in short, produced a state of things, by artificial means, which natural means produce in the partly-dead and partly-living tissues of a diseased person. That was only a parallel, perhaps, but it was enough to go upon.

The next step was to discover by experiment what it was in the cancerous tissues which had the same effect as the artificial azur dye. Extract of suprarenal gland, allowed to putrefy by being kept, was found to cause division in leucocytes: pure sterilized extract was ineffective, except when allowed a long period of action, or strengthened by atropine. Further investigation showed that of the constituents of this extract kreatin is the most efficient, or xanthin, if atropine be added. Globin has also this effect: and there may be other agencies yet unknown. It is not clear that a cell cannot anyhow divide of its own accord without some such stimulus; but the argument from silence is very strong—no cell has ever been seen to do so: and it is now certain that the agents mentioned do cause division, or proliferation. "Cell-death induces cell-birth" automatically; and Dr. Ross has discovered the obstetric details.

What is necessary to cure cellular disease, therefore, is at once to promote healthy cell-birth and to prevent over-abundant proliferation; and it is clear that certain known agencies achieve this end in the blood-cell itself, whatever the case in the individual person, who may contain in his body unknown modifying factors.

Dr. Ross has begun to test practically what he believes to be his experimental triumph. He has found, in his practice at the Royal Southern Hospital, Liverpool, that external dressings of globin and internal injections of defibrinated blood have, so far as he has as yet been able to ascer-

tain, immense curative effects. He will not say that they will cure all cases of cancer. He merely states his necessarily limited experience, and gives it value by his remarkable experimental demonstration of the causes and manner of cell-proliferation. Even if his particular remedies should eventually prove to be less efficient than they seem likely to be, he has, perhaps, as he claims, opened "a new vista in pathology."

A Text-book of Public Health. By John Glaister, M.D., D.P.H. (Camb.), F.R.S.E. Second edition. Edinburgh, E. and S. Livingstone: This book is the second edition of the second part of Dr. Glaister's "Text-book of Medical Jurisprudence, Toxicology and Public Health," and will be hailed with pleasure by the student of Public Health matters. Even in its first edition the original book had a tendency to unwieldiness, and when the time came to revise and re-issue it, it was found that the modern growth of the subjects dealt with was so extensive that one work would be out of the question and, in consequence, we have the two. That Dr. Glaister has been wisely guided in arriving at this decision we have no doubt.

The general arrangement of the subjects is precisely the same in this volume as in the former, but every division, has of course, been amplified and brought up to date. The great advancement of knowledge during the past years has in many instances necessitated almost entire re-writing. Several new features are included, the principal of which is the introduction of a fairly full treatment of Sanitary Law. This is not all placed together in one section of the book, but the law relating to each subject is set out in the same section as that subject, and consequently the student will find to his hand the law dealing with each branch of his study instead of having to consult several books or Acts of Parliament. This feature alone should commend the new edition to all serious students of the matters therein dealt with. The author has refrained from introducing to any great extent illustrative legal cases owing, as he states in his preface, to the relatively large amount of space required to present an adequate account of the bearings of each case.

The book is well got up, and should be

found on the shelves of all interested in these subjects—whether they already possess the first edition or no.

Education in Sexual Physiology and Hygiene. By Philip Zenner. Cincinnati: The Robert Clarke Company: To quote the author of this little book:

"There is a crying need and growing demand for the instruction of children in sex matters. A lack of such instruction does incalculable harm.

"This volume dwells upon methods of teaching which should secure the good without the ill effects of such instruction."

The author has succeeded in his task of putting sexual hygiene into words simple, clear and forcible enough to reach the general understanding. Undoubtedly, instruction as to sexual matters should be far more general and more thorough than it is at present, and in this small book by Dr. Zenner, teachers and parents will find a valuable assistant. Teachers and parents are shown how most effectively to carry on the necessary work of education in this special line of sexual physiology and sexual hygiene.

Morse on Children's Diseases: A new food and remedy for children troubled with constipation is suggested by Dr. John Lovett Morse, of the Harvard Medical School and Children's and Infants' Hospital, the Japanese agar-agar. This is the well-known culture medium of bacteriologists, the gelatinous matter of certain sea-weeds, which is rich in hydro-carbons, and is resistant to the action of ordinary intestinal bacteria. Its efficacy in disorders of the kind noted by Dr. Morse lies in this fact and because it is little affected by the process of digestion, and it absorbs and carries with it through the intestinal canal considerable quantities of water. It is, therefore, of value in the treatment of adults whose difficulty is in the too complete digestion of the food and the absorption of all the water, leaving the dejecta small in quantity and dry. Agar-agar supplies more material and in moist condition. Dr. Morse has been able to find no accounts of its use with children, in fact, some authors state directly that it must not be used with them. But it seemed a reasonable remedy so he has tested it on children affected with this type of disorder, and reports very satisfactory

result. The principal difficulty has been to induce the children to eat the agar. None of them will take it dry, as will adults, nor do they care for it with milk and sugar, like blanc-mange or sea moss farina, which it resembles, or a cereal. Indeed, even when mixed with a cereal the children will separate the pieces and spit them out. No harm can result from an overdose.

The same physician has been making interesting investigations in the diagnosis of meningitis in infancy and childhood. One line of this work has been among the reflexes. If one pats a great Saint Bernard dog on the side, the dog will try to scratch himself with the hind leg on that side and at the same time give a very popular exemplification of the movement known as the reflex. Brudzinski had noted reflex actions of one leg when the other was moved, that was apparent in sick children, but never in the well. A year or so later the same observer called attention to a "neck sign," in which a movement of the head towards the chest was accompanied by certain reflex movements of the legs at hips and knees. Since this sign was new to science Dr. Morse made, on his own account, a test with four hundred children sick and well to determine the indications given by these involuntary movements. Ninety of the children were well and the others mostly with organic or infectious diseases, no one of which gave response to either sign. Other patients with affections of the nervous system and meningitis were examined and from the whole research the conclusions are voiced, that neither the neck sign nor the other reflex action are present in well children or those ill with diseases other than of the nervous system. They are almost never present in diseases of the nervous system outside of meningitis. The neck sign is much more constantly present. Their presence in an acute disease is strong evidence in favor of meningitis, although their absence does not exclude the disease. They occur in all types of meningitis and are of no importance in differentiating between them.

Sanitation and Sewage Disposal for Country Houses: Perhaps the simplest and most common method of country "sewage disposal" is by a vault dug in the ground. This has many objectionable features, chief among which is the possibility of spreading

disease. Water from it sweeping through the ground may carry poisons to well or cistern. It has been proved that in this way disease germs may travel several hundred feet. Flies also carry the filth and disease to food material in the kitchen. Such a danger may be prevented by the generous use of airslacked lime daily.

Another method not so common in America, but frequently used in England, is the cess-pool, usually built with a dry wall of rock or porous brick, so that the liquid may seep out into the surrounding soil. This is even worse than the first method, because the danger will last longer.

To substitute for these old and unsanitary methods, William C. Davidson, of the University of Missouri, in "Sanitation and Sewage Disposal for Country Houses," has worked out plans for several up-to-date methods of sewage disposal. These are designed to suit the needs of the moderate priced country home whose builder desires conveniences and comfort.

The simplest method is one much used in older countries, called "dry closets." Plans are given for a concrete catch basin system which is said to give good results. A system of septic tanks is described and explained, and directions are given for building it. The matter of final disposal of the waste is thoroughly discussed. Different methods of returning it to the land are shown. There is also a section which gives general direction for installing plumbing in the country house. Estimates of the average cost of such systems are given.

Plague of New Type: From the beginning of recorded history the Orient has been known as "the mother of plagues," and it therefore is not surprising that China again should be in the grip of one of these frightful epidemics. The present plague is considered most virulent, nearly every case being fatal. There appears to be also a novelty in the nature of the disease, for instead of being of the bubonic type, it is said to be pneumonic and septic.

What is "the plague"? An international sanitary conference that discussed this question in 1897 at Vienna concluded that it was caused by a bacillus discovered in 1894 by Kitasato and Yersin of Japan, and was spread largely by rats, mice and certain other animals. The obvious lesson of importance in this finding was to destroy

the rats and mice, and much has been done in the last few years through this means to stay the progress of outbreaks.

Dr. Kitasato, in the present instance, is unable to affirm positively how the epidemic originated, but favors the theory that the first victim was a Chinese trapper, who contracted the disease from the fur of a Mongolian rodent, the bartagen, since when it has been spread by human agency, not by rats. This circumstance helps to explain the exclusively pulmonary character of the disease, the most reasonable hypothesis being that the filthy personal habits and overcrowding of the Chinese promote the contagion through germs from the sputum brought into contact with the clothes, hands, mouth, etc., of the victims, and thence gaining entry to the lungs, whereas the bubonic plague usually is contracted by bites of fleas or from plague-infected rats. The bacillus is not transmitted through the air.

That the disease is aggravated if not developed by bad living in the sanitary sense—poor or insufficient food, overcrowding, foul air and filth—is well known. Cold weather appears to check its ravages in European countries, which have been scourged by it many times. Always it has traveled westward, usually along the ancient courses of traffic between Europe and Asia, over or along the Mediterranean Sea. Writers of ancient Greece and Judea describe its ravages. In Rome it appeared several times before the beginning of the Christian era and in the year 170 A.D. in the reign of Marcus Aurelius it raged over all Europe and Asia.

The most frightful form of the plague known to history was "the black death," which within the last six months has appeared in England and has been virtually overcome by modern sanitation. But, appearing in 1340 in Italy, the disease spread northward and throughout all Europe carried sudden destruction to millions. England and Scotland suffered greatly from it, and Ireland in less degree. The Scandinavian countries were frightfully devastated by it, Norway losing two-thirds of her population from it.

London's "great plague," which began in December, 1664, is said by some writers to have caused 100,000 deaths; the mortality officially recorded was 68,596. It was graphically described by Defoe in his "History of the Plague." Fires were kept up

day and night to purify the air, and it was believed the infection was not fully destroyed until the great fire of 1666.

The "black death" received its name from black spots that appeared on the skin of those afflicted with the disease. Tumors of the glands, stupefaction and expectoration of blood marked its development. No remedy was known for it. Those who could afford to do so fled from a town or region in which it made its appearance, just as people to-day are fleeing from the Chinese territory, which the new plague is ravaging. The belief that the "black death" was an air borne disease prevailed to such an extent that those stricken with the disease often were left to perish from lack of attendance. So fatal was the "black death" that it is estimated one-fourth of the 100,000,000 population of Europe at the time, or about 25,000,000 persons, became its victims.

Symptoms of the pneumonic type of the disease usually are declared in from three to five days; and without the previous exhibition of Haffkin's serum recovery usually is rare.

Although this type is really less virulent than the bubonic type, yet owing to the virtual absence of technical knowledge of preventive measures and the impossibility of segregation, the epidemic at present in China is almost bound to spread and assume somewhat the proportions of the European black death, which also was pneumonic. Comparative immunity is solely due to superior hygiene. Dr. Kitasato reports that if the disease were introduced into Japan he could stamp it out in one month, thanks to the nation's perfected system.

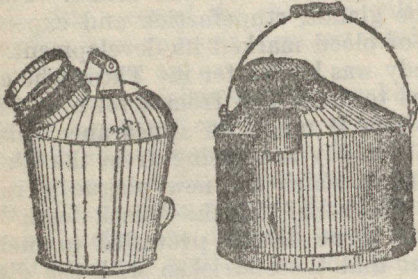
Sanitary Milk Pails: There are a great many different styles of sanitary pails used in the production of certified milk, any of which are an improvement over the old open pail which has no provision for keeping out dirt and which should not be used in any dairy.

Generally speaking the sanitary pails have a small opening. Some are provided with a strainer, through which the milk passes in entering the pail. This strainer consists in some cases of metal wire, but it is not so satisfactory as a cheese cloth strainer.

Aside from the strainer used in the pails absorbent cotton is generally preferred.

This is usually inclosed between two thicknesses of cheese cloth, a method found to be very practical.

The pail shown on the left in the illustration is a good, sanitary milk pail. The



height is convenient and as the opening is on the side, there is but little chance for dirt to fall in. The seams are all well flushed out with solder. The objection to this pail, if any, is the difficulty of seeing that all parts are clean.

The right hand pail shows a cup attached for holding the foremilk. There is the same objection to this as the other presents—that is the difficulty of seeing into it to make sure all parts of the interior are clean.

All pails and utensils with which milk comes in contact should be thoroughly washed, rinsed, and steamed or sterilized.

St. Petersburg Water Supply: The largest "water factory," as it has been named, in the world, is now supplying water to the St. Petersburg mains. It takes in Neva water, allows it to stand in tanks, whence it passes through filters, and finally through an apparatus that charges it with ozone, which is claimed to destroy all kinds of pernicious microbes; the purified water is then run into the mains. The installation is the work of a German firm. The electric energy required for the "ozonizing apparatus" is 9,000 volts, and the total cost of the undertaking to the city about \$650,000.

Whether Disinfectants Disinfect: How to tell whether "disinfectants" will disinfect, is the question that is taken up by the Journal of Infectious Diseases in its current issue, the initial statement being: "There is no question but that great fraud is practised in the exploitation of many of the so-called disinfectants that are offered for sale upon the market and are constantly being used by the credulous public." In a general way it would seem as if some of the

articles so advertised bear the same relation to disease germs that the traditional cardamom seed bears to intoxication, the suppression of a minor symptom to the neglect of the major difficulty. The popular idea is to a large extent that the article is doing its work in the war against disease. In the Journal, two articles of two different kinds attack the question of the standardization of disinfectants. One of these, that of Professor Earle B. Phelps, of the Massachusetts Institute of Technology, seeks to establish the quality of the disinfectant by making use of certain laws of physical chemistry; the other by Dr. John G. Anderson and Dr. Thomas B. McClintic, both of the United States Public Health and Marine Hospital Service, seeks to improve existing methods and make them of greater practical use. The first-named paper is theoretical to the present moment, and while based on experiment, requires, still, experimentation in the future to produce results; the second one takes directly certain compounds and seeks to give them their proper place in the scale of efficiency.

The need of a definite standard for disinfectants whereby they can be compared one with another has long been apparent and a step towards the solution of the problem was taken in 1903 by Rideal and Walker, who suggested a way of getting the ratio in strength between the substance to be tested and carbolic acid, or, technically, phenol. Another method has been devised by the London Lancet. A number of elements, the culture media, the organism to be employed in the tests, the temperature and the technique are all of them points of uncertainty, which Dr. Anderson and his fellow worker in the Marine Hospital Service have tried to reduce to put on a standard basis. The authors have worked at a standard temperature of 20 degrees Centigrade and have developed a "Hygienic Laboratory technique" for the determination of the "phenol coefficient," the result of which will be to determine the comparative cost per unit of efficiency of any compound subjected to the tests. As a part of the investigation the authors state that they are now engaged in a study of the various proprietary disinfectants to be found upon the market, and they propose to determine, in this study, the phenol coefficient with and without organic matter and the comparative cost per unit efficiency of each.

Open Mail

To the Editor: *The Public Health Journal*:
Plasma de Quinton.

Sir,—A few words about the "Plasma de Quinton" injection treatment may be of interest to those of my fellow readers of THE PUBLIC HEALTH JOURNAL who have not had an opportunity, personally, to investigate the matter. The test in London of this method of treatment (chiefly of infantile diseases so far), is particularly welcomed by those interested in checking infantile mortality, and very remarkable results are claimed for its use in France. "Le Plasma de Quinton" is nothing more nor less than pure sea water, sufficiently diluted with distilled fresh water as to make it isotonic with the human blood. The sea water is taken from the ocean at a point far away from land and at some feet below the surface. These precautions are necessary for safeguarding purity, for, according to the originators of the treatment, there must be none of the ordinary precautions to secure freedom from noxious germ life. The sea water, for example, must not be boiled, as that would destroy its value altogether. The fresh water used to dilute the sea water so as to make it of the same specific gravity as the human blood must be distilled, then frozen, then distilled through a Pasteur filter. The mixture must afterwards be used in a fresh state, as it loses its value when stale.

Science has come so close to the miraculous in some recent discoveries that the theory of "Plasma," though it reads like romance or the dream of an alchemist, may not for that reason be condemned as scientifically untrue. It is this: that biologically all life originated in the sea water; that pure sea water is almost absolutely identical with the organic plasmas. The water of the sea is, in short, the culture liquid for organic cells. It suggests the *elixir vitae* of our forefathers, and it is claimed for it that it will be a great remedial agent of the future. Inject this sea water, properly diluted, into the human organism and the result is to give an access of the vital principle. The human cells are bathed in a liquid which is their original food, and re-

spond accordingly. That is the case in theory for treatment by "Le Plasma de Quinton." It surpasses in its appeal to the imagination any of the work of Koch, Pasteur, or Metchnikoff.

I was allowed recently to hear M. Quinton explain the treatment with Plasma as carried on in the Paris dispensaries. He dealt almost solely with the treatment of young children suffering from marasmus or "wasting disease," known also in this country under the name of infantile cholera. Cases were cited not only of the treatment of average children, some brought to the dispensaries in a moribund state, but also of children in whom the condition of disease was aggravated by a "bad heredity," *i.e.*, they had tuberculous or otherwise diseased parents, or were prematurely born. Medical details are necessarily indicated rather than fully set out in a translation of M. Quinton's statement.

The most important point, he stated, in the treatment was to determine the proper dose. In 60 per cent. of cases this was easy. In 40 per cent. of cases the proper dose had to be methodically sought for. Once the veritable dose was found success followed, if success were possible. In the experience of the Paris dispensaries in 1908-9 many cases died. In 1910, with bolder dosage, almost all were saved. In some cases 300 cubic centimetres were injected every day. That represented a weight of about 10 oz. English of the fluid.

In the serious marasmus cases such as those brought to the dispensary the ordinary mortality without the Plasma treatment was 98 per cent. In 1908-9 the system at the dispensary was to inject 30 cubic centimetres of Plasma every second day. A large proportion of cases were saved. Still the bad cases very often died. In 1909 a very violent case of infant cholera was brought to the dispensary. The injection (30 c.c.) was tried. The child died. Five following cases, all very serious cases were secured. But the conclusion seemed to be obvious that the treatment was a failure, or, at any rate, not reliable, in very bad cases. It was finally resolved to attempt larger

doses. Encouragement to this was given by success with a dog which had almost bled to death and was revived with an injection of 200 c.c. The first case to be treated with large doses had on the first day 30 c.c.; on the second day 50 c.c.; on the third day 50 c.c. in the morning and 100 c.c. in the evening. The child then had 300 c.c. each day for four days, and was finally cured. In 1910, in a series of cases, doses as high as 350 c.c. were administered daily, and success followed. In one particular case, one of profound constitutional degeneration for three months, the infant had a 200 c.c. injection each day and finally recovered.

There was another side to the story. In other sets of cases a small dose was found to be the correct one. Where 30 c.c. did harm 10 c.c. effected a cure. The physician had to find the dose by careful study of all the conditions.

It was insisted by M. Quinton that in the case of large doses it was not a matter of forcing great quantities of foreign matters into the system. The sea water contained the salts of the human organism, not foreign salts.

Such is the effect of M. Quinton's claim for the efficacy of these sea-water injections, of course, under proper medical supervision. It has been now for three years before various learned societies in Europe and is being exhaustively tested in Paris. Its trial in London will give the medical faculty there a chance of closely observing its action and results. If it proves its claims the value from a public health point of view will be very great. A huge amount of the wastage of child life in the great cities is due to forms of marasmus which seem to defy all medical treatment and to run their course in spite of all drugs and food precautions.

For the Plasma treatment success is also claimed in the treatment of tuberculosis, eczema, and neurasthenia. The idea is that it is efficacious because it adds directly to the vital force of the organism. Those claims it is not necessary to discuss here. The London experiment, following on that of Paris, will devote its main attention to the treatment of infantile marasmus.

A CORRESPONDENT.

Ventilation v. Draught.

Sir: Many physicians now, in view of the increased pneumonia mortality remind

me of the story of the old doctor of the phlebotomist school, who, on hearing of the continued decline of the patient under continued bleedings, could only prescribe, "bleed him again." They are sounding again the note of warning against closed houses and conveyances. The colder the air, they seem to say, the wider we need to set open our doors and windows. This cry has been dinned into all of our ears ever since the beginning of the organized campaign against the white plague. The danger of it is that many ears are so long that they take in more of it than the physicians intend. There is nothing finer nor more healthful than brisk and bracing air taken in the open. Taken through a window, or an orifice of any kind, in any of the cribbed and confined ways of turning a breeze into a draught, it often serves all the purposes of a bullet. Experts must be aware of this fact. In all probability they are well enough aware of it to fail in understanding the unintelligent literalness with which their words have been taken.

It is remarkable how a very little of cold air can vitalize and purify anything. Healthy men who have lived in dugouts during a hard winter understand well that only the necessary opening of exits will keep the interior charged with sufficient oxygen for healthful breathing. Beyond that, they look to circulation in the open for the maintenance of health. When the body is in repose partial or complete, it should be kept warm. Cold draughts may be excellent things for tuberculous patients, but that they superinduce pneumonia can not be denied, and hardly less can it be denied that the alarming increase in deaths from pneumonia can be traced to them. Sanitarians owe it to the public to illustrate, to the last detail, the difference between ventilation and draughts. They should show sections of living and sleeping rooms to indicate the necessary positions of doors and windows in getting ventilation without draughts. And they should tell us about how many cubic feet of cold air per mile is needed for the proper ventilation of a crowded street car.

NO DRAUGHT.

Progress in Shop Sanitation.

Sir: Not so many years ago all humanity was willing to drink out of the same cup and there was little thought of it. How

many diseases were perpetrated through countless generations by this practice there is no means of estimating. It has been recently only that men in their daily duties have hesitated to drink from the same cup as their friends, enemies, and neighbors. Physicians have been expatiating upon the wisdom of using any but your own drinking vessel, for a longer time, it is true, but it takes a long time for a medical theory to become a popular prejudice.

Even now there are many lands in which it would be the height of discourtesy to refuse to drink from a proffered cup already used by thousands of the healthy, the diseased, the rich, the poor, the halt, the lame, and the blind. Even in this country there are thousands of factories and shops where working men and women in all conditions of health and sickness drink from the same vessels, and certainly the majority escape untainted, but not a huge majority.

The system installed by the Reporter Press Company, of Chicago, is a notable digression from this rule and a most satisfactory one. Above the tank of filtered water are hung as many cups as there are employees in the particular room or department. In the case here shown there are thirty-three. These cups are numbered, and upon the printed list which is posted besides the cups is given the name and number of each drinker on the force. Assuming that every one drinks water, each man, by such an arrangement, may have the unique satisfaction continually of using his own cup and of knowing that if he is absorbing anybody's diseases they are his own.

There is a certain false courtesy to which men are addicted when they invariably protest that they do not mind drinking after their neighbor at the spigot. While it may be a compliment to the neighbor's physical condition, as a matter of courtesy it is so full of menace that one can afford to forego it and at least go through the formality of washing out the receptacle.

R. G.

Improving the Farm Home.

Sir: Few things will contribute more to the comfort and "sanitation" of a home

than an ample supply of running water. This is one of the substantial attractions of the city home. That it is found in comparatively few farmsteads is a reproach to the thrift of the owners, as well as to their characters as husbands and fathers.

A supply of running water is not only a household convenience, but it is a money-saver in numerous ways. In the mere matter of watering cattle, it will not only make a large saving of labor, but it will increase the flow of milk in dairy cattle and cause fattening beeves to lay on more flesh than when their drink is limited.

The economies it will effect on even a moderate-sized farmstead will amount to a good deal more each year than the interest on an investment of \$500 and only rarely would the outlay for its installation amount to so large a sum as that. Forest Henry, in a recent article, figures that—a well being already available—the cost may be kept within \$200; which includes a \$100 windmill; 100 feet of 1¼ inch pipe, connecting with house and barn, and cost of laying same; the building of a cistern; a small stock-tank; float valves and sundries. The interest on \$200 at 6 per cent. is only \$12 a year. It is safe to say that any farmer, with an ordinary "bunch" of cattle, losses several times that amount, in butter or beef product alone, from the limitation of the amount of water which is inevitable where much labor is involved in watering the animals. All this without taking account of the conveniences, the improved healthfulness, and the saving of labor in the house, which accompany the introduction of running water.

The farmer should realize that it pays better to put profits into farm improvements of his own than to loan it at 5 per cent. or 6 per cent. to improve some other man's farm.

The question with farmers should not be whether they can afford an equipment for running water, but whether they can afford to go without it. Those who have installed such an equipment are usually prompt in answering this question with an emphatic negative.

C. R. B.

Meetings and Reports

International Housing Congress.

At Vienna, at the Ninth International Housing Congress, the single house set in its own garden was dwelt upon as the goal toward which all city housing reformers were striving. There 1,400 delegates, representing all the countries of Europe, un-animously concurred in regarding this as the only real solution of the problem.

However, it is one thing to talk about country life, the joys of which most of us know full well, and quite another to find oneself during a long weary hour or two jammed into an already bursting train, only to be forced out long before daybreak to repeat the torture back into town again. Much depends on this question of transit. Every device capable of moving crowds back and forth easily and cheaply should be investigated. A plan should be made which would take the probable growth of the city far into the future

Main radial lines for traffic should be determined. Circumferential lines connecting the outlying points should be provided for. Sites for public buildings, parks, squares, and playgrounds should be laid out. And as cities extend up to these points care should be taken to see that property owners conform to the plans. It is most interesting to see what England is doing along this line under her new Town Planning Act, what Germany is doing in many of her towns, and how France is even contemplating making town extension planning compulsory.

It is useless to talk to manufacturers about the increased efficiency of labor in the country. The chief way he can be reached is through his pocketbook. He can be reached on that side in one most important way, and that is through cheaper and better transportation and storage facilities.

Sex Hygiene.

In a recent lecture before the Society of

Sex Hygiene in Detroit, Dr. Winfield Scott Hall, professor of physiology in Northwestern University, said among other things:

"The man who is going to battle with and overcome the problems of the twentieth century, needs every ounce of vital force that nature intended him to have. The 'mollycoddle' who persists in a defiance of the laws of hygiene, may make a fair record in school and college—but when he goes out into the world and confronts the great crisis of his life—a crisis that calls for great physical endurance—his tottering edifice of manhood crumbles into ruin."

In the course of his address, Dr. Hall applied the big stick to the "advertising quacks," as he called them. He told of a young man who came to him in Chicago, after doctoring for three months with one of these quacks who, by giving exaggerated importance to certain symptoms, had convinced the young man that he was really "in the last stages of decay."

"He had been paying this quack \$75 a month, all the money that he could earn, beg or borrow, when I discovered that the trouble was all occasioned by a simple disorder of the eyes, which was corrected with a pair of glasses, costing the young man \$4.50," said Dr. Hall. "He had already paid the quack \$150.

"Do these quacks ever show themselves in a medical convention?" shouted Dr. Hall. "Well, I should say not! Do they have any standing in the profession? Well, I should say not! I tell you men, if you get worried go to your old family physician. If you haven't one go to somebody else's family physician, but give these quacks a wide berth."

Dr. Hall pictured the awful doom that husbands sometimes bring upon innocent wives through evil associations.

"We must come to the point where there shall be but one standard of purity," said the speaker impressively. "We demand purity in our wives; shall we not exhibit it in our own selves?"