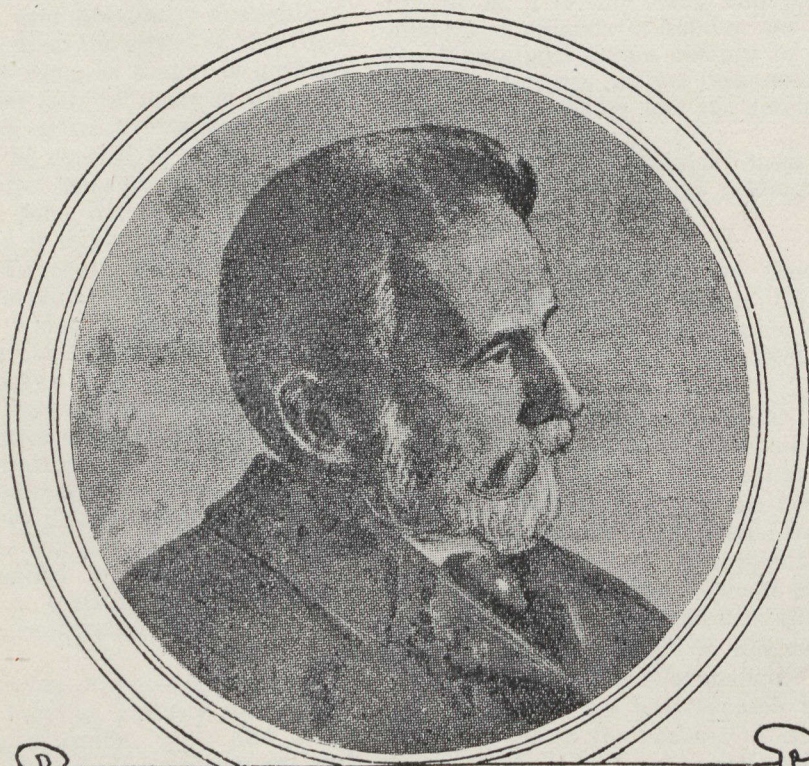


PAGES

MISSING

He is a wise physician who practices to prevent as well as to cure; assisting nature to operate with her balsams which are principally fresh air, then pure water and unadulterated food, and a cheerful mind.—*Anon.*



DOCTOR PAUL EHRLICH,

Frankfort, Germany, whose discovery, at his 606th experiment of a preparation apparently specific in certain cases of Syphilis, was partly the result of a grant of money from the Rockefeller Institute for Medical Research, the promiscuous exploitation of which is deprecated.— See Page 170.

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Special Articles

THE CONQUEST OF GREAT DISEASES

By WOODS HUTCHINSON, A.M., M.D.

The most cheering feature of the medicine of 1910 is that there is so much less of it given, whether patent or prescribed. Seldom has our faith in the magic power of drugs waned as during this decade.

The great medical investigations of the decade have been for the discovery of causes; the great advances are in methods of prevention. The great new national and international organizations formed have been against tuberculosis, against infant mortality, against congestion and overpopulation; and for school hygiene, for health in factories and workshops, and for wholesome conditions in cities.

Better and more significant yet, these movements (though largely inspired and led by physicians) are of the people, by the people, for their own protection. The community is awakening to the fact that its fate is in its own hands, and that the best medicines are neither physic nor prayer, but food, fresh air, sunshine, pure water, and personal cleanliness.

Let in the light everywhere and make every man, as Diogenes requested Alexander, keep out of his brother's sunshine. Health has become a moral question. Disease is recognized as a symptom of social

injustice.

The death rate from tuberculosis in America has declined 10 per cent. in the decade. The infant mortality rate is falling at an equally rapid rate, which means the saving of thousands of babies annually from those Herods of the twentieth century—the little fevers of childhood, the dirty milk, and overcrowding. The death rate of all of our great cities is being steadily beaten down to a lower and lower level every year.

The fight against tuberculosis is steadily becoming more and more a fight for better housing, more playgrounds, better food and more of it, shorter hours of work, decent and civilized shops, workrooms, and factories, higher wages, better education in the laws of health.

We are concentrating our fire upon the place where the bacillus breeds—the infected house or tenement room. The place where we look for new cases of tuberculosis is in the same house with old ones. We must break this link in the chain if ever we are to wipe out consumption. From 30 to 50 per cent. of the children in the tenements living in the same household with a case of tuberculosis are found to be al-

ready infected with the disease.

Whenever the community becomes intelligent enough to vote the money for taking every case of known tuberculosis out into the country, and keeping it there until cured—and at the same time preventing the infection of others—then the days of consumption will be numbered, and its years may be counted upon the fingers of the two hands.

The great discovery of the decade has been the skin tests of Calmette and von Pirquet; by simply scratching or rubbing a little tuberculin into the skin, a reddening or reaction is produced which enables us to discover the disease at the very earliest stages, when it is as curable as measles, and long before it has become infectious to others. With the aid of this test we can now break up each nest of the disease, every focus of infection, as fast as we discover it. We can stop our present practice (as illustrated in New York City) of burying 10,000 cases of the disease every year, but breeding 20,000 new ones to take their place—which means that each case before it died infected at least two others.

Our best new weapon against the next deadliest captain of the men of death, typhoid fever, has been the discovery of the powerful aid and comfort in his murderous attacks given by that advance agent of pestilence, the house fly, which should be known as the "typhoid fly" or "filth fly." This pestilent insect breeds and revels in dirt and feeds on the same food that we do; indeed, we sit at the second table to him. No more efficient agency for the transmission of infectious filth of all sorts could have been devised by the most ingenious imagination. He is a perfect joy-ride automobile for bacilli of all sorts. Next to infected water (which our modern systems of public supply are now, fortunately, beginning to get under control) this insect is probably the leading cause of the spread of typhoid fever; as well as responsible for nearly half of the summer diseases of infancy. As the fly breeds only in household and barn-yard filth of human production, strict cleanliness will exterminate him entirely.

He is the deadliest wild animal, the most ferocious beast of prey, that the human species has to contend with; he destroys more human lives every year than all lions, tigers, wolves, and venomous serpents put

together. We always did hate a fly; now we know why.

The war against insects and vermin of all sorts has been one of the features of the decade. The deadliest enemies of the race are bugs and bacilli—the "big bugs, and little bugs upon their backs to bite 'em."

The word has gone forth that not merely must the typhoid fly be destroyed from the face of the earth, but also the stegomyia mosquito that carries yellow fever, the anopheles (his cousin who transmits malaria), the tsetse-fly that carries sleeping sickness, the rat that carries plague, and the mouse that probably carries measles and typhoid fever. It is barely ten years since those martyrs of science, Carroll and Lazear, proved by laying down their lives that yellow fever was carried by the bite of a mosquito. By use of this knowledge, yellow fever has been practically exterminated in Cuba, in Panama, and in other parts of the West Indies and Central America. Our continent is now practically safe from those successive waves of this pestilence which in the last century totaled half a million cases, with 100,000 deaths in the Southern States. The only epidemic that has since attacked New Orleans was stamped out in less than half the usual time, and with one-tenth of the usual mortality. The tropics are now open to white colonization for the first time since the dawn of history.

Even pallagra bids fair to fall into the insect-borne class, as the latest investigations (both American and European) unite in showing the baselessness of the belief in its causation by spoiled corn, thus refuting a slander upon our greatest crop, and the strong and increasing probability that it is due to the bite of a gnat or midge (*simulium*) whose activities in the early spring produce the well-known seasonal outbreaks or relapses of the disease.

Another famous discovery of the last decade is that of the notorious hookworm. It is simply appalling to realize that probably from 15 to 30 per cent. of the rural population of the Southern States of America are constantly inhabited by this parasite. But since it is as curable as it is common and can be prevented by the most rudimentary improvement of sanitary conditions, we may congratulate ourselves upon the enormous addition to the happiness and economic efficiency of that section of the

country which can be so readily and inexpensively secured. Twenty-five cents worth of thymol and a day in bed will cure the disease. Shoe-leather and properly built privies will prevent it.

The two most powerful weapons forged in the decade for the direct cure of disease are the serum, or antitoxin, for the cure of cerebro-spinal meningitis; and the discovery of the germ of syphilis. Both of these were due to the utilization of our nearest blood-relative, the monkey, for experimental purposes.

The first discovery is an American triumph, made in the Rockefeller Institute of New York, and has given us our first real remedy of any efficacy against the deadly "spotted fever." Its use in some seven hundred cases has already changed a death rate of more than 70 per cent. into one of less than 25 per cent. This means that, when the remedy is produced on a commercial scale so that it is readily accessible everywhere and can be used in the early stages of the disease, the death rate will probably not exceed 10 per cent., or one-seventh of its present fatality.

The other really great discovery, that of the organism of syphilis (the spirochete or pallida) was made barely five years ago by the brilliant investigator, Schaudinn—whose monument, alas! is already erected, he having died in the first flush of the triumph of discovery. Though the time since its discovery has been so short, it has already yielded results of the profoundest and most far-reaching significance. It has provided us with a most valuable and reliable positive test, first, of the existence of the disease in a particular patient; second, of the fact whether he has, or has not, at any time during his life suffered from that disease; third, of the completeness of his cure and of the time at which the cure is complete and it is safe for us to discontinue our remedies, and approximately when it is safe for the individual to marry.

These are secured by a special method of testing the reactions of the blood, known as the Wassermann test. This test and the skin test for tuberculosis furnish to those interested in race improvement, or eugenics, practical tests of enormous value, free from any objection on the grounds of pain, danger or sense of shame, for the presence of these two great blood taints.

As soon as we knew just what our enemy was in this disease, we began to forge weapons specially for his destruction. All over the world, the laboratories fell to work on this, and have already turned out two destroyers of great promise. One, if applied in the earlier stages of the infection, will cut short or abort the attack; and another (announced by Ehrlich only a few months ago), an arsenic compound, has already been shown to be able in some cases to destroy all the specific germs in the blood within 48 hours, and to produce visible improvement in the condition of the patient with 24 hours. Its name, "606," indicates the inexhaustible patience and perseverance of the search. One such success is worth not merely 605 but 6,005 failures. This and the Wassermann test make it for the first time practicable to report and isolate syphilis till cured, like any other dangerous infection.

In surgery we have the brilliant, though somewhat bizarre, possibilities opened up by the magic feats of Guthne and Carrel in transplanting the organs. Animals have already lived for months in perfect health and comfort with one of their most important vital organs (like the kidney) removed and the kidney of another animal stitched in its place. Whether we shall ever be able to acquire a new heart, without being converted, or a more satisfactory and up-to-date liver by this process, remains to be seen. But the actual results obtained already open up an interesting vista of speculation.

MONOPOLY IN EDUCATION

By ALFRED FITZPATRICK, B.A.

There are signs that education is beginning to look out from her long retreat in academic shades and college groves to the kitchen, farm and workshop. Among the

subjects of school and college curricula we now find Dairying, Agriculture, Domestic Science, Hygiene, etc. We are beginning to realize with Browning that

the body, God's temple, has as much to do with our mental and spiritual growth as have the mind and soul.

"Nor soul helps flesh more now
Than flesh helps soul."

—*Rabbi Ben Ezra.*

The dining hall at the University of Toronto has lately sprung into sudden popularity. Three hundred students take their meals there now, and frequently the S. R. O. sign might be hung out. Why this sudden popularity? Modern science has come to the aid of the Varsity student and placed the dining hall under the supervision of a Domestic Science graduate. Under her regime the meals combine quality, variety, cleanliness and cheapness.



ALFRED FITZPATRICK, B.A.,
Superintendent of Camp Education.

Let us hope that a system of education whose natural laboratories include the farm and kitchen cannot long be denied the frontier camp.

"Jumping camp" would be greatly reduced if the culinary staffs at the camps were experts in their line. But to add the additional blessings of bathrooms, and private instead of public beds or boards as now in use, at say quarter the expense of students' residences, and in-

struction with books, music, entertainers and instructors, would be to bring the term "jumping" altogether into disuse. It would have no meaning. There would cease to be any such habit as jumping known. The back country hotels and the city slums would be deserted. You would not be able to keep the unemployed away from the camps with jamdogs.

In other words, to decentralize education from its congested stultified centres to the frontier camps and settlements, to make the super-educated lend a hand at teaching and toiling, would be to take the first step towards making possible a solution of the slum problem of the cities, and the absolute suppression of the liquor traffic on the frontier as well as in city, town and country. For just as surely as nature abhors a vacuum, just so surely will men seek to fill their monotonous spare hours with coarse and brutalizing stimulants even if they have to be illicitly obtained, unless these hours are first filled in with the pure and the beautiful.

Do you, kind reader, suppose the frontier toiler would leave camp where his bunk was in no danger of being "seeded" from his neighbors? Where if "struck" he could have a hot bath and change his underclothing in private? Where he does not have to toil more than eight hours and could spend the balance of the day in reading and study and, above all, where he could come within the hallowing restraining influences of good women?

Is there any hope that the frontiersmen whom a recent writer has aptly styled "God's frontiersmen" will ever come into his rightful heritage and be so educated?

Thank God, in Canada a majority of our citizens are educated normally. That is, their hands and hearts have been educated as well as their minds. But, alas, there still persists, though less pronounced, the old distinction of philosophic dreamers in our universities more or less out of touch with practical life, who know of no useful occupation as an outlet for their exuberant energy other than sports and hazing. Though proportionately fewer in number, they have many of the characteristics of the larger class of the Middle Age of which they are the logical descendants. Like them, they vainly try to do the thinking for the toilers at the other extreme, the descendants of the illiterate and more or less brutal slaves. These universities,

seminaries and schools fit not a few young men and women for positions that do not exist and land them helpless in the pulpit, at the bar and surgeon's table with little skill or practical experience, less common sense and undermined physiques.

Who is to blame that the old division of society into educated and refined, out of touch with life on the one hand, and the illiterate and vulgar toilers on the other, still persists, though, of course, to a diminishing extent?

Are the employers the chief sinners in this respect? Are they to blame that some of them treat their workmen as they do their horses, that is, feed their bodies only and never think of their minds? Are they to blame that they have no modern scientific methods of curing food and preventing disease, no baths, no privacy and make very little attempt at cleanliness, their men being huddled together in common sleep camps and bunk houses? Are they to blame that they have no teachers and entertainers, no good, scientifically trained feminine hands to prevent as well as cure disease of mind and soul and body?

No! Not wholly nor chiefly. We, the people, are to blame first and our representatives afterwards. Had it not been for the Godsend (Nature's warning) of an occasional outbreak of smallpox, diphtheria, and typhoid, and that the public feared an undertow that would endanger themselves, the employers and men might have gone to the devil for all the interest a large section of the public takes in the housing and sanitation of the camps or the education of the men. An occasional missionary visits the camps nearest civilization, but leaves no atmosphere or soil in which the seed he sows can have the slightest chance to grow. The church universal is our greatest and best institution. It means well and deserves credit, but the little work it does at the camps is love's labor lost. The missionary might as well save his elbow grease to sow the seed where he usually does on intensively enriched and cultivated soil, or, better still, fence and break up the fallow ground of the frontier and keep out the cattle and counteract the summer frost before he sows the seed.

After even the most eloquent sermon or the longest mass, the poor bunkhouse occupant is forced to lie down just the same beside a "crummy" bunk and get "hit." He longs in vain for a chance to get a bath

and for privacy to change or even pick his underclothing. Shame on our vaunted civilization! The priest or preacher may have made a rift in the clouds that let a ray of light into the heart of a benighted hearer. He may have struck divine chords and awakened heavenly longings, but in vain his convert longs to get away from the filthy song and story of his depraved fellows, and in this the sermon or mass offered no respite. Just the same, for a bath and a change of underclothing he is forced to jump camp and just the same he blows his stake. Because not even scarecrowed, birds by the wayside picked the seed that lay bare on his rocky heart, and because unfenced, what few grains may have found root in the clefts of the rocks, the bears and neighbor's cattle ate part and trampled the rest beyond recognition.

But the seed sown in the hearts of our Varsity boys luxuriates in soil and atmosphere and the only drawback is that there may be insufficient storm to stiffen the tender blades, freshen the air down by the roots and kill the harmful insects and germs. The plants savor of the hothouse. By spring exams the faces of these more than semi-recluses are pale and their muscles so lax that they are unfit for manual labor.

They enjoy the most wholesome food in all our fair land, the most sanitary and scientific cooking and the best educated cooks. And all for less than fifteen cents a meal! Sluices and skidways! Wait a minute. How, why and wherefore only fifteen cents? That is the sum the students pay. Therein lies the rub. They don't pay the total cost. They eat this fare fit for a god and provided by goddesses at the expense of someone else? Of whom? Tell it not on the tote or cache road! Miss Ryley is paid not by the students who enjoy and thrive on her golden kaleidoscopic menus, but her salary is paid by the university, just the same as that of any other professor. It may be added that the heat, light and building are also free to the students.

But slushers and stationmen's huts! where does the university get the money? Wherever it gets it, the money could not be put to better use. The university that affiliates an institution like the Lilian Massey School of Domestic Science, and makes its courses optional as part of those required for the regular B. A. degree has the

right amount of red hot sand in its runner tracks and need not fear the steepest sand hill.

But why should this free instruction in cooking, sanitary science, literature, etc., end with our universities? Are our frontier toilers not entitled to the inspiration of Emerson, Wordsworth, Carlyle and the humor of Mark Twain, as well as the recipes and charming wholesome presence of educated teachers of both sexes? Spare the differential calculus and the twelfth book of Euclid, but by all means teach the pathfinders of our great common heritage how and what to read and eat to live.

So far as food is concerned, the ordinary camp is much better than the average boarding house, notwithstanding that the employer of frontier labor has a much more difficult task to transport and keep his supplies in good condition than the restaurant keeper or college boarding house. Besides, his cooks have never studied Domestic Science or had he any kind Government to pay the salary of a graduate of such a school to supervise his cook camp and instruct his cooks.

The attitude of those employers of labor in our frontier camps to the experiments in education we have made convinces us that when the proper agencies, the Provincial Departments of Education, undertake this work they have so long criminally neglected, they will meet with the heartiest co-operation on the part of 99 per cent. of these employers. The Reading Camp Association, at least, has nothing but kind words to say of those employers of frontier labor who have co-operated with its secretaries and instructors in what, at least, at first appeared and may appear to some even yet to be a doubtful experiment. The Association takes this opportunity to cordially thank all who have not only permitted us to operate reading tents, cars, camps and night schools, but who have also given assistance and added words of encouragement.

But are these same humane manly employers and a thousand others not entitled to expect not only the co-operation and assistance of an association such as ours in a work that interests the public generally, but that the institution of government that exists in the main for the education and betterment of all the citizens shall do its duty towards the men in their employ on the frontier as well as to the stay-at-homes?

And are these brave work soldiers in peace, who are also always volunteers in war, constituting as they do, a great army equal to the population of Montreal or Toronto, who have gone out and taken their lives in their hands to do the rough dangerous work of building our highways of commerce and intercourse, who man our fishing and traffic fleets, who mine our ore and make the wilderness rejoice and blossom as the rose—are they not entitled to expect that a fair amount of the revenue they so substantially help to produce shall be spent on their education as well as on the city, town and country dwellers and “land lubbers?”

Entitled? “Sure!” to use the frontiersmen’s favorite affirmative. Take the Province of Ontario, for example, and let us see whether we in “civilization” have not been degenerating and demoralizing ourselves by accepting charity at the hands of these brave fellows whom we despise and ostracize after we have made them drunk and penniless by our dishonesty and neglect. Let us see whether the lumberjacks of this magnificent empire-province are not entitled to not only instruction in the three R’s afforded by the public school, but also the services of our best teachers, musicians and other entertainers as well.

The city of Toronto, for example, has a population of about 345,000, approximately equal to that of the frontier laborers of Canada.

The following table shows the amount spent by Toronto on property for church, educational, charitable and entertainment purposes, and the cost of maintenance of these institutions for one year:

	Value of property.	Cost of maintenance for one year.
Church property	\$10,000,000	\$ 680,000
Educational property for city exclusively: public, separate, high and technical schools, and public libraries	5,470,000	1,631,505
Toronto’s share of amount invested in educational property situated in the city but not exclusively for Toronto’s citizens, e.g., the University, Knox College, Wycliffe, St. Michael’s, McMaster,		

business colleges, etc.	2,133,333	600,000
	(Toronto's share)	
Charities and amusements	10,500,000	1,750,000
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	\$28,103,333	\$4,661,505

An investment of \$28,103,333 and an annual expenditure of \$4,661,505 for Toronto's 345,000. How much for the 345,000 in the danger zone? A mere bagatelle.

But someone may ask, "Why should we worry about the frontiersmen?" Let us look at the matter not from the point of view of philanthropy or religion, but of cold justice.

What proportion of this does the Ontario Government pay towards the education of the people of Toronto?

Amount Spent by Province on the Education of Toronto Citizens in 1910.

On public, separate, high schools, public libraries, superannuated teachers	\$ 59,895
Toronto's proportion of amount spent on the University, 3/20 of \$519,999	77,999
	<hr/>
Total	\$137,894

It will be seen from the following table that the provincial revenue from woods, forests and mines is nearly one-third, and the revenue from woods and forests alone is over one-fifth of the total revenue. The amount spent by the Government on education in the province as a whole, or, to be more nearly correct, mainly on the education of the people in organized districts, reaches the very creditable sum of \$2,718,017.

Province of Ontario, 1910.

Total revenue	\$8,891,004
Revenue from woods and forests	1,835,082
Revenue from mines	918,508
Total from woods, forests and mines	2,753,590
Total amount spent by the Government on education in the province	2,718,017

Is it fair that the older parts of the province should have the lion's share of the public revenue?

Of course, the timber and minerals belong to the province as a whole, but they would be of absolutely no use to the present generation, and the former would be destroyed by the ravages of time and fire were it not that our strongest and bravest young men exploit these great industries,

exploit them by lives of hardship in rain and storm and solitude, by the deadening, unmanning monotony of a mental and spiritual vacuum, by exposure to men of filthy habits of body and mind, and the absence of bathing and other facilities necessary to cleanliness and self-respect.

It is true there is a statute in Ontario (1 Ed. VII., Cap. 34), providing for bath rooms at all public works in unorganized districts, but for lack of interest to enforce it on the part of old Ontario, it is practically a dead letter.

Toronto's 345,000 get \$137,894 annually out of the public revenue for their education. The older parts of the province, including Toronto, get \$2,718,017. What do the frontiersmen get? Next to nothing. And yet the latter earn a proportionately very much larger share of the public revenue than the former. We would be angry if told we received charity at the hand of the frontiersman, and yet is it not so? By a life of filth and disease, of physical and mental and spiritual bondage, as also by his untimely death, the frontiersman helped to pay for your education and mine

Every man, woman and child in Ontario who can read and write, everyone who ever borrowed and read a book from a public library, every High school and college graduate received a substantial part of these blessings from the hands of those who pour this \$1,835,082 annually into the provincial treasury.

Were the woodsmen to get their share of this amount, we would not be receiving charity from them, but so long as they are denied this, we are not only receiving charity at their hands, but we are committing a crime.

Is there not a danger, too, that we are stultifying ourselves with good things? Would our blessings not become sweeter and larger if the boys on the frontier got their legitimate share and would we not become less introspective and morbid, healthier and happier by so sharing them?

If we would build up a great nation within our God-given empire, the greatest and best empire ever given to men, we must educate the foreigner, and the only place to reach him is at his point of contact with our industrial civilization, the frontier camps and settlements.

I charge civilization with the crime of the desertion and demoralization of the

frontiersman; the crime not only of depriving him of a right, not a charity, he has so nobly earned, the right of an education, and the equally damnable crime of licensing men and institutions to degrade him.

Shall we not hereafter try to atone for these crimes, make the toiler less of a beast of burden and more of a man, close the bar and open the school?

WHAT A DENTIST MAY DO FOR HIS PATIENT

By W. A. BLACK, M.A., D.D.S., Toronto.

Doctor Osler, asked once which was the most dangerous to life, alcohol or bad teeth, replied bad teeth. With the progress of science in recent years the field of the dentist has widened materially and the importance of his work for the social economy and well being of the community become more highly appreciated by the public.

Formerly, the reputation of a dentist depended upon his ability to extract teeth and replace them with artificial ones. Now, the skilful dentist is one who, by restoring and building up defective and diseased teeth, renders extraction unnecessary. It is said the highest art is to conceal art. This is especially true in dentistry, and the aim of the dentist should be to replace or repair the masticatory apparatus with the least appearance of artificiality in the mouth of the patient.

The practise of dentistry presents a twofold aspect. It is both mechanical and medicinal. That is to say, the mechanical part deals with the preparation and filling of cavities, the restoration of teeth by crowns and bridges or by artificial dentures (plates) and the scaling of teeth for prophylactic treatment. On the other hand, the medicinal part deals with the treatment of pathological conditions as found in the oral cavity.

Formerly, possibly the mechanical side of dentistry was over-emphasized, but in these days of science and research the medicinal aspect is receiving greater attention. Modern dental science deals not only with local conditions which present themselves in the mouth, but seeks to discover the general systematic cause of which the pathological condition is the effect.

We are told that the mouth stands at the gateway of life and health. If this be true, how important is the condition of the teeth and the soft tissues of the oral cavity to the general health and comfort of the individual. There are many cases of inflamed tissues in the mouth due to a disordered stomach and conversely, a general pathological condition such as facial neuralgia, or even insanity itself, may be traced to some defective or impacted tooth in the mouth of the patient.

We will now consider more specifically the duties of the dentist. First of all, he must keep his instruments clean and sterilized, and in the second place he must be scrupulously clean himself. The work of the dentist is becoming more and more *preventive*. The patient should be taught the proper use of the tooth brush, a suitable tooth powder recommended and mouth washes, if necessary, prescribed for the gums and soft tissues. The importance of frequent examinations by the dentist should be considered, and the necessity of good teeth, a clean mouth and proper mastication, impressed upon the patient, if he would have a healthy stomach and immunity from disease. So many diseases, such as tuberculosis, scarlet fever, diphtheria, tonsillitis, mumps, etc., gain entrance to the system through the mouth.

Before a child is three years of age, all the temporary teeth are in position. There are twenty in number, ten in each jaw, and are intended by nature to be kept by the child until the permanent teeth are ready to take their place.

Some people ask, is it worth while filling and saving the first or temporary teeth? The reply is positive. By all means, they

should be filled, if defective, and kept in good condition. It is, if possible, more important that the child should have good teeth than the adult. This is necessary for several reasons. First, the child must have its food thoroughly masticated in order that the digestive organs may not be overworked and assimilation and nutrition interfered with during the period of growth and development. Many a child is stunted mentally and physically by neglect of the temporary teeth. Second, for the sake of cleanliness and protection from diseases, which may enter the system through diseased and defective teeth. Third, for the sake of the permanent teeth, the development of which is seriously interfered with, when the temporary teeth are lost prematurely. Fourth, they are necessary as a guide for the proper position of the permanent teeth. Fifth, for the comfort of the child, and, sixth, for the sake of appearance.

The temporary teeth are normally all shed when the child is ten or eleven years old. The permanent teeth are thirty-two in number, sixteen in each jaw. The first of the permanent teeth to appear are the lower centrals and laterals, while about the same time, the first permanent molar (two in each jaw) come into view immediately behind the temporary teeth.

For the very reason that these molars appear so early while the temporary teeth are still in position, they are often mistaken for temporary teeth, and therefore considered of little importance by the parents, so no special attempt is made to preserve them.

These, in fact, are the most important teeth in the mouth. They are not only the largest, but are the keystone of the arch; serving as guides for the proper position of the teeth to follow. The bicuspid (four in each jaw) are in place usually at eleven and sometimes much earlier. The second molars are the next teeth to erupt. They appear about the twelfth year and when the jaws are fully developed, the wisdom teeth (third molars) come into position, if there is sufficient room for them.

The teeth of the patient should first of all be cleaned (to use a common expression) by the removal of all stains and deposits found around the necks and surfaces of the teeth.

If there are irregularities, due to abnormal conditions, such as adenoid growths

in the posterior nares (and, hence, mouth breathing) or others due to thumb sucking, these should be attended to as soon as discovered, before the patient has reached adult life. Regulating appliances should be used and the teeth put in their proper relationship to each other. This is necessary not only from the æsthetic standpoint, but because of the greater susceptibility to decay, due to the difficulty of keeping the teeth properly brushed and also because of the serious interference with mastication, ending in poor nutrition and an anæmic condition of the patient. In fact, so important has this branch of dentistry become, that we have dental specialists (orthodontists) who devote their entire time to this important work.

If there are cavities, these should be filled. For the temporary teeth, oxyphosphate cement or amalgam are chiefly used for the posterior teeth, and oxyphosphate cement or artificial enamel fillings may be inserted in the anterior teeth. For the permanent teeth, there is possibly a greater variety of filling materials to choose from. Gold is desirable for posterior teeth, if it can be inserted in the form of a well-fitting inlay, and hermetically sealed in the cavity by a lining of cement. Large gold foil fillings have been superseded largely by gold inlays. Amalgam or alloy fillings are undoubtedly the most commonly used for posterior teeth, and in the hands of an ordinarily skilful dentist excellent results are obtained. The writer saw recently an amalgam filling thirty-five years old, and it was still rendering good service in the mouth of the patient. These two classes of fillings may be regarded as permanent fillings as compared with cement fillings, which the fluids of the mouth tend to dissolve and wash out. They are used, therefore, only under certain conditions.

For the anterior teeth, gold is the ideal filling, as far as permanency is concerned, but in many cases, its appearance is unsightly. Porcelain has a limited use for several reasons. First, the difficulty of obtaining an exact shade. Second, its great friability where thin surfaces or edges are concerned. Third, the greater expense due to the skill required and time consumed in manipulation and baking. Fourth, the danger of discoloration around the margins after the cement has been partially dissolved out by the fluids of the mouth. Silicate cements (artificial enamel fillings)

are having an extensive use, especially for the anterior teeth. The later productions of these approach very nearly ideal filling materials, but possibly have not the permanency of gold.

Just a word concerning Crown and Bridge Work. Gold shell crowns have a limited use and should not be placed on teeth unless they are too badly broken down for filling, and then only when the appearance of the gold is not offensive to the eye. They have a use as abutments for bridgework. When they are used, they should fit the necks of the teeth accurately and not impinge on gum tissue, otherwise they are unsanitary and tend to cause by their irritation recession of the gums, which may finally result in the loss of these teeth. Porcelain crowns of many varieties are now in general use and from the æsthetic standpoint are very desirable. Long bridges with few abutments are not to be commended.

So far we have been considering dentistry simply as a mechanical art, but the medicinal aspect of it is equally important.

Formerly, when a patient was suffering from a toothache there was one remedy, have the tooth removed; now the remedy is to save the tooth by treating the condition which is causing the discomfort.

There are many conditions of the pulp (improperly called the nerve) of a tooth which may cause it to ache. If the pulp dies an abscess may form at the end of the root, causing great distress. The pain is especially severe during the incipient stage before the swelling takes place, where great pressure is brought to bear upon the tissues at the apex of the root by the formation of gases issuing from the dead pulp. Again, if the pulp becomes congested, a toothache is assured. If the pulp becomes exposed or a filling is placed too near it, acting as an irritant, trouble will follow. These are just a few of the many conditions which may cause it.

If the pulp has died, but no abscess has formed, the contents of the canal or canals must first be neutralized by powerful disinfectants and deoderants, then removed; the canals cleansed and made aseptic, filled and hermetically sealed before a permanent filling is inserted. If an abscess has developed it should be reduced by allowing the pus to escape through the root canals of the tooth, or by lancing, and then the canals should be treated and filled as in the previ-

ous case. If the pulp for any reason has to be extirpated, there are two general methods of devitalizing it; first, by sealing a special preparation of arsenic in a cavity for a few days, and allowing the pulp to die by strangulation due to the action of the arsenic, or, secondly, by using cocaine under great pressure to force the drug into the pulp and, having deadened or anaesthetized it, remove the pulp at once. In either case, after the pulp has been removed, the canals should be filled before a filling is inserted.

Unnecessary destruction of the pulp should not be encouraged for three reasons; first, the great difficulty of filling the root canals satisfactorily; second, the liability to discoloration of the tooth involved; third, the power of mastication of a devitalized tooth is greatly diminished.

Very often before middle life is reached, and sometimes much earlier, particularly in the case of those persons who do not suffer from decay of the teeth, a worse fate overtakes them—they notice their gums receding, deposits may appear on the surfaces of the teeth near the gums, the exposed necks of the teeth may become sensitive, the teeth gradually become loosened, and are finally lost. This condition is known technically as *Pyrrhæa Alveolaris*. This is a disease which in its earlier stages, especially, is amenable to treatment. Instrumentation, medication, and the hearty co-operation of the patient are the essential elements for successful treatment.

As a last resort, when nature has done her best and all the teeth have been lost, the dentist comes to her assistance by supplying artificial ones. The word artificial is particularly applicable in this connection, for they generally betray their name in both appearance and feeling. So many people value their own teeth so little, but when they have "bought" some, they soon begin to realize the difference between nature's gift and man's poor substitute. Not only are the appearance, discomfort, and uncleanliness of artificial teeth great drawbacks, but, perhaps chief of all, is the fact that the power of mastication has been greatly reduced.

Think what this must mean to a patient's digestion and general health. But is this all that modern dentistry can do? Of course we must treat conditions as they are, and so long as people will neglect to

pay regular visits to the dentist, just so long will there be cavities to fill, teeth to be treated, crowns and bridges needed, and artificial denturs to be inserted. But the profession is not discouraged, it is looking forward to a great future. Its watchword is *prevention*. What has been accomplished during the past few years in oral hygiene and prophylactic treatment serves only to give the keynote of what that future is to be, viz., to educate the public along these lines and thus create a sentiment so strong that regular dental inspection of the teeth

at short intervals will be considered a necessity if the general health and comfort of the community and of the nation is to be safeguarded.

The sooner people realize that a clean mouth means health in a large measure and immunity from many infectious diseases, and that clean teeth never decay, the better will it be for the public. Men in our profession have proved that ninety per cent. of all decay of the teeth is preventable, and look forward to a day when this happy condition may obtain.

SMALLPOX AS AN INDUSTRIAL DISEASE OR ACCIDENT

By HERBERT E. CORBIN, M.R.C.S., L.R.C.P., B.Sc., D.P.H.

During 1908 and 1909 cases of smallpox occurred in the borough of Stockport, England, in which after careful inquiry there was evidence of infection being carried through the medium of raw cotton from parts of the world in which smallpox is epidemic.

The following are details of the cases which occurred: A. B., married woman, aged 32, working in the card room of a cotton mill, became ill on March 19th, 1908, with pain in the back, headache and "nausea." On March 21st she had a "spotted rash" on her face; and on March 24th she was seen by a doctor who notified the case as smallpox. The case was typical discrete smallpox, the rash being most numerous on the face, wrists and hands, scanty on the trunk. Attempted vaccination was unsuccessful.

The occupation of the woman was that of a combing tender, and in the course of her work she had frequently to piece broken ends of raw cotton together. The case arising at a time when there were no other cases in the country led me to suspect the possibility of infection through the medium of cotton; and through the courtesy of the manager of the mill I ascertained that having regard to the incubation period and the time of arrival in England, the particular consignment which might have given rise to this case of smallpox, came from Memphis and was shipped from New Orleans;

and it transpired that while smallpox is epidemic in these places it was more than usually prevalent at the time when the supposed infected consignment was gathered and imported.

I reported the possibility of infection from this source to the Local Government Board, laying stress on the fact that in her occupation of piecing cotton she frequently moistened her fingers with saliva in order to join up the broken portions in the early process of manufacture from the raw material.

In 1909, three other cases occurred in the early part of the year with the following histories:

First case: E. R., aged twenty-one, of David Street, Stockport. Seen by doctor on the evening of February 13th. Had been ill for 48 hours, general malaise, with pain all over, but headache especially bad; temperature 101 deg. The condition improved, but on February 16th the patient began to feel ill again and a rash developed, occurring on the face, forearms and back; the rash consisted of papules, some of which had a shotty feel. The doctor reported that vesicles and one or two pustules were also present, but no signs of umbilication.

As he regarded in this case the diagnosis between variola and varicella as doubtful, he got his partner to see the case with him, and they concluded that, having regard to the length of time between the onset and

appearance of the rash and the distinctly atypical rash, it was varicella. The rash began to disappear on February 18th, and the temperature became normal. On account of the pain in the back and head at the onset of this case it was regarded as one of influenza until the rash appeared.

I did not see this case until after my attention had been called to the first contact (M. N.), as follows:

Second case: M. N., aged 29, Greg Street, Stockport, baker. Date of onset, February 24th; pain in the back, severe headache, generally feeling very ill; on February 28th a rash developed, and I was called by the doctor to see the case on March 1st. The rash consisted of thickly set papules covering the face and head, also thickly distributed on the arms, forearms and legs, less thickly on the trunk. The papules were hard and shotty to the feel, and several were present on the palms of the hands, also three or four on the soles of the feet. pressure of these papules; the temperature was 101.4 deg. The rash was perfectly uniform so far as the stage of eruption is concerned, and was not in any way polymorphic. The case was diagnosed as smallpox, and removed at once to the smallpox hospital. The case progressed as a typical rather severe case of smallpox, the pustules becoming confluent to a limited extent on the face and neck. On inquiring into the probable origin of this case it was discovered that the girl (E. R.) had been in the habit of helping occasionally at the house of M. N., in Greg street, and that M. N. had visited her at David street on February 16th, and that she was then supposed to be suffering from influenza, but he had heard since that she had developed a rash. Inquiries were made, and the information concerning the first case (E. R.) was obtained.

Third case: M. R., aged 47, David street; mother of E. R.; malaise, February 27th; headache and pain in the back, March 1st; rash, March 3rd. The rash was that of modified smallpox, occurring on face, arms and legs, and consisting of a few discrete papules, hard and shotty, on the forehead. Temperature 100 deg.; patient complaining of feeling very ill. Removed to hospital on March 3rd. The rash passed through typical stages.

Inquiry into the possible origin of the cause of infection in the first case (E. R.) elicited the following facts:

This person had worked in a cotton mill until February 12th, when she was taken ill. The only people with whom she had come in contact for two or three months, besides the employees at the mill, were the family of M. N., where she occasionally helped, and M. N., who visited her when she was ill.

Her occupation was that of a drawing tenter, and in the course of her work she occasionally had to piece broken strands together. This process consists of hauling in a certain amount of slack in order to overlap the broken ends, and then rolling them together with the forefinger and thumb, or between the palms of the hands.

The cotton in use at the mill was grown at Zifteh (a town in the delta of the Nile) in 1908, and the consignment which probably contained the suspected source of infection was shipped from Alexandria about January 13th, and was received at the mill on January 30th, 1909. I further ascertained that smallpox was very prevalent in the Delta towards the end of 1908 and the beginning of 1909, several deaths from this disease occurring weekly both at Cairo and at Alexandria.

Operatives are supposed to do the operation of piecing without moistening the hands, but I ascertained that each of the cases, A. B. and E. R., actually used saliva for this purpose, and I have on several occasions observed operatives facilitate the process of piecing by introducing the thumb and forefinger to the mouth in order to piece the finer strands together, and to lick the palms of the hands when piecing coarser strands. It is easy to see thus how it is possible for infection to be conveyed directly to the mouth, and infected material which might be quite harmless with ordinary handling becomes dangerous when thus introduced into the system of a susceptible individual.

In January, 1910, seven cases of smallpox occurred among employees at one cotton mill at Heywood, Lancashire, and I am indebted to Dr. Hitchon, medical officer of health, for the following particulars:

The two primary cases were employed at the same machine, each being a stripper and grinder. The raw cotton is passed over revolving cards, from which a number of small spikes project, and by this means it is taken up and cleaned, the useful material adhering to the cards, and the waste

cotton, dust, and dirt drawn by a down-draught into waste boxes below. The cotton is removed from the cards at intervals by the strippers, and frequently the cards require cleaning on account of the dust and dirt collecting between the small projecting spikes. This is also carried out by the strippers by means of hand brushes. As the machine is not working there is no down-draught to carry away the dust which is removed, and thus a considerable amount may be inhaled in the process of cleaning, and by this means the infection may be introduced into the system in these cases.

The cotton used at this mill was Egyptian, but it was not possible to ascertain the exact source from whence it came.

The primary and contact cases, with one exception, had all been vaccinated in infancy, but none had been re-vaccinated.

The fact that two employees working at the same machine contracted the disease at the same time (the rash appearing in each case on the same day) is, I think, strong presumptive evidence that the material upon which they were working was the source of infection; and that any source of infection outside the mill may at once be excluded, especially as they lived a considerable distance from each other and never met except during their work at the mill.

In gathering the cotton the pickers, who are natives of both sexes, carry large open-mouthed bags, which are slung round their necks and hang in front of the body. They gather the cotton with both hands as they pass down the rows in the field, and deposit it in these bags. An almost universal habit obtains among the pickers of both sexes of chewing tobacco, and in the States a root known as "wahyawa." During their work they indulge constantly in the habit of expectoration, and very frequently some of the expectorated material enters the bags containing the raw cotton. Chewing and expectoration also occurs when conveying the cotton in waggons to the gin, in the process of ginning, and also when shipping the baled cotton at the docks.

Precautions are taken as far as possible to prevent infected persons from gathering cotton in the cotton fields, and from handling it at the points of export. When smallpox, however, is prevalent among natives, quite a large proportion of the cases are very mild. "Missed" cases are, therefore, frequent, and these continue to work in the cotton fields throughout an attack of

the disease, so that it is impossible entirely to avoid contingency of some of the cotton becoming infected in the process of gathering.

In the report of the New Orleans Board of Health for 1907, referring to smallpox, it is stated that "the bulk of the infection was due to repeated importation of cases both in the incubative and the eruptive stage, the spread of infection from individual cases being limited in most instances to one or two cases of the disease at most." During the year 234 cases occurred in New Orleans, and it will be thus seen from the above statement what a large number of cases "both in the incubative and eruptive stage" unavoidably enter the towns. The fact again that only ten deaths occurred among the 234 cases in the city of New Orleans points to the mild nature of the disease. In the States a prevalent superstition is current among the natives that the white medicine man is endowed with witchcraft, so that natives smitten with disease of any kind prefer to hide away and take their chances unattended rather than come within the grasp of the doctor. These facts, I think, will make it clear how extremely difficult, if not almost impossible, it is to control such a disease as smallpox among natives in large cotton-growing districts. Further, the existence of the undesirable habits of chewing and expectoration which have already been referred to under such circumstances will also make clear the impossibility to avoid raw cotton becoming infected with smallpox.

Dr. Ross, medical officer of health for Cairo, has been kind enough to send me a statement showing the incidence of smallpox in Cairo, Alexandria, and Port Said during the past four years. He states that "the period of comparative immunity in Egypt is now about nine years." The last outbreak began in Alexandria in 1907, when 504 cases occurred; it then spread to Port Said in March, 1908, and to Cairo in December, 1908, where, during the early part of 1909, 447 cases were notified, with 200 deaths.

Smallpox in Cairo, Alexandria and Port Said.

DATE	CAIRO		ALEXANDRIA		PORT SAID	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
1906	36	9	80	41	7	1
1907	62	24	504	283	18	7
1908	269	95	35	19	42	19
1909 (January to July)	417	200

Dr. Ross states that "it should be noted that very little cotton is exported actually from Cairo itself, but that the majority is packed in the country districts and exported mainly from Alexandria." It is obvious from what has been said that very little infection of cotton occurs at the ports, and that the great danger exists from mild cases working in the cotton fields.

Under ordinary circumstances the disease is communicated by more or less intimate contact with an infected person, and there is little doubt in the case of this disease that fomites and infected materials are a source of danger, so that the mere handling or contact with such infected articles is sufficient to spread the disease.

Raw cotton, on account of its texture and organic nature, would no doubt constitute a suitable nidus for the organism of the disease. It is acknowledged that the "striking distance" and infectivity of smallpox is very great, probably greater than that of any other infection; but there is also evidence that the virus of smallpox becomes rapidly attenuated, and that infected material becomes entirely non-infective after a relatively short period. The time which elapses between the gathering of the cotton and its appearance at the mill, in the card-room, or in the spinning room, would probably be sufficient to reduce the infectivity of the material to a minimum and negligible quantity unless the infection was actually introduced *into the mouth* of a susceptible person.

I am inclined to the view that, although the imported raw cotton, containing, as it may, an occasional living attenuated organism of smallpox, may it be handled *en masse* without danger of infection by a large number of people, and in more detail by winders, reelers, splicers, doublers, and doffers, the only operatives who would be subject to infection in the manner I have indicated would be those in the blowing-room, the card room, or the spinning room.

If the cotton was so infective as to produce a case of smallpox by the mere handling, frequent epidemics would be inevitable in the cotton industry, and hence it is probable that all instances of smallpox occurring in operatives in the cotton trade are due to the accidental introduction of the attenuated virus from the raw cotton into the system by the mouth. The resistance of the individual has to be taken into consideration, more especially as very

many operatives in a cotton mill are unvaccinated and practically none of them revaccinated.

In considering how far the occupation as a cotton worker may have acted as a factor in causing the disease, the following facts have been shown to exist:

Smallpox was very prevalent in districts where cotton was gathered. Missed cases undoubtedly occurred among natives employed in the gathering fields. It is impossible to entirely avoid cotton becoming infected by the natives. The raw material from these districts is imported for use in mills in Lancashire, and certain employees working with this cotton contract smallpox, when no other possible source of infection can be ascertained, and when no other cases have occurred in the country. Thus, short of actually finding the organism in the infected material, which unfortunately at the present time is impossible, there is a complete chain of evidence showing that smallpox is conveyed from the native, gathering cotton in Egypt or in the States, to some employees in the cotton mills in England. Fortunately, the probability of accidental infection of smallpox arising from imported raw cotton is very small under ordinary circumstances, inasmuch as the coincidence of a number of contingencies is necessary for its occurrence:

(1) Infection during gathering and importation is guarded against as far as possible, and is therefore not of frequent occurrence;

(2) Considerable attenuation of infectivity in any infected material occurs before it is dealt with by the employee;

(3) With such reduced infectivity there is little chance of infection unless this is introduced directly to the mouth or inhaled;

(4) A person employed in piecing only occasionally uses the saliva as a means of facilitating the process, and the probability of the strands of cotton requiring to be pieced just at a point where a portion of infected material is situated, is small;

(5) It is necessary, for infection to occur, that the individual should be susceptible to the disease. This susceptibility, though greater with age, is not common in vaccinated persons, and practically non-existent in revaccinated persons.

Naturally the danger arising from raw cotton becoming infected with smallpox by natives suffering from the disease is not so

great as that arising from anthrax-infected materials, on account of the presence of highly resisting spores in the latter disease, while in the former it is more than probable that the casual organism dies or becomes rapidly attenuated, unless existing under unusually suitable conditions of warmth and slight humidity, such as would occur in bales of raw cotton.

I think it is quite justifiable to assume that the primary cases of smallpox which have been described are industrial accidents arising "out of and in the course of" the employment in cotton mills.

There is no doubt that smallpox may be regarded as a physiological injury inflicted by an organism; and Lord M'Laren stated that if a workman in the reasonable performance of his duties sustains a physi-

ological injury as a result of the work he is engaged in, this is accidental injury in the sense of the Workmen's Compensation Act.

Although the rarity of the cases of smallpox arising from cotton might not justify the disease being added to the schedule of industrial diseases, it appears to me highly important that the possibility of the disease arising among employees in the cotton trade should be borne in mind, not, perhaps, so much from the point of view of the person who first contracts the disease, as from the point of view that such a primary case might be the centre of an epidemic; and, therefore, it is advisable that revaccination of all employees in cotton mills should be made compulsory.

SOME NOTES ON FEVER HOSPITALS

By A. SAXON SNELL, F.R.I.B.A.

Although there are several works on the construction and management of general and cottage hospitals, some of them comprehensive and almost exhaustive, the subject of fever hospitals *per se* does not appear to have been dealt with except in the form of isolated reports and descriptions of many large institutions erected in the last ten or fifteen years. There are also short reports and treatises upon various problems connected with the subject which are of considerable value; and much statistical information of the highest importance and some interesting theories are to be gathered from the minutes of evidence in commissions of inquiry. The London Metropolitan Asylums Board must have accumulated a great deal of valuable information and experience for many years past; and not a little of this may be found in the Board's annual reports. I should add that for a set of short and concise rules there was nothing better than the paper issued by the British Local Government Board for the guidance of local authorities in the erection of these institutions. They were based upon the experience and opinions of the most eminent authorities; but necessarily not much in the way of reasons is given for the recommendations. A glance at the plans and

arrangement of many fever hospitals suggests that each has been evolved from a cursory study of those which preceded it, and all are, of course, more or less based on the Local Government Board's rules. It is not often that we find therein the expression of new or advanced ideas. A really comprehensive treatise upon fever hospitals is much needed, and it must be very much more than a mere record of what has been done in the past.

The purpose of this short essay is not so ambitious, and will be confined to recalling an old idea or two, which I venture to think might be reconsidered profitably, and also to draw attention to an experiment which is worth, and in some directions, is receiving, much attention.

It is no light matter for an authority to be compelled to erect a fever hospital. The number of beds required is generally determined by a ratio to the population of the district (subject to modification in the light of local conditions); but the number so obtained is for the greater part of the time absurdly too large, and in times of epidemic it may easily prove too small. On the one hand, we have to face waste and on the other positive danger. Responsible authorities have to, and do, choose the lesser evil, and so are obliged to saddle

the community with buildings which are wholly or partially unused for months or even years.

Fever hospitals as generally built are expensive erections. The cubic space per bed is double that required in a general hospital, and the area of land is even greater in proportion. A general hospital may be built within the confines of a town; a fever hospital must be isolated in open country. Yet again, different institutions, or at least different ward blocks, must be provided for different diseases. What this may mean in the way of buildings and engineering equipment is obvious. If all these precautions and their great cost brought phenomenal success we might leave well alone; but a perusal of hospital reports scarcely gives the impression, although very great improvement has taken place in the last ten or fifteen years.

Now, as to hospital buildings (with which, of course, I am more immediately concerned), it has been sought to reduce the cost by constructing them of light and cheap materials — generally timber framing lined with boarding and galvanized iron, and this method has been advocated also on the ground that all fever hospitals ought to be pulled down and burnt within a limited number of years. They are, however, wasteful of heat, require great expense in repair and up-keep, and it must be added that the moral courage required to scrap them periodically is often wanting. Moreover, they are necessarily crowded with dust and germ-holding corners, angles and hidden spaces.

There are, however, modern methods of erection not open to these objections, and it has always appeared to me that excellent buildings at comparatively small cost could be obtained with steel framing filled in with light concrete construction. The walls might be formed with two thin slabs fixed so as to cover the steelwork, and with a small air-space between them which would help to keep the building wind and weather tight and reasonably warm. They would be finished inside and out with hard plaster. The floors would be formed with concrete laid between steel joists, and covered with one or other of the many patent compositions in the market, which are both impervious and cheap. The ceilings would be formed in the same manner as the walls. With such a method of construction it is easy to obtain those flat and even surfaces,

unbroken by unnecessary and dust-collecting ledge and angles, which are to be avoided at all costs in fever wards. The windows would be steel casements, and the doors might with advantage be framed with steel and sheet iron. Periodically the concrete filling and surface finishings might be removed and reinstated with new material. The steel framework would require washing only. Such buildings, or, rather, the framework, could be taken down with comparative ease and at small expense for re-erection on a different site if required; and their cost, although greater than ordinary wood framed constructions, would be far less than for permanent brick and stone buildings.

It would be unnecessary—indeed, undesirable—to build the administrative and staff quarters in this manner, as there is no special reason for housing the officers and servants otherwise than in the manner usual in ordinary hospitals. These should certainly be designed as permanent structures and with due regard to comfort and pleasure.

Another point to which I would refer is a method of reducing the number of separate blocks for different diseases and obviating the necessity of placing not more than one disease in a ward. The Pasteur Hospital in Paris is a practical experiment in this direction. A small building comprising a complete hospital designed by myself is, I think, an improvement upon the model, if only because its sanitary offices and the means of approach and exit are more effectively separated from the wards than is usual in French hospitals.

In passing, I may say that the system has been adopted in England, I believe, in several places, notably at Norwich and Walthamstow. The Metropolitan Asylums Board have also made experiments in the same direction.

The building I have designed is two storeys in height (one would be better, but the site was constricted). Each ward block is divided into separate rooms (12 on each floor) in either side of the corridor, which is open to the air at each end. The internal walls of these rooms (each of which is for one patient) are of plate glass fixed in light steel frames. The glass is obscured to a height of 30 inches. In this way the patients are more easily kept under observation, and suffer the monotony of isolation in a modified degree only. Each

room is separately ventilated and heated. The casement windows are relied upon at most times for bringing in a flood of fresh air, and the vitiated air is drawn off by large flues at the ceiling level. I think it would be of advantage to assist the outflows by electric fans. By these means there is no possibility of the air from one compartment being carried into another; and under these circumstances (as conclusively proved by the Pasteur Hospital) it would be possible to treat several different diseases in the same building.

A balcony is carried round the building on both floors, from which the patients can be seen by friends or relatives. The staircase and lift approach, as also the bath-rooms, ward kitchens and soil sinks, are cut off by a passage open at each end to the air. A separate exit staircase and lift;

linen rooms, discharge room, etc., are placed at the other end of the building and cut off in the same way. It is scarcely necessary to add that the floors and roof would be of solid construction and fire-resisting, and, of course, all angles are rounded and every kind of ledge for dust avoided. The lower floor is placed several feet above the level of the ground to allow of a free circulation of air below as well as above and around the building. The various pipes for conveying heat, water and lighting would be suspended from the ceiling of this open basement, and all should be well insulated against cold. The whole building might with advantage be constructed throughout in ferro-concrete, although this form of construction does not honestly lend itself to the ornament which would render the building sightly.



Editorial

Advertising and Public Health.

An example of an offence still quite common in spite of awakening public opinion against it, was the recent appearance in a prominent portion of our daily press of a large notice written in the usual exaggerated style of quack literature and purporting to be the wholesalers' announcement of the sale of Professor Dr. Ehrlich's reputed antisiphilitic preparation, Salvarsan. In this announcement the reader was advised that upon receipt of \$30.00, which included custom house duties, "The 606 Laboratoires," 33 West 42nd Street, New York City, would ship in plain unmarked package the necessary dose with simple direction for the taking of Salvarsan in the privacy of the home; that the preparation contained neither mercury nor iodides; that no matter what stage the disease was in, nor of how many months' standing, one does cured permanently; that symptoms disappeared in two days; and that owing to the very limited supply of Salvarsan it was not expected that the announcement would appear again for six months.

The possibility of purchasing Salvarsan from local wholesalers at one-tenth this advertised charge, the manifest endeavor to take advantage of the sick, the known contra-indications in the use of true Salvarsan and the dangers of its application in the hands of the unskilled, classes such advertising as, at least, fundamentally immoral; and its acceptance in every case either the act of an equally unscrupulous accomplice or the result of inexcusable ignorance as to what constitutes rectitude in the journalistic world.

A great daily, or other periodical in proportionate degree, occupies a position of trust which should necessitate a reasonable consideration of public health in advance of personal profit, and should prevent the utilization of advertising power as a "cat's paw" on our people. Few among the general public have opportunity or consider it necessary to investigate, or are qualified to judge between deception and truth in the publicity department of a presumably high principled journal; and it is therefore spe-

cially desirable that the same trained attention to motive and accuracy of statement be given to dilatations on disease and its cure in the advertising pages, as may be given in the editorial columns, where such high journalistic principles are a fact.

Hygiene and the Ontario Legislature.

The recent amendments to the Ontario Public Health Act, and the establishment of regulations regarding the production and sale of milk by a separate Act, demonstrate that Ontario has at last realized the importance of prompt action in State prophylaxis. By amendments to the Public Health Act the powers of the Chief Medical Officer are now so increased that in the intervals between meetings of the board he is able to perform his duties with equal authority.

The amendment to section 13 of this Act aims at preventing pollution of inland waters; while another excellent amendment is that in regard to section 30, declaring that sewerage or water supply systems must receive the approval of the Provincial Board of Health before the work is commenced; and, again, to section 71, directing that abatement of nuisances shall be undertaken by the local board after due notice and at the expense of the occupant or owner of the indictable property.

The amendment, under section 72A, directs that "No person shall keep or store rags, bones or other refuse within the municipality unless same are kept and stored on premises approved by the local Health Officer."

By the recently enacted Ontario Milk regulations, the council of each Ontario municipality is authorized to pass by-laws for regulating milk produced for sale, offered for sale, or sold in such municipality; as to the care of cows, producing milk for domestic consumption; the cleanliness, ventilation, and sanitary conditions of the places in which cows are kept or milked, or in which milk is stored; the water supplied to cows; the care and cleansing, construction and type of all utensils used in handling milk, whether by producers, carriers or vendors; the cars, storage, trans-

portation and distribution of milk by producers, carriers or vendors; the making of bacteriological tests for the purpose of ascertaining the wholesomeness of milk offered for sale by any producer, carrier, or vendor; and such other matters regarding the production, care, transportation, or sale of milk as the local council may consider necessary; and upon such regulations being approved in writing by the Minister of Agriculture, the same shall apply to all milk produced for sale in such municipality.

The Milk Act further authorizes the council of every municipality to regulate the sale of milk to licensed dealers; to fix standards of butter fat and solids in milk; to prevent the use of preservatives, etc., and to appoint inspectors to enforce these regulations.

In connection with the inspectors' work, the result of all milk tests shall now be open to public inspection at all reasonable times and may be published by the Medical Health Officer of the local municipality if he so desires.

The Act prohibits the sale of milk from diseased cows or that produced in places where persons are suffering from diseases, while cans, bottles, etc., are not to be used for any other purpose and are to be properly cleansed.

An excellent section of this Act contains the direction that every municipality is authorized to establish and maintain or assist by annual grant or otherwise, in the establishment and maintenance of milk depots in order to furnish a special supply of milk to infants. It shall also be unlawful in Ontario to apply the term "certified" to any milk which does not comply with the regular standard which rests upon the semi-annual tuberculin test of cows; the limitation of bacteria content in milk to 10,000 per cubic centimetre from June to September, both inclusive, and not more than 5,000 bacteria per cubic centimetre from October to May, both inclusive; freedom from blood, pus or disease producing organisms and from disagreeable odor or taste. The milk shall also have undergone no pasteurization nor sterilization and must be free from chemical preservatives. It shall be cooled to 45 degrees Fahrenheit or under, within one-half hour after milking, and kept at that temperature until delivered to the consumer. It shall contain 12 to 13 per cent. of milk solids, of

which at least 3½ per cent. is butter fat. It shall be from a farm, the herd of which is inspected monthly by an authorized veterinarian and the employees of which are examined monthly by an authorized physician.

The Act further directs that it shall be unlawful to apply the word "pasteurized" to any milk unless all portions have been subjected to the prescribed pasteurizing process. This section is to be enforced after July 1st, 1911.

It will thus be seen that the Ontario Milk Act covers the ground fully and, if enforced, will be of the utmost value to the entire province. The limitation of the use of the words "certified" and "pasteurized" is a wise procedure, and the authority given municipalities to establish and maintain milk depots for the purpose of supplying pure milk to infants, is an excellent idea. It will be interesting to note what effect the latter regulation will have if complied with, on the infant mortality of Ontario.

Altogether, we believe this public health work of the Ontario Legislature bespeaks careful consideration of matters involved, and if nothing else had been done during the session just closed, the province is herein well repaid.

Inter Alia.

The arraignment, in the Dominion House on the thirtieth of last month, of Ottawa, by E. A. Lewis, M.P., as a place overrun with typhoid; abounding in small-pox and other diseases; lacking in drinkable water and eatable meat; without a sanitary system, proper fire escapes or inspection of public buildings—may be considered sweeping, yet appears in part a repetition of the late report of the Chief Medical Health Officer for Ontario.

It will be remembered that Dr. McCullough said in this report that "In view of the present conditions and the oft-repeated warnings given this city, which are now on record in the office of the Provincial Board of Health, I have no hesitation in affirming that the responsibility for the present epidemic is upon the authorities of Ottawa. Theirs is the experience of scores of places which cannot be induced to spend money for the protection of human lives until they receive such a lesson as your city is now experiencing."

Of quite as much importance to the health of municipalities as specific sanitary measures for cleaning up particular districts, are regulations for the safe and sanitary construction of buildings.

Three particular duties that every community cannot afford to neglect are: A thorough system of vital statistics, medical inspection of school children and stringent safeguards against soil pollution. Each of these important duties lies directly within the province of municipal and state government.

Without a record of deaths and illness, a city can do no more than grope half-blindly, however zealous its efforts may be to improve and foster public health. There must be definite knowledge concerning the time and localities where diseases, especially contagious diseases, occur, before any considerable headway against them can be gained. Vital statistics are as essential to a community's health as a system of accounting is to the stability and progress of a business institution.

Many cities have already learned the great benefits of medical inspection in the public schools, though it is doubtful if even yet we fully appreciate the value of this system.

Soil pollution is more of a rural than a municipal problem, though in its ultimate effects it is a menace to town as well as country life. The pollution of the soil gives rise to water pollution and may bring impurity in food and milk supplies, thereby establishing a "vicious circle" which, in the long run reacts unfavorably on every member of the community. In suburbs and country districts there is no matter of more vital importance than that of the hygienic disposal of sewage.

Despite the fact that measles is one of the commonest, most widespread, and, by reason of its complications, most dangerous diseases, it is not in many places notifiable. The reason is perhaps a paradox. It is not notifiable apparently because it is so dangerous, so common, and so widespread that the local health organizations are afraid to tackle it, and because it is very difficult to diagnose in the early stages.

Measles—like the other infectious diseases—is part of the price we pay for the slums. In the slums measles breeds continually, the infection passes from one to another, sometimes affecting many cases, sometimes only a few, but always smouldering. At certain times the poison of the disease appears to become more virulent, and sallies out from its breeding places to attack those who live outside the poorest parts. Then it is no respecter of persons.

No feature of social life is more easily made the means of spreading disease than the poor lodging houses. Men from all points gather there, making these places natural incubators of disease. It is impossible to determine in advance either the character of the patrons or their state of health. Without the strictest of supervision it is easily possible for a victim of some disease to spend a day or night or several days and nights in such a place, and to pass on to some other occupant an infection that will be carried out to some neighboring or remote part of the country. The conditions that have been allowed to develop in the lodging houses have been such as to breed disease when it once has gained entrance, and to encourage its entrance. Under the old form of management the lodging houses have thus become a menace to public health.

It possibly will be urged that the men who occupy the lodging houses are satisfied with conditions as they find them there. It might be urged with equal justice that the child is satisfied with his natural ignorance of reading, writing and the other elements that go to make up a common school education. Yet we compel the child to attend school, and go to great expense to insure his education. These men are as greatly in need of instruction in cleanliness and health as the child is of instruction in the elements of education; we owe them quite as much as we do the child; and the fact that the conditions with which they are surrounded in the lodging houses constitute a menace to public health makes our duty to them even more imperative, if any thing, than that owed to the children.

To teach these men the theory of cleanliness and health is good; to furnish them with surroundings that are a continual object-lesson in the line of that teaching is a

logical and invaluable step in such instruction. By cleaning up the lodging houses, municipalities will insure better citizenship on the part of a lot of hardy, able fellows and will give them a better chance in life by the encouragement they will get from such surroundings.

The number of persons who may inhabit a room at one time is not so much the concern of society as is the effect it has on their health, their morals, their social efficiency and their economic asset to the body of which they are members. The effeminate and inefficient foot cannot say to the hand or the head, "I have no need of thee," nor can the head say to the weak foot, "I have no responsibility for thee nor does your sickness effect the clearness or utility of my thought."

If the overcrowding of tenements is due to ignorance, greed or the lack of interest in the general welfare, then the social body should enforce altruistic standards for its own protection; or if these people are not remunerated sufficiently by the economic system, then they should be paid a sufficient compensation to enable them to pay their way on a higher plane of living.

People do not live in old shacks, unattractive environments and unsanitary conditions by choice, but by necessity. Because of the size of the family, their wages and rent required, the poor people are compelled to find small apartments. These fellowmen are entitled to something better. The amount of money they pay for rent would put desirable living quarters from a municipal standpoint on a sound business basis.

The great life insurance companies have been bestirring themselves in the last two or three years and looking into the subject of how and why longevity is increasing and how it can be made to increase still further. They have found that more people reach 45 years of age than ever before in the history of the world, but they die faster after 45 than they ever did before. The high pressure of modern life, they say, is to blame for this as well as for an increase of insanity.

Although human life is lengthening the mortality tables upon which the insurance companies base the premiums they charge their clients are more than 50 years old. Nearly half the population of the English-speaking world is insured, and the companies are reaching out after the other half. Many plans have been devised for the lengthening of the lives of the policyholders so that they may pay premiums the greatest possible number of years. Most of these plans have been along the lines of the prevention of tuberculosis and other prevalent diseases, but none of them has been carried out except in theory as yet. It is safe to say, however, that if the great insurance companies, with the incalculable sums of money that they control, should take up seriously the question of purifying and bettering the cities in which the policyholders live they would speedily get their investments back many times over through the increased income. In the village of Bournville, a suburb of Birmingham, Eng., the death rate is less than half what it is in Birmingham. The village is owned and kept sanitary by a great manufacturing concern that gives employment to its inhabitants and spends money in keeping them housed and clean purely as a business investment.

Sanitation is not the whole thing that is necessary in prolonging life and in keeping the death rate down, although it is the basis of the work. Industrial conditions have a very great influence upon human life also. For instance, more babies die in large factory towns in proportion to the population than in any other place, because these are the towns in which more than half the women work almost constantly outside their homes. As the babies are born they are left comparatively uncared for by their mothers because these mothers must work in the last moment before the stork comes and must get back to the factory as soon as possible afterward. This question of industrial labor and its influence on the death rate is also a purely business and economic one. Doubtless some day either women will be debarred from industry or industry will be made fit for women.

The Care of the Insane Pending Commitment: As one of the first steps in its work for the improvement in methods of dealing with the mentally unsound, the Illinois Society for Mental Hygiene has published a pamphlet prepared under its direction by Dr. Addison Bybee, entitled "The Care of the Insane Pending Commitment." The study deals with conditions in Cook county, Illinois.

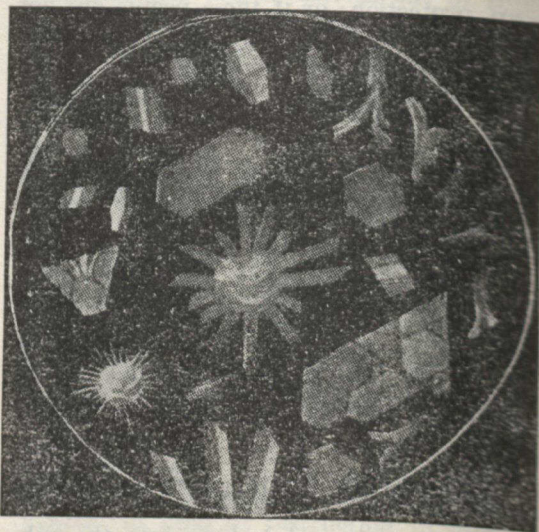
Of the 2,000 patients judged insane last year in Cook county, Illinois, 1,259 were brought in by the police and 597 had been confined in police stations. In all these cases, Dr. Bybee indicates, the patient was dealt with by machinery created for criminals, not for sick persons. The accommodation in most of the police stations were found to be repulsive and unsuited to the care of the insane.

Dr. Bybee, besides pointing out special deficiencies in the treatment accorded the mentally unsound during the process of commitment, contends that the entire theory underlying the process is absurd. "It is surely unscientific," he says, "for legal authorities to diagnose mental disease. There will always be the legal side to commitments, as there is to quarantine and other safeguards to public health, yet we do not subject the man who has smallpox or the bubonic plague to the ordeal of having a judge and jury pass upon him as to whether he is suffering from noxious disease and should have proper care. We would not dare to submit the care of the public health to laymen, and yet we allow a judge and jury unskilled in the science of medicine to pass upon a man's sanity."

Dr. Bybee cites several cases in which the court's disposition, from the medical point of view, revealed bad management. These were cases in the early stages, in which stages hospital care has its best results. The patients were subjected to the methods used in disposing of offenders against the law, and it was evident that their dismissal was regarded by judge, bystanders and friends as acts of clemency. "It was not realized," says Dr. Bybee, "that the best chance of recovery was be-

ing withheld from these sufferers, several of whom were sent back to the custody of improper persons and in some cases to become a nuisance to themselves and others."

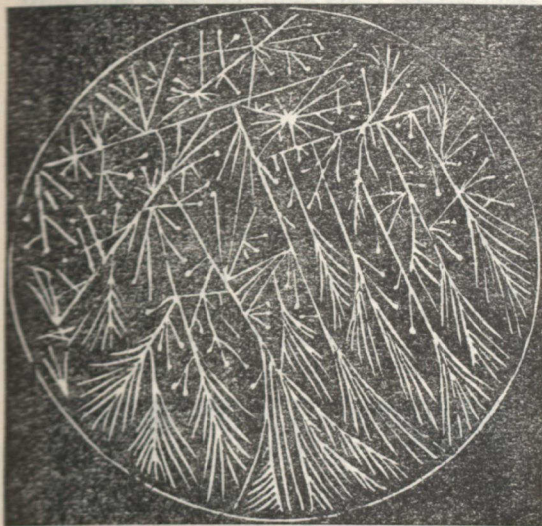
The Boric Acid Danger: James Scott, in *The Sanitary Record*, points out that the professional controversies at present raging round the subject of boric acid as a food preservative have practically assumed the dimensions of an intellectual warfare. Outsiders must look on, he says, and wonder what are the merits and demerits of this remarkable boric or boracic acid—the two names signify the same substance—the manifestations of which, one would excusably think, ought not to so strangely puzzle the doctors and analysts.



No. 1—A solution of boric acid develops several transparent crystalline figures as the above $\frac{1}{16}$ in. magnified pinhole.

In view of this agitation and its importance in a dietetic direction, it will be worth while to make a direct acquaintance with the characteristics and composition of boric acid. It has its origin in a dull green powder called boron, which when heated burns and leaves behind it an oxide of boron—that is boric acid. The oxygen of the air combines with the residue to form this oxide.

Borax, a substance used widely in soldering, consists of a compound of boric acid and soda, and if this composition is mixed with hot sulphuric acid pure boric acid is yielded, as the sulphuric acid extracts



No. 2.—After warming a little solution of boric acid on a glass slide until a crusty ridge forms around it, the inner area becomes filled with filigree of this kind. Shown magnified in a $\frac{1}{32}$ in. pinhole.

the soda as sulphate of soda, and leaves the boric acid free as at first. Borax is sometimes used as a substitute for boric acid.

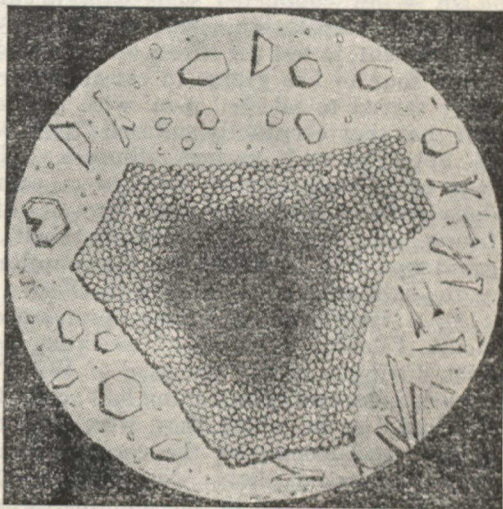
Borax has been imported from the East Indies under the name of tincal. It is found as a baborate of soda (which, when purified, produces boric acid) in certain lakes in Thibet and Persia, and elsewhere. Although it has acid properties it gives an alkaline reaction with test papers. The latter are, by the way, used for distinguishing acids from alkalies by their change of color. A blue litmus paper will be converted to a red color in contact with acid; and a red paper will become blue by impregnation with an alkali, such as soda.

Commercial boric acid appears as a salt-powder, being then glistening and granular. It will melt to a liquid that cools and hardens exactly like molten glass, and is very difficult of removal from the slides when in this condition. In its heated state it will melt the oxides of metals, of which common iron rust is one. Suppose, then, a rusty knife spreads some boric preserved butter on hot toast; or boiled milk encounters a few specks of rust in the saucepan—what will be the effect on the human body? Upon being impregnated with absolute alcohol borax will disclose a brilliant

green flame upon being ignited.

We will consider its microscopical features later on.

With regard to its use in milk, butter, and so on, Mr. Scott thinks, after having well studied all phases of the arguments for and against it, that it should be irrevocably condemned; but that it may be advisable to review some valuable opinions on various points. Dr. Wiley, the eminent food expert, considers that "it is easy to show by mathematical data that no matter how small the quantity of an injurious substance or preservative is, it will still produce an injurious effect." Now it is admitted on all sides that boric acid is injurious in excess of certain small amounts; but it is claimed that while those lesser quantities retard natural decomposition, they are quite innocuous to the human system, and should, therefore, be permitted in food. Such an acknowledgment is risky because, in the minds of ignorant manufacturers and vendors, it would, presumably, be regarded as equivalent to saying that boric acid is harmless in food. It is notorious that laymen do not understand the value of the strength of chemical solutions. There is a tacit belief that a poison is a poison, and a harmless substance a



No. 3.—Melted boric acid resembles molten glass, and when water comes into contact with it in that state it splits up into cakes that are opaque for a while, and then divide into tiny hexagons. A magnified $\frac{1}{32}$ in. pinhole.

harmless one under any circumstances. Such confidence would result in people who were legally allowed to use a few grammes of boric acid adding thereto according to their own impressions, whereas by total

prohibition no danger of the kind to the community would be possible.

Among those professional men who advocate preservatives in moderation is Sir Lauder Brunton, who sensibly claims that because quickly decomposing foods such as milk are dangerous by engendering toxins that act deleteriously in the body, small portions of food preservatives that have hindered decomposition are not so bad as the untouched stale products. On the other hand, some analysts and bacteriologists assert that while boric acid does prevent the multiplication of most bacteria, the pathogenic specimens are enabled the better to multiply through the absence of competition with other species.

We have to remember in this connection that the standard of quality in the chemical would probably vary among different makers; as it is difficult to ensure that every sample of boric acid shall be of exactly the same degree of purity as is expected. These substances are very liable to changes and effects due to heat, cold, dampness, and other factors. If you take copies of a prescription to a dozen different chemists on any one day for preparation, you will find very noticeable unavoidable variations in the medicines.

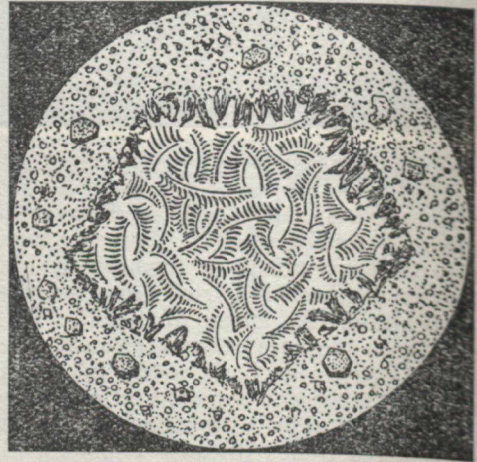
Dr. Wiley conducted some experiments on human subjects, on behalf of the U.S.A. Government, to test the effects of boric acid. From four to five grains in capsules were daily served to selected men, with the result that they eventually suffered from loss of appetite; and various illnesses. No man could endure more than three grains daily without exhibiting some form of suffering; and it was concluded that half a grain would be too much for consumption, as the substance is cumulative in effect.

As a set-off against these pronouncements, Libreich, the expert scientist, asserts during a strong criticism of Wiley's experiments, and after having had access to the building in which they were demonstrated, and examining the various documents concerned, that: "No injurious effects were produced by the administration of the boron preservatives." And also "the administration of the preservatives borax and boric acid in capsules allows of no conclusions as to the effects of borates when added to food." Most decidedly, a substance that has been thoroughly incorporated with another is far better adapted for assimilation than the same thing in a lump.

One advantage (?) accruing from the use of boric acid is that it is tasteless, unlike salt, which is the accepted, unchallenged preservative. It has been proved that two lots of butter, with which were mixed respectively 1 per cent. of boric acid and 6 per cent. of salt, resulted at the end of nine months in the last-mentioned becoming quite rancid and unfit for food, whereas the first—or boric compound—remained fresh and palatable the whole time.

The disadvantages (?) are that it is not a component of the human body. Nor are the minerals nitre or saltpetre, table salt, vinegar, and other substances passed by analysts. That it injures digestion—so do the things that have just been referred to.

Quite recently, the Public Analyst of Kensington, England, Colonel Charles E. Cassal, whose experience and opinion are



No. 4—The above magnified $\frac{1}{5}$ in. pinhole shows the appearance of sublimed boric acid—that is, condensed vapour.

of exceptional worth, declared emphatically that boric acid should be "absolutely prohibited"; and he is backed up by the food expert, Mr. Charles Hyatt-Woolf, the editor of *Popular Science Siftings*, whose books on food and food frauds have a wide reputation.

While boric acid arrests decomposition, it also as readily conceals it when it has already commenced, or proceeded to a certain stage; so that what appears to be quite fresh cream or butter may actually be bad, and possess the double vice of being partly decomposed, and of containing a risky preservative.

Endeavors have lately been made to prove that boric acid can quite naturally enter milk through the cow feeding on par-

ticular plants or weeds, so that a new phase is imparted to the discussions and difficulties of settlement.

It may be a relief to turn to the remarkable details to be seen through the microscope. Upon dissolving some boric acid in a drop of water on a glass slide, and magnifying it, various transparent shapes appear in it as in No. 1. They arise one after another, and spontaneously, and may enlarge within a few minutes, or coalesce into an indistinguishable mass. Sometimes symmetrical plates will divide up prettily into hexagons, triangles, and other figures, and separate as individual crystals. When the water content of the acid solution has evaporated there remains a crystalline residue of curves, hexagons, etc.

If the liquid solution be held over a lamp until a crusty ridge appears round it, the inner area will dry to a patterned substance of the kind delineated in No. 2.

Upon melting some boric acid, minus water, to the glassy condition and then dropping cold water upon it, it turns brown and opaque, and splits up into variously shaped cakes, one of which can be seen in No. 3. The previously wholly transparent substance soon becomes crowded, or granulated, with minute hexagons which break off and float away in the liquor. Meantime the transparency is resumed, beginning at the edges and driving the opacity inwards until it becomes gradually denser and finally disappears. Odd crystals continue to form here and there around.

Upon subliming boric acid — that is, heating it and catching the condensing vapor on another sheet of glass—we obtain the crystalline details of No. 4, for the whole of the vapor condenses in this peculiar manner, with numerous hexagons as well, some being mere specks.

Seeing that boric acid is so strangely changeable in these easy ways, it is quite possible that heat, cold, moisture, and stomach acids affect it so as to render it an undesirable acquisition to the body. At any rate, it is a doubtful preservative, and as such deserves to be tabooed.

Accidental cure of hookworm: An amusing story of the first hookworm cure in North Carolina finds place in the Bulletin of the State Board of Health, and if the story had been appreciated in season this cure might have saved an enormous spread of the disease, but at that time, 1867, there

was not any such disease known in the country. The patient was a sallow-faced, unpromising, undersized youth, who had not seen a well day since he could remember. For a prophylactic against a prospective night of hunting the youth sought the local doctor for a fortification of hive syrup. The physician was himself under the weather but in so simple a matter to save himself the effort of going to his medicine closet, he directed the youth to help himself to a dose from the second bottle on the first shelf. Of course, the stupid boy picked out the first bottle and drank half the supply of oil of thyme that was in that end of the country. Not long afterwards he was hauled back to the office half dead from vomiting and purging. From this moment there opened to the youth a new earth and a new heaven. From an ignorant, much ridiculed boy of sixteen he rapidly grew in favor, from and stature, till his original 80 or 90 pounds' weight was more than doubled. He got on well in the world and was surrounded by a well educated family of pretty girls and handy boys. The thyme had done the trick, but it was thirty years before the moral of the tale was appreciated. The incident is useful at least in determining that the hookworm is by no means a recent importation to this continent.

Sanitation in the Farm Home: "Living in the country" should, of right, be the panacea against all diseases arising from impure air, impure water and adulterated or unfit food. But, population considered, there would appear to be little difference in the extent to which such diseases prevail in country or city. As says a contemporary:

"Every case of tuberculosis, city or country, proves that with pure air 40 miles deep over our heads, we have chosen to breath impure air. Every case of typhoid fever—and we cannot deny that the farm home has them—proves that the drainage from stables or outbuildings has somehow gotten into the well, or that our worst enemy, the common housefly, has washed his dirty feet in our food. Every case of diphtheria proves that filth is not far off."

Lack of ventilation in sleeping rooms—a superstitious dread of outside air—is probably responsible for a large majority

of the cases of tuberculosis occurring on the farms. People who sleep practically out of doors—that is, with window sufficiently open—seldom contract tuberculosis. So long as the bed is warm, it matters little how cold the room is. The arctic traveller, ensconced in a fur sleeping-bag, and with no canopy but the stars, takes his rest under almost ideal conditions. The Eskimos never have consumption until brought south and compelled to live in houses like ours.

Typhoid fever will never originate on a farm if the water supply is kept pure. Such purity is assured by the "driven well,"

sunk deep enough to be secure against the contamination of surface drainage. And it often happens that such a well is cheaper than a dug well, the security of which against seepage from barns and out houses is always a matter of doubt unless tests have proven that the drift of contaminated under-surface waters is away from and not toward the well.

As for the house-fly, the protection of the house by screens over doors and windows, and the quick removal to the fields of the manure heaps; in which it breeds, will add not only to the healthfulness but to the general comfort of the home.



Open Mail

Primitive Science.

Sir:—Dr. Sambon, in his article last month in *The Public Health Journal*, suggests that the agency of rats and insects in spreading disease was known in remote antiquity. One is always prepared to hear that some late discovery of science was familiar to the Greeks, and those most competent to judge are least inclined to dismiss the assertion with a laugh. In this case, however, the evidence adduced seems rather interesting, perhaps, than convincing, for the most part. The divine animals of Egypt formed such a large and miscellaneous collection of zoology that to suppose the cat, hawk and snake were included because they prey on rats may be thought a hazardous assumption. Egyptologists attribute the veneration of the scarabæus to a motive less practical, but far more dignified, than the grub-eating habit of its larvæ. The use of mosquito nets may well have been due to a mere human longing for comfort and peaceful rest. Miss Jane Harrison's learned and ingenious *Prolegomena* suggests other reasons for the adoption of a serpent as the symbol of health. And house-holders in the Far East to this day cherish harmless snakes in the dwelling to keep down rats without any thought of combating disease — terrifying are the noises those useful reptiles make in the small hours to a newcomer unwarned!

It does not follow, however, that Egyptians and Greeks had not remarked a mysterious connection betwixt rats and fleas and plague. Mediæval regulations dealing with the epidemic, lately published, show that the civic authorities who framed them recognized this danger; and they knew little on such matters beyond the hints handed down from classic time. Indeed, there is reason to think that some savage peoples nowadays have more than a suspicion of facts which modern science has proved. In the earliest of his books, Richard Burton mentions that the Somalis told him the dreaded fever of those parts is caused by mosquito bites. The statement was positive. Burton naturally supposed that, if there was any truth in it, they mistook

a coincidence for a cause—the fever is worst when mosquitoes are most troublesome. So he explained the case. "First Footsteps in Africa" was published in the forties. At the present time we know that the Somalis were right, whether consciously or no. Sir Henry Blake, when Governor of Ceylon, a few years ago, read a paper before the Asiatic Society, in which he alleged that Cingalese books of the sixth century name various classes of mosquito and distinguish those which produce the different forms of fever. In a recent work on Haussaland, the missionary author, whose name I am sorry to forget for the moment, declares that the native treatment of hydrophobia there is the same "in principle" as Pasteur's. We do not know how far the gentleman was qualified to judge, but the process must be remarkable, at any rate.

The beginning of every science is a marvel which grows more surprising the more one reads and thinks. But that of medicine is most wonderful of all. How did men learn to choose the particular herb or substance which would best relieve a particular malady? All races intelligent enough to see the difficulty have solved it by assuming a revelation—some God-instructed mortals. Even the negro supposes that his medicine man is inspired, to put it roughly. We cannot accept that explanation, and so we are left to credit that each discovery was made by experience. But how many generations of patient thoughtful men — rather women, perhaps — must have gathered the fragments of knowledge! And how hazardous the experiments must have been! Some 25 years ago an Englishman found great relief from a drug, new to the profession then, salicine. He learned that it was extracted from willow bark. The information interested his old housekeeper, for an infusion of willow bark had been the village remedy for rheumatism time out of mind. So it is in other places. I understand that, while various barks are useful, that of willow is best. Did the primeval practitioner try them all? But his reason for trying any is

not apparent, unless he had gone through the endless plants that seem more likely, in vain. It has lately been remarked that many of those mediæval prescriptions, so monstrously absurd or disgusting to us, are not altogether unreasonable, after all. The horrid ingredients supply in a measure those useful acids, alkalis, and so on, which we obtain, infinitely stronger, by chemical processes undreamed of then.

For instance, the *London Lancet* testifies that an old wife's remedy for ague—swallowing a spider and its web—is sound enough; the creature's body, and its web in especial, contain an albuminous substance closely akin to cinchona. Again, a decoction of toad, the favorite medicine for dropsy and other complaints, is justified on scientific grounds; in effect it resembles digitalin.

Notable among such eccentricities is Dr. Gaddesden's recipe for the treatment of smallpox, singled out for special ridicule these hundred years past, because that sage held the dignity of physician to King Edward I. One of the younger Princes was attacked. Gaddesden writes, in Latin: "I ordered his Highness to be wrapped in scarlet cloth, the bed and all the furniture of his chamber to be painted bright red, which practice not only cured him, but prevented marks. . . . I treated sons of the noblest houses in England the same way, and made good cures of all." One remembered this foolish fancy with interest when reading in the *British Medical Journal*, a few years ago, how the introduction of the "red light treatment" of smallpox, by Professor Finsen, had revolutionized the practice abroad. But how did poor old Dr. Gaddesden find the secret? In the curious work "Anglo-Saxon Leechdom," compiled by the Rev. Mr. Cockayne for the Master of the Rolls, it is mentioned that our forefathers pricked the pustules of smallpox with a thorn and rubbed in lees of wine. Authorities pronounce that such measures are commendable. One might suppose in haste that the use of a thorn was merely superstitious; but that is an unworthy suspicion, perhaps. The thorn would be antiseptic.

In all countries known to me outside Europe a proportion of the white residents, as intelligent apparently as their neighbors, incline to trust the native practitioner rather than their countrymen. Everyone familiar with the realms of savagery can

cite examples. They are specially common perhaps in Africa. A Blue Book of 1905 reported the evidence of magistrates, missionaries and traders, chosen for long experience and intimate knowledge of the Bantu population, upon various questions submitted. All agreed, I think, that the Kaffir doctors possess secrets of the highest value—which proves the faith of these gentlemen, at any rate. In West Africa, the great majority of traders consulted the white doctor for form's sake in my time—it was the proper thing; but they put their trust in the black. It must be said, however, that they themselves were mostly half-breeds. Whilst I was up country, a genial young giant from Devonshire took the fever and died. His employer, Mr. Selby, informed me that he would certainly have recovered in the hands of the black women. "Then why on earth did you not call them in?" I asked. "How could I have answered to his parents?" Mr. Selby replied with emotion. "They would have charged me with murder!" It was a reason to dwell in one's memory.

There is much more to say upon this curious subject, but I must conclude with a story reported at length in the *London Lancet* of February 2, 1902. It had been rumored for years in East Africa that the natives had a cure for the terrible black water fever. Dr. O'Sullivan Beare, vice-consul at Bemba, was first apparently to think of investigating the report. He looked up the medicine men, who proved to be most obliging. They revealed the secret at once—it was a decoction from the roots of a certain cassia unknown to botany, named *C. beareana* now in honour of this philanthropist. The remedy is so effectual that, if men still die of black water fever, it is because they cannot obtain a supply.
F. B.

The Importance of Inspection.

Sir:—More and more I am convinced that humane societies, in the discharge of their duties to the animals they have been organized to protect, must use the power committed to them, or the power it is possible for them to obtain, to protect at the same time the public health, if by no other way, at least by giving the largest publicity to the conditions they know exist where animals are killed for food, conditions that are constantly imperilling the lives of thousands and responsible for disease and death.

For the present I grant we must do whatever we can to lessen the evils that are a part of this whole wretched business of transportation with its inevitable cruelties. We must work for better stock cars, for a minimum speed law far above what we have now, for a larger enforcement of such legislation as we have already obtained. But we shall never solve this gigantic problem until we set before us the goal of the fewest possible miles of transportation for these creatures committed to our care, the slaughter of them as near the base of supply as may be practicable, and the shipment of their flesh in refrigerator cars to the markets of the world.

That ultimately it will be for the financial interests of the men engaged in the traffic to extend this method of handling their business to the utmost possible limit, I am confident, from conversation with large dealers, the facts now warrant. Take this single illustration: Last July a shipment was made from Chicago to Boston of 91 cattle as live freight. They weighed in round numbers 128,000 pounds. The cost of transportation was \$50 more than it would have been had they come through as dressed meat, for as such the weight was but 78,000 pounds.

K. A. D.

City Health Maps.

Sir:—A map is an effective aid in the work of city health officials. It should be drawn on heavy cloth so that it will stand the wear for which it is intended, and made large enough to show every street, alley, crook and turn with exactness. The location of the factories may be painted brown, the parks green, the school buildings yellow, and the city and government buildings, blue.

By means of characters, or by small flags, the exact location of each case of contagious disease may be indicated as it is reported. Different diseases would be indicated by different colors. Also the stage of the malady would be indicated. That is, whether the quarantined person is convalescing, has recovered or has died.

If the map becomes thickly dotted with flags in one section of the city, the authorities would at once know that such locality is in an unsanitary condition and an investigation would be made. In this way, bad drainage, unsanitary water, or carelessness of the people could be better located.

C. J. H.

Sanitation and Civilization.

Sir:—The rains bathed original man. The winds swept his bone-littered caves.

But he became civilized.

The rains no longer serve him. He hides himself decently from public view and splashes about in a tub. He has come to scorn the wind-swept cave. He seeks the vacuum-swept flat.

So evolution has brought the question of sanitation. And that is a question of horse-sense.

It is neither comforting nor wise to dwell in filth. It causes us headaches and we die with much suddenness. Which isn't horse-sense. Most of us dislike headaches and most of us want to live.

So the problem of sanitation is one of law, or ordinance or health department regulation. It is merely one of proper living that we may be comfortable.

Some of us don't understand comfort. For instance, one man sleeps with his dogs. He recently explained to a health department inspector, that the warmth from their bodies gave him comfort.

In the aboriginal man we should have praised that reasoning. But the cave man dwelt by himself, and he didn't communicate the affliction of his dogs to his fellow-man. The fellow-man was too prone to smite him with a stone hatchet.

We no longer dwell alone and we no longer wield stone hatchets. We have substituted an indefinable something that we call "law."

We expect that law to prevent men from practising little diversions like sleeping with dogs. We don't object to the practices, particularly; perhaps they aren't anybody's business, anyway. But we do object to dining with the practitioners afterward, or buying our bread and our milk from them. So, in the name of public sanitation, our law should bid them take a bath.

C. A. P.

A Consideration of the Effect of Cold Fresh Air in Diseases of the Air Passages.

Sir:—Following my recent correspondence with you on this subject, let me point out that colds are infectious, microbial diseases, due to various organisms, many of which are always present in the mouths of healthy persons. Perhaps first in order of precedence is the influenza bacillus, which is commonly an outsider who descends upon the body politic at longish intervals in widespread epi-

demics. Then there is the pneumococcus, residing in the mouth, which often causes pneumonia when the host is "run down" and unable to make the ordinary resistance to invasion. Next comes some of the pus organisms. There are others, also, whose names and addresses are imperfectly known.

Ordinarily, colds are self limited diseases; that is, they run a definite course, when there are no complications, and disappear. They are never fatal, simply as colds, though a cold may start a disturbance that finally develops into fatal effects. Speaking by present knowledge, a cold is an infection of the membranes of the nose, gullet and throat that is not pneumonia, diphtheria nor any of the other grave disease in which some of the symptoms are present, and which ordinarily runs its course in about two weeks, for the most part in defiance of drugs. This limited duration is probably fixed by the time required by the human defensive mechanism to develop the resistance needed to overcome the invasion. Substantially the same characteristic of limited time duration shows in pneumonia, which is intrinsically a very severe cold "on the lungs," though this is not quite the whole story.

One sick with pneumonia reaches a "crisis" in the disease within about ten days from the onset, and thereafter gets well or dies, according to circumstances. In the cases that recover, the time up to the occurrence of the crisis apparently measures the time required for the body to make its defence effective. In the uncomplicated, plain cold, this time, as always noted, is about two weeks when—and this proviso is of little suspected importance with most persons—when the subject of the cold lives under ordinary conditions of indoor winter life in these latitudes. By proper treatment with plenty of fresh, cold air, the duration of what is usually a two weeks' cold can be cut down to three or four days.

Fresh air, for the purpose of this discussion, may be defined as outdoor air reasonably free from dust and smoke, and without any traceable taint, otherwise odor, from human or other animal bodies. The last specification may seem purely malicious, but it will presently appear to be quite otherwise. The dampness of fresh air is not of importance, provided the air is moderately cold. Here is the mechanism

of the process, probably. It is unfortunate that the facts are not more fully known; but the following explanation is much better than guesswork:

Being in cold air, the human being has need of producing more heat to maintain the normal body temperature. Bodily heat is produced by oxidation within the tissues, sustained by the oxygen taken into the lungs as one of the components of the mixture known as air—air being about 20 per cent. oxygen and about 80 per cent. nitrogen, with traces of other matters according to varying circumstances. The need of more heat when in cold air results in a greater consumption of oxygen; hence in a more rapid and complete combustion, not only of the fats which the body devotes to heat production, but also of the waste products of all the bodily functions and those resulting from voluntary muscular movements—even to the matter of thinking. As a result, the chemical interchange and renovation, metabolism, is more than usually active and thorough. In addition, it seems fairly clear that the mere coldness of the air acts as a stimulant, and that so long as the body is kept warm, cold air tends to exceptionally thorough metabolism, largely by virtue of its coldness. This hypothesis appears to be strongly supported by proved value of cold, fresh air in the treatment of pneumonia.

Joined with the stimulation and active metabolism produced by good breathing of cold, fresh air is the absence of irritation to the respiratory membranes. Cold air rarely or never hurts healthy lungs and nasal passages; nor very often ailing ones. The result of this absence of irritation to "cold" infected membranes, joined with the renovating effects of the rapid oxidation of tissues due to the body's increased demand for heat, puts the body in the best possible state to combat the microbes whose invasion has saddled it with a "cold." In consequence, the enemy is more quickly and easily routed than when the body is confined to warm rooms, where the air affords no stimulus to the body reactions and may furnish unsuspected irritation to the infected membranes.

Persons of the necessary vigor and "constitution" may throw off a cold in a few days, even while living indoors, simply because their bodies are able to develop an effective counter attack on the microbes in less time than is required by the average

person. By way of "cure" for a "cold," cold, fresh air stands easily first, for easily understandable reasons, since the only real cure is the destruction of the abnormal bacterial growth. When this is stopped and the body is cleared both of the dead bacteria, their poisons and the body waste which has been imperfectly eliminated because of the disturbance set up by the "cold," the attack is cured. Quinine, so much used for colds, has only the tonic effects of cold fresh air, and not all of these. Certain other drugs also much used produce their effect, such as it is, by checking the secretions of the respiratory and mouth membranes; and this scantiness of moisture may hinder the growth of the microbes until the body resistance is capable of defeating them. Inoculation with a vaccine made from organisms such as may be supposed to cause colds is another but uncertain remedy. Other new ideas do not really cure; but may relieve the system from some of the clogging due to the disturbance and make the body more efficient in working the real cure, which is the destruction of the invading organisms by the body cells and by the defensive and bactericidal substances which the body cells may furnish to the blood and other fluids of the body.

This doctrine, that cold never causes "colds," is a favorite with those sometimes referred to as "fresh air fiends." It is rightly rejected by every one with wisdom enough to learn from his own experience. If by cold we mean chilling of the body or exposure, then cold certainly may cause

"colds," just as chilling of the body may cause pneumonia. The explanation is too rational to be dodged. There are most of the time present in the mouth and nose organisms ready to extend their growth. Whatever lowers the vitality of the body tends to lessen the body's resistance to these organisms, which resistance ordinarily keeps them in check. By removing, or, rather by lessening, the usual body resistance, a chilling of the body may give these organisms a chance for the extended growth which causes the symptoms known as "cold." The mechanism of this lowering or resistance is a good deal more obscure than the fact itself. It is conceivable that some part of the weakened defence lies in a diminished activity of the leucocytes which are the scavengers and microbe devourers of the body. Such an assumption is entirely in harmony with what is known of body processes.

Since chilling of the body may, and does, cause colds, we should perhaps somewhat temper our indignation against persons who are afraid of "drafts." Meanwhile, the apostles of fresh air should charge themselves with the duty of explaining to unbelievers that fresh air ought not to mean exposure or chilling of the body. Proper clothing, even without the heat producing effects of muscular exercises, will keep the body safe in the coldest of fresh air, else the north pole would have stayed where most folks always thought it belonged.

B. B.



Meetings and Reports

DOMESTIC

Provincial Health Officer's Report for Nova Scotia, 1910.

We have received from Dr. A. P. Reid, the eighteenth annual report of the Public Health Department of Nova Scotia. The report is excellent in its style and shows the hand of an expert. Dr. Reid in addressing the Government in this report, says in part that the sanitary condition of the province has been, as usual, favorable. There have been many localized outbreaks of smallpox, though none have been severe. The public are loath to recognize the fact that smallpox has prevailed for several years past in different sections of the province and is likely to remain until all are protected by vaccination or otherwise; the sooner that protection becomes general, the sooner the disease will be eradicated, and this is specially needful with children—the earlier the vaccination the more protection will be conferred. No child should be allowed to attend school unless protected for many reasons, but the City Board of Halifax have encountered much unreasonable opposition, particularly from the anti-vaccinationists. These people may be sincere but they are ignorant of the experience of the world on this subject, or, at least, misinformed. There are 1,500 unprotected children now attending the Halifax schools—thanks to the “Conscientious Scruples,” as by rule permitted.

Diphtheria, scarlet and typhoid fevers, whooping-cough, measles, infantile paralysis, smallpox, tuberculosis, pneumonia, etc., are also fully considered.

Dr. Reid requests in his report that it be noted “that though doctors differ, there is a very general concensus of opinion on every subject relating to public health and it is, hence, a safe assumption that they are correct.

Canadian Association for the Prevention of Tuberculosis.

The provinces and cities of Canada will

be asked to send representatives to the Seventh International Congress of Associations for the Prevention of Tuberculosis, which will be held next September in Rome. This action was decided upon at a meeting of the executive of the Canadian Association held in Ottawa on the 28th of last month, when reports of a most satisfactory nature from all over the Dominion were received.

The Canadian Association will meet again at London, Ontario, on May 17, 18 and 19 next, when the speakers, it was stated, would include Hon. Clifford Sifton and Hon. Adam Beck. Those present at the meeting were Prof. Adami, of McGill; Dr. Bruce Smith, of Toronto; Dr. Laberge, of Montreal; Archbishop Hamilton, Mr. Jas. Manuel, Dr. C. A. Hodgetts, Dr. J. G. Rutherford, Dr. Montizambert, Mr. J. M. Courtenay, C.M.G.; Dr. Bryce, Dr. G. D. Porter and Sir James Grant.

Annual Report of the Canadian Red Cross Society.

We have received from Dr. Charles R. Dickson, General Secretary the annual report of the Canadian Red Cross Society. This Society is affiliated with the British Red Cross Society and is aiming to secure the nucleus of a complete organization in each portion of the Dominion of Canada.

The formation of provincial branches of the Society is now well under way. Prince Edward Island is in the proud position of being the first province to have a branch duly established and organized.

The annual report records the death of M. Henri Dunant, at Heiden, a health resort in Switzerland, on the 30th of October last. M. Dunant was revered by every civilized nation as the originator of the National Red Cross Society idea, and the founder of that International Red Cross Committee of Geneva of which each of the forty National Red Cross Societies, scattered over the world, is practically a

branch.

It might be interesting to those of our readers who have not been in touch with the affairs of the Red Cross Society to know that the Canadian Red Cross Society was organized in 1896 by Colonel George Sterling Ryerson, M.D., with the consent and approval of the National Society for Aid to the Sick and Wounded in War, as by letter of authority, dated at London, England, December 2nd, 1896.

The objects of the Canadian Red Cross Society are to collect funds and material and provide assistance in time of war, such aid and assistance to be supplementary to that furnished by the Official Naval and Military Medical Departments. The Society examines, systematizes and co-ordinates all offers of help in order to prevent waste and overlapping and render them of the utmost possible value, and, in time of war, co-operates with the Department of Militia and Defence of Canada or the British Red Cross Society. The Canadian Red Cross Society was the first colonial branch established in any country and tendered its services to the belligerents in the Spanish-American War. The Society was also in the proud position of being ready for active work when the call came to Canada to assist in supporting the empire in the war in South Africa.

A Proposed Confession of Faith.

The proposed new Presbyterian confession of faith, as outlined by the Moral Reform Board during its recent meeting in Toronto, declares in part:—

(1) For the acknowledgment of the obligations of wealth.

The Board declares that the getting of wealth should be in obedience to Christian ideals, and that all wealth must be held or administered as a trust from God, for the good of humanity. The Board emphasizes the danger, ever imminent to the individual and to society as well, of setting material welfare above religious life. The Board protests against undue desire for wealth, untempered pursuit of gain, and the immoderate exaltation of riches.

(2) For the application of Christian principles to the operations of industrial associations, whether of labor or capital.

(3) For a more equitable distribution of wealth.

The Board holds that the distribution of the products of industry ought to be made

such that it can be approved by the Christian conscience.

(4) For the abolition of poverty.

The Board realizes that some poverty is due to vice, idleness or imprudence; but, on the other hand, holds that much is due to preventable disease, uncompensated accidents, lack of proper education, unemployment, and other conditions, for which society is responsible and which society ought to seek to remove. The Board believes in the maintenance of a standard of living, so that every person shall have sufficient air, light, food, shelter, comforts, and recreations to make the conditions of his life wholesome. The Board believes that, whenever possible, he should be led to earn these for himself and those dependent on him; but that when through old age, accident, sickness or any other incapacity, the family or individual is unable to become self-supporting, society should make adequate provision for them.

(5) For the protection of childhood.

(6) For such regulation of the conditions of the industrial occupations of women as shall safeguard the physical and moral health of themselves, the community and future generations.

(7) For adequate protection of working people from dangerous machinery and objectionable conditions of labor, and from occupational disease; for such ordering of the hours and conditions of labor as to make them compatible with healthy physical, mental and moral life.

(8) For provision by which the burden imposed by injuries and deaths from industrial accidents shall not rest upon the injured person or his family.

(9) For the release of the worker from work one day in seven.

(10) For the employment of the methods of conciliation and arbitration in industrial disputes.

(11) For proper housing.

The Board believes that all dwellings should be sanitary, that overcrowding and congestion of population should be prevented, and that tenements and apartment blocks be so constructed as to allow a proper physical basis for Christian family life.

(12) For the application of Christian methods in the care of dependent and defective persons, by the adequate equipment and humane and scientific administration of public institutions concerned therewith.

(13) For the development of a Christian spirit in the attitude of society toward offenders against the law.

The Board holds that a Christian society must seek the reformation of offenders, and that it must endeavor to prevent the commission of crimes by furnishing a wholesome environment, and by such education and corrective measures as will develop moral sense and industrial efficiency in the young.

(14) For opposition to vice.

The Board believes that the law of the land should vigorously combat the vices of drink, gambling, lust, and the abuse of narcotics, and that it is the duty of society to discover and remove the causes of vice.

(15) For pure food and drugs.

The Board believes that foods and drugs should be so inspected as to guarantee their freedom from adulteration, poisons and infection.

(16) For wholesome recreation.

The Board believes that the play of children and the amusements of adults are of great importance to morals, and that they

should be brought under social control, so as to free them from the evil effects of unrestrained commercialism, and make them minister to the physical and moral well-being of the people.

Ontario Medical Association.

The thirtieth annual meeting of the Ontario Medical Association will take place at Niagara Falls, Ont., May 30th, 31st and June 1st, 1911.

The program for this meeting is a most interesting one. Some of the papers to be read, having a bearing on State Prophylaxis and Preventive Medicine, will be furnished by Major Lorne Drum, Ottawa, General Secretary Canadian Public Health Association; Dr. J. A. Amyot, Toronto; Dr. J. Heurner Mullin, Hamilton; Dr. Chas. J. C. O. Hastings, Medical Health Officer, Toronto; and Dr. John Phillips, Associate Professor of Medicine, Western University, Cleveland. Another paper of the same class, entitled "Our Results with '606'," will be furnished by Dr. R. P. Campbell, of Montreal.

INTERNATIONAL

International Commission on Control of Bovine Tuberculosis.

A meeting of this Commission was held in Buffalo on February 27th. It was decided that the first task would be the preparation of material for a small pamphlet on the subject of bovine tuberculosis. This pamphlet is to be very simply and plainly worded, for the general public, especially stock owners. It is to embody a full statement of available information on the subject—so far as it concerns the stock owner in a practical way and so far as such information is accepted by the Commission.

This primer will probably be published in very large editions in the United States and Canada, and be given very wide distribution by the Canadian and United States Governments.

The committee entrusted with the responsibility of preparing this pamphlet is Dr. V. A. Moore, Cornell University; Dr. J. R. Mohler, U. S. Federal Bureau of Ani-

mal Industry; Mr. J. J. Ferguson, representing American Packers; Dr. Reynolds, Minnesota, representing American veterinarians in state work; Dr. F. Torrance, Manitoba, representing Canadian veterinarians.

The next meeting of this commission will be held at Toronto late in August.

International Municipal Congress and Exposition.

An International Municipal Congress and Exposition will be held in Chicago, May 18 to 30, at which the leading countries of the world will be represented. The German Government has ordered officials of German cities to prepare plans for civic centres and city beautiful plans. These plans are to be collected in the next few weeks and passed upon by the officials of the Government. The Germans are planning not only to beautify their cities but to obtain better light and sanitary conditions, and

their delegates to the International Municipal Congress and Exposition are expected to explain these plans in detail.

The Seventh Triennial International Congress on Tuberculosis at Rome.

The dates of the Congress are from September 24th to 30th, but the Social Hygiene Exhibition in connection with the Congress will probably open on June 1st and will continue until February 28, 1912.

This exhibition of Social Hygiene will, it is said, be the greatest of its kind that has ever been assembled. Among the different sections of the exhibition are those on tuberculosis, general prophylaxis, history of the hygienic movement, and the prevention of disease in general. The exhibition will cover a large area fronting Piazza Cavour.

The exhibition and Congress will be part of a general celebration extending over several months, to commemorate the founding of Italian liberty. The entire movement will be held under the patronage of the King and Queen of Italy.

International Sanitary Congress.

Following our announcement of last month regarding the International Sanitation Congress meeting during May in Paris, France, the following statement is issued officially: This new convention has seemed necessary because of last year's outbreak of cholera in Southern Italy, and the present epidemic in Manchuria, which recalls the worst days of the plague in India. These outbreaks, though tragical in themselves, serve a useful purpose by giving an opportunity for experiment with modern methods of relief and prevention. The last sanitation congress on cholera, yellow fever and the plague was held in December, 1903. Since then scientific progress has been rapid. The most recent discoveries and improvements must be adapted to the new needs, while adhering to the difficult principle—maximum safety with minimum regulation. To facilitate the work of the congress, the Government has ordered the permanent committee of the Office International d'Hygiene Publique to outline a programme for the discussions. Since its establishment in 1907, this committee has gathered and published complete data on all questions of sanitary organization. Its programme for the congress will be issued shortly

and sent to the various governments that are invited to secure representation.

Dresden Hygiene Exposition.

Next month, on May 1, the great International Hygiene Exhibition in Dresden will open for a six months' showing in the interests of the public; an exposition that will present in a manner not hitherto approached the manifold phases of modern preventive therapy. The project is one that has been for years advocated warmly in German hygienic circles, and is on the point of splendid realization. As early as 1903, when sanitarians assembled in Dresden to view in the city the spectacle of the hygienic attainments of municipalities, the plan was broached of making hygiene the motif of a great popular exhibition. The idea was made an act when, in 1906, a preliminary convention was held in the Saxon city, a meeting to which the German Imperial and state governments all sent delegates. The choice of location fell to Dresden, centrally placed in Europe and already favored with a splendid exhibition ground, experience in expositions, and a host of workmen especially available through the setting up of other "world's fairs." Success was assured when his majesty the King of Saxony consented to be patron, and the Imperial Chancellor, von Bethman-Hollweg, was placed at the head of the honorary presidents, in which list appears the name of Robert Koch, and the royal state government furnished the material guarantee for the financial part. The city itself has given the use of a great exhibition building and the popular subscription of the citizens has reached beyond a million marks. The king, further, on information that the usual exhibition grounds would be insufficient in size, expressed his willingness to place a part of the royal gardens at the disposal of the exhibition. With the sinews of war thus provided for, the leading authorities in hygiene have come forward with a cooperation that has been notable, and the preparations are well in hand for the important showing.

It is more than 25 years since the last general exhibition was organized in Germany. At that time the science was in its infancy, and indeed no chair had been provided for it in any university. The change in the interim has been marvellous. Not only does every university possess its own hygienic department, but also in all civi-

lized states, stations have been erected for its study. Great discoveries, especially in the province of bacteriology, have to their credit the saving of hundreds of thousands of precious lives. Legislation now feels compelled to observe and establish the precepts of hygiene, the social ideas of the century have been led by hygiene into new paths, with new and important notions on the importance of the conservation of life and vitality. Irresistibly, hygiene enters into all the phenomena of human life and its realm expands from day to day.

Even for the specialist it is difficult to remain in touch with the science in its development. An exhibition of the kind is, therefore, of the greatest value in bringing together the results of the world's advances. The educational benefit of a great exhibition in which the results and acquisitions of recent investigation are displayed in a well-ordered, systematic whole, is hardly to be estimated. The interest does not rest at all with the specialist, for hygiene has come to be to-day of capital importance to the lives of the people, and they, in their turn, seek to know what has been accomplished. The popular import of such an exhibition is therefore its most valuable quality. It is of consequence in ways not instantly to be appreciated, but in one direction at least it will tend to the diminution of the feverish activity that leads everywhere to the over-taxing of strength so that the equilibrium of health seems at times to be in danger. Thanks to many circumstances, the present generation is in a receptive mood for instruction in hygiene. Man now realizes that good health is within his grasp and longs for instruction in the means of gaining and retaining it.

Twelve general divisions have been made of the scientific portion of the exposition, a further number of special ones, and a great consideration of the gymnastic rela-

tions in pastimes and sports. Air will be shown in its manifold relations to health, the changes through respiration, temperature, movements, climate and weather, and the action of impurities natural and artificial. Light will be shown in its effect upon organisms and the differential results of the various kinds of light; soil will also be shown in its relations to man, and disease and water as a domestic supply and in its relation to disease organisms. These four important items will form group one, with the great question of housing conditions and health in the second. This will be treated in the broadest possible manner, water supply and the disposal of the wastes being included, and also the regulations with reference to the dead. Group three considers foodstuffs and nutrition, the scientific value of foods and the practical handling of them. Clothing and bathing form an important section, and under professions and trades there will be brought together what the world knows of diseases of occupations and certain corollaries in the enforced conditions established for the care of the working classes. The latter will include protection against themselves in insurance and sick funds and against unscrupulous employers in regulations for factory and corporation house. Infectious diseases, nursing and aid, and children and adolescents, are likewise important groupings. Traffic and its relation to disease form group nine, which looks to conditions on ship and train as well as to the stations and guest accommodations, railway or governmental, and to the hotels and lodging houses for travellers. The army and navy will be grouped together and a large department will be in the interests of statistics. Special groups will centre about consumption, sex hygiene, alcoholism, cancer, oral difficulties and their prevention, with a measure of the progress of sanitation in a section devoted to history.

UNITED STATES

American Women's Medical Association.

The woman of 1911 wears more hygienic clothes than have appeared in many years. There is still plenty of room for improvement. That about sums up the conclusions of a competent jury, the committee on public health of the American

Women's Medical Association. On the 12th of last month the members held their annual meeting in New York City.

"There are many unhygienic characteristics still disfiguring the present styles for women," said Dr. Belle J. MacDonald. "But what is encouraging is that our

clothes are so much more healthful than they used to be.

"Frankly, I am delighted with this newest importation from Paris, the harem skirt.

"From the standpoint of hygiene it is a capital innovation. In the first place, the trouser-like division gives perfect freedom of movement. But more important than that, the harem skirt will not drag going down steps, as even a short tailor-made skirt is apt to do. That is, the wearer will be freed from the collection of germs, dust and mud that is bound to gather along the bottom of an ordinary skirt. Also, on wet days the ankles will be protected from the chill caused by damp skirts rubbing against them. If all women adopt the harem skirt I believe they will be much healthier.

"Another modern innovation in clothes which all women should accept is the union underwear, at least for the winter season. Not only is it a great protection to the skin but it relieves the waist of extra bands and bindings.

"No woman who wishes to be well should wear a corset.

"The empire gown is a physiological success, hanging, as it does, from the shoulders and leaving the waist unconfined. That must be the ideal of all women's garments of the future—absolutely no band of any sort about the waist."

"It's at the two extremities that the modern woman most risks her health," declared Dr. M. M. Vinton, of East Orange, N.J. "Her shoes are an abomination. The high heels are bad enough, but the thin soles are worse.

"The large hats are very bad for women's health, and so is the quantity of false hair they've been wearing in the last few years. The head becomes overweighted and overheated, and headaches and nervous troubles inevitably follow."

"I believe in the corset worn by the majority of sensible women to-day," frankly admitted Dr. De Witt Miesse, who comes from Pennsylvania. "It supports without constricting."

Dr. Mary D. Hussey, another representative of New Jersey, was optimistic. "Athletics are daily making women's clothes more rational and hygienic," she affirmed. "A woman is almost free to-day to choose her own style, and if she wishes she can combine beauty and hygiene in her costume. Many women do."

United States Cities and Sewage Disposal.

The scheme for dealing with the whole of the sewage from the city of Philadelphia has been advanced a stage by the construction of disposal works for dealing with the sewage from a small portion of the city as a preliminary additional experiment before coming to a definite decision as to the methods to be adopted for the whole of the sewage. In the present case the sewage from about 10,000 people, with a daily volume varying from 2,000,000 to 4,000,000 gallons per day, is to be purified, and the preliminary treatment will consist of sedimentation in tanks of the Imhoff type. The tank effluent, after flowing into a special dosing tank, will be treated upon percolating filters by means of fixed spray nozzles, and the filtrate will subsequently be passed through effluent settling tanks where provision will also be made for disinfecting the final effluent with hypochlorite of lime. This scheme promises to be very complete and efficient in every respect. The sludge will be dried upon special draining beds, which, in addition to the usual fine material and ample under-drains, will receive a top layer of sawdust. It is intended to remove the sawdust with the dried sludge, which will then be burnt under boilers or in a gas producer.

It is a sign of the times that Imhoff tanks have been recommended for the new disposal works at Atlanta, Ga., and for several other places, by Mr. Rudolph Hering, the eminent consulting engineer, as a result of his study of these tanks in actual operation in the Emscher district of Germany. The chief reason for the adoption of the Imhoff tanks by Mr. Hering is the facility with which the sludge is dried without creating a nuisance in the actual works inspected by him in Germany. Our contemporary, the *Engineering Record*, in a recent issue, also prints an article dealing with the various methods of converting sewage sludge into marketable manure and deploring the waste which now results from the discharge of enormous volumes of crude sewage into the sea or rivers by large cities such as New York and Chicago. It is evident that the sludge problem is becoming universally acute, and as this means that a satisfactory solution is being sought in other countries than our own, we may hope to see some successful results in the near future.

Summary of Columbus Housing Reforms.

No tenement nor dwelling house in Columbus may occupy more than 8 per cent. of the lot area when there is a street on three sides.

Corner lots cannot be occupied by a tenement or dwelling house to an extent over 75 per cent. of the ground area.

Interior lots which do not exceed 100 feet in depth cannot be occupied over more than 65 per cent. of their area.

It will be contrary to the provisions of the new code for a tenement or dwelling to be higher than the width of the street.

Behind every tenement or dwelling house there must be a yard extending entirely across the lot, under the new code.

The sizes of courts in future tenements and dwellings will be prescribed according to the height of the building.

Every court must be unobstructed at the top and be provided with a horizontal air-intake at the bottom.

Every apartment in every house built after the enactment of the new code must have one room of at least 150 square feet floor space.

No room is allowed under the proposed code of a size less than 100 square feet of floor space.

The total window area of each room in future tenements or dwellings must be at least one-eighth of the floor area.

Every toilet or bathroom, hall or alcove is required to have at least one window for sufficient ventilation.

Access to every living room and bedroom and to at least one toilet room in future houses must be without passing through

any bedroom.

People will not be allowed to live in cellars and basements under the new code. These are for laundry and cooking only.

A proper sink for running water is required for every tenement and every dwelling house of the future.

Every house and every apartment in a tenement must be equipped with a toilet by the provisions of the new code.

Civic authorities will not allow a tenement to be occupied unless it has sewer and city water connections.

Tenement houses erected with more than three storeys will have to be constructed of fireproof material.

There must be two independent flights of stairs in every tenement that is occupied by two or more families above the first storey.

Tenement houses in the future will be required to have fire escapes constructed according to the height and width of the building.

Halls in tenements more than two storeys must be light enough to permit the reading of a newspaper at all times.

Every tenement house will in the future be supplied with sufficient water and accessible to each family.

Under the new code leaky roofs will be a violation of the law and water must be conveyed so as not to drip on the walls.

The owner of a tenement or dwelling will be held responsible for the accumulation of dirt, filth or garbage about the premises.

In any tenement occupied by six or more families it is required by the new code that a janitor be in charge of the premises.

THE EMPIRE AND THE WORLD ABROAD

Investigations in Bury on Defective Shoes and Health.

In Bury borough, England, Robert Burnet, M.D., health officer, has been giving some attention to the footgear of school children. There are two important relationships of defective shoes to health, one of them the effect on the individual and the other through the fact that such footgear is the cause of carrying much dirt into the

schoolroom. The matter of keeping the schoolroom clean is serious enough under ordinary circumstances, for daily cleanings are very expensive, and it is the custom in England to have the thorough work done only at considerable intervals. The uneasiness of the children stirs up the dust, and with anything but the most modern construction there are abundant ledges on which this may rest ready to be disturbed

from time to time. There is a great addition to the normal import of dirt by broken or rough shoes and stockings, and what difficulties may arise in healthfulness, school dust under the conditions will greatly increase. In the examination of nearly three thousand children, six per cent. were found with defective clothing or footwear. A quarter of those whose records could be easily completed were from families of seven to twelve children, while two-thirds were from families in which there were four or more children. It is thus evident that an excuse exists for the larger part of the number. In connection with this investigation, Dr. Burnet finds that many children are undergoing what may be termed a "hardening" process, to which they seem to offer no complaint. This is due, no doubt, in many instances to the poverty of the parents or their indifference, and the knowledge on the part of the children that their complaints would be unavailing. "It is impossible to teach children effectively whose nervous energy is being exhausted in the effort to keep the body warm," writes this authority, "and in this connection it should be remembered that the child has relatively a greater surface for body cooling than the adult, hence the fallacy of keeping children in socks instead of stockings, or, in fact, subjecting them to any of the 'hardening' processes by limiting the amount of their wearing apparel."

In this connection the Lancashire working-people's familiar clog is far superior to the shoes in the opinion of hygienists, since the latter are far too often inferior in quality, especially the expensive kinds, and are ineffective in keeping the feet dry. On the other hand, the clogs make much more noise, but in a conference with the local teachers, the obvious advantages were found to outweigh this defect. In addition, in a moist climate like Bury, the clogs carry much less dirt into the recitation rooms. As many boys had dirty clothing as those with insufficient, but in the girls cleanliness was much more evident, and the ratio between dirty and insufficient was only about half. The girls' care was further shown by the fact that only one girl was ragged—and this at the age of five—while about a third of the boys were in this condition, mostly at seven and eight. In his inspection of the children, Dr. Burnet calls attention to the fact that vermin

are attracted more readily and seem to thrive quite as well on some children, who may be kept just as clean as some others. The selection is usually determined by the presence of certain diseases or a condition of the blood predisposing them to disease. It is also true that dirt attracts vermin, and a normal clean child should not attract them so readily as a dirty one. The importance of an eye to these conditions in school children is the greater since the disease factor probably makes the verminous child a propagator also of disease. In the medical examination of the eyes, a large percentage, more than two, are troubled with strabismus in one form or another. The number of girls thus affected is about double that of boys. Some of the statistics with reference to defective conditions are interesting in that the number of children in Bury is sufficiently large to be a measure of the usual conditions, yet small enough to afford a pretty close examination. Four per cent. were found to be suffering with external eye disease other than squint, and eleven per cent. had defective vision. Fourteen per cent. suffered from ear disease, chiefly otorrhœa, and two per cent. had hearing affected, two-fifths of which were associated with adenoids. The record for the latter is large, seventeen per cent. of all the children examined. Two per cent. of the children were found to be backward, of which one-quarter were classed as defective. Tuberculosis of the lungs was diagnosed in nearly one per cent. of the children, and one-quarter of one per cent. had tuberculosis of the bones or joints. Rickets proves to be a serious matter in Bury, with seven per cent. of the school children suffering from the disease. The history of the majority showed them to have been bottle-fed. It is characterized by Dr. Burnet as a disease of the overcrowded town and associated with unsuitable food in infancy. The disease may be treated with success if taken in time, and it is the custom in Bury to visit the home of the patient, giving to the parents instructions for the cure or prevention. In Bury the practice obtains of furnishing food to school children, it being prepared at a central place and distributed to certain selected dining-rooms by street cars.

Pilgrim Vaccination in India.

The Commissioner of Police, Bombay, has sent the following letter, says *Times*

of India, on the vaccination of pilgrims in Bombay: I have the honor to submit a report by the Protector of Pilgrims upon the vaccination campaign which was instituted by us during the recent out-going pilgrim system. It will be seen that the total number of pilgrims vaccinated in Bombay was 8,278, or nearly half the total number that arrived in the city on their way to the Hedjaz. In view of the fact that this is the first year in which any organized attempt has been made to introduce vaccination among Hajis and that at the outset there was some opposition to the measure, the result may, I think, be regarded as very encouraging. Moreover, the letter which was addressed by the Government of India at the request of the Bombay Government to other local and provincial authorities asking that intending pilgrims from these parts might be warned of the desirability of getting themselves vaccinated before leaving their homes, produced an excellent effect and resulted in considerable numbers from Bhopal, the United Provinces, the Punjab and Hyderabad being vaccinated before they reached Bombay. These persons have not been included in the total of 8,278, which represents the number actually vaccinated within Bombay City limits. Thanks are due to the Governments of His Highness the Nizam and Her Highness the Begam of Bhopal, in that scarcely a single pilgrim was permitted to leave their respective States unvaccinated. If the numbers of vaccinated pilgrims from these States and the two provinces mentioned above are added to the local total of 8,278 the number of vaccinated would amount to considerable more than half the total number of pilgrims who passed through Bombay to Jedda.

Apart, however, from the actual numbers vaccinated or the percentage of successful operations, the work done by the pilgrim department is in my opinion valuable in that it has proved to be possible what has hitherto been regarded as an almost impossible task, namely, the vaccination of utterly illiterate and sometimes fanatic pilgrims from all parts of India, from China, the Straits Settlements, and Central Asia. In fact, when once the department and the brokers had set to work, no one responded more readily to persuasion than the Bukharis and the Javanese. Even the Moplahs of Malabar yielded

readily to advice given in their own tongue. As the results are likely to be of interest to the Municipal Corporation, I venture to suggest that the above facts be made known to the municipal commissioner, whose vaccination staff certainly deserves great praise.

The Government passed the following resolution: "The Governor in Council desires to congratulate Mr. Edwards, his staff and the non-official gentlemen who lent their assistance, on the success of their endeavors to get pilgrims vaccinated before embarkation. His Excellency in Council will watch with interest the effect on the health of the returning pilgrims of these operations, and the subject should be specially dealt with in the report to be submitted at the close of the return season. A copy of the report and accompaniments should be forwarded to the Municipal Commissioner for the city of Bombay for information."

"Germ Carriers" in Australia.

The head of the Bacteriological Laboratory of the University of Melbourne, Dr. Bull, refers in his last annual report to the increasing importance attached by all epidemiological authorities to the "germ carriers" in the maintenance and spread of epidemic diseases. While examinations in regard to typhoid and tuberculosis had varied very slightly during the last five years, diphtheria examinations had increased from 655 to 3,956 in that period. The figures for 1908 were 1,792 while last year there was an increase of 2,065 on that total. This is no doubt due to the increasing importance attached by medical practitioners to the systematic bacteriological examinations of suspected diphtheritic throats, and indicates an active coöperation of the public health department and medical men in dealing with the problem of diphtheria prevention by the detection of "chronic diphtheria carriers." From a laboratory point of view this involves a very systematic examination of specimens, not only from convalescent patients, in order to ascertain whether they are free to mix naturally with the community at large, but also in case of diphtheria from the nose and throat of all "contacts." The amount of bacteriological work required to deal with the detection of germ carriers, says an Australian contemporary, "is very considerable, but it is obvious that no me-

thod of dealing with infectious diseases, such as diphtheria, typhoid fever, and probably others, will be satisfactory and efficient which does not take notice of the importance of these so-called healthy contacts, who yet harbor virulent organisms, as a factor in the spread of these diseases. But the difficulty arises when we come to consider how to deal with these disease carriers. This is a problem which is engaging the attention of public health experts all over the world, and has not yet received satisfactory solution."

Hygienic Precautions in British Shaving Saloons.

Dr. Wolstenholme, medical adviser to the Salford, England, Hairdressers' Association, lately gave a lecture to the members, in which he dealt with what is known as a "clean shave"; he meant one that not only made a person look clean, but which left no disease behind it, and to this end the hands and all the appliances of the barber, as well as the face of the customer, must be free from germs which cause disease. He next gave a popular account of the general characters of bacteria, and pointed out that most of the diseases of special importance to hairdressers were due to germs which are always to be found on the skin, lips, hands, and mouth of both the hairdresser and the customer, and that to cause local disease there must be some abrasion or some irritation of the skin. It was also probable that the health of the person infected must be in some peculiar condition. The germs might be carried by any of the appliances used by the barber, such as towels, brushes, the fingers used in lathering, the razor, sponges, etc. He understood that the British Hairdressers' Association had made arrangements with the university authorities to make a full bacteriological inquiry to find out which of the barber's implements it was that carried the infection. In order to destroy the germs, he pointed out either heat or antiseptics might be used, but that both must be of considerable strength, and used for a sufficient length of time. Probably the best plan for all the instruments was to boil them for at least twenty minutes, and some inexpensive arrangement for use with a gas burner should be obtained. Towels should only be used once, and then washed and thoroughly boiled. The razor should be wiped, not on bits of newspaper, but

on fresh pieces off a sanitary roll, and it should be sterilized by boiling for at least five minutes. A number of brushes and sponges should be kept, boiled each time after use, and then kept in a solution of 1 in 20 carbolic acid, or 1 in 1,000 perchloride of mercury, and rinsed out in boiling water before use. Some useful hints were then given as to the fitting up of a shop with a view to antiseptic precautions. Particular stress was laid on the fact that after a slight abrasion customers might often infect themselves by rubbing their faces with a dirty hand or handkerchief. As a styptic for a cut there was nothing better for general use than calcined alum applied on a piece of sterilized cotton wool. As far as ringworm was concerned, for practical purposes the barbers should act as if it were possible for ringworm of the chin to be caught from ringworm of the head or body. Combs should be soaked in 1 in 20 carbolic acid and rinsed before use, while scissors and clippers should first be taken to pieces and then sterilized by boiling. Referring to prosecutions against hairdressers, Dr. Wolstenholme said that in every case it was absolutely necessary for the barber to be able to prove that he had taken every possible precaution in sterilizing his implements and using antiseptics to prevent the possible spread of disease.

Commenting on the above lecture, the *British Medical Journal* says: "The interest taken in the use of aseptic and antiseptic methods has no doubt been stimulated by actions for damages brought against hairdressers. In some cases claims for damages made on account of skin diseases said to have been caused by foul shaves have little ground in fact, and in most cases there must be the greatest difficulty in proving that a shave was the direct cause of disease, apart from any pre-existing causes present on the customer's face. The possibility, however, is such that the hairdressers' associations throughout the country are evidently roused to the necessity of using more scientific methods."

The Dental Situation in Germany.

In an address awhile ago before a gathering of physicians in Berlin, Professor Dr. Jessen presented a review of the dental situation in Germany, the speaker being recognized as the leading authority on the subject in all Europe. "Until about the

year 1885," said Dr. Jessen, "the care of the teeth was completely neglected in Germany. While the other principles of general hygiene were fully understood and appreciated, dentistry still remained, so to speak, the stepchild of medical science. In 1884 the first dental institutes were founded in Leipsic and Berlin, and a little later in Breslau. Thus dentistry was put in the way of becoming a factor in raising the standard of national health. There is now a dental institute in nearly every university, but still there are many of them due to private initiative and some of them are still deprived of proper assistance from the State. The progress of the movement in Germany was far from coming into full swing, since institutions connected with universities must be used for scientific purposes and the training of students, and therefore could not go directly to the education of the masses. They could not lay directly before the people the importance of the care of the teeth in general hygiene, but they sowed the first seed in treating poor patients in the university schools."

The story of Dr. Jessen goes on to outline the rise of the present larger movement in the country, which includes schools, institutions and the army. In about 1890 Dr. Rose, of Freiburg, in Brisgau, began to examine school children and soldiers in order to establish statistics of dental caries among the people. By his reports he drew the attention of influential circles to the danger which through the teeth threatens the national health. A further step was taken in this matter by the Dental Polyclinic of Strasburg University, which did not limit itself to examination, but considered treatment, especially the treatment of the poor gratis, children and adults. The immediate result was the slow development of the first municipal dental infirmary, which began its work in 1902.

In December of the same year Darmstadt opened a dental hospital for school children, founded by the Association of Dentists of Hesse, and in Hanover a similar institution had already been established by the local association, that of Niedersachsen. The country evidently was ripe for such a movement and during the next few years school clinics were established subsidized by the municipal authorities. Dental aid for school children has thus far been instituted in thirty-three German

towns. Thanks to the influence of these as well as to the distribution of booklets on dental hygiene, not only the authorities and well-informed classes, but also a great part of the less wealthy population now thoroughly understand the importance of proper care of the teeth.

Some of the results of the investigations in Germany show the widespread character of dental defects. It has been proven by the inspection of more than 150,000 school children that on an average nine out of every ten have carious teeth. The figures are in striking confirmation of Dr. Jessen's own statements, when, in 1898, he found from an examination of ten thousand school children in Strasburg, that less than five per cent., one in twenty, had good teeth. "That such unhealthy conditions of the mouth must hamper materially the physical and intellectual development of the child, need no longer be debated, for authorities now agree that the oral cavity is the entrance-gate for many illnesses."

To what extent these injuries exist even in earliest childhood is a matter to which we are not as yet fully awake. The facts have been established in Strasburg, where the infant schools have been under inspection. There are 32 such schools, an old French institution, a relic of the Strasburg before the war of 1870. These infant schools had an attendance in 1908 of 4,371 boys and girls, of from three to six years of age, half of the children being examined by dentists. For the purposes of comparison an equal number of children of the next age-group, six to eight years, were examined. In the former group 9,427 defective teeth were found, and in the latter group, 11,701. Among the little children only sixteen per cent. had sound teeth, which decreased in the older group to only seven per cent. This tremendous increase of dental deficiency progresses steadily, if no check is put upon it. The changing of the teeth, which lasts from the seventh to the twelfth year, cannot put a stop to the harm, for the disease is contagious, and the second teeth are affected by the decayed milk teeth as soon as they appear. The result for many children is that when they leave school, the mouth is completely diseased.

It is possible to follow the course of dental disease in the male sex only through the statistics at the time of enlistment for military service. From this time facts and

figures are readily attainable. The percentage of men in the army with perfect teeth is not greater than six. When one realizes that the soldiers represent the selection of healthy and physically efficient men, and considers further the great number of men unfit for service, it becomes evident that the average of population with sound teeth must be much lower. "In the light of these facts," continues Dr. Jessen, "there can be no doubt that the school and the army must suffer, the more so since it is now known that defective teeth favor the spread of infectious disease to a considerable degree. The struggle by the authorities against dental diseases is therefore indispensable for school and army."

The school must lay the foundation—and this is equally true in this country, where the army is replaced by the host of business men to whom health means prosperity and progress individually, and whose prosperity means national advance. It is, therefore, the duty of the municipal authorities to look very carefully to the dental conditions in the schools and to provide means for their improvement.

What the cost may be is a matter not forgotten by Dr. Jessen. In Strasburg, under the favorable conditions which reduced the expenses, the care of the examination cost the municipality a little more than twelve cents a scholar in the year 1908. "Experience has taught me," said the speaker, "that every large town must pay one mark (twenty-five cents) per annum for each school child. This average should, however, be considered the maximum for carrying out the whole scheme." In this it would seem as if the speaker had included the fitting up of the municipal dental offices. Of course, these figures cannot be accepted for countries outside of Germany where all of the elements contributing to the matter may be under higher cost.

Fundamental to the general movement for the proper care of the teeth of school children is education. The first steps are to be taken by the teacher, who must instruct the children in the importance of the part played by the mouth and teeth in the whole organism. In Germany there is now plenty of material whereby the teacher may be made competent for this work of instruction, while there are also books and wall pictures for teaching the children. In Prussia an enactment of the Depart-

ment of the Interior expressly requires that good, instructive pictures relating to the construction and functions of the human body shall be provided for every school. But instruction by itself is not the whole work, it forms only the foundation. The final aim must be everywhere dental treatment of the children, and for the poor children, this must be at the expense of the municipality. For large cities, dental infirmaries must be founded for school children. In the smaller towns it will be essential to appoint school dentists who may not be required to give their whole time to the work. Villages may find it advantageous to club together and pay a school dentist, who can go from place to place and thus create a "flying" clinic. For the smaller town a suitable room can always be found to serve for a school dental infirmary, but for the capitals, there must be a central institute with a branch establishment. Through the whole system, it is necessary to observe the children from their entrance to the school until they leave it.

The founding of school-dental-surgeries is, however, not all. The machinery is provided, but the patients are still to come. Parents and children alike are inert to novelties, especially in the way of medical treatment. The education in hygiene in the schools will be a great help, but other agencies must be invoked. Other social, beneficent institutions must exert their helpful influence. In Strasburg no child is admitted to the "holiday colony" without a certificate to the effect that its mouth is healthy while the four thousand kindergarteners are not admitted without having their teeth put in order. The same can be said of orphanages and institutions of the kind and of reformatories. As an additional argument showing the need of care of the teeth, Professor Miller, formerly of Berlin, proved conclusively that the mouth is inhabited by numerous micro-organisms, among which are many that occasion disease, such as those of tuberculosis. From an unhealthy mouth infectious diseases are not only carried down into the body, but may be coughed out or ejected and passed on to other persons. One of the most efficient means of preventing the spread of infectious disease must be to render the mouth healthy first of all. This can be obtained only for the generality of people by treatment of the teeth in the schools.

The novelty of the method is such that figures are as yet lacking to prove the effect of such work on the health of the community. But in the children in the German cities where a system of inspection has several years' standing, results for the better are evident. In one of these cities, the school inspector, Dr. Motz, reports in this fashion: "By means of the school and the school-dental-infirmaries, parents, children and teachers have acquired much clearer insight into the importance of the care of the teeth. An increase of physical strength and intellectual capacity is noticeable among the pupils and more time is gained for the lessons."

Social Hygiene in Wilmersdorf.

An interesting experiment in social hygienics is being made by the town council of Wilmersdorf, a flourishing western suburb of Berlin. In the belief that valuable aid can be given in the fight against tuberculosis by acquainting the people with the nature of the disease and by showing them the means of avoiding it, the council has opened an exhibition in the great hall of one of the modern high schools. The exhibition has been arranged and prepared by the Wilmersdorf Board of Health and the German Central Committee for Combating Tuberculosis, and its direction is in the hands of medical experts.

In one section the origin and spread of tuberculosis are explained pictorially in a manner suited to the comprehension of the ordinary layman. A second section contains anatomical preparations which show, on the one hand, the exact appearance in natural colors of various organs of the human body, and, on the other hand, the appearance of the same organs when affected with tuberculosis. A third section is devoted to the means of combating the disease. Tables are hung on the walls showing the favorable influence on mortality rates of social legislation and the eminent success achieved by the outdoor treatment for tuberculosis, so energetically championed by the administrative authorities of the State insurance funds for workmen.

The exhibition is open free to the public daily from three to ten o'clock, the mornings being reserved for the visits of pupils of both sexes in the two upper classes of all the municipal schools. Each batch of children will be accompanied by a teacher

or medical men, who will explain the exhibits and their object. This idea of awakening the attention of young members of the community to the perils of tuberculosis and of preparing them at the start of life is much lauded by the newspapers. In the evenings popular lectures will be delivered of a social hygienic or medical character by authorities on the subject; one of the first being on tuberculosis and the care of the mouth, and another on centres of information for alcoholists and persons afflicted with tuberculous germs.

Vienna and High Buildings.

A commission of experts appointed to conduct an official investigation with a view of reforming the building regulations of Vienna has discussed the advisability of the erection of "sky-scraper" office buildings. An exhaustive debate covering the aesthetic, hygienic, technical and economical sides of the question resulted in the unanimous decision that such buildings would neither improve nor cheapen the housing conditions of the city. There are no "sky-scrapers" in Vienna. The height of the buildings along the widest thoroughfares does not exceed five storeys, and the authorities peremptorily refuse to permit a greater height.

Manchuria and the Plague.

A valuable paper on the outbreak of pulmonary plague in Manchuria was read recently before the French Academy of Medicine by one of the leading French medical scientists, Professor Chantemesse, who had prepared it in collaboration with his colleague, Dr. Borel.

Professor Chantemesse attributed the origin of the outbreak to the hunting of a species of beaver, known locally as the tarbagan, in Western Mongolia, to the east of Lake Baikal. This animal, which is found in great numbers there, and which is much sought after for its fur, is peculiarly liable to attack by the plague virus. This fact has long been known; and it is equally well known that in their haunts along several of the Siberian rivers they infect each other constantly. In the autumn of last year a number of trappers were engaged in hunting these tarbagans; and towards the end of October six of them, who had killed a large number and had handled their skins, were attacked, in succession, by an illness that began by vio-

lent fits of coughing, followed by an abundant expectoration of blood, and then by death. This was the pulmonary plague. The malady spread with fearful rapidity. The Mongolian peasants, terror-stricken, fled from their villages, and many of them, making their way to the railway that runs to Kharbin, carried the germs of the disease into Manchuria. There the Chinese received the infection, and suffered in enormous numbers; but they did their best to conceal the existence of the epidemic, and by this means precious time was lost in which it might have been possible to suppress the scourge there and then.

When, at last, the Chinese gave the alarm to the Russian authorities, the rigorous measures that were taken—the isolation of the infected, the burning of the dead and of contaminated dwellings, the institution of quarantine stations for those who had been liable to infection—could no longer cope with the epidemic. When an outbreak occurred at Wetianka, on the Volga, in 1878, the Russian peasants were absolutely inhuman in the violent steps they took to drive away from all human companionship people who had merely been in an infected area. And this was an outbreak of bubonic plague, which is much less infectious than the pulmonary variety. The Chinese peasant, on the other hand, rebels against all attempts at isolation; and the epidemic is spreading, not in a few scattered villages, as was the case in Russia, but in densely populated districts. The local conditions, too, are peculiarly favorable to the spread of the epidemic. Dr. Matignon, describing the condition of things in Manchuria recently, pointed out that, in the winter, the dwellings are crowded, every room accommodating a large number of people. Every door and window is kept tightly closed, and every opening blocked with paper. They are heated by a long, low stove that is used by everybody as a kind of camp-bed. Amid such surroundings any complaint that can be propagated by expectoration, or through the instrumentality of parasites, can hardly fail to spread rapidly.

The characteristic feature of the epidemic is the extreme virulence of the germ, and very few people who are attacked by it recover. In Manchuria, according to Dr. Paul Haffkine, pulmonary plague is produced by a bacillus that does not differ in species from that which pro-

duces bubonic plague. Many methods of treatment have been tried—the Yersin serum, collargol, the new “606” remedy, and others—but none have proved effectual. Of the crowd of patients whom Haffkine himself treated in the course of a fortnight, not one recovered; and the majority of the sufferers are men of from twenty to forty years of age, and those who have the slightest tubercular tendency become the easiest victims of the disease.

The rapidity with which the epidemic has spread has been remarkable. On October 29, on the Russo-Chinese frontier and Manchuria, 26 cases and 15 deaths were reported. Three days later 178 people had been attacked; by November 8 the epidemic had reached Kharbin; by the end of the month 526 cases and 524 deaths had been reported. Since then the victims have been numbered in thousands. On January 1 two cases developed in a train on the South Manchurian Railway, which is under Japanese management. By the 5th there was one case, and by the 8th there were 13 cases at Mukden. The Japanese are making desperate efforts to stem the spread of the epidemic, and the infected area is gradually being isolated, though the Chinese sufferers themselves put every possible obstacle in the way. The work is made difficult, of course, by the fact that the disease cannot be detected in its early stages. After many years of discussion and doubt, Haffkine has convinced himself that the period of incubation is six or seven days; and in that time, of course, an infected man may travel many thousands of miles, carrying the disease with him quite innocently.

It is not likely, however, that the epidemic will spread to very distant countries—to western Europe, for instance—though the danger would be greater if the epidemic worked its way stage by stage, establishing centres that came gradually nearer. The season of the year, too, makes this less probable, for, unlike cholera epidemics, which flourish in the summer, great epidemics of plague have always developed in the winter. A diminution of an epidemic by the return of warm weather does not necessarily mean its suppression, however. It is found that, in spite of every precaution, plague does not entirely disappear from a locality in which it has once been seriously epidemic—as, in the case of bubonic plague, we have seen in India and

in Egypt.

The principal method of resistance to the infection that is being employed in Manchuria is a double inoculation with bacilli that have been subjected to intense heat—a method introduced by Dr. Haffkine, who had used it in India. After the first infection several members of the medical corps died; but after the period of incubation that followed the second inoculation—the patients so inoculated, of course, being kept from all contagion during this time—all the 130 people who were thus treated had remained free from infection from the last week of December, when the inoculation took place, until the tenth of February, when the circumstances were reported, notwithstanding that they were constantly exposed to contagion in the performance of their duties.

Accident Prevention in the "Fatherland"

The loss through industrial accidents in Germany has been reduced fifty per cent. in recent years. This has been accomplished by the adoption of preventive measures, in the development of which Germany leads. The reason for the progressiveness of Germany in this respect is undoubtedly the compulsory accident insurance law, which furnishes employers a direct pecuniary incentive to reduce the number of accidents to a minimum. Under the administration of the act firms are classified according to the degree of danger involved in the employment, and accident insurance premiums are graded accordingly. If an establishment can make the conditions of employment safer it secures a better rating and lower premiums. This stimulus and preventive measures is one of the chief benefits to be expected from an effective workmen's compensation law.

In an article in *American Industries*, Dr. W. H. Tolman, director of the American Museum of Safety, tells some interesting things about German methods of accident prevention. He writes: "Practically all the German trade associations issue books and pamphlets with special hints and regulations for accident prevention. In addition to technical descriptions of the safety appliances themselves, the experience of the entire trade in dealing with dangerous parts of machines and processes is summarized for the benefit of the employer and his workmen. . . Attention is called to the fact that four recent acci-

dents, every one of which could have been prevented by the use of a safety device, will entail payment of \$40,000 upon the association, if the four crippled men live to the normal old age. The safety devices would have cost \$210. Nearly all the trade associations issue special rules, pamphlets and posters directing attention to the danger and menace of alcoholism, especially during working hours; temperance in the use of alcohol at other times — indicating that it is not a food — the feeling of gayety induced is caused by a mistaken impression of the brain, and that it does not enable the workmen to do more; that the moderate use of alcohol is not so bad, but its abuse sent more than 15,000 persons last year to prisons and reformatories.

"Easily comprehended pamphlets call attention to hints and suggestions in the choice of a trade, showing that heart, respiratory, skin, and eye diseases are to be expected in certain trades, and that workmen predisposed to weakness in those occupational diseases should be very careful in seeking employment. The necessity of pure air as a counter-irritant of tuberculosis; cleanliness and regularity in the general manner of life, particularly of the mouth and teeth; the use of a bath once a week, otherwise two soap scrubs.

"These are some of the ways in which Germany is preventing fifty per cent. of the annual toll of industrial accidents. Popular lectures, the distribution of simple pamphlets and documents, are other methods. This educational propaganda starts in the readers placed in the hands of the school children, inculcating ideas of safety and caution at the very threshold of the child's life."

House Drainage in Bombay.

Under the auspices of the Bombay Sanitary Association, Mr. E. W. Fritchley, an architect of Bombay, recently delivered a public lecture on "Hints on House Drainage and Sanitary Fittings in Bombay," in the rooms of the Society of Architects, Hornby road, Bombay.

The lecturer in the course of his remarks said: The first point that occurs to one is the necessity of having the bores of the pipes perfectly smoothed and unobstructed, so that there may be no tendency for any matter to gather at any point of the pipe, and gradually to choke the same, and prevent a free discharge into the main

sewers. To secure this, great care should be taken during the laying of stoneware pipes to see that they are properly bedded in concrete, and also that the pipes themselves are from a good firm of manufacturers. The bore of the pipe, when laid, should be tested both by the smoke and also by the mirror test; the former is done by burning grass and wood shavings at one end of the pipe and carefully watching to see if the smoke escapes at any of the joints along its entire length, for, where smoke escapes, water is also likely to leak out and foul the ground around that point. The gradient of a pipe is another matter to which thoughtful attention should be given, for the steeper that gradient is the stronger will be the flow. The tendency of plumbers, so far as my experience goes, is to lay pipes as horizontal as possible, instead of taking advantage of every inch available for increasing the gradient. With reference to vertical down-take pipes, it is not at all uncommon to find them leaking at the joints. This is clearly a sign of bad workmanship, and as it is easily noticeable, the plumber who is found guilty of neglect of this kind should be brought to book by the municipal authorities. If plumbers were to feel that their licenses are likely to be cancelled when defects of this nature are found in their work they would probably be more careful in seeing that the work is properly done. I particularly urge this matter, because where water escapes foul gases also more readily escape, and the whole atmosphere around the building is likely to be vitiated thereby. The facility provided by cleansing screws for the cleaning of down-take pipes is one to which I would like to draw your special attention. Were the cleansing screws of Bombay pipes examined, it would probably be found that almost all of them are painted over, and no thought whatever is given to ever having them opened up. I would be strongly in favor of the municipal health authorities insisting that these brass screws be left unpainted, and also that at the final inspection made by the municipal authorities, before the usual occupancy certificate is given, each of these screws be opened up to see if they are in working order.

School Buildings in Bath.

With reference to the school buildings in Bath, England, Dr. W. H. Symons, school

and medical officer, notes in his report that "we are very much behind the Continental standard in our school structures and in our standard of cleanliness for school children. The school bath has become a recognized feature in many countries." In Germany, it appears, there is no town having a public water supply, where some of the schoolhouses are not furnished with baths, and the children in schools not having a bath of their own are sent to other schools for their weekly cleansing. "An installation of shower baths need not be any great expense," writes Dr. Symons, "and I hope that Bath will follow the example of Bradford, St. Pancras, Manchester, Norwich and other towns in making arrangements for the regular bathing of all school children." The influence of the bath on the general health and capacity is too obvious and there can be no doubt about bathing being a true economy. With reference to the ventilation of schools, Dr. Symons advocates large window spaces in the school walls that can be opened. These should be so large that drafts will be avoided, there being a choice of openings so that a wind blowing directly in may be avoided. "We should make our schools approach the open-air school as nearly as possible."

"By attending to the personal cleanliness of the children," continues Dr. Symons, "including their teeth, and by letting them work in the fresh air, we shall do much to remedy those defects of nutrition and the incapacity for work and pleasure that the school inspections have brought so prominently before us." About two-thirds of the school children at Bath are poorly nourished, and it is not the children of the poorest families that are in this condition, but the children of parents who attempt to keep them respectable by keeping them in the house. A great benefit of fresh air in the school room is that when the children get used to it, they will soon demand of their parents fresh air in the home, and the parents themselves will be educated and the open window be in use everywhere. The common mistake is shown by this physician of keeping the windows open during the time the room is empty.

The air should be changed after the room has been occupied, but when the flushing is complete, the windows may be shut to let the walls and the furniture get warm. When these are of good temperature they will radiate gently for some

hours. Dr. Symons, by the way, registers an emphatic protest against the latrine as commonly in use in this country, being particularly offensive when, as is often the case, the supply of water for flushing is limited in amount. "We should see that the school surroundings are at least equal in decency to those of the average of homes." With reference to the open-air school in England, this writer gives a bit of the history. The first school of the kind, it seems, was provided by the London County Council at Bostall Woods in 1907. The school was opened on July 22 with 112 children. In 1908, similar schools were opened at Norwich, Halifax and Bradford, and in the intervening years many have been established.

Experimenting with the Berlin Waiter's Serviette.

Medical scientists in Europe are begin-

ning to take a very antagonistic interest in the restaurant and hotel waiter's serviette, that handy and not always overly clean square of hemmed linen which the waiter carries over his arm and with which he dusts chairs, sweeps crumbs off the table, swishes flies away, polishes your plate, goblet, knife and fork, and sometimes mops his own forehead.

The crusade is being led by Professor Kron, of Berlin, who has been collecting serviettes after use by waiters and submitting them to microscopical inspection. He has pointed out the danger to health in using one serviette for so many purposes. Germs of disease have been found on these napkins after they had been in use for less than one hour. Professor Kron is in favor of laws requiring the constant renewal of serviettes, if the waiter must use them at all, and prohibiting him from using the serviette for more than one purpose.

