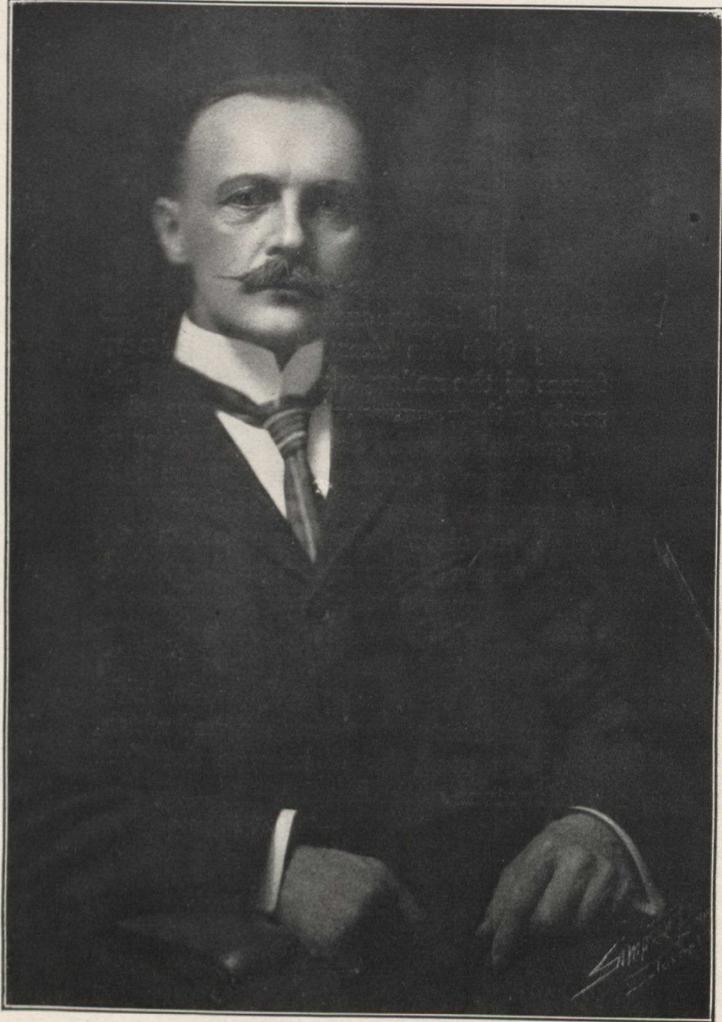


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What then is the profession of public health? It is the cure of bodies in the mass; it is the charge of the primary forces of the nation, which correspond directly to their environment and are capable of gradual atrophy through neglect or of almost infinite developement by the light of modern knowledge; of forces on which in almost direct proportion depend the effective commercial, mental, spiritual power of the country; of forces which should be the first care of government and often have been its last, which can be and actually are in large measure affected by legislation and which, if rightly used, should become the chief corner stone of the Empire.

—Francis Fremantle.



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Special Articles

SANITATION AND HYGIENE

BY MAJOR J. T. CLARKE, P.A.M.C.

To a person who lives all the year round in a city, the problem of Sanitation is not a very serious one, as the Municipality does nearly everything in that line for him. It inspects his food supply, removes his garbage and refuse, furnishes him with an abundant supply of tested water, isolates and treats his contagious diseases, and by enforcing restrictions in regard to house-plumbing and drainage, removes his excreta immediately and without nuisance, to a place where it can be treated either naturally or artificially, in such a way as to avoid the danger of carrying or producing disease. To the city man then, the question of Sanitation is largely one of personal cleanliness, the ventilation and renovation of his rooms, precaution against flies, the proper care of food on the premises, and the prompt report of any failure of the Municipal employees in carrying out their duties. To the man who goes to a Military Camp, however, either in peace or in war, and to the man who lives a few months of the year with a large family, in an ordinary in-expensive summer cottage, the study of sanitation becomes very interesting and important; for then it is only by an intelligent application to these questions, and a

strict observance of Sanitary principles by each and every person, that danger of serious disease, and annoying nuisance can be avoided.

From a Military standpoint, it is much more important to be a good Sanitarian and so ward off disease, than it is to have great therapeutic skill; for in order to exercise the latter, you must have patients, and that is just what we do not want; as every man in hospital means, not only a loss to the fighting force but a tax on his comrades to care for and transport him. I do not propose to weary this Society with any detailed account of the duties and work of the Military Sanitary Service, but it might be of interest to point out some of the things we do along that line; and to describe some of the simple methods we use to strive to attain our ends.

In the first place we try to make every soldier of whatever rank, a keen sanitarian. All soldiers know of the terrible scourges of intestinal diseases that have devastated armies in the past; carrying off several times as many as the bullets did; and if they can once be made to plainly understand that the rigid observance of sanitary rules will certainly ward off dis-

eases, and that, conversely, the neglect of these precautions will surely sow the seeds of trouble;—if we can get this knowledge well implanted, it is wonderful how well the men will co-operate in carrying out the sanitary instructions. We therefore arrange for concise, lucid features, to all ranks, along these lines; and the officers in all branches of the Service have to pass examinations in Sanitation before getting promotion. In camps, the disposal of garbage and refuse is a very important question. Whenever a lot of men go into Camp together, the accumulation of garbage soon becomes enormous; especially as the soldier's daily ration is a very liberal one in the plain foods. Tommy is very prone to supplement his rations with fancy stuff from the canteen, and so a lot of food is left over. This has to be thrown away, because the next day's rations come along just the same. If the garbage is allowed to accumulate, it not only furnishes excellent culture media for bacteria of all kinds, but affords the best kind of a feeding and breeding place for the common house-fly, which is really one of the worst enemies the soldier has to encounter. In the disposal of garbage and refuse, we adhere to the old rule: "Burn all you can, and bury the rest"; but we try to leave as little as possible for burial. The Field Incinerators, pictures of which are shown, are very easily constructed at any Camp or summer cottage, and it is astonishing to see the vast quantities of wet garbage, each one will consume without producing any nuisance whatever, except a little ordinary smoke. To prepare for it, a couple of cross trenches are dug, crossing at the middle at right angles. See diagram. They are each 9 feet long, 1 foot wide and 1 foot deep, and at the outer ends are splayed out; making a large opening for draught. The square in the middle is covered by a grating, such as a few iron rods, and an ordinary sugar barrel with both ends knocked out, is stood over it for the chimney. Next the trenches from the edge of the barrel to the splayed ends are covered by boards or branches, and wetted clay is closely packed all around the barrel. Outside of the clay, sods are placed giving the whole a neat appearance. To make a fire, the splayed opening toward the wind is left open, and the other three covered. A fire is then kindled

in the bottom of the barrel, and when it has once got well started, the garbage may be fed in. There is very little danger of choking the fire, as the draught is excellent. Of course the barrel is soon all burned away, and you have a clay chimney which lasts well. To prepare kitchen garbage for the incinerator, we have a garbage barrel on a soak-pit. For the soak-pit, we dig a pair of cross trenches of the same dimensions as for the incinerator, except that they are 12 feet long. See diagram. Over the middle square places we stand a solid coal-oil barrel with 10 or 12 auger holes in the bottom.

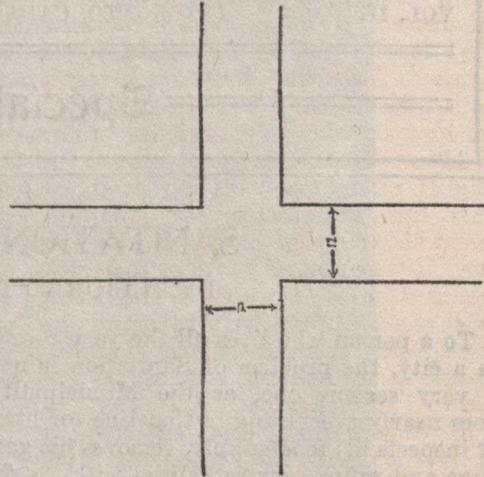


Fig 1.—Incinerator Plan of Trenches.

Two Trenches 8 ft. in length crossing in centre, width 1 ft., depth 1 ft. at centre, and sloping gradually to level at ends.

First—Dig trenches, dimensions as above; cover each area of the trenches with some non-inflammable material for a distance of about $2\frac{1}{2}$ ft. and place iron bars on this foundation to form a grating.

Then cover the four trenches completely, provide a close fitting cover for the barrel, and our apparatus is complete. This not only strains off the fluids, but soaks them away in the earth; whereas, if they are thrown on the ground-surface, they make a thriving breeding place for germs and flies. A convenient extra fitting for the garbage barrel is a rectangular box which just fits inside the barrel, into which all the slops and garbage are thrown. The sides and bottom are pierced by many auger holes which strain off the liquid. This box can be conveniently lifted out and emptied into the incinerator by means of handles made of auger holes near the top. This combination of incinerator and garbage barrel is to be highly recommended, for

country houses. You can see many of them in every up-to-date Militia Camp. For the disposal of bulky refuse, such as horse litter and dead bodies of animals, we use large incinerators constructed as follows:—Dig a circular pit 15 feet in diameter and 6 feet deep. This is floored, and walled in with stones; and a stone pyramid is built up in the centre. A fire is started around the pyramid and the draught is so perfect, that huge quantities of refuse can be rapidly burned; even the dead body of a horse can be completely incinerated in a few hours. Camp Orders are issued which make it a crime to deposit refuse or to let it accumulate except in these receptacles provided for it; and in this manner, we have gone a long way toward making a healthy Camp. Next, a word or two about latrines and urinals:—The strictest orders should always be laid down to ensure the covering of all excreta with dry earth, or earth and lime, immediately it is deposited. Men must be trained to always do this and punished if they neglect it. The materials are provided in the latrines. We all know how well the house fly likes to spend the idle time, when there is nothing doing in the kitchens, in roaming around on the contents of the latrines; and then as soon as the cooks begin to uncover things for a meal how they all flock over, and crawl on the food and dishes without wiping their feet on the mat. This is, without doubt, the explanation of much of the gastro-intestinal trouble that so many people suffer from when they go to Camp or to the country. How important it is then, that the flies should find nothing at the latrines to crawl over but earth or lime. Where flies are bad we frequently go to the extent of installing screen doors and windows on latrines; and we always provide that articles of food should be kept covered except at meal times. Deep latrine trenches are a mistake; as the bacteria which neutralize the excreta and render it inert, are nearly all found in the upper nine inches of the earth. It is therefore, wise to have shallow trenches and to move the latrines frequently. A method to be strongly advised for country houses and one which is now being largely used in Camps, is the bucket system; using in the bottom of each bucket about a gallon of a solution of some good disinfectant

such as Izal. By means of a consistent use of the methods which I have detailed, we have been able to make life such a hardship to the fly, that he loses his Military ambitions, and goes back to Civil life where times are easier. Most of our Camps, within the last few years, have been remarkable for the lack of flies; and there is a corresponding improvement in the Health of the troops. Another important matter is the care of the water supply. Of late years samples of the water proposed to be used at all Camps are sent to the provincial laboratory for examination and report some weeks previous to Camp; and, if found unfit, a proper water is obtained. This course is to be strongly advised before going to a country house for the summer. For the last year, the Central Military Laboratory at Ottawa has made these examinations; also the water supply of all forts occupied by soldiers.

When on the march, and stopping at a stream for water, the rule followed is to mark off a place highest up the stream for drinking and cooking water; next below, a section for horses; and below that again, for bathing and washing purposes. On the march, the up-to-date Sanitary Officer carries a very fine field case for water analysis. With it, he can sit down by a stream and in less than three-quarters of an hour

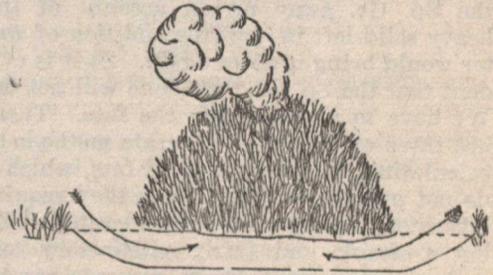


Fig 2.—Incinerator

in most cases, he can give an accurate opinion as to its potability. He precedes the Army in its march and marks the various waters it will pass; stating whether it is already fit for drinking, or whether it will require filtration, chlorination or boiling. The only kinds of filters carried are those which can be cleaned readily every day such as the Berkfield. Many water carts are now fitted with these. Where a stream or body of water is simply muddy, but pure, a good filter may be quickly constructed as

follows:—Take two barrels, of different sizes without heads. Sink the larger one in the stream and have several auger holes in it, near the bottom of the barrel. Place the smaller one inside the larger one and have several auger holes in the sides near the top. Fill the space between the two barrels with charcoal, sand or gravel, and dip out of the inner one. It will soon come clear. In such a filter the water can also be easily chlorinated. All armies on the march carry such apparatus as Forbes or Griffiths sterilizers, which will supply a large quantity per hour of cold boiled water.

The careful examination of food-stuffs is also an important matter in the preservation of health. It is comparatively easy to become a good judge of raw meat, by a little practice and using the senses of sight and smell; but passing good judgment on a sample of milk is a much more complicated matter. An ordinary sample of mixed milk containing its natural amount of cream and to which no water has been added should show a specific gravity of 1032, using a good machine such as Westphal's Balance, which is being demonstrated. Lower than 1032, would indicate a sample very rich in cream, but the addition of water would also bring the Sp. Gravity down. Likewise, extracting the cream would send the Sp. Gr. away up on account of the heavy solid left in; but the addition of water would bring it down again. So it is evident that the Sp. Gr. test alone will not do. We have to also estimate the fats. There are three or four very accurate methods of calculating the percentage of fats, which I do not propose to describe; as they require laboratory methods and considerable skill; but a simple and fairly satisfactory test and one that gives fairly accurate results is the use of the Cream Tube. This of course takes, in the neighbourhood of 24 hours; as the cream must have time to rise. The cream tube is graduated in hundredths in the upper part. See sample shown. Filling it to the top notch, you have 100 parts and the number of marks give you the percentage of cream. Average milk gives 10 per cent. cream. Much of it will give 12 per cent. cream. It is a poor milk that does not give 8 per cent. From 40 to 50 per cent. of the cream is butter fat; and the Public Health Acts lay down

3 per cent. of butter fat as the minimum. The Sp. Gr. and Cream Test will enable one to pick out the suspicious samples which can then be sent on to a Laboratory for confirmation, and a more extended examination.

Then there is the question of preservatives in milk. These are dangerous; not so much on account of the preservatives, themselves, for, with the exception of Formalin,

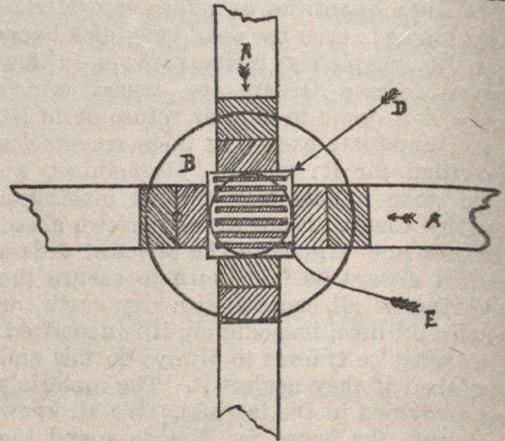


Fig. 3.—Measurements of Incenerator

- A. Trenches—Length 12 ft, depth 14 ins, width 12 to 14 ins.
 B. Wall outside flour barrel about 2 ft. thick at base, 8 ins. at top. Clay, soil and turf outside of all.
 C. Short boards supports to wall about 3 ins. wider than trench.
 D. Two short iron bars, to hold up grate, each 2 ft. long, $\frac{1}{2}$ in. diameter.
 E. Iron grate (a) 14 ins. to 18 ins. square; (b) bars $\frac{1}{2}$ in. square.
 F. Barrels—One, 30 ins. x 18 ins.
 Notes.—Trenches should be kept clean, to ensure good draught. Grates should be cast in piece. All measurements may be altered if ordinary sized barrel is not used.

the drugs are practically harmless in the proportions usually used, but, by means of preservatives it is possible for an unscrupulous dealer to dispose of milk that is undergoing partial decomposition. Unsound milk is certainly dangerous food; and, therefore, preservatives are to be condemned. Milk, naturally, will not keep. It soon goes sour owing to the action of the Lactic Acid or Butyric Acid Bacillus or both. By using preservatives with fresh milk, we postpone its going sour and this, in itself, is not so bad, but also by using these, you can check and cover up the evidences of the beginning of the souring of the milk; and this is where the trouble comes in. For example, a pinch of Carbonate of Soda added to milk just going sour, takes away the sour odour and flavour by neutralizing

the Lactic Acid as fast as it forms. Chalk has frequently been used for the same purpose. These preservatives always give to the milk an Alkaline re-action; whereas, milk should always give a slightly acid re-action, even very shortly after it is extracted from the cow. This is a very simple test which can be employed anywhere; and it gives valuable information in helping one to pick out the suspicious samples to send to the Laboratory for analysis.

A reliable test for Formalin in milk, is as follows:—Add two drops of Ferric Chloride to 10 c.c. of milk; then add 10c.c. of HCl. Shake up and heat. We get a violet colour if Formalin is present. A test

keep cool till ready for use. This degree of heat does not materially change the character of the milk, as boiling does, but is sufficient to kill the germs.

Butter is open to adulteration in water, salt, and fats. Colouring matter is frequently used also. Butter should not contain more than 15 per cent. of water; but it frequently has a much higher per cent. due to faulty mixing or, as it is generally called, "working". Butter-mixing machines are on the market whose chief recommendation to the butter-maker is, their ability to incorporate large quantities of water in the butter; which, at say 45 cts per pound is fairly profitable. To estimate the

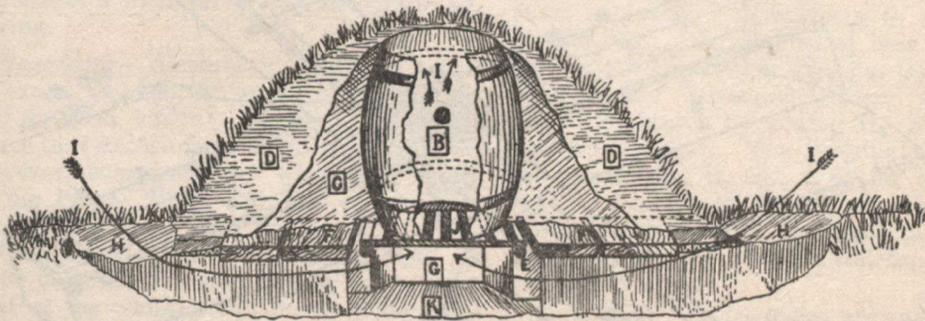


Fig. 4

A. Vertical transverse section of incinerator showing barrel in position. Layers of covering materials, etc. Made in the direction of a trench.

B. A flour barrel, head and bottom removed. Section of side removed to show grate and mode of arrangement.

C. Surrounding layer of clay 8 inches to 12 inches thick.

D. Surrounding layer of loose soil, covered with sods, 12 inches to 14 inches thick at base.

E. Bars of iron to support grate at junction of trenches (about ½-inch rods).

F. Short pieces of board to support "C" and "D" where they cross trenches.

G. Trench at right angles to trench "H" shown in section transversely.

H. Openings of trench.

I. Arrows show direction draught, intake at mouth of trenches, exit at top of barrel.

J. Grate.

K. Floor of French below grate.

for the minutest quantity of Formalin is as follows:—Make up a Sol. of 5.4 grammes of Ferric Chloride in 100 c.c. of water; also a mixture of 40 c.c. of water with 100 c.c. H_2SO_4 .

Let this cool, and add 3.5 c.c. of the Ferric Chloride sol. to H_2SO_4 mixture. This is your permanent re-agent which may be kept for use. Add 7 c.c. of this re-agent to 10 c.c. of the milk to be tested. A violet colour comes if Formalin is present. If quantity is very small, it may take half an hour to develop. It will detect 1 in 100,000,000 parts.

When there is any reason to fear the presence of Pathogenic Bacteria in milk, the best plan, as well as the simplest, is to raise it to 70 deg. C for 15 or 20 minutes, then rapidly cool it in a refrigerator and

percentage of water, weigh a certain quantity of butter, evaporate it, and weigh again. Also with salt, the maker puts in all that he thinks the customer will stand for, for obvious reasons. However, the taste is a good check here.

Some of the foreign fats mixed with butter, making what we call oleo-margarine, are tallow, lard, cotton-seed oil, palm oil, cocoanut oil, and rape-seed oil. These are not enimical to health; in fact, they are mostly good foods, but they are not butter; and most of them yield pretty large profits at the market price of butter. The only way to expose them is by estimating the Butyric Acid present in a sample. If we do not get 5 or 6 per cent. of Butyric Acid it is adulterated. This is strictly a laboratory test and requires considerable skill.

The colouring matter used is Annato and is harmless.

Bread.—Adulteration of flour is not much practiced of late years. When it is, the adulterants used are: Gypsum, Chalk, dust and dirt (from sweepings). To detect these, take a test tube one-third full of flour and fill up with Chloroform. The flour will float to the top and the minerals settle at the bottom. Alum used to be used

Alum is present it gradually turns a dirty brown.

Adulterations of Tea.—1. Faked, or exhausted tea-leaves. These are faced by adding black-lead, a little dye—such as Indigo, or Prussian Blue—and some gum. They are then rubbed up and the resulting rolls look very much like good tea. This is detected by extracting the Alkaloid-Thein. A good sample of tea gives 2 per

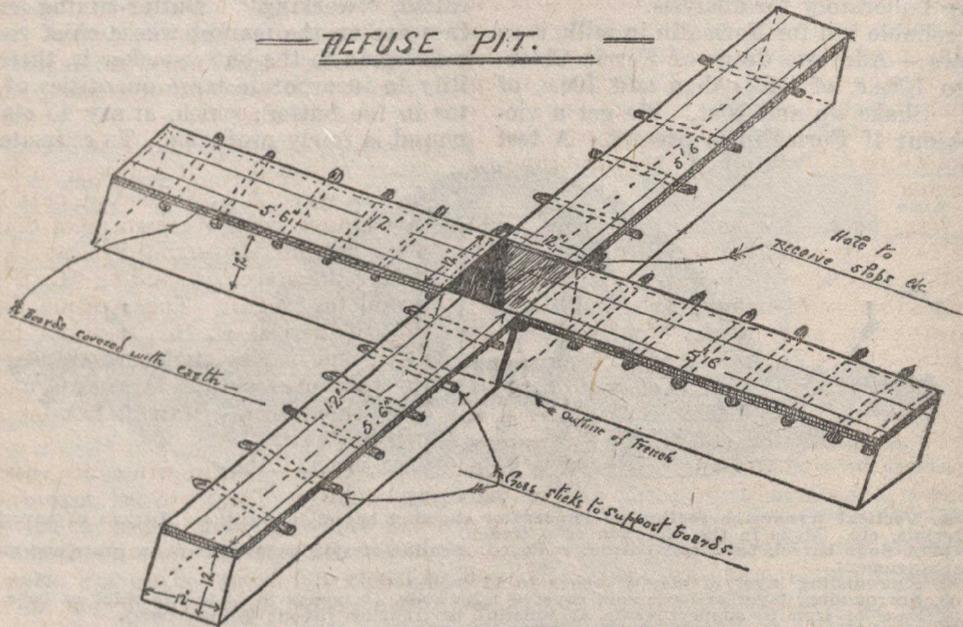


Fig. 5.—Instructions For Building Refuse Pits.

Two trenches, 12 feet long by 1 foot wide, dug crosswise leaving a chimney in the centre 1 foot square. Four pieces of board 5½ feet long to be laid over the top of the trenches, supported by cross wooden bars and covered with earth, leaving a centre chimney 1 foot square which will communicate with the four channels above mentioned. Over this opening should be placed a wooden box or barrel fitted with a cover, with bottom perforated with holes 1 inch in diameter. This will allow the liquid to drain through these holes and distribute its charge in the four trenches above mentioned, and to be finally absorbed in the ground. The solid matter will be removed twice daily and burnt in the Regimental Incinerators. Herewith is a draft of the above-mentioned Refuse Pit.

a great deal, to whiten the loaf, in the old days before the time of the roller mills. Now, the flour is white; and it is not much used, except where the baker, for reasons of economy, is using sweepings from the mill mixed in with the flour. He then finds it necessary to whiten his loaf with Alum; so if you find it present, look out for dirt, and change your baker. The Logwood test is the best for Alum. Cut the bread into little cubes, moisten with Ammonia Carbonate Sol., and put on a drop or two of an Alcoholic Sol. of Logwood chips. We get a heliotrope tint if Alum is present. Let it stand an hour or two to develop. If no

cent. Thein. The test is a long and intricate one which I shall not describe here.

2. Introducing various other leaves. This is easily detected by steeping the tea and straightening some of the leaves out in a basin of water. The characteristic shape of the leaf, the looped veining, and the notched apex, is the test.

3. Adding Iron filings. Easily detected by throwing a handful in a glass dish of water.

Coffee.—Pure, unburnt coffee gives a light colored extract, much like tea. The blackness and thickness are due to Chicory. Five to 10 per cent. of Chicory is allowed and is not called adulteration. Coffee has

fat in it and is greasy. It will therefore, float, while Chicory sinks to the bottom at once. This makes an easy test to get your percentage. In ground coffee there is much adulteration. All sorts of brown vegetable materials, whose odour, taste or colour does not give them away. A good sample of Coffee should give 1 per cent. of the Alkaloid-Caffeine. The test is the same as for tea. Fake Coffee Berry, or Process Coffee, is made of compressed burnt bread, exhausted coffee, and Chicory with a little gum or glue, pressed or moulded into a berry which is, in appearance, just like coffee; except that the slit or *hilum* is clean cut; while in the coffee bean, you can always find in the *kilum* a little bit of the membrane adhering.

Beverages.—Alcoholic. Alcohol, taken in excess, is admitted by all to be prejudicial to good health; but most observers agree that small amounts are beneficial. We, however, sometimes get wholesale injury to the Public health owing to malpractice in manufacturing and preparation.

1. Whiskey. Whiskies contain from 40 to 50 per cent. of Proof Spirit; but a great deal of the whiskey was never made from malt. Any starch in fermentation produces Ethyl Alcohol. Potatoes, apples, and other starchy vegetables, often in various stages of putrefaction, are frequently used instead of malt. This substitution is almost impossible to detect by analyzing the product; and the only way to hinder the practice is by reliable Government inspectors right at the distilleries. But although the analyst fails to detect the substitution by his tests, he can sometimes observe the effect on the consumer, as follows: Some of these foreign starches, besides producing Ethyl Alcohol (which is the alcohol ordinarily used in whiskey), also produce some of the higher alcohols: e.g. in Cider from apples, we find some Butyl alcohol. From pears, a drink is made called Perry which contains quite a considerable percentage of Amyl alcohol, which is the highest. Now the effects of the various alcohols on the human subject is interesting:—Beginning with the lowest, Methyl Alcohol, the action is quick and results pass off quickly. One can be drunk, and sober again, all in one afternoon. Next, comes Ethyl Alcohol, the one in ordinary use. The effects come on only fairly fast, and take longer than

Methyl to go off. Next higher, is Butyl Alcohol, the one found in Cider. The action is very slow. The person drinks a great deal before he begins to feel it; and then he stays under the influence a long time. The highest, is Amyl Alcohol, found in Perry. One can drink this all afternoon and evening, going to bed perfectly sober, but the next morning he is absolutely drunk and it takes a good week to get sober. The higher alcohols may be obtained by the fractional distillation of undiluted alcohol.

2. Beer. Light beers, as Lager, contain from 2 to 3 per cent. of alcohol, and heavier ones, as ales, from 6 to 7 per cent. A poison frequently found in beer of late years is Arsenic. It happens to be there, in this way: A great deal of beer is made now-a-days from other starches than malt. They use the "Inverting Process" i.e., they invert the starch by adding H_2SO_4 , thus producing sugar. The Arsenic comes in the commercial H_2SO_4 used for this purpose; and in England there are histories of several outbreaks of arsenical poisoning from this source. Marsh's test for Arsenic will detect it.

3. Wines. Cheap wines are never the real thing. They are all manufactured; and made up of anything except grapes. Red wines are the favorite cheap ones,—Clarets and Ports. They are made with a little alcohol, flavouring agents, and colouring matter. These ingredients do not give a clear mixture with water; so they have to plaster it; i.e., put in Gypsum or Plaster of Paris, which settles and clarifies it. This gives a crust which is supposed to be a mark of rare old wine; but the crust of true wine is of Cream of Tartar which is not so thick nor so hard and does not set like the Gypsum. In plastering there is a chemical action between the Calcium sulphate and Cream of Tartar, producing Potassium Sulphate which dissolves in the wine. This, in large doses, is a poison causing great depression; which accounts for some of the sensations of the "day after", when your wines are not first-class. The colouring matters commonly used are Aniline Dyes for the yellow ones, and Logwood for the reds. False wines may easily be detected by soaking some wool with it. If the wine is good, made from the grape, the colour will all wash out; while if dyes are used, the wool is dyed.

Non-Alcoholic Beverages. It should be remembered that the water is not sterilized in the manufacture of these beverages; therefore, there is a danger that they may be polluted from the start. Another danger is Lead Poisoning. Lead pipes are largely used in these factories and the Citric and Tartaric Acids of these drinks, acting on the lead, produces the poisonous ingredient.

Bottled and Canned Goods. These are convenient for use on the march, and on camping trips in the country or woods; but there is so much trickery practised in putting them up, that they are not used in the Military Ration, if food can be obtained locally. They are usually put up on the Sterile Plan; i.e., the cans or bottles, with contents are kept at boiling point for about one hour. Then stoppers or caps are put on and hermetically sealed. Some firms re-sterilize in a day or two and so catch the spores. Tins are now rarely used for the acid foods for it was found that they took up lead from the solder, sometimes in poisonous quantities. Bottles give better results and besides, give the purchaser an opportunity of examining the contents; making a good check on trickery.

Canning factories should all have careful Government inspection on the following points:—

1. For laxity in sterilizing.
2. For the use of unsound food, to begin with.
3. In the case of green vegetables the cooking destroys the bright green colour and copper salts have been used to brighten them up.
4. For the personal cleanliness of the operatives.

In the tinned goods, where there is decomposition, there is of course generation of gases, producing a pressure inside the tin so that the ends become convex instead of concave. This is an easy way of picking out bad ones; but manufacturers and dealers, instead of discarding such tins, will often prick the ends to let out the gas and then resolder; so that if you find two solder holes in one tin, look out for bad contents. The use of tainted meats for potting is difficult to handle; for they can sterilize it and destroy the smell; but this does not make it fit to eat. It can only be stopped by Government supervision at the factory. However,

on opening a tin the smell, taste and sight will give us fairly good information as to its fitness for food; but we cannot always tell the kind of meat. For example, potted chicken is nearly always veal. The old method of preserving meat by drying, still gives good results; the germs are starved out. The process of smoking meat is not so satisfactory; as a good deal of moisture is retained.

Pickles. Whole stuff, such as onions, cauliflower, and cucumbers, in bottles, and with a clear liquid, is a simple method to check, and is satisfactory. Ketchups, and tomato sauces should be watched. They are often made up of any old thing and coloured with Aniline Dyes. To test for dye, soak a piece of white silk in the ketchup for one hour. Then wash thoroughly. It should clean up and leave no stain. Aniline Dyes will permanently dye the silk. In all these canned or potted goods, there is the question of preservatives; but the testing is laboratory work except for Formalin which can be tested for the same as in milk. Sodium Sulphite is often used as a preservative to fix up tainted meat and to restore its red colour.

In this paper I have not attempted to go deeply into the question of public health, but have merely skimmed over the surface and endeavoured to bring up a few points where any practitioner can be of use to his own family and the families of his patients, without any expensive laboratory armamentarium, or any extra skill in laboratory work.

Instructions for Building Barrel Incinerator.

1. Dig trenches size given in No. 1.
2. Cover trenches for a distance of about two and a half feet with some non-inflammable material as stone or old iron, to form a supporting base for superstructure.
3. Place grating firmly, having the bars properly spaced.
4. Put barrel in position over centre of pit.
5. Place a circle of sods around barrel leaving a space about barrel, of eight inches at bottom.
6. Fill in space between barrel and sods with muck (clay and water) with which is mixed a small quantity of straw.
7. Repeat this process until top of barrel is reached, gradually narrowing towards the top as shown in No. 2.

TOWN PLANNING AND HOUSING

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In the brief time allotted for the presentation of these two important subjects, it is impossible to do more than touch upon a few of the salient features and leave to a more opportune time their presentation in an elaborated and comprehensive manner such as their importance demands.

After a careful survey of the work which is being carried on in Great Britain and Germany, one must acknowledge that we are behind the times and Canadians have made and continue to make serious mistakes in the laying out of our cities and towns and in not planning for their development.

Acknowledging this fact, it is our duty as citizens of no mean country, and one which is developing rapidly, to learn by the mistakes of the older countries of Europe and set ourselves at once and earnestly to work in an united effort to correct the evils, which can be seen in every city, every town and every village in the Dominion.

It will not do to say the future must take care of itself—our forefathers in their ignorance repeated the mistakes which they brought with them from the old land whither they emigrated to this great western country. We know now of their mistakes and the responsibility rests upon us of to-day to set to work to right those mistakes, which to-day are evils, prejudicial to the health, morality and financial well-being of our cities. We owe it to posterity, we owe it to ourselves and we owe it to our country that a rightabout be made at once and our cities put in order ere it is too late.

We need go back only a few decades in the history of Canada to judge of the rapid development of our urban population. What were Montreal and Toronto, Ottawa and Winnipeg in 1867—the year of Confederation?

A study of the census returns shows how villages have grown by leaps and bounds into cities, and how great has been the growth of many of the older cities—all of which are, from the town-planning and, in-

deed, from the housing standpoint—monstrosities.

All along the line there has been a growth. The lumber town of forty years ago is still a lumber town, overgrown, it has not risen to a realization of its importance or to the dignity of its position as the Federal Capital of a great and growing nation. Nor does the great seaport of Canada, its commercial capital, present any outstanding features to lead one to eulogize the foresight of its wealthy and intellectual citizens in regard to the manner in which they have permitted their metropolis to grow—or the system adapted of converting a once fine family residence into an apartment house or tenement of the worst type.

The town which was once the seat of Government of Upper Canada would be a finer, more dignified and healthier and wealthier city to-day if in Governor Simcoe's time some system of town planning had been applied to Muddy York—if there had been a planning of more Yonge streets which would have been highways to the outlying country districts.

Of the prairie city which forty years ago, had a population of some 250 people, it can be said there has been more good judgment shown in its planning, but even here mistakes have been made. The growth has been marvellous, but how much wealthier the municipality would have been had large portions of land been acquired by the corporation when the prices were low?

It is to be hoped in the replanning of these great cities that some at least of the natural beauties and advantages will be conserved and the indiscretions of their youthful days, at least, atoned for, it is too late to correct some of them.

We have mistakes peculiar to Canada in town planning, if we may apply this dignified term to the civic monstrosity, the result of too intimate a relationship between the land speculator and the provincial land surveyor, and here I would note the tendency which is in evidence in all

these cities, of the damnable method of warehousing humanity in apartment houses of all grades—this system will produce injurious effects which will be manifested sooner or later—and posterity will come to curse the day when they were permitted.

From various and obvious causes—chiefly the price of land and high rentals—there have sprung up in close proximity to all of our larger cities, hamlets where the mechanic, the clerk and others have purchased land and erected thereon either shacks or unpretentious homes, gradually these have grown into either villages or towns and finally have been taken into the larger corporation—in a similar manner factories have located in the outskirts of our cities and around these have been built the homes of the employees, until ultimately they too have become a part of the greater municipality—another example of a misfit in town extension. Nowhere has been a working to a common and well-thought-out scheme, having for its object the greater, the beautiful and the healthy city.

The result of this want of organization has brought us thus early in our history, up against problems which they in Europe have been dealing with for some time.

Cannot we, therefore, take a few leaves out of their books of town development and housing and properly apply them, that they may be to our advantage, not only as individuals but as municipalities?

Cities, like men, have their birth, growth and development, and it is as true of the body corporate as it is of the child, that trained up in the way it should go, when it is old it will not depart therefrom.

In this country, during the past forty years, hundreds of towns have been born and scores of them have grown into cities, but rank and disorderly has been their growth, the same being detrimental to the health of the inhabitants and expensive to the ratepayers.

Indeed, it may safely be stated, there is not a city in Canada but has been made to pay heavily in the way of increased expenditure by reason of the fact that estates within the immediate environs have been cut up into building lots and built thereon irrespective of the fact that their

ultimate end is to become a part of the greater body,—the object of the owner being simply to produce the greatest financial returns or commercial interests of the people.

It has been said of English towns, the municipality watches the "value of land being forced up to its utmost limit without the power to act in such a way as to protect the interests of the body corporate, and when the time arrives that action can be taken, it is often the case that it purchases remnants at ruinous values, in a vain attempt to rectify and satisfy the public needs."

What shall we say of Canadian cities? That unsanitary housing conditions are not confined to European countries but are to be found in Canada, was pointed out in the paper presented to the Commission of Conservation in February of this year.

Gross errors have been made and continue to be made in every Canadian city in respect to the construction of buildings.

Corporations are helpless beyond their municipal boundary and must look on with complacency at the opening up by land speculators of estate after estate. Buildings may cover these properties and yet the corporation has no power to require that provision be made for the future by requiring that adequate provision be made for open spaces, school sites, main roads or other public needs.

It is true when such estates are taken into the municipal limits, it is too late to make the changes in roads, driveways, open spaces or parks, or even lay water pipes or construct sewers without incurring expenditures vastly greater than would have been the case if the municipal authorities had exercised an oversight on the first instance of the planning of the property.

And notwithstanding all these evils, there does not exist to-day any adequate statutory provision which insists upon the environs of a city being planned as parts of a greater metropolis in such a manner as to be component parts of a harmonious whole instead of at present being often incompatible with and detrimental to each other.

The primary cause for this movement in the older countries has been the markedly evil effects which bad housing and bad planning has had upon the health of the

people. The neglect to provide sufficient sunlight and fresh air and the means of obtaining such.

It took nearly a century of unsanitary housing in England and over forty years in Germany to produce the present movement, looking not only to the construction of good healthy homes but to the way in which these units shall be set up in the city plan.

And what is the primary object of this movement? Is it the æsthetic, the social, the economic? Rather is it not to build up a healthy race of town dwellers to give the city child as much of the advantages of fresh air and sunlight as possible, fitting him thereby to take his place as a sound unit in the nation's work, physically sound men and women of good stature and high intelligence, a race that will not be lopped off in infancy, but whose days will be prolonged in the land, adding thereby to our national wealth. We in Canada have no wish to perpetuate the degenerate. We certainly do want the best type of mankind that can be raised in the world.

This cannot be done under existing conditions and prevailing laws.

Surely then, it is high time we called a halt and took a more earnest and active interest in all that concerns the development, growth and extension of our cities and towns.

But this is not all—no material work can be done or good accomplished without adequate statutory provision being made in each province in the Dominion in respect to unsanitary housing and town planning and extensive multiplication of government officers, I would suggest the placing of the powers of the administration of the Act under the Department of Health, which must be enlarged by the addition of qualified officers to deal with the different phases of the subject.

To attempt to work the remodelling of our cities and the planning for the future without first securing proper legislation would, in my opinion, be misspent time, labor and money.

Let us be wise and learn from the difficulties and mistakes of others—work for

legislation first—plan in the meantime and then material progress is assured.

Along with legislation of town planning or extension, we will require possibly more definite and exact legislation in respect to unsanitary housing and unsanitary areas, which very properly would come as a separate act, to be read as a part of the Health Act—and suitable regulations drawn up to be enforced by medical officers of health.

A few words are necessary to indicate some of the advantages of town planning.

- (1) The improvement in the general health and moralè of the people.
- (2) The reduction of the death rate.
- (3) The provision of cheaper and more healthy homes.
- (4) The setting apart of an adequate number of suitably located open spaces.
- (5) The absolute prevention of slums with all their accompanying evils.
- (6) It prevents undue expensive road-making.
- (7) It obviates the present method whereby open spaces are acquired after the land has gone up in building value.
- (8) It prevents sudden large increases in land values which would otherwise result in land speculation.
- (9) It gives to the municipality that which belongs to the community, its portion of the unearned increment which now goes to the speculator and which is not his. This is estimated in England at one-fifth of the selling value.

It is to be hoped that these advantages, and many others which will suggest themselves to one who makes even a casual study of the subject, will result in organization for earnest work for the preservation of the natural and scenic beauties of which this country is so prolific—for the remodelling of our cities upon most approved town planning lines and the fixing upon a wise and firm foundation the laws whereby their growth will not be thwarted, hampered or restricted, for the conservation of the lives of our people and their social, moral and financial welfare.

EDUCATIONAL METHODS NOW EMPLOYED IN GREAT BRITAIN FOR REDUCING INFANT MORTALITY

BY ELLEN BABBITT.

DEPARTMENT OF CHILD HELPING, RUSSELL SAGE FOUNDATION.

SCHOOLS FOR MOTHERS.

In nearly all of the large cities in Great Britain there are Schools for Mothers, where the very poor may have the very best instruction in infant care. In six cities these Schools for Mothers are under municipal control, and generally the Medical Officer of Health takes a leading part in the work of the schools. As the Health Visitors, or Nurses, and the Sanitary Inspectors, as well as the Public School Nurses, are generally working also under his control, there is close co-operation of these various agencies.

Dr. Sykes, Medical Officer of Health of St. Pancras, London, writes:

"Since 1904 our work in St. Pancras has been based upon the physiological law that infant life is dependent upon the mother from nine months before birth, and the mother has been made the centre round which all the agencies revolve for the protection and preservation of the health of both mother and child."

An Infant Consultation forms the basis of the work in the Schools for Mothers. Here a physician meets the individual mothers to give advice on matters of hygiene and feeding, but not on the care of sick babies further than to refer them to their own physicians or to some hospital or dispensary. The Health Visitor or Nurse or Sanitary Inspector, attends these consultations, visiting the homes thereafter, helping the mothers to carry out the doctor's suggestions, and often bringing back to the physician facts which give him a clearer insight into the conditions in the home.

In these schools lectures are given on the care of infants and older children; also on food values and general matters of hygiene. There are sewing classes in which the mothers are taught to cut and make garments. "But new fashions in baby-clothes are badly needed," says Miss Bunting, of St. Pancras's school. "One child was brought in cotton long-clothes, six layers of cotton shirts and petticoats, with one binder un-

derneath and one on top. No one of these garments covered its lungs, neck or arms, except the cotton robe, and then the little sleeves were tied up to the shoulders with pink ribbons."

Then there are classes in cookery. Mrs. Humphrey Ward says: "It is not food that is dear and scarce in England, it is the mind to cook it with!" She goes on to say that the Englishwoman of the lower classes "buys monotonously, omitting dozens of foods that she ought to include because she is quite ignorant about them, and meanwhile her own mind stagnates for lack of any real interest or variety in her house-keeping."

In addition to teaching the mother something of food values and how to cook food, cheap and wholesome dinners, are given in many of the schools to expectant mothers and to those who are nursing their babies. In this way, many a baby has been able to go on with its own mother's milk who must otherwise have been weaned because the mother was poorly nourished. Everywhere throughout the United Kingdom special emphasis is laid on the value of maternal nursing, and those cities which do not provide dinners to enable the mothers to nurse their babies, furnish milk, either fresh or dried. Where this aid is not given by the municipality itself, it is usually supplied by some infant welfare association.

It is interesting to note that there is little printed matter distributed on infant feeding, the belief being that each mother should be instructed by the physician who sees her baby as to how it should be fed. Sir Thomas Barlow says: "The greater the dissemination of the different methods of artificial feeding the greater has become the widespread neglect of maternal feeding."

In many of the consultations a test feed is given, the baby being weighed before and after nursing, to determine the amount of breast milk consumed by the nursling.

The schools and the various other agencies, such as Infant Consultations, Dispen-

saries, Hospitals, all emphasize the need and value of caring for expectant mothers. Mr. John Burns says: "There are no streets in the world where women can be so isolated and alone as they can be in many of the poor streets in London. Now that symptomises itself in many ways. It deprives the expectant mother of that sisterly advice, that neighborly communication that you get in the country, in the village and in the smaller town. If the big city destroys natural communication we have got to provide either out of the rent or taxes, or out of love of each other, some effective substitute for that which the city kills."

Schools for Fathers.

In London, in the Stepney School for Mothers, the Committee decided to hold weekly evenings for fathers in order to impress upon the men some of the lessons which are being taught to the wives.

These meetings were inaugurated by a "Social Evening," followed later by an address to the men by Dr. Eric Pritchard on "The Responsibility of Fatherhood."

Sixty men came to the lectures, and during nine months the average attendance was 15. The Welcome is open from 8 to 10 each Wednesday evening; during the first hour the men smoke, look at the papers, and play dominoes and draughts. At 9 p.m. the speaker arrives, and any ladies who have been entertaining the fathers, withdraw. The address lasts 30 or 40 minutes, and is followed by a discussion in which the men take part.

The Report, published by the Stepney school, states: "We believe that this venture with the men has well repaid all the time and thought bestowed upon it. The men have shewn great interest in many of the questions of health and social problems. We are sure that our work among the mothers has been promoted by these gatherings."

St. Pancras also has a School for Fathers. The Medical Officer of Health, Dr. Sykes, has prepared a special syllabus on the duties of husbands and fathers to babies and older children. This includes directions on general and personal hygiene and on the relation of public to private health.

Instruction on Infant Care in Public Schools.

While the Schools for Mothers and Fathers do great good, Dr. E. W. Hope, Medical Officer of Health, Liverpool, says: "A most difficult, almost an impossible, task is the education of the present mothers, many of whom are handing down the evil traditions which formed their early experiences; to educate and elevate the mothers of the future is an end worth some trouble and expense to attain."

Again Dr. Hope says: "The advantage of training girls of school age in the care of infants and in other home duties cannot be too highly estimated." Great Britain has begun this training. In the year 1910, the Board of Education sent out a Memorandum on the Teaching of Infant Care and Management in the Public Elementary Schools, and Dr. Janet Campbell says therein: "This teaching of infant management should be regarded as the culminating point of the teaching of hygiene throughout the school life available for all girls during their last year at least, in the elementary schools."

In Manchester, in the elementary schools, as a separate course, Miss Taylor gives to all the girls lessons with demonstrations, as follows:

- (1) Washing and dressing a baby (a wooden jointed doll used).
- (2) Feeding of infants (natural and artificial).
- (3) General management, including sleep, exercise, fresh air, signs of health and disease, indications for consulting a physician and dangers of the amateur doctor.

In the first lesson the clothing is shown, such as a baby should wear, and paper patterns of the various garments are cut out and taken home by each girl. In some schools the sewing work includes the making of baby clothes.

Dr. Niven, the Medical Officer of Health of Manchester, says: "I have only one fault to find with the educational work — that there is not enough of it. Such instruction should be often repeated, line upon line, and precept upon precept, with well chosen and striking illustrations, until the pupil has received an indelible impression. If this most necessary knowledge is to be im-

parted, ample time must be given to it; not a fraction of the girl's attention, but earnest and devoted work."

One three-year course in mother-craft takes up in the first year personal hygiene, the home management, etc., the second year, home economics; and the third year, the management of infants, including their washing and feeding, preparation of bottles, etc.

In London, in one of the public schools, the girls of fifteen and over have one lesson a week on baby hygiene, including sleep airing, food, teeth, ailments, dress, formation of habits, intelligence and play-things. These lessons are followed by class discussion. Practical demonstrations are held in a day nursery nearby, where from four to six girls go together once a week for six weeks. Here they are shown how to dress and undress the babies and how to bathe them and put them to bed. Also how to prepare the food and bottles. A teacher of the ordinary school staff gives both the theoretical and practical work.

Sir George Newman, Chief Medical Officer of the Board of Education, says in his report, published September, 1911:

"The Board consider that infant care should form an integral part of the ordinary school course of hygiene for all girls during their last year at school; that it should be taught in the schools and that whenever practicable it should be taken by a teacher on the regular school staff and not by a visiting teacher. One difficulty in the way of employing a staff teacher lies in the fact that comparatively few teachers feel sufficiently qualified and experienced to undertake this work. That should not prove an insuperable obstacle, however, and in a number of districts arrangements have been made to provide a course of lessons for such teachers who wish to increase their knowledge in this respect.

"There are," Sir George continues, "of course, advantages to be gained from teaching given by persons who have been trained to handle infants; the ordinary teacher is not unnaturally somewhat diffident as to her capacity to discuss the various matters of infant hygiene, and she is not usually prepared to demonstrate with a living baby. On the other hand, though the nurse may be able to give excellent practi-

cal demonstrations, she does not always understand how to teach, and the lessons which she gives being comparatively few in number, and necessarily somewhat disconnected with the remainder of the school work, are apt to lose much of their value. Moreover, the girls require opportunities for repeating the practical work not once, but many times, until they become sufficiently familiar with all details to perform them as a matter of habit and routine. Probably the best use to make of the nurse or visiting teacher is to arrange for her to conduct courses of lessons for the teachers themselves, and afterwards to visit the schools and supervise the teaching of infant care by those teachers, giving practical demonstrations herself when necessary. In this way the valuable practical experience of the nurse will be utilized, while the instruction in infant care will remain, as it should, a branch of the ordinary hygiene course." The report states further: "In Buckinghamshire, for example, a special lecturer was employed during the summer of 1911 to visit various convenient centres in the country. The lecturer was a trained nurse and accustomed to teaching of this kind. She spent a fortnight at each centre and in the afternoons gave demonstration lessons, which were attended by the teachers, to the elder girls at neighbouring schools. On three evenings each week lectures were also given to the teachers from the district. These lessons were extremely practical in character, and were intended to encourage and train the teachers to take up the subject in their own schools.

"A number of authorities have also encouraged individual head-mistresses, who are interested in the subject, to take the matter up and plan out their own schemes.

Training Teachers.

"The question of providing students with some training in infant care should now be considered by all Training Colleges for Women," says the report, and it continues: "Quite apart from an optional course, or a special domestic course, it should usually be practicable to introduce into the ordinary hygiene course sufficient instruction on this subject, not only to stimulate the interest of the students and make them appreciate its importance, but to supply enough practical information to encourage them to attempt to teach it when

opportunity arises. This is, in fact, being done already at some of the colleges. For example, at St. Hilda's Training College, Durham, the care of infants and young children is included in the syllabus on hygiene, while at Edge Hill Training College, Liverpool, where two hours a week are given to hygiene in both junior and senior years, in infant care is treated as a subject of considerable importance."

Instruction on Infant Care in the London Evening Schools.

The London County Council in its Evening Schools offers a scheme of instruction on Infant Care. The instruction is given by a physician or a trained nurse, and includes:

"General conditions which influence growth and development of an infant — suitable food, pure fresh air, sunlight, slumber, proper clothing, and cleanliness of body and clothing.

"Infantile ophthalmia—its dangers and cause of blindness, bad after-vision—necessity of cleaning eyes of newly-born infants. Jaundice. Convulsions—What to do till the doctor comes.

"Infantile ailments. Teething—dangers of "soothing and teething" preparations. Evil results from the use of 'comforters.'

"Summer diarrhoea; its extreme urgency, need for early medical advice, nursing management of.

"How to take an infant's respirations, pulse, and temperature.

"The appearance as an indication of the health of the baby. How to tell if a baby is thriving, the value of periodic weighing."

Travelling Health Caravan of Ireland.

One of the most interesting measures

that is being adopted on the other side for the dissemination of information on matters of health, is the Travelling Health Caravan, which was organized by the Women's National Health Association of Ireland. In order that the health campaign might be carried on in outlying parts of Ireland, a van was built, which carries a small exhibition, consisting of "diagrams and charts, pathological specimens, models of open-air shelters, etc., magic lanterns and slides, a caravan with a set of records which explain the slides, and also some musical records." Cookery demonstrations are given by a trained instructor, showing how nourishing food, which is appetizing and at the same time inexpensive, can be prepared with the simplest possible utensils. Also, a large supply of literature is provided for distribution. This simple literature is on pure air, pure food, cleanliness, healthy houses and temperate habits, and how they all help prevent disease, and how on the contrary, the best way to spread disease is through bad air, lack of air, food which does not nourish and intemperate habits. The caravan also has talks on health subjects suitable for various classes of people and all ages. These lectures, or talks, are arranged for by a committee of the Health Association, given either by a medical lecturer, who will go with the van, or by a trained health lecturer.

The person who has charge of the caravan usually visits the places along the route over which it is to go a few days before its arrival, helping to make the work of the local committees more effective. The local committee usually consists of medical men and local sanitary authorities, any special health or philanthropic agencies, and the clergy of all denominations.

THE MEDICAL HEALTH OFFICER

BY MAURICE M. SEYMOUR, M.D.

SASKATCHEWAN COMMISSIONER OF PUBLIC HEALTH.

The earliest record in America of organized public health work is that of the selected men of Boston in the year 1678, in an effort to put a stop to the ravages of smallpox. It certainly is not to our credit that after a period of more than 200 years this same disease still exists, and is even allowed to become epidemic in our own

country, notwithstanding a safe and sure preventive in vaccination.

From the earliest times the importance of fresh air and cleanliness in the preservation of health has been recognized; still this has to be taught at the present day with as much emphasis as if it were something new.

The publication of the results of the work of Pasteur and Koch in making known the germ origin of infectious diseases opened a new era for sanitary science. Discoveries of specific organisms have also been made by other workers, so that we are now in possession of a large amount of definite knowledge regarding the causes of infectious diseases, as well as the means by which they are transmitted. Knowing the nature of the causes and the means of transmission we are enabled to take specific measures to prevent the spread of infectious diseases; as has been well said: "We are able now to deal with facts instead of theories." The discovery that Yellow Fever is transmitted only by the varieties of the mosquito known as the "Stegomia," completely changed our opinions regarding the part played by fomites in the transmission of not only this disease but others. Conclusive evidence has been adduced that clothing and bedding soiled by the discharges of patients suffering from Yellow Fever play no part in the transmission of this disease. We now know that infectious diseases are nearly always transmitted directly from the person infected to another person, or the infection is carried by insects, food or drink. The outbreaks of Typhoid Fever, which so frequently occur among isolated settlers on the prairie, which were formerly so difficult to account for, are now readily explained through the visit of a typhoid bacillus carrier; the many outbreaks of Scarlet Fever and Diphtheria which are taking place at the present time, are frequently caused by mild ambulant and often unrecognized cases of these diseases.

It has become very apparent that more attention should be paid to the *thorough isolation of the person* who has an infectious disease, especially during that period when the disease is known to be most actively infectious, and less time wasted in trying to obtain what is only a false security, by disinfecting places and things that have nothing whatever to do with the spread of the disease. Ten years ago I had charge of an outbreak of 225 cases of Smallpox. A strict quarantine was maintained until recovery was complete of those who did not die of the disease. Disinfection by Formalin, Bichloride, and white-washing, was then done in the usual man-

ner. From the character of the construction of many of the houses, as well as the nature of much of the clothing and bedding, thorough disinfection would only have been possible by setting fire to them. Knowing the inefficient manner in which these things had been disinfected, much interest was taken in the arrival some time after of a number of visitors to these different houses in which the disease had existed. Many of the visitors were not protected by either vaccination or previously having Smallpox, and still not a single case of the disease was contracted by them. This experience went a long way to convince me that infectious diseases are spread by the persons suffering from the disease and *not by Fomites*.

Much good could be accomplished by general practitioners taking more interest in discovering the *origin* of cases of infectious diseases which they are called upon to treat. They should be reminded that in consideration of the privilege and protection they receive from the State, they in turn have a duty to perform in so assisting to maintain the public health at the highest possible standard.

An outbreak of Smallpox at the present moment in Saskatchewan has assumed serious proportions through the failure of a physician to recognize the disease in the first place, and to his obstinacy in not admitting his mistake after it had been pointed out to him.

A somewhat similar occurrence in connection with an outbreak of Scarlet Fever last winter was the cause of several deaths.

The number of these occurrences with their serious and often fatal results indicates that some of the schools do not pay that attention to infectious diseases which their importance should demand.

I will now deal with some organized efforts for the protection of the public health, and in doing so will make the Public Health Act of Saskatchewan and the Regulations made under its authority the basis of my remarks, referring as much as possible to those sections which more or less directly concern the Medical Health Officers.

The Public Health Act of Saskatchewan, among other things, provides for a Bureau of Public Health under the Minister, with a chief officer, the Commissioner

of Public Health, and such other officers, clerks and employees as may be necessary. The duties of the Commissioner are carrying out the provisions of the Health Act, as well as making such rules, orders and regulations, subject to the approval of the Lieutenant-Governor-in-Council, as he may deem necessary for the prevention, treatment, medication and suppression of disease, etc., etc.; in other words, his jurisdiction, besides that above mentioned, is practically the same as that conferred upon Provincial Boards of Health and their executive officers.

The control of sewage disposal and water supply by the Commissioner is one which after two years' trial is found to work satisfactorily, helping as it does to conserve the purity of the natural water supply of the country, by preventing the pollution of rivers and lakes, as well as preventing the waste of public money upon ill-considered schemes.

A very effective means in having this complied with, is Section 23 of the Public Health Act, which provides that any by-law for the purpose of raising money for the construction or extension of any water or sewer works shall not be submitted to the ratepayers until the Commissioner's approval has been obtained, and the obtaining of said approval must be so stated in the preamble of the by-law.

The Public Health Act also provides that cities and towns shall appoint a duly qualified registered practitioner as Medical Health Officer.

Outside of cities and towns the Province is sub-divided into villages, rural municipalities, and local improvement districts. A regulation has recently been passed providing for the creation of these into health districts, making their Councils Boards of Health. The appointment of a health officer within a specified time by these Boards of Health is provided for, failing which, such appointment may be made by the Commissioner. Two health districts may combine in engaging the services of a Medical Health Officer. Whenever, in the opinion of the Commissioner, the services of a Sanitary Inspector are required in any of the above-mentioned health districts, he may order the employment of one, and may engage one in the event of his order not being acted upon.

By means of the above-mentioned divisions practically the whole inhabited portions of the Province are divided into health districts, each having a Medical Health Officer in charge. They make most convenient units for the administration of the public health of the Province. Every assistance in the way of supplying information in the form of literature, and so on, is rendered these health districts by the Bureau of Public Health.

The principle of local self-government in sanitary affairs is thoroughly recognized and adhered to. While it is not intended under ordinary circumstances that the Commissioner shall exercise general executive functions in local affairs, he has the power of doing so at any time any portion of the Province might be without sanitary protection through want of action on the part of the local authorities.

Section 78 of the Public Health Act, which gives the Commissioner power to make vaccination and revaccination compulsory within the limits of any specified locality within Saskatchewan, and make all necessary regulations respecting the same, is found most practical and useful in getting outbreaks of smallpox under control.

The duties of a Medical Health Officer might be defined as follows:

He is the chief health and sanitary official of a municipality or district; he shall receive reports of infectious diseases from any physician in his district, and forward such reports to the Commissioner, as required by the Public Health Act and Regulations; he shall make such returns as are imposed upon him by the Public Health Act and Regulations, and shall supply such other information as may be required at any time by the Bureau of Public Health. He shall take note of the sanitary conditions in his district; report the same from time to time to his Board of Health, and see that remedial measures are taken to abate any nuisance or conditions affecting the public health. He shall see that the Regulations for the Prevention and Control of Infectious Diseases are strictly carried out; inspect from time to time any slaughter houses, the meat from which is sold in his district; inspect dairies and food supplies, hotels and restaurants, and have the Regulations regarding these complied with. He shall attend the meetings

of his Board of Health, and advise on any matters pertaining to the prevention of disease and the preservation of public health. He should also give professional care to the indigent sick, and attend cases of infectious diseases among patients having no regular attending physician. He should see that the disinfection of premises after infectious diseases is done in accordance with the Public Health Act. He should

make provision for the vaccination in his district, as well as perform any special duties ordered by his Board of Health or the Bureau of Public Health.

By way of securing some greater degree of permanency of office for Medical Health Officers, an effort is being made to have their engagement and dismissal subject to the approval of the Commissioner of Public Health.

THE CHEMICAL PRINCIPLES INVOLVED IN SEWERAGE DISPOSAL

BY GEO. G. NASMITH, PH. D.

DIRECTOR OF LABORATORIES OF THE HEALTH DEPARTMENT, TORONTO.

It may now be accepted as a fact that chemical action is the basis of every method of sewage disposal. That this is true, the sanitary engineer has been slow to recognize, and he has struggled along for years, endeavoring by empirical experiment to improve existing methods of sewage disposal without having any sound basis for his experiment.

The chemist has come along subsequently, and very frequently has demonstrated the fallacy of his experiments, until it gradually came to be recognized that there were certain principles that must be adhered to in order to obtain fixed results. It was recognized that bacteria, and other forms of life were invariably necessary; that these worked under more or less definite, fixed conditions, and demanded certain treatment; that they could be harnessed to more efficiently perform their functions, and that finally they depended on a free supply of oxygen with which to carry on their work, to completely oxidize the organic matter and create a non-putrescible effluent.

It came to be recognized that one could obtain all sorts of hydrolytic decomposition in septic tanks, or under anaerobic conditions, with productions of proteoses, peptones, amino acids, nitrites, hydrogen sulphide, methane and hydrogen; that these decomposition products were still for the most part putrescible, and sometimes more difficult to handle than the raw ma-

terial from which they were derived, and that after all the complete end products of any method of decomposition depended on the fact that oxidization of carbon gave carbonic acid; of nitrogen gave nitric acid; of sulphur gave sulphuric acid, and of hydrogen, gave water. These are the final products obtained in any completely oxidized sewage. In other words, sewage disposal in the chemical sense might be stated: Organic matter + Oxygen = Inorganic matter + Humus.

The object of all methods of sewage disposal has been to knowingly or unknowingly take advantage of this oxidation process, through the intermediary of living organisms. The methods which have failed are those which have not supplied these microorganisms with a sufficient supply of oxygen to carry out their functions. Those that have been successful have proved so because they have to a greater or less degree supplied this oxygen in an appropriate manner.

As the object of every method of sewage disposal is to create a non-putrescible effluent, and more recently a non-pathogenic effluent, the anaerobic methods, such as that of the septic tank, have failed because of this one fact, that the end products of anaerobic action are still putrescible, and must be further treated.

The real biological oxidation methods may be grouped together, since the action taking place in them all is practically the

same. These are (1) Intermittent sand filtration, which really is an improvement on the older method of land filtration; (2) Contact beds—single, double, or triple, and (3) Trickling filters.

In all methods of sewage disposal it is deemed advisable as a preliminary to remove as much of the suspended material as possible, by means of the various forms of sedimentation tanks.

In the intermittent sand filtration method, a quantity of raw, screened, or sedimented sewage is distributed over the surface of the bed at regular intervals. This sinks in more or less rapidly, and in a matured bed a similar quantity of liquid, minus the organic constituents, flows off into the collecting tiles below.

In the contact method the sewage flows into beds made up of slag or other material, stands in contact with the filling material for a certain length of time, and is then allowed to flow away.

In the trickling filter the sewage is sprinkled evenly by some form of mechanical device, over the surface of the beds, which are also made up of some coarse material like slag, so that it trickles slowly over the surface of the pieces composing the filter.

Now, if the material is sterilized in any of these methods, no action, or only a very slight one, takes place. If the sewage is treated with disinfectants, the same thing occurs; but if these various types of beds are given repeated doses of sewage, the organic matter is gradually converted into inorganic salts, and the filter becomes matured. At the same time it is found that the sand granules, or stone, slag, or other material, becomes coated with a gelatinous layer containing bacteria, organic material and iron. As the gelatinous film becomes thicker, the purifying action is improved.

In such a matured, intermittent sand filter, Dunbar found that if a gallon of a solution of albumen was poured on to the top of the filter, a gallon of water, less the albumen flowed out at the bottom. That this was the same water he proved by adding readily detected chemicals, such as potassium, iodide or fluorescein to the

original solution. When repeated at intervals he found that the sulphuric acid in the effluent corresponded almost exactly to the sulphur in the albumin, while only part of the nitrogen appeared as nitrate, the rest of the nitrogen disappearing as free nitrogen or remaining locked up in the humus, which was formed in small quantities. A considerable portion of the carbon also disappeared as carbonic acid, while the balance was retained in the humus.

The remarkable fact, therefore, became apparent, that a solution of albumen or sewage may leave an intermittent sand filter thoroughly purified in ten minutes. In other words, the organic material in the sewage became adsorbed by the gelatinous material covering the granules in the filter. But we know from experience that micro-organisms cannot decompose such material in a few minutes.

By excluding air from the filter, it was found that such purification ceased to take place. By sterilization of the bed, or when disinfectants were added to the sewage, purification also ceased. The principle became fixed that bacteria in presence of air were essential for purification.

It was then demonstrated that in a matured contact bed, if quantities of distilled water were added at intervals there would be considerable quantities of nitrates found in the effluent, and carbonic acid would continue to be given off and found in the air of the filter. The conclusion was therefore very obvious. The organic matter was first adsorbed by the gelatinous film, and during the periods of rest while in contact with the air, this was decomposed with the aid of organisms, during which process oxygen was used up, and fresh oxygen drawn into the filter. This latter fact has been proved with the aid of capillary tubes inserted into the beds and connected with monometers. If a contact bed is filled with sewage, and air is blown in at the bottom, the free, unabsorbed oxygen is unable to carry out the necessary oxidizing action, and the sewage is not rendered non-putrescible. The oxygen thus absorbed during intervals of rest seems to be condensed on the surface of the gelatinous film, into some more ac-

tive form, possibly as ozone, by the high pressure which we know to exist in such gelatinous films.

In the contact method, it was thought formerly that during the time of contact the bacteria were eating up the sewage.

In 1897, Dunbar, in Hamburg, demonstrated in a most convincing manner the fact that the process did not occur gradually during the contact period. He prepared several mature contact beds, and allowed sewage to remain in the first for five minutes; in the second for thirty minutes, and so on. In five minutes the oxygen consumed in the first bed was reduced by 83 per cent., showing, as in the sand filter, that the action took place quite suddenly, and that the time in which the sewage remained in the contact bed was practically wasted. The work, in fact, was done when the bed was exposed to the action of the air, which was exactly the reverse of the conception formerly entertained.

In the trickling filter, the principle of oxidation has been carried to its logical conclusion. In such beds, the sewage is continuously sprayed over the surface by one of the innumerable devices for the purpose. The bed itself is composed of some hard material, preferably of slag, which does not readily weather, and is so arranged that the filling material becomes smaller towards the top, and larger towards the bottom, so that humus-like substances formed may be readily washed away.

A sand layer on the surface is advised, since it retains a considerable quantity of organic matter, which is gradually loosened and broken up by the organisms present. The drops of sewage flow over the surface of the lumps of material, drop on to others, and so on until they reach the bottom. The organic matter as before is absorbed and decomposed by the combined action of the micro-organisms, of which the gelatinous films are largely composed, and the oxygen which can penetrate to the interior of the bed at all times.

The effluent contains particles of humus-like material, which is non-putrescible, and being comparatively heavy, is readily sedimented out. The clear effluent is non-putrescible and contains much nitrates. Such beds are able to handle from 150 to

250 gallons of sewage per cubic yard of filling material per day.

Sewages which could not be treated satisfactorily in contact beds were handled satisfactorily by simply trenching the surface of the bed, placing a layer of sand along the bottom of the trench, and allowing the sewage to flow along these trenches, the raised parts allowing free access of oxygen. The contact beds were thus converted into trickling filters, and the results were eminently satisfactory.

The septic tank, which is wrong in principle, except in so far as it may prove useful as a liquifying agent, is already doomed as an integral essential to any method of sewage disposal.

The contact bed, which is on a right principle, wrongly carried out, will also probably soon disappear. The intermittent sand filtration method, which is satisfactory in principle, is very expensive to construct and maintain for a given unit of sewage treated.

Based on purely theoretical principles, and with the experience already gained, in point of economy and efficiency, there is no doubt but that the trickling filter has come to stay, and is bound to displace all present forms.

The sedimentation of the humus-like material from a trickling filter is readily accomplished, and should constitute part of the system in order to obtain a clear effluent, suitable for disinfection with chlorine, as well as to remove an obvious physical objection.

The disinfection of raw sewage by chlorine may prove a valuable compromise in some rare instances when other methods of treatment are not possible, but is said to be not working out as well as was expected. It should prove of great value in rendering a clear effluent from biological sewage disposal systems absolutely safe.

In conclusion, I would like to give an almost perfect illustration of nature's method of disposing of sewage, in which the principles of the septic tank, the contact bed, the sedimentation tank, and the trickling filter were involved.

Berlin, Ontario, had a so-called sewage farm. After passing through a septic tank, the sewage passed on to ten acres of heavy clay soil. This became plugged, and

the putrefying sewage, after standing for various lengths of time, was allowed to flow into a small creek by making convenient holes in the banks of the sewage basins. The volume of sewage flowing away was sometimes almost as large as the volume of the creek. Consequently, little oxidation took place, and the creek became a foul stream of black putrefying liquid, which flowed from pool to pool, and ultimately into a mill pond about a mile or so below the farm. The pond acted as a second septic tank and sedimentation basin, after the oxidation, which must have occurred to a certain extent during its flow to the pond. The decomposition in the pond was clearly shown by the bubbles rising to the surface and by the odors given off.

The water from the pond fell over a mill wheel, and was churned into foam. The gases present were dissipated by the process, and rising on the outside blackened the white lead paint owing to the hydrogen sulphide present, and causing a marked taint to the flour on the inside.

Below the mill the creek tumbled over a rocky bed for a hundred yards or so. These rocks were covered with a brownish black mat of vegetable matter, which on microscopical examination seemed to be chiefly composed of millions of protozoa, such as paramecium, vorticella, etc., and of bacteria. At the end of this rocky bed, the water was clear, and one mile below, where the road crossed it again the creek was perfectly clear, of a slight yellow color, and contained only traces of free and albuminoid ammonia. The natural action taking place in the creek during its extraordinary flow of one mile accomplished what the sewage works had failed to accomplish.

This process of Nature illustrates the typical methods which we have tried in one way and another to harness. There was the septic tank and sedimentation process going on in the pools and pond; the aeration process taking place in the mill wheel, and the adsorption and oxidation processes in the rocky river bed by the gelatinous growth, analagous to that of the trickling filter.

HYGIENE OF CANADIAN WATERWAYS

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The fame of the beauties of the Muskoka and Kawartha districts of Canada has so extended that tourists visit them in great numbers, coming not only from all parts of Canada, but from the United States, especially the southern and western parts. To such an extent is this the case that there are now about 30,000 passengers annually on the steamers traversing Lakes Joseph, Rosseau and Muskoka.

This gives an approximate indication of the tourist population on these lakes. In addition, there is the population of the settlers and of the permanent residents of Gravenhurst, Bracebridge, Port Carling, and Rosseau. In a calculation of this sort we do not forget that some of the permanent residents are passengers on the boats, that some persons may be counted in the passenger list more than once, and, on the other hand, that some of the summer

residents are met at the railway stations by their own launches. But these items may be ignored as offsetting one another, and if we add to the number of passengers the numbers on the voters' lists of the various municipalities we shall find that we have a large population.

The source of water supply for a vast majority of these people is the lakes themselves; in a few instances there are springs and wells.

There have not been, so far as I am aware, any epidemics due to bad water supply. It seems not unnecessary to add the truism that we do not want any. There have been a few instances where carelessness has caused trouble.

One of the first suggestions I would like to make here, however, is that those interested in their own welfare and that of the Muskoka Lakes district, should avail

themselves of the good offices and offer of the Provincial Board of Health in finding out whether their water supply is really free from contamination; and if a dubious result be obtained, precautions can be at once taken. By applying to the laboratory of the Provincial Board of Health, bottles and instructions for water analysis may be obtained, the only cost to applicants being express charges to and fro. Such applications had better be made through the Health officer of the municipality in which the applicant resides. Some of us have taken advantage of the opportunity and have found the water supply suspicious by reason of the content of colon bacillus. As a resulting precaution we have been boiling the water, and have been endeavoring to have means taken to safeguard the supply from pollution by the proper disposal of waste and refuse matters.

In treating of this latter subject one classification which may be made for practical health purposes is (1) the disposal of garbage, excreta and household waste, in the villages; (2) the same in more isolated summer hotels and private residences, and on the passenger boats and larger launches which have closet and lavatory accommodation; (3) the refuse of slaughter houses, tanneries, etc.

Those whose duty and interest it is to adopt safe and proper disposal in each of these classes: municipal authorities, proprietors of hotels and private residences, managers and proprietors of boats, and manufacturers, respectively, can obtain information on application to the Provincial Board of Health. My object in this paper is to enlist interest and co-operation more especially in regard to that portion of the work which the Provincial Board and the Muskoka Lakes Association have during the past year been endeavoring to advance, and, we may hope, with the co-operation of one of the largest and most interested companies, the Muskoka Navigation and Hotel Company.

For some years the Muskoka Lakes Association and its Committee on Sanitation have been trying to bring about a more civilized, sanitary and less disgusting mode of dealing with the contents of the water closets and garbage pails of the passenger boats, with their 30,000 passengers, than dumping them into the lakes opposite the

sources of water supply of their friends and patrons.

Two or three years ago Port Carling took legal action, and succeeded in obtaining some relief from this practice in proximity to the village — very proper, but with the result of an extra infliction on the residents above and below the entrance to, and exit from, the Indian River.

At the last meeting of the Association another effort was made as shown in the following report of a portion of its transactions. At this meeting the secretary of the Provincial Board was present, also many prominent men from Canada and the United States:—

“Dr. Oldright gave a verbal report as to what the Committee on Sanitation had done during the past year. New regulations of the Provincial Board of Health were approved on May 4th of this year. Copies can be obtained by sending to Dr. John W. S. McCullough, Chief Health Officer for Ontario, Toronto. These regulations make it unlawful to pollute the waters of any lake, river, stream or other inland water of the province. The local authorities must carry out these regulations, or if they fail to do so, a complaint to Dr. McCullough will result in immediate action to compel them.

“Any person wishing to have water tested can do so by procuring properly prepared bottles from the Department, and forwarding the same by express, prepaid, to the Provincial Laboratory, No. 5 Queen’s Park, Toronto, when a report on the result will be sent to them.

“Dr. Oldright said that samples of the water from the river at Port Carling were not good. Captain Rogers said that he felt certain the water in the lake would be first-class. He stated that the reeve and members of the Council of Medora and Wood were making a house to house inspection.

“Dr. Oldright stated that septic tanks do not destroy pathogenic germs, but only a portion of the organic matter. Mr. Le Grand Reed and Dr. Rogers mentioned bad conditions at hotels and other places on the lakes.

“Dr. McCullough said he was pleased to meet the members of the Association, and would do everything in his power to help in the sanitary matters under consideration. The boats were the great offenders, and they had been warned to heed the

terms of the Public Health Act and be ready for next season. He said the Association should induce the municipalities to appoint medical health officers who would act. Messrs. Gummer, Capt. Rogers, Kettlewell, McPhillips and others took part in the discussion; Mr. Potts, Reeve of Medora, saying he had personally inspected fifty-three places, and found most of them satisfactory.

"Mr. McPhillips suggested that it would be well to have an inspector sent up by Dr. McCullough. The doctor said he would send one, and the Association arranged to carry the inspector through the lakes.

"Messrs. F. C. Gratwick and Dr. Rogers moved a vote of thanks to Dr. McCullough, which was carried.

"Mr. Gummer moved, seconded by Mr. Kettlewell, that the Secretary-Treasurer write to all the councils interested, asking them to appoint medical health officers and inspectors, at a substantial remuneration, if this has not already been done. Carried."

In the early part of this year the powers invested in the Provincial Board of Health were made more clear and definite by additions and amendments to the Public Health Act, which, in part, read as follows :

"The Provincial Board of Health may issue regulations :

"For the sanitary precautions to be taken in health resorts, summer resorts, and upon boats or other vessels plying upon the inland waters of Ontario, and for preventing the pollution of such waters by the deposit therein of sewage, excreta, manure, vegetable or animal matter or filth.

"For any other matter which in the opinion of the Board the general health of the public or of the inhabitants of any locality may require."

And the action which the Board, by virtue thereof, resolved to take, was foreshadowed by certain regulations, from which are taken the following extracts :

"Regulation 1. No garbage, excreta, manure, vegetable or animal matter or filth shall be deposited on or in any of the lakes, rivers, streams, or other inland waters of the Province of Ontario.

"Regulation 2. Residents of health resorts and summer resorts are hereby re-

quired to so dispose of their garbage, excreta, manure, vegetable or animal matter or filth that such shall not create a nuisance or gain entrance to or pollute any lake, river, stream or other inland water of the Province.

"Regulation 3. The owners and officers of boats and other vessels plying upon any lake, river, stream or other inland water of the Province are hereby required to so dispose of the garbage, excreta, manure, vegetable or animal matter or filth upon such boats or vessels, that such shall not create a nuisance or gain entrance to or pollute such inland waters.

"Regulation 4. Any contravention of the foregoing Regulations shall be subject to the penalties provided by the Public Health Act in respect thereto."

Due notice has been given to the Navigation Company referred to, and to others, and as a result we are hoping to see proper measures adopted by them.

There can be no difference of opinion amongst well informed persons of the present day as to the insanitary practice of using our lakes as dumping places for refuse. It is no answer in this enlightened age to say, as has been said, that nearly all steamboat companies do this; this does not make the water here any purer or safer.

Nor is it an answer to say that the cost of certain methods will be \$20 or \$30 a day, or the primary cost so much. If the profits of the company are not sufficient there are very few passengers who would not pay an extra five or ten cents to have things right. And, on the other hand, an epidemic of typhoid fever or dysentery would deplete the treasury far more.

We have already had some slight epidemics which have been explained as due to importation or to causes acting on a limited area; but if we should have an epidemic, even though we know the conditions could be remedied by the next succeeding season, our visitors would be stampeded, and we also know how hard it is to restore confidence, especially in the face of competing attractions.

The Muskoka and Kawartha Lakes are a valuable heritage, and their advantages as healthful summer resorts and dwelling places must be preserved.

TWO EFFECTS OF THE BRITISH NATIONAL INSURANCE ACT

Among the early effects of the British National Insurance Act, may be placed compulsory notification of pulmonary tuberculosis which went into force at the beginning of last month. Hereafter every British medical practitioner is to notify each case of consumption he encounters; and it cannot be doubted, when it is fully realized that everyone has a part to play in thus unmasking the breeding places of tubercular germs and in helping to get rid of conditions favorable to their growth, the final victory over "The Great White Plague" will be gained.

Another first effect is the division of the British medical profession into two camps, one in opposition to that part of the Act affecting medical men and the other quietly accepting these measures. One half of the thirty thousand members of the medical profession in Great Britain are stated to have in this pledged themselves to a policy of passive if not active resistance, pending the following amendments: (1) the income limit for those entitled to medical benefits shall be £2 a week; (2) medical remuneration shall be what the profession considers adequate, having proper regard to the duties to be performed and other conditions of services; (3) the methods of remuneration adopted by each local health committee shall be in accordance with the preference of the majority of the medical profession in that particular district. Originally there were fundamentally six amendments asked for, the other three which are now part of the Act being: (1) free

choice of doctor by patient; (2) medical and maternity benefits, administered by local health committees and not friendly societies; and, (3) adequate medical representation upon every board of authority, central or local, in connection with National Insurance.—Those accepting the Act in toto as it now stands find none of the points so in dispute denied therein, these points being left, they find by the Act, to local authorities for discussion, simply because of the immense differences in local conditions; and these physicians believe the sensible thing to do is to make a fair attempt throughout the country to secure further proper protection by firm yet reasonable, negotiation with such local authorities.

We believe both these early effects of the British National Insurance Act are good omens. Compulsory notification of tuberculosis points to further reforms along the line of notification and other methods looking to disease prevention, while the discussion of their status in the eyes of their fellow citizens and of their place in their country's public health plans will do much to clear the atmosphere of professional mists which exclude for many medical men a proper prospective of the future. Thoughtful physicians now recognize the ultimate meaning of the growth of public health sentiment and understand that certain of their number must inevitably suffer in the natural evolution of medicine from the research quelling commercialism of modern practice to a more dignified place in state ministry.

INTER ALIA

Sir James Crichton Brown recently addressed a Glasgow audience on the subject of backward children; his address was striking from the standpoint of optimism

this optimism has been well supported by the annual report of Dr. Carswell just published, on lunacy in Glasgow. The impression received is that these experts do not

accept the view frequently expressed that large numbers of backward children and registered lunatics are evidence of British national declension; they consider that the cause and prevention of these ills are well within the reach of scientific investigation and control.

Dr. Carswell shows that insanity is largely a manifestation of physical diseases that depend upon causes, also causing physical disease to a large extent preventable; his report finds it difficult to see how extended supervision of the mental health of a community can be exercised without bringing the affairs of the feeble-minded into closer relationship than at present with public health administration.—It is a hopeful sign that, as fresh points of view emerge in the movement of public opinion in discovering the obligations of society towards those less fortunate, men like Sir James Crichton Brown and Dr. Carswell are constrained to exhort the public to continued effort in the constant belief that in so doing society will become sweeter and stronger.

While those who were responsible for the first annual Congress of the Canadian Public Health Association had such a wealth of subjects to choose from that the programme, both of the General Association meetings and of the sections, had to be a compromise between the Scylla of overloading and the Charybdis of omission—and in the opinion of the delegates the ship was steered as nearly as could be at a safe distance from both these dangers—this being more true in none of the sections than that on Social Hygiene so ably presided over by Dr. Grace Ritchie England, yet the time taken up by Dr. Helen MacMurchy's paper before the Section of Social Hygiene, on the care of the feeble-minded, was perhaps too short in view of the importance of this subject.

Those who have studied the question of the feeble-minded have come to the conclusion, as have Sir James Crichton Brown and Dr. Carswell, that the only way to successfully prevent or ameliorate the disgrace, expense, crime, misery and degradation which the feeble-minded cause is to begin in the schools with mentally defective children, and Dr. MacMurchy herein points out

the need of adjusting the educational system, which we commonly adopt for normal children, where necessary to meet the requirements of the weaker attendants at our public schools.

It is gratifying to find such attention being paid to the care of the feeble-minded and we believe in conjunction with this that the legislation now under consideration in Great Britain foreshadows the time when the question of the feeble-minded will also be brought into the field of practical politics in Canada, and when civilized governments will lift the burden of the feeble minded from the shoulders of the tax-payer, who is just beginning to wonder why modern business methods are not better applied to taxation schemes and why those in authority do not show by their acts that they know an ounce of prevention to be worth more than a pound of cure.

There is a disposition on the part of certain public health officials to exaggerate dangers and magnify consequences that might result from non-observance of their rules, these officials being under the impression that people have to be terrorized in order to be impressed. This disposition is manifested in a recent municipal health department bulletin when unnecessarily emphasizing the possibility of death following very innocent looking frost bites and adding that coma and delirium are common. The trouble with such over emphasized statements is that they beget a contempt for all health bureau pronouncements.

The other kind of Health Department pronouncements is well manifested by the Quarterly Bulletin of the Michigan State Board of Health. Dr. R. L. Dixon, Secretary of the Board, points out in his introductory remarks to the October-December, 1911, number, that every teacher should include in his reading course at least one good magazine on sanitation, believing that to no other profession is a knowledge of sanitation more necessary: "Hygiene should constitute," he says, "the bulk of the textbooks on physiology rather than the supplement. Seventy-five per cent. of the teaching in public schools is impracticable and a great deal of it is grossly inaccurate. Hy-

giene should be the most efficiently taught of public school subjects because the pupils can live the principles involved to a degree not at all possible in history, literature or mathematics." The obligation, therefore, is upon the teacher who stands in relation to the child almost as its parent in giving greater attention to the subject of hygiene and sanitation. Yet Dr. Dixon believes that "when the child starts to school he should already have been taught (not simply told, but taught) that now is his time to save days as well as dimes. By the time the child reaches the Grammar Grade he should have been so taught that he will demand sanitary conditions under which to do the most important work of his life."

The present number of the Michigan Bulletin is one of the best we have seen, containing further: "Some remarks about Medical Supervision of Schools," by Dr. T. M. Koon; "The Importance of Recognition by the Teacher of Physically Defective Children," by Dr. W. S. Rankin; "The Backward Child," by Dr. J. H. Kellogg; "The Mouth and Teeth," by Dr. Russell W. Bunting; "Sanitation of School Grounds and Buildings," by Thomas S. Ainge.

Dr. Rankin's paper is specially noteworthy. It points out that education is rapidly passing through three evolutionary stages, in which three essential constituents will be found; the stage of the dominant idea of teaching the child to read, write and figure (90 to 99 per cent. cultural); the stage of practical knowledge of everyday use, sanitary, domestic and agricultural science; and, the stage characterized by the dominant idea of assured usefulness, i.e., the assured usefulness of a healthy body—the combination of the three, the thinking mind, the equipped mind and the healthy body, being necessary to make the ideal. Dr. Rankin deals excellently with the question of adenoids, defective ears, defective eyes, pointing out the many instances where a child has been scolded, ridiculed, punished, until a sweet disposition is soured and the faith of the child-heart blighted, not because the child could not read the printed page, but because the teacher could not read the book of nature. Dr. Rankin believes that a teacher, so

educated in the principles of hygiene that he or she could read this book of nature, could then do the simple work of testing children for physical faults, and upholds his belief by quoting the report of the Massachusetts State Board of Health, under the direction of which 400,000 effective tests were recently made by such teachers.

The quiet zone for schools movement is, assuredly, an important step in sanitation for it is designed to protect the young from the injurious effect of outside noises, that increase the mental effort of both scholars and teachers, prevent free ventilation and menace the physical well-being of the child.

First to cause trouble in the large cities, where certain schools are, of necessity, built in the congested sections, are noisy pavements, where heavily laden wagons rumble the live-long day over cobble stones, Belgian blocks or other materials of as much noise making qualities. As a result it is necessary to keep windows closed, until teachers and pupils, breathing over and over the same air, render the rooms almost unbearable to one going in from the outside. Both teachers and pupils are also on a high nervous strain, the teachers straining every nerve to make themselves heard and the children pitching their voices high to overcome the noises of the street.

The first remedy in relief is the proposition that sites for school houses be selected with more care. For those already built, the noiseless pavement can be installed around and near the buildings, heavy traffic can be diverted by ordinance of the city, during school hours, thus not only permitting open windows but allowing children to enter and leave the buildings without the dangers that now exist in the cities. Next, pressure must be brought to bear on street car lines to keep their equipment in order. That loose jointed tracks exist and cars with flat wheels are allowed to run is proof sufficient that some remedial measures are necessary. Ordinances creating school zones come next to do away with useless noises of automobiles, hucksters, musicians, peddlars and the like. Last of all comes the rigid enforcement of the ordinances enacted in the cities.

Library and Laboratory

SOME BOOK REVIEWS

RECEIVED FOR LATER ATTENTION: "A Practical Hygiene," "Dining and Its Amenities," "British Red Cross Training Manual," "Pure Foods," "Recent Studies of Cordio-Vascular Diseases," "Recent Studies of Syphilis," "The Principles of Sanitary Tactics," "Modern Surgery and Its Making," "The Washhouse," "Central Station Heating," "Child Nurture," A Manual of Fevers.

"Clinical Diagnosis."

The standard work on "Clinical Diagnosis" in the shape of a text-book of clinical microscopy and clinical chemistry is admittedly that by Dr. Charles Phillips Emerson, regarding which Sir William Osler has pointed out that "it illustrates the experience of the medical clinic of Johns Hopkins Hospital so far as it relates to microscopical and chemical methods of diagnosis, and is a comprehensive and trustworthy guide to all the details of laboratory work."

In Dr. Emerson's preface to the third edition of this work now before us, in giving it as his opinion that a text-book should include only those contributions to each of its subjects the value of which is reasonably certain, and only those methods which have been well tested, he describes in reality the reliability of his own teaching.—*Clinical Diagnosis. A Text-Book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers and Practitioners of Medicine.* By Charles Phillips Emerson, A.B., M.D., late resident physician, The Johns Hopkins Hospital; and Associate in Medicine, The Johns Hopkins University; Professor of Medicine, Indiana University School of Medicine. Third Edition. 724 pages, including index and 131 illustrations. Philadelphia; London and Montreal: J. B. Lippincott Co.

"Health and Empire."

Mr. Freemantle is an enthusiast. His public duties as a county Medical Health Officer, his work with various associations for the promotion of health, his four years' political candidature in a dock-district of London, have taught him the importance

of the public health as the physical asset on which the whole welfare of the State, as of the individual, must ultimately depend. This is a factor little appreciated and hitherto taken for granted in proposals for the development of Imperial resources. The book shows that health cannot be taken for granted and that it must in future receive serious consideration.

Some little time back Mr. Freemantle spent eighteen months in what may be described as a sanitary inspection of the British Empire. One year was allotted to wider travel, six months to the study of conditions nearer home. A winter was spent in India, fighting the plague in the villages and homes of the peasant in the Punjab. Sundry other problems were studied before leaving India to visit Burmah, the Malay States, China, Manchuria, and Japan. An experience of the Russo-Japanese campaign gave useful suggestions with regard to medical and political questions in relation to war and the future of the Far East.

The author then passed by way of the Hawaiian Islands to San Francisco and toured through various parts of Canada and the United States, studying the administration of public health in conditions both of advanced organization and of rudimentary developments. A final half-year was spent in a study of European methods and conditions in Paris, Geneva, Berlin, Hamburg and other European centres.

"Health and Empire" gives the most striking results of its author's travels and observations. The book is written for general as well as professional consumption, and is designed to carry the reader through the more intense and profitable experiences of the traveller without the travel's draw-

backs. Mr. Fremantle has a keen sense of humor, and possesses the gift of vivid and convincing description, while the many illustrations from his own photographs add to the picturesqueness of the narrative.

The result is a work of wide and original information, suggestive of the weightiest political and social consequences and yet as pleasant to read as a novel. The author has the gift of winning his reader's sympathy; and even when describing painful scenes, he skilfully avoids giving pain. "Health and Empire" is a book that no statesman can afford to ignore—one that many of us should read and ponder over.—*A Traveller's Study of Health and Empire.* By Francis Fremantle, M.A., M.B., M.Ch., F.R.C.P., F.R.C.S., D.P.H., Herts County Medical Officer of Health. Author of "A Doctor in Khaki." Profusely Illustrated from Photographs taken by the Author. Demy 8vo, London, E.C., England: John Ousley, Limited, Fleet Lane, Fanningdon Street. 7/6 net.

"Suggestive Therapeutics."

The object of this book—and it is excellently achieved—is to indicate the practical usefulness of psychotherapeutic principles and technique in their application to the work of the general practitioner, the author, in so doing, displaying no tendency to medical sectarianism but clearly emphasizing the importance of the mental factor in health and disease and pointing out the practical methods of applying suggestion as an adjunct to other therapeutic resources. The work is strengthened, we think, from the standpoint of teaching by a certain amount of repetition existing in the text.

In twenty-eight chapters, covering 388 pages, the subject is most interestingly discussed in all its important bearings under such headings as: The Awakening Interest in Psychotherapy; The Relation of Psychotherapy to the General Practice of Medicine and Surgery; The Scientific Basis of Psychotherapy; The General Utility of Suggestion; Hypnotism Demonstrated; The Psychotherapeutic Value of Suggestion; Suggestion as an Adjunct in the Administration of Anæsthetics; Psychotherapy in Relation to the Expectant Mother; The Psychological Factor in Obstetrics;

The Guidance of the Sexual Instinct; Training the Sub-Conscious Self; Roughing it as a Means of Health; Personality as a Factor in Therapeutics; The Therapeutics of Environment; The Brutality of Frankness; Moral Stamina; Suggestion in Education; Self Mastery as a Fine Art.

What better teaching for the practitioner could be penned than, at the close of the chapter on "The Brutality of Frankness":

"Absolute honesty and sincerity, under all circumstances, are imperative to the self-respecting physician but the weakening, paralyzing, discouraging frankness of the pessimist is brutal."—*Hand Book of Suggestive Therapeutics, Applied Hypnotism, Psychic Science. A Manual of Practical Psychotherapy. Designed Especially for the General Practitioner of Medicine and Surgery.* By Henry S. Munro, M.D., Omaha, Neb. Third Edition. Revised and Enlarged. 410 pages with special frontispiece. Indexed. St. Louis: C. V. Mosby Company. Cloth, \$4.00.

"The Mechanism of Life."

Professor Leduc's theories regarding the phenomena of life will be found interesting to the biologist and the physician. The volume before us is a translation from the French edition, and while small, contains much of the data necessary for a complete survey of the mechanism of life. Professor Leduc defines a living being as a transformer of matter and energy—both matter and energy being uncreatable and indestructible, that is invariable in quantity—and discusses his subject under such headings as: Life and Living Beings; Solutions; Electrolytic Solutions; Colloids; Diffusion and Osmosis; Periodicity; Cohesion and Crystallization; Karyokinesis; Energetics; Synthetic Biology; Osmotic Growth; A Study in Physiogenesis; Evolution and Spontaneous Generation.—*The Mechanism of Life.* By Dr. Stephane Leduc, Professeur a l'Ecole de Medecine de Nantes. Translated by W. Dean Butcher, formerly President of the Rontgen Society and of the Electro-Therapeutical Section of the Royal Society of Medicine. New York: Rebman Company, 1123 Broadway. \$2.00.

"Drainage Work and Sanitary Fittings."

The revised and enlarged third edition of "Drainage Work and Sanitary Fittings" (omitting certain errors of revision and questionable statements) will be found of some assistance—to the student, the architect, the engineer, the builder and others interested in drainage of buildings—bringing together as the book does in condensed and handy form the main points connected with the construction and testing of drainage works. The drawings specially prepared by the author and in accurate illustration of his subject are noteworthy.—*Drainage Work and Sanitary Fittings.* By William H. Maxwell, A.M., Inst. C.E., Burrough and Water Engineer, Tunbridge. Third edition. Revised and enlarged. London, England: St. Brides' Press, Limited, 24 Bride Lane, Fleet St. 2s net.

"Heaton's Annual for 1912."

The eighth edition of "Heaton's Annual" (The Commercial Handbook of Canada and Boards of Trade Register) has just appeared. In each succeeding year we have noticed improvements and valuable additions. The 1912 issue is no exception to the rule. The first half of the book contains information which the business man constantly needs at his elbow. We notice here for the first time an insurance directory, giving in alphabetical order a short description of the various kinds of insurance effected in Canada, with a list of the companies licensed by the Dominion and Provincial Governments to carry on business. This is quite original, and so far as we know nothing of the kind has ever been attempted in any other commercial handbook. It should prove very useful.

"Heaton's Annual" is in common use by the Customs Collectors throughout Canada, and no pains have been spared to maintain the character of the book as the standard authority on the Customs Tariff, Law and Regulations. The Customs Tariff items are followed by the treaties with France, Italy, the Netherlands, etc., and a most useful summary in alphabetical form of the Customs Regulations compiled from the Customs Act, and the memoranda and bulletins issued from the Department at Ottawa up

to the date of publication. This information is not found collected in any other book.

The last half of the book is divided into three parts: Descriptions of Towns; General Information and Descriptions of Agricultural and Fruit Districts to Which Immigration is Attracted. The descriptions of towns have all been revised to date from information supplied by the Boards of Trade, and in every case where possible the latest census returns of the population is given. Appended to these descriptions is a note of the special opportunities offering for manufacturers and investors. The section headed "General Information" is a concise encyclopedia, brought up to date, and officially revised by the Provincial Governments covering the resources of the Dominion under such headings as Agriculture, Mining, Railways, Water Powers, etc. There is also a unique chapter giving the requirements (examinations, fees, etc.) for the medical and other professions in each Province. This is invaluable to parents and any young man who is considering his vocation in life. The descriptions of Agricultural Districts is a new and interesting feature which should prove extremely valuable. In most cases the current price of land is given with a complete and accurate description of the district and a local reference for further information. The illustrated advertisements of the Boards of Trade throughout the Dominion are a liberal education. These, with some useful tables, complete a useful book.—*Heaton's Annual. The Commercial Handbook of Canada and Boards of Trade Register. Eighth Year, 1912.* Edited by Ernest Heaton, B.A. (Oxon.), Barrister-at-Law, and J. Beverley Robinson, Toronto: Heaton's Agency, 32 Church Street. \$1.00, postage 12c.

"Medical Education and Infant Feeding."

Preceding his discussion of medical education, Part I. of the book under review, Dr. Young quotes Sir A. R. Simpson, saying "When I look back on my own professional and professorial life, no memory stings me with more sharp regret than the thought of the too little heed I have given to the needs of the new-born", and offers the present excellent little volume to his fellow general practitioners in an effort to

mitigate such regret and the serious disadvantages which have arisen from absence of uniformity and lack of precise knowledge manifested by many of the profession with regard to the question of infant diatetics. Dr. Young lays the blame for this lack of precise knowledge on defective medical curricula and suggests a remedy.

Under the heading of Infant Feeding, Part II, are chapters on: The Analogy from Nature, A Standard Artificial Food for Infants, Humanized Milk, and The Relation of Proteids in Milk.—*Medical Education and Infant Feeding. An Impeachment and a Suggested Remedy.* By D. Hastings Young, M.B., Ch.M., Ed. London: George Routledge and Sons, Limited. 2s. net.

"Nerves and the Nervous."

In the line of treatment for neuresthenia, Dr. Edwin Ash's book, "Nerves and the Nervous", is most suggestive. He discards many old notions and lays down directions which are sound and wise while discussing the use of hypnotism or pre-hypnotism, electricity and other therapeutic measures. Dr. Ash's language is non-technical, his intention having been to provide a practical guide for the use of all who might have at any time to be responsible for such cases. The opinions of the author in connection with nursing are those placed before the 1911 Congress of Nurses, held in London, England.—*Nerves and the Nervous.* By Edwin Ash, M.D., London, Assistant Physician, Italian Hospital, London, etc. London: Mills and Boone, Limited. 5s. net.

"Rural Hygiene."

Here we have a book dedicated to country physicians—"men who are overworked, underpaid, and not fully appreciated, but whose work is of the greatest value to the nation"; a handbook written in plain language, free from technicalities and practical while recognizing the limitations of rural life and aiming in the words of Dr.

Parks at rendering growth more perfect, decay less rapid, life more vigorous, death more remote. Among the subjects dealt with are: Work and Recreation; Dwellings; Schools; Water; Disposal of Excreta; Food and Diet; Wines, Whiskey and Other Alcoholic Drinks; Milk; Ice; Country Stores, Jails and Good Roads; Flies, Manure and Slaughter Houses; Hogs; Intestinal Parasites; Malaria, Tetanus, Diarrhoea and Dysentery; Measles and Scarlet Fever; Tuberculosis; Rabies and Rats.—*Rural Hygiene. A Hand Book of Sanitation. Designed for the Use of Students in Agricultural Schools and Colleges and for Residents in Rural Districts.* By Isaac Williams Brewer, M.D. 227 pages. 22 illustrations. Philadelphia, London, Montreal: J. B. Lippincott Company. \$1.25.

"The Conquest of Nerves."

Dr. Courtney gives as a reason for writing the little manual of self-help, "The Conquest of Nerves", under review, that many people otherwise educated remain as ignorant of the simple bodily functions as the new-born of its origin. He endeavors, therefore, to supply the ordinary neglect of the family physician in regard to explaining these functions, believing, thereby that many will be prevented from coming under the influence of quackery; Dr. Courtney does not believe, in this respect, that a little knowledge is a dangerous thing. By the term "nerves" is not included all the manifestations of nervous disordered activity, but simply those, which according to their grouping in a given case are designated as neurasthenia, hysteria, neurosis and psycho-neurosis.—The question of his method of approaching certain phases of Christian Science, Emanuel and New Thought movements, we think, however, is debatable.—*The Conquest of Nerves.* By J. W. Courtney, M.D., New York: The MacMillan Company. Toronto: The MacMillan Co. of Canada, Limited. \$1.25.

CURRENT PERIODICAL COMMENT AND WORKING NOTES

DIRECTORY OF CURRENT JOURNALISTIC TOPICS NOTEWORTHY FROM A PUBLIC HEALTH STANDPOINT: *Journal of the Outdoor Life* (Vol. IX., No. 1, received) contains "A Brief Account of the Development of the Specific Treatment of Tuberculosis," by Louis Hamman, M.D.; "The Pathological Basis for the Use of Tuberculin," by Paul A. Lewis, M.D.; "Tuberculin, Its History, Preparation and Value," by Lawrason Brown, M.D., and A. Frederick Miller, M.D. *The Canadian Teacher* (Vol. XVI, No. 9, received) "Examinations," editorial. *The Heating and Ventilating Magazine* (Vol. IX, No. 1, received) "Vacuum Heating Practice—A Discussion," by J. M. Robb and Preston Daniels, M.E. *Journal of the Royal Sanitary Institute* (Vol. XXXII, No. 12, received) addresses delivered at the Belfast Congress, Conference of Medical Officers of Health, Conference on Hygiene of Childhood, Conference of Women on Hygiene. *The Hospital World* (Vol. 1, No. 1, received) "What the Average Medical Man Expects of the Hospital," by Dr. J. S. Hart. *The American Journal of Clinical Medicine* (Vol. XIX, No. 1, received) "How I Operated upon a Kalinga Chief," by Thomas E. Moss, M.D.; "The Truth About the Much-Abused Common Soldier," by Charles Stuart Moody, M.D.; "Modern Therapeutic Thought in Germany," by William J. Robinson, M.D.; "Modern Tendencies in American Therapeutics," by Wallace C. Abbott, M.D.; "The Value and Limitations of the Clinical Laboratory," by J. Favil Biehn, A.M., M.D.; "The View-Point in Medicine and Surgery," by Beverley Robinson, M.D. *Fruit Magazine, Scientific Farmer and Canadian Citizen* (Vol. IV, No. 4, received) "Evolution of the Public School," editorial; "The Operation of Irrigation Systems," by Robert S. Stockton. *Merck's Archives* (Vol. XIV, No. 1, received) "Treatment and Prophylaxis of Malaria," editorial. *The Canadian Practitioner and Review* (Vol. XXXVII, No. 1, received) "The Canadian Public Health Association," editorial. *The Prescriber* (Vol. VI, No. 64, received) "Therapeutics in 1911," editorial. *The Canada Lancet* (Vol. XLV, No. 5, received) "Fire-Proof Hospitals" and "The Opium Traffic," editorial. *The Medical Council* (Vol. XVII, No. 1, received) "Medical Progress During 1911," editorial; "Vaccine Therapy by John H. Mudgett, M.D.," "Bacterial Vaccine and Serum Treatment of Disease," by R. L. Combs, M.D. *Oral Health* (Vol. II, No 1, received) "A Few Points About Pulmonary Tuberculosis," by W. E. Ogden, M.D. *Journal of the Royal Army Medical Corps* (Vol. XVIII, No. 1, received) "Further Investigations on the Use of Salvarsan in Syphilis," by Major T. W. Gibbard and Major L. W. Harrison; "An Outbreak of Paratyphoid B Fever in Malta," by Major M. H. Babington; "Notes on the Treatment of Syphilis in Uganda," by Captain G. J. Keane; "Parthenogenesis," by Colonel R. H. Firth. *The British Journal of Tuberculosis* (Vol. V, No. 4, received) "State Insurance and the Machinery for the Detection and Treatment of Tuberculosis," by R. M. Leslie, M.A., B.Sc., M.D. *The Journal of State Medicine* (Vol. XX, No. 1, received) "Water and Disease," by H. E. Houston, M.B., D.Sc., F.R.S. Ed; "Principes Scientifiques Qui Doivent Actuellement Servir de Base a la Defense Sociale Contre la Tuberculose," par le Dr. A. Calmette. *Journal of the American Public Health Association* (Vol I, No. 12, received) "A Counting Apparatus for Litmus Plates with a Cold Counting Plate for Use With Gelatin Plates," by S. Henry Ayers. *Dominion Medical Monthly* (Vol XXXVIII, No. 2, received) "Treatment of Typhoid Fever," by Graham Chambers, B.A., M.B. *The Canadian Municipal Journal* (Vol. VIII, No. 1, received) "Garden Cities in England," by Hon. James J. Guerin; "The Building of a City," by Alderman W. A. Gleason. *The Indian Medical Gazette* (Vol. XLVI, No. 12, received) "The Radio Activity of Some Thermal Springs in Bombay," by the Rev. A. Steichen and the Rev. H. Sierp; "Health of British Troops in India," editorial. *The Western Municipal News* (Vol. VII, No. 1, received) "Practical Suggestions for Raising the Standard of Municipal Health Officers," by E. M. Wood. *American School Board Journal* (Vol. XLIV, No. 1, received) "Broader Use of School Buildings," by William L. P. Pieplow. *The Canadian Engineer* (Vol. XXII, No. 1, received) "Engineering Outlook for 1912," editorial. *The Sanitary Engineer* (Vol. XLIX, No. 1154, received) "Housing and Town Planning," editorial. *The Medical Officer* (Vol. VI, No. 27, received) "Street Trading by Children," editorial; Special Article, School Medical Inspection as a Growing Factor in the Anti-Tuberculosis Crusade," by F. E. Larkins, M.D., D.P.H. *Monthly Bulletin, New York State Department of Public Health*, "How Cholera Was Kept Out of New York." *Public Health Notes* (Vol. XXVII, No. 2, received) "The Tarbagan (*Arctomys Bobac*) and Plague," by Paul Preble; (Vol. XXVII, No. 3), "The Cultivation of an Acid-Fast Bacillus from a Rat Suffering with Rat Leprosy (A Preliminary Report), by Harry T. Hollman.

Cadet Training.

Colonel Hughes, in the office of Minister of Militia, has not taken long to prove to the people of Canada that he is a man of ideas. And what is more to the point, as *The Sentinel* remarks, that he possesses the courage to put them into practice.

His plan of training the cadets at annual camps looks like a well-conceived project to strengthen the militia forces of the Dominion. Viewed from that standpoint alone the training camps must prove a warranted expenditure. Hon. Colonel Hughes has no duty more important than that of maintaining volunteer forces upon a high level of efficiency. The defence of the country will be provided for much better by teaching the young men the rudiments of military science in their youth, than by attempting to organize a standing army for that purpose. Besides, it will be less expensive. To enlist the boys of school age in the militia, and give them an interest in the question of national defence, is the surest means of developing a spirit of patriotism which will be found active in any emergency. Another side of this movement is the moral and physical aspect of it. This is quite as important as the other. The cadets are of that age when discipline is most necessary. The life under canvas for a short period each year has peculiar attractions for healthy, normal boys. And the exercises involved in the drill instruction are of the highest benefit to their youthful bodies. They will prepare for, and look forward to, the camp with the liveliest anticipations. We believe it will quicken their intellects, and give a more serious turn to their minds which will lead to better results of scholarship.

It is an interesting coincidence that Col. Sam Hughes should be the man to inaugurate this new policy. His brother, James L. Hughes, Chief Inspector of Toronto, has for a quarter of a century been stimulating the patriotic ardor of the schoolboys of Canada. Much of his work has been done in spite of discouragements. But he has stuck to his guns—like a Hughes. Now it falls to the lot of his brother, a seasoned soldier, to give a special impetus to the training of the boys. In this respect the Hughes boys—Sam and Jim, if we may be so familiar—are rendering a great service to Canada.

Limitations of Ventilation.

Dr. W. A. Evans asks editorially in *The Tribune*, What is gravity ventilation? and proceeds to answer that when ventilation is done without fans, the moving force being differences in the temperatures of inside and outside air, the system is called gravity ventilation. The usual illustration is ventilation by means of open windows.

Warm air is lighter in weight than cold air. Whenever the air in a room is at 70 degrees and that outside is at zero, strong currents will blow in and out. When there is 70 degrees difference, the force is considerable, but, when the difference is but a few degrees, the ventilation declines until there is but little air movement. When the atmosphere gets warmer than 50, the room being 70, open windows do not give much air. If, on the other hand, the room temperature falls to 50 or below, as in sleeping rooms at night, windows do not take in much air unless the atmosphere is below freezing temperature. Further limitation is put on gravity ventilation by the force of wind currents. Of course, it is gravity which causes winds, but there is a wide difference between the warming agencies of a room 12 x 12, and those of 1,000,000 square miles of ground. A current flowing in through a window at a rate of two miles an hour would be called speedy. A wind of less than six miles an hour is not much wind. When the wind is blowing more than ten miles an hour into gravity outlets, such openings always will act as inlets. When such a wind is blowing into gravity inlets, they will carry enough air to chill the room. If the wind blew steadily from one direction, it might be possible, with moderate winds, to adapt inlets and outlets to them, but any one who has watched the steam and smoke of a city knows that the winds eddy and swirl without regularity as to force or direction. And, finally, the chief limitation of window or gravity ventilation is in the uneven temperatures in different parts of the room, especially at different levels above the floor. If the cold air, as it came into a room, would mingle freely, the difficulties would be lessened—but it does not. It settles near the floor, and, as human legs below the knees are easily chilled, complaints are numerous and insistent. The attention of occupants is diverted, they waste time

and energy; eventually, they put down the window and gain comfort even though it is less healthy for them. Window ventilation is not adapted to factories, schools, or offices where there are many employees—certainly not when the weather is very cold.

Preventable Diseases.

Th day is approaching when deaths from preventable diseases will be regarded as a blot upon civilization and the extent to which people limit the loss of life from these diseases will be accepted as an estimate of its civic progress. This proposition is already in process of demonstration.

Germany has almost abolished typhoid fever. In the *Medical Record* a New York physician has published the fact that during an investigation of methods of treating this disease in Germany he was astonished to discover only four cases of typhoid fever in the Johannes hospitals—old and new—of Dresden, in the clinics of Halle and Jena and in the great hospitals of Charite and Moabit in Berlin, while on assuming his service in one of the smallest hospitals in this city immediately after his return he found three cases in the wards and during the following week saw two others in consultation. The reason for this enormous difference he discovered in the fact that while in Germany supervision of the milk supply was executed with military precision in the rural districts, physicians being required to report every suspicious case occurring on farms, the drinking water supply also being guarded with vigilance, the New York milk supply entered the households without any supervision.

Another illustration is furnished by Russia. In 1909 it was stated that cholera had increased in four years from 12,000 cases with 6,000 deaths to 216,000 cases with 100,000 deaths. The difference between the methods of managing the Chinese refugees from cholera by the Russian and Japanese authorities also demonstrated superior civilization of the latter. To our own credit be it said that the exclusion of cholera, which has so persistently threatened to invade our ports, is a gratifying offset to our hygienic delinquency in typhoid fever prevention.

Like cholera and smallpox, typhoid fever, yellow fever and tuberculosis will sure-

ly be abolished when the people become sufficiently enlightened to aid the sanitary authorities even at the sacrifice of temporary inconvenience.

School Ventilation.

A discussion of the ventilation of schools has sprung up in New York, which is not without interest for other cities. It was begun by a sweeping attack, published in the *New York Times*, by Mrs. Stephen Wise, who is chairman of a committee of women which for two years has been collecting information in regard to the condition of the Public Schools. Her conclusion is that all automatic ventilating systems are bad, and that the thermostat is "the 'invention' of the devil," which seems a plausible hypothesis, though it is not patented under his name. There is nothing, she says, to take the place of direct communication with the open air, as in the old-fashioned practice of opening the windows, though it must be owned that the old-fashioned practice was quite as much to leave the windows shut. Even in Massachusetts a woman engaged in the same work as Mrs. Wise found that there was no ventilation at all, and that the windows could not be opened. Out of her own purse she provided what stage carpenters would call a "practicable" window, and was astonished when the gratified authorities had it named after her, the "S—memorial window." There might be a worse monument.

The Springfield Republican points out that the case against the patent ventilators has been supported by a formidable mass of authority and testimony. Dr. Gilman Thompson and Dr. Brennan, of New York City, are quoted by Dr. Luther Gulick as thinking that "we ought to do away with all systems of ventilation and use simply natural ventilation—open windows." Several authorities are cited in support of the view that fresh air heated to the temperature necessary for warming a building is spoiled for breathing purposes. Is this the case? What happens to it? Air gets heated a good deal hotter during a hot wave like that of last July, yet it seems not to deteriorate. What chemical change takes place in artificial warming? It would seem to be is bad, of course, but there are ways of re- a problem for the laboratory. Too dry air

storing the moisture. If the elaborate and costly ventilating systems of which we have been so proud are really a failure, it is a serious matter. But they have not been without their supporters. It has hardly been possible to defend the conditions actually found in the schools, but these have been explained as due to carelessness and poor management, and it is certainly true that in model buildings, well looked after, no such conditions as are described in New York exist. Opinion may differ as to whether the more complicated devices take the place of the open window, but at least no apparent lack of ventilation is noted. A good many hold that while the New York schools may be bad, some mechanical system is indispensable in modern school buildings. Dr. Anna Jacobi, on the other hand, writes:

"Unfortunately, the systems of ventilation used in our Public School buildings, even the best, are failures. They are filled with foul air, which is a perpetual detriment to the development and health of our future citizens. Open windows, judiciously arranged, shorter lessons and longer recesses will improve circulation, muscles, lungs and brains. No apparatus will ever take the place of open windows. 'Air tests,' which have been recommended, are either useless or too clumsy for use and difficult to apply. Mere measuring of carbon dioxide in the atmosphere of a room or hall does not cover the case at all."

It is a subject of great importance, and ought to be considered for the present an open question. Window ventilation can always be returned to as a last resort, and on the whole, it is fairly good, though, as all who have had experience with it know, it has serious defects, such as drafts and sudden changes of temperature.

Home Sanitation where Sewers Have Not Been Installed.

Home sanitation is a serious problem in all sections of a growing city to which sewers have not yet been extended and to country homes where sewers are impossible. Yet it is a matter that often receives little attention.

Since the essential thing for a successful fight against typhoid fever is the isolation of human excreta from flies and the protection of water from typhoid contam-

ination, there is no one thing that can do more toward the suppression of typhoid than the absolutely sanitary closet.

The *Bulletin of the United States Department of Agriculture*, No. 463, describes a sanitary privy thoroughly tested and endorsed by the government health authorities.

This privy, known as the "L. R. S.," consists of:

(1) A Watertight barrel or other container to receive and liquify the excreta.

(2) A covered watertight keg, can or other vessel to receive the outflow.

(3) A connecting pipe about 2½ inches in diameter and about 12 inches long and provided with an open T at one end, both openings of the T being covered with wire screens.

(4) A tight box, preferably zinc lined, which fits tightly on the top of the liquifying barrel. It is provided with an opening on top for the seat which has an automatically closing lid.

(5) An anti-splashing device consisting of a small board placed horizontally under the seat about an inch below the level of the transverse connection pipe, held in place by a rod which passes up through the seat, and by which the board is raised or lowered.

(6) A thin layer of petroleum on the surface of the liquid in each receptacle as an insect repellent.

The liquifying tank is filled with water up to the level of the effluent pipe. The splashing board should be brought to within an inch below the level of the surface of the water before using. This obviates the greatest difficulties hitherto offered by the wet system.

This closet is almost odorless and is practically proof against the spread of infection. The automatically closing lid, the water and the oil all furnish barriers to the flies. The oil also prevents the breeding of mosquitoes.

The fecal matter ferments in the water and gradually liquifies. As the level of the liquid raises the excess flows off through the pipe into the outer receptacle, which can easily be emptied when full. The liquifying tank rarely needs cleaning—once in several years will do.

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

Doctors and the British National Insurance Act.

Sir,—I have received, as an English practitioner, many communications in relation to the British Insurance Act from persons or groups of persons who seem to think they have authority in the British medical profession. The latest from the *Practitioner* contains the following:—

“As we have not yet received your pledge, and as it is most essential that every individual shall decide one way or the other, your reply by return post is requested.” (Dated 3/1/12.)

It is hardly necessary to say that, being a self-respecting man, I have *not* answered this peremptory “request.” But, as there seem to be a good many medical men who have not “pledged,” and probably do not intend to pledge, themselves against service under the Act, it is perhaps desirable to publish the grounds on which some of them take their stand. Personally, I have several reasons for not “pledging,” among them the following:—

1. I believe that the British Insurance Act will be of incalculable benefit to many millions of persons who need all the help they can get in a strenuous and difficult world.

2. I am of opinion that the Act will benefit the rank and file of the medical profession and do no harm to its more prominent members.

3. I am strongly opposed to “picketing” or any other semi-coercionary form of trade unionism in the medical profession.

4. I hold that a man of the educational status of the average doctor is better able to decide a matter of this kind for himself than either a medical newspaper or an association of doctors is able to do it for him.

I may add that I have never served a “club”—Friendly Society or other—in my life; and I am debarred, by reasons I need not name, from “accepting service” under the Insurance Act.

Geo. W. Potter, M.D.

Dangers Through Impure Butter.

Sir,—The possibility of the transmission of tuberculosis by milk is now well known; transmission by butter is only beginning to be realized. Cream contains tubercle bacilli in even greater quantities than milk. It is difficult to state the percentage of contamination; but it probably averages about 12 per cent. The germs of tuberculosis can live in the butter, in spite of the salt which it contains and the cold temperature in which it is stored, for a period of about three months; in fact, in some cases it has even been found the germs have increased in butter containing from two to three per cent. salt and stored in a temperature of zero centigrade. Dr. A. E. Hess, of New York, recently declared that the public should be warned against impure butter as well as against impure milk. As a remedy, he proposes the manufacture of a certified grade of butter, to be made under the same conditions as certified milk. The demand for this butter might not be large because the price would be prohibitive to many, but there are probably many who, if aware of the danger of ordinary butter, would willingly pay the additional price for a safe product for their children. Certified butter would be, primarily, for children, just as certified milk is, primarily, for infants, children and invalids. On the other hand, pasteurized butter — that is, butter made of pasteurized milk — costs but little more than ordinary butter, and does not differ from it in taste, color or appearance. In Denmark, for instance, pasteurized butter is the staple. It is also made and sold in many European countries. A pasteurized butter will be put on the market of New York in the near future, at a cost of 5 cents per pound more than raw butter. This increase is permissible under the circumstances, but it will probably not be necessary when the demand for such butter has been established.

A. E.

Meetings and Reports

Material for this department to appear in any month should be transmitted before the 25th of the preceding month.—Ed.

DOMESTIC

ADVANCE NOTICES.

Canadian Public Health Association 1912 Congress, Toronto, September 18th, 19th and 20th; Charles J. C. O. Hastings, M.D., M.H.O., City Hall, Chairman; T. Aird Murray, M.C.S.C.E., Lumsden Bldg., Secretary, and Duncan Anderson, M.D., 28 Wellesley St., Associate Secretary, Committee on Local Arrangements; particulars later; Major Lorne Drum, M.D., D.P.H., P.A.M.C., General Secretary, Ottawa.

Child Welfare Exhibition, Montreal, Oct., 1912. The objects are: I. To present evidence of all the various activities—educational, religious, charitable, philanthropic, and medical making for the improvement of conditions of child life, so that their existence and special work may be advertised, their inter-relationship may be recognized and the public be further stimulated to support and advance their endeavors; II. To show the deficiencies in public and private organizations and to suggest remedies for the same, drawn from the experience of other communities, in this way supplementing and extending the work already being accomplished; III. To correlate the endeavors of many existing associations, developing thereby a body of concerted opinion sufficiently strong and influential to bring about the needed improvements in the surroundings and upbringing of the city child. It is proposed that the Exhibition shall have the following departments:

1. The Health of the Child; 2. The Home of the Child; 3. The Education of the Child; 4. The Moral and Religious Life of the Child; 5. The Recreation of the Child; 6. City Environment and the Child; 7. The Law and the Child; 8. The Social Life of the Child; 9. The Care of the Abnormal Child; 10. Philanthropy and the Child. The Executive Secretaries are: W. H. Atherton, Ph.D., 62 Beaver Hall Hill; Tel., Up 1380; and Rev. J. O. Maurice, L.L.L., 35 Ontario, East; Tel., East 925.

The Canadian Forestry Association, February, 6, 7 and 8, 1912. Annual meeting, Railway Committee Room, Parliament Buildings, Ottawa; James Lawler, Secretary, Canadian Building.

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

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

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

Canadian Commission of Conservation.

A recommendation that Ottawa and Hull be created a federal district in connection with the Dominion Conservation Commission's town planning scheme, was the feature of the third annual meeting of that body. The report of the Public Health Committee stated that making Ottawa a model city in town planning and housing would be of inestimable value to the cities and towns of the Dominion.

The chairman said much of the legislation passed on the housing question had done more harm than good to town planning, and the commission is to investigate the matter.

The report submitted by Dr. Hodgetts said that the Minister of Agriculture had put up to provincial governments recommendations for assistance by the Federal Government of new tuberculosis sanator-

iums, and the setting apart of crown lands for the settlement of afflicted persons, and had further found himself unable to recommend another Federal grant for the suppression of the disease. A commission on tuberculosis was advised.

The establishment of some central authority, preferably a reorganized Federal Department of Health, whereby all new town sites should be approved of by that body, was also urged. Rural sanitation and the establishment of a Federal Department of Public Health under a director general and a deputy minister were recommended. The inspection of meat for home consumption of Canada is also strongly recommended, also municipal abattoirs.

Dr. J. W. Robertson read the report of the Committee on Lands stating that the farmers of Canada were not conserving the

fertility of the soil in any province; 46 per cent. of the farms examined in the West had shown a substantial decrease in production—systematic rotation of crops was the only remedy—and he stated farmers had more need of scientific methods on the farm.

R. H. Campbell, Superintendent of Forestry, appealed for the Rocky Mountain Forest Reserve and an expert forester in charge. An appropriation of \$140,000 was recommended for the reserve of the year. The appointment of a chief fire inspector and staff as part of the Railway Commission was urged by Hon. Clifford Sifton, and Prof. Fernow will be the Board's representative to the Railway Board in this respect.

The establishment of a National Laboratory and Federal Department of Health, as advised at the recent Congress of the Canadian Public Health Association, was endorsed. A peat resource investigation was also recommended.

Halifax City Health Board By-law Respecting Hygiene in Barber Shops and Hair-Dressing Parlors.

John A. Waters, Secretary of the Halifax, N.S., City Board of Health, publishes the following by-law, as passed on the 28th of last December:

1. Customers, where possible, should have their own razors, soap and brushes.
2. Razors and scissors in general use shall be sterilized by immersion in a solution of carbolic acid or lysol before and after using. Clippers must be sterilized in alcohol at least once a day.
3. Hair brushes in general use shall, at least once a day, be immersed in a fresh solution of corrosive sublimate contained in an earthenware jardiniere or enamelled dish, and afterwards rinsed in clean water and dried with a towel or heat.
4. Shaving brushes in common use shall be subjected to the same treatment of immersion and afterwards rinsed in very hot water.
5. Shaving soap, applied from a cup in general use, shall be thoroughly cleansed with boiling water, or an antiseptic soap powder must be used to produce lather.
6. Powder shall only be applied by a blower, absorbent cotton or towel.
7. Combs in use shall be frequently immersed in boiling water and thoroughly cleaned.
8. The

- barber or hair-dresser shall wash the hands frequently, using soap, preferably carbolic, and nail brush.
9. The use of the alum stick, frequently used to stop the flow of blood, shall be discontinued and replaced by calcined alum, a powder which can be applied on cotton wool, which shall be thrown away immediately afterwards.
10. Vaseline shall not be applied from a pot, but only from a squeeze tube.
11. Sponges shall not be used.
12. Razor strops shall only be used for razors which have been previously disinfected.
13. The hair-cutting wrapper shall be placed round the shoulders of customers and fastened with a safety pin or other device at the back, and clean towels shall be used about the neck to prevent hair from falling down.
14. Every barber or hair-dresser shall wear a coat or apron of a washable white material. The sleeves of the coat shall be comparatively short.
15. Spitting on the floor shall not be allowed.
16. Where a steaming towel is used, a fresh one must be provided for each customer.
17. For sterilization purposes, separate vessels must be provided for brushes and towels.
18. At frequent intervals the floor shall be sprinkled with a disinfectant material or wet sawdust, and swept. The sweepings shall be placed in a covered receptacle, and the contents shall be burned every evening.
19. Bath tubs, after use, shall be thoroughly rinsed or swished out with very hot water, and then thoroughly wiped with a fresh towel.
20. Every barber shop shall be equipped with running hot and cold water.
21. A printed copy of the foregoing shall be conspicuously displayed in every barber shop and hair-dressing establishment in the city.
22. Any person who shall violate any of the provisions of these by-laws shall, for every such offence, be liable to a penalty not exceeding one hundred dollars, and in default of payment to imprisonment for a period not exceeding three months.

Commission of Conservation Reports.

Hatching fish by artificial means to stock the waters of Canada is engaged in on a large scale by the Dominion Government. In 1909, the Dominion fish hatcheries planted no fewer than 1,024,282,000 fry in various waters throughout the country. In 1900, only 271,996,000 fry were planted by the Government fish hatcheries, so that the

plant of young fish has increased by nearly 277 per cent. in the past ten years and the number of hatcheries has increased from 12 to 37, or 208 per cent. Of the 37 hatcheries now in operation, British Columbia and Quebec have 8 each, Nova Scotia, New Brunswick and Ontario, 5 each, and Manitoba and Prince Edward Island three each.

The amount voted by the Dominion Parliament for fish culture purposes in 1909 was \$322,300, and of this \$180,345, or approximately 56 per cent. was expended. The importance of carrying on this work cannot be emphasized too much in a growing country like Canada, where the increasing population is making greater and greater demands on the fish supply.

In regard to mine accidents in Canada the Commission says that statistics which they have recently compiled, show that the death rate in Canadian coal mines is much higher than in any other civilized country. In 1902, the year of the Fernie disaster, the death rate per 100 men employed (above and below ground), reached the maximum rate of 13.25. The average rate for the ten years preceding 1910, however, was 4.79. The United States comes next with an average rate for the same period of 3.43. Perhaps the worst aspect of the situation is the fact that the death rate from coal mine accidents has been steadily on the increase in Canada for a number of years. The minimum rate of 1.83 was reached in 1897. In 1909 the rate was 4.21. During the same time there has been a steady decrease in all the leading European countries.

It would, of course, be unreasonable to expect that the loss of life and property could be entirely done away with, but experience has shown that careful investigation of the conditions will point the way to the remedying of many abuses. That the danger inherent in coal mining can be largely eliminated is shown by the low, constant death rates in Belgium and Great Britain. Coal mine explosions are much more frequent in Canada and the United States than in any of the European countries. The following example is exceedingly significant. In 1850 the fatality rate in the Belgian coal mines was as high as the present Canadian death rate, while at the present time it averages the lowest in the world. This decline in the death rate was

due to the combined efforts of the mine owners, the workmen and the Administration of mines; to the diffusion of technical and professional knowledge and to the administrative organization for the scientific study of accidents.

Although the death rate in metalliferous mines in Canada is lower than in the coal mines, it is much higher than in any of the European countries. The death rate in Canada for the period 1900—1909 was 3.82.

With the exception of the Kimberley diamond mines and the Transvaal, where native and Chinese labor are employed, the fatality rate during this period (1900-1909) was considerably lower elsewhere than in Canada. It requires no discussion to emphasize the importance of an inquiry into the whole subject of fatal accidents in the mines of Canada.

Report of the Royal Commission on Tuberculosis in Quebec.

The report of the Royal Commission on Tuberculosis in Quebec just issued, describes conditions that leave no doubt that there are few countries in the world with a higher mortality from tuberculosis than Quebec; and the city of Montreal seems to have the unenviable position of a higher mortality record than any other large city on the continent.

The report pays high tribute to the value of dispensaries like the Royal Edward Institute and rightly points out that ten dispensaries at least are needed for one sanatorium; but it is made clear that above all other things is the need of a vigorous campaign of education. In a list of seventeen countries, with statistics giving the mean mortality per 100,000 of population for the five years 1902-1907, only six show a higher rate than the province of Quebec. The first ten on the list are given in the following order:

France	336
Austria	334.8
Servia	279.7
Ireland	215.3
Norway	196.4
Switzerland	192
Province of Quebec	188.6
Germany	185.8
United States	169.9
Spain	147.8
Japan, Scotland, the Low Countries.	

England and Wales, Belgium, Italy and Australia's mortality being 85.6, less than half of that in Quebec. Statistics for a period of ten years, 1896 to 1906, show diseases, smallpox, scarlet fever, measles, typhoid and diphtheria combined were the cause of 24,615 deaths, tuberculosis had placed to its account 33,190. That if anything is an understatement of the actual figures as to tuberculosis, owing to the fact that the statistics are defective. The report notes time and again the tendency to put down the cause of death as other than this unpopular disease. And if the figures quoted for 1903 are typical, little more than half the death certificates are signed by physicians, who alone can give a reliable diagnosis. After going elaborately into the question of comparative statistics and dealing at length with the general causes of tuberculosis the report submits the results of an enquiry as to special causes responsible for the prevalence of the disease in the Province of Quebec. This enquiry was conducted through a referendum, in which 338 physicians replied to a series of set questions. The causes are classed under nineteen heads. Contagion made possible by general ignorance of the infectious nature of the disease plays the principal part among all the causes. Unhealthy dwellings come next. Dwellings closed tight to sunlight and fresh air, especially in the long winter, leave the occupants predisposed to the disease and make its spread rapid when a case develops. Women in Quebec, contrary to the experience of other countries, suffer more from the disease than men, for the reasons that they spend so much more time in these unventilated homes, and that to them falls the care of those stricken down with the disease. Mortality is greater among English-Canadians, in part because they are more exposed to industrial labor and fatiguing work and live under more or less unhealthy conditions. The chief causes that must be contended against says the report are: 1. Contagion in the family and in the collective life of offices, workshops, factories, schools, etc. 2. The weakening of the normal resistance of the organisms by dark, damp, crowded and unventilated dwellings; by atmosphere loaded with dust and smoke; by the anti-hygienic conditions of labor; by alcoholism.

The causes given suggest the lines on which efforts must be directed to improve the situation. They are dealt with at considerable length in the report, as is the more difficult question as to how they are to be put in motion. Legislative enactments concerning the prevention of tuberculosis are fairly elaborate. The commission, for one thing, urges that proper steps be taken by the Government to have them enforced. It urges, too, that the Government contribute to the erection and maintenance of dispensaries and isolation hospitals. Municipalities and citizens individually also have duties in the matter.

Conservation Commission Report on Canada's Water Power Resources.

The first inventory ever taken of the water-powers of Canada has been completed by the Commission of Conservation and the results embodied in a large and profusely illustrated report just issued. The investigation made by the Commission, which has extended over a period of two years, shows that there are 1,016,521 horse-power developed from water-power in Canada. Every phase of the subject from the laws governing the disposition of water powers in the various provinces, to the actual physical data regarding each individual water-power concerning which information was obtainable, is treated in the report. In addition, there is a very full bibliography of 30 pages, and appendices giving, among other things, the text of the laws concerning the export power and also of the treaty recently concluded with the United States regarding the establishment of an International Joint Commission.

The volume starts with two chapters of an introductory nature that are concerned mainly with the general economic bearing of water-powers on national development. The relation of water to agriculture mining, navigation, domestic supply and so forth, is dealt with, and the principles to be used in the interpretation of water-powers data are stated and discussed critically. The broad and optimistic statements very often made on the platform and in the press regarding our vast water-power resources are deprecated. To quote from the Report, "General statements implying that the aggregate amount of water-power must be great because the total water area,

or watershed area is so great, or because there are so many lakes and rivers, are generalities to be considered of very little definite value. . . . One of the chief dangers of such generalities is to create in the popular mind a feeling of unwarranted assurance that, even though desirable water-rights are being granted by a government, yet there is so much left, that no apprehension may be entertained regarding the amount of power rights being parted with.

A chapter is devoted to the water-powers of each province in which the general features of the province as regards water-power development are discussed and an outline given of the law whereby powers are granted or leased to private individuals or corporations. The larger developments are also described. The statistical data given in tabular form includes the height of the fall, the horse-power that may be developed, the present development and the main uses to which the power is applied such as lighting, pulp and paper making, etc. Reference is also made to the possibility of increasing the amount of power developed by storage reservoirs and dams where such are feasible.

The power situation in Ontario is treated very fully, special attention being given to the power possibilities at Niagara and the conditions affecting development there. Each of the power companies operating there, whether on the Canadian or American side, is described in detail. A significant reference is made to the granting of franchises to develop power at Niagara Falls. The Report states that the low-water flow of the Niagara River would yield at the Falls, about 2,250,000 H. P., of which Canada's share (one-half), would be 1,125,000 H.P. "Franchises have already been granted," it goes on to say, "and plants partially completed, for the development on the Canadian side of the river of about 450,000 H.P. In other words, instead of 'millions' of horse-power being available, as has been sometimes stated, it appears that about half, and by all odds the better half, of Canada's usable share of Niagara Falls power has already been placed under private control."

The volume embodies all the useful information regarding the water-powers of Canada that has heretofore been collected and this has been supplemented and, in many cases, verified, by field surveys, conducted by the engineers of the Commission. In fact, all the information regarding the Maritime Provinces powers was obtained in this way last year by the experts of the Commission. The data regarding the Western Provinces was found to be so incomplete that it was decided to make special investigations of the powers in those Provinces, the results of which will be published next year in the form of a report on the "Water-Powers of Western Canada." The engineers of the Commission are now engaged upon this.

Veterinary Director-General Rutherford's Report.

It appears, according to the Canadian Veterinary Director General and Live Stock Commissioner's report for the past fiscal year, that Canadian breeders are large importers of high class animals, and there is no reason to doubt that the standard of Canadian herds is being steadily improved. The report points out that through the Levis quarantine from 1876 to 1910 there were brought into the country for breeding purposes 6,179 cattle, 16,038 sheep and 1,253 swine. Ontario and Quebec have been the destination of the most of these imports, but all of the provinces have received some. As to sheep, however, the conditions seem to have made Canada the purchasing field for United States breeders; the report hints that by Canadians cattering to this outside demand they are missing the advantages largely of a home market. Investigation preceding the report found no actual decrease in the flocks and herds on Canadian farms; the report intimates that this export business will decrease as time goes on as a result of the filling up of the North-West provinces. Not the least interesting part of Dr. Rutherford's report is that which tells what is being done to secure the education of those in the sheep industry, pointing out that business prices should guide stock raisers as they do other successful producers and that the best animal gives the best profit.

INTERNATIONAL

ADVANCE NOTICES.

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

Fourth International Congress of School Hygiene, Buffalo, in the summer of 1913—particulars later.

Conjoint Meeting, International Association of Medical Museums and International Congress of Medicine, London, England, in the summer of 1913. Particulars later. Dr. Thursfield and Dr. Woodwark, of St. Bartholomew's Hospital, and Dr. Kettle, of the Cancer Research Hospital, Local Secretaries.

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

International Congress on Tuberculosis, Rome, April, 1912.

International Red Cross Conference, Washington, D.C., May 7-15, 1912. Dr. C. R. Dixon, Secretary, 192 Bloor St. West, Toronto, Ontario.

International Eugenic Congress, London, England, July 24-30, 1912; address the Honorable Secretary, 6 York Buildings, Adelphi, London, England.

Seventeenth International Congress of Medicine, London, England, summer of 1913; further particulars of this Congress will be given later. Honorary General Secretary, Prof. H. Burger, Vondelstraat, Amsterdam.

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

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

Congress of the American Physical Education Association, Montreal, February 22nd, 23rd and 24th. The meeting will be held in McGill University. The local secretary is Miss Cartwright, Royal Victoria College, Montreal.

The American Orthopedic Association and the American Pediatric Society.

At a recent meeting of the American Orthopedic Association and the American Pediatric Society, a committee consisting of Robert W. Lovett, M.D., Chairman, Henry Koplik, M.D.; H. Winnett Orr, M.D.; Irving M. Snow, M.D., Secretary, was appointed to communicate in reference to acute epidemic poliomyelitis, with health authorities and boards of health.

Anterior poliomyelitis is, this committee points out, so far as known, a communicable disease, being communicated from one patient to another, and also by means of a third person. It occurs in epidemics, and tends to spread along the lines of greatest travel. There is reason to believe that it is prevented from spreading by quarantine, and with the very great prevalence of the disease in the summer of 1910, it is the opinion of this committee that it is essential that it should be made a reportable disease in all States, in order that its presence may be detected and its spread guarded against.

Of particular significance are the so-called abortive cases, where indefinite ailments occur in children in communities where frank paralysis also exists. These abortive cases of infantile paralysis are undoubtedly a source of infection, and

their record and study is of much importance. In a community where cases of infantile paralysis occur cases of illness with sudden onset of fever and meningeal symptoms should be closely watched and regarded as possibly infectious. In such cases even recovery without paralysis does not establish the fact that the case was not abortive infantile paralysis.

All cases of infantile paralysis should be strictly quarantined, sputum, urine and feces being disinfected, and the same rigid precautions being adopted as in scarlet fever. This quarantine should, in the opinion of the committee, last for four weeks, in the absence of definite knowledge as to when the infection ends. Children from infected families should not be allowed to go to school until the quarantine is abandoned. The transportation or transfer of acute cases in public conveyances should be strictly forbidden. It would be very desirable to adopt provisional quarantine measures in suspicious cases in a community where an epidemic prevails. The report of all cases of infantile paralysis to the public health authorities should be enforced by law, and all deaths from this cause should be properly described and registered. A careful study of epidemics by public health authorities is strongly advised.

UNITED STATES

ADVANCE NOTICES.

Eighth Annual Meeting of the National Association for the Study and Prevention of Tuberculosis. The eighth annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Washington in the third week of May, 1912, the exact dates to be announced later. The general organization of the program will be as follows: Clinical Section, Chairman, Dr. Charles L. Minor, Asheville; Pathological Section, Chairman, Dr. William H. Park, New York; Sociological Section, Chairman, Mr. Frederick L. Hoffman, Newark. The chairman of the Advisory Council for the annual meeting is Dr. Charles O. Probst, of Columbus, Ohio.

"Declaration" of the United States National Education Association.

The United States *National Education Association* has made public the "Declaration" passed at the last convention in San Francisco, California. This statement tells what the association wishes to see accomplished. The declaration appeals for more money and power for the Federal Bureau of Education, which is characterized as being the only educational agency belonging to all the people and from which all have the right to demand service. The association suggests that the national appropriations for studying problems involving the welfare of the nation's school children be made comparable in amount with those for studying problems concerning the conservation of the nation's material resources. A plea is being made for suitable ethical instruction in even the elementary schools, for proper attention to school hygiene, for medical inspection, and for the wider use of school buildings. The association approves fully of making the school-house a centre of social, civic and recreational as well as educational activity for young and old throughout the day.

Sanitation of the Illinois Central.

A campaign for more cleanliness and better sanitary conditions throughout its system has been undertaken by the Illinois Central Railroad. Dr. Albert E. Campbell, of Clinton, Ill., has been appointed sanitary inspector, and already has begun his duties.

The position of sanitary inspector is a new one and was created as a result of plans, which have been under consideration by the management for a long time, to have an official who will make a specialty of maintaining healthful surroundings both for employes and patrons. Dr. Campbell has been authorized to enter all cars, dining-houses and buildings of every de-

scription along the line for the purpose of ascertaining if unsanitary conditions prevail.

He will make reports to the management from time to time regarding his observations and also will submit recommendations for improvements.

Association of Military Surgeons of the United States.

Surgeon Charles P. Wertenbaker, Public Health and Marine Hospital Service, was elected president of the Association of Military Surgeons of the United States at the recent meeting in Milwaukee. Baltimore was honored as the next convention city.

The other officers elected were: First Vice-president, Surgeon W. C. Braisted, United States Navy; Second Vice-president, Colonel Charles Adams, National Guard of Illinois; Third Vice-president, Major Jefferson S. Kean, United States Army; Secretary and Editor, Major Chas. Lynch, Medical Corps, United States Army; Treasurer, Major Herbert Alonzo Arnold, Pennsylvania National Guard.

Pellagra and the United States.

The Surgeon-General of the United States Public Health and Marine Hospital Service has asked Congress for an appropriation of \$50,000 with which to study and fight pellagra.

Recent statistics show this scourge is increasing at an alarming rate in the south.

In Italy a national law for the cure and prevention of pellagra is in force. This law is based entirely on the theory that the disease is caused by eating spoiled corn—a theory which has been generally accepted in the United States. However, two more hypotheses have recently gained some credence, and, if finally adopted,

will present the case in a still more serious aspect.

One of the new theories goes on the assumption that the disease is brought by the sting of a sand fly. The other assumes the malady to be brought into the human system by the water-borne trematode, an Italian blood-infecting insect.

These theories have attracted wide attention in Italy, and in the United States the fight is still being made on the assumption that spoiled corn is the principal agent in the spread of the disease. The corn theory puts a more serious face on the problem, when it is explained that by corn is meant chiefly its main products, such as hominy and meal, a form in which bad corn can be disguised by unscrupulous millers and manufacturers.

Like cholera, pellagra is stopped by cold weather. Frost followed by warm weather has no appreciable effect, a permanent drop in temperature being necessary. The cases which are contracted late and apparently cured by cold weather often show a recurrence of the disease in the spring, and, in some instances, the recurrence has continued for years, ending in insanity. In other cases a period of not more than two years elapses between the first symptoms and death.

Connecticut Society for Mental Hygiene.

The *Connecticut Society for Mental Hygiene* is engaged in the important work of helping to prevent insanity by informing the public of the known and avoidable causes which produce nearly half of the insanity which now develops. This work of enlightenment is being effected by means of pamphlets and by personal advice given by physicians and social workers. During this winter the society is distributing authoritative articles written especially for the lay public. We are informed that copies of two of these pamphlets, "Why Should Anyone go Insane," and "The Management of Children Predisposed to Nervousness," this latter written by Dr. Lewellys F. Barker, of Johns Hopkins University, are ready for delivery to those who send a request for them to the Connecticut Society for Mental Hygiene, 39 Church Street, New Haven.

Chicago Certificate for Theatre Ushers.

The ordinance establishing a board of

examiners of ushers at theatres and other places where an admission fee is charged, has been introduced in Chicago. The ordinance provides for a board of three members — the fire marshal, the commissioner of health, and the commissioner of buildings. Applicants for the position of usher must pass an examination for physical fitness and competency, a fee of \$1.00 being charged for each examination. A certificate is good for one year, but can be renewed on payment of another dollar.

Ohio State Board of Health and Sex Hygiene.

The Ohio State Board of Health has drafted a bill providing for education of the young in matters of sex and this will be introduced at the coming session of the legislature. This is the most radical step in the direction of social hygiene ever taken by Public Health officials, and is the initial effort to make practical a theory that is becoming widely accepted as being of paramount importance from the viewpoints of health and morals.

Harriet N. Lowell Society for Dental Research.

The reception given annually to the student body by the administrative board of the Harvard Dental School was made recently the occasion for the launching of a new society that has all the prospects of great importance in the development of modern dentistry. At the reception there were addresses by Dr. Theobald Smith and Dr. Frank B. Mallory, of the Harvard Medical School, and by Dr. L. M. S. Miner, of the Harvard Dental School, the motifs of which were phases of the questions of individual and allied research work in medicine and dentistry. An immediate outcome of the meeting was the organization of the Harriet N. Lowell Society for Dental Research, an addition to existing societies and one that is intended to emphasize the scientific aspect of dentistry and the close relations between the dentist and the physician.

New York Grocery Inspection League.

Grocers and other dealers in household supplies in New York City do not care much, it is reported, for the occasional visits of official inspectors, but they are likely to care a great deal for inspection by

the housewives who patronize them, if the plans of the latter are carried out. A league has been formed, including 65,000 members of the city federation of clubs, and not less than 100,000 other women, who plan to investigate dealers and to make a white list of those who give honest weights and measures, whose places are sanitary, whose foods are pure, who do not expose their goods to dust unnecessarily and who do not ask more than the prevailing market prices.

The city is to be divided into districts, and in each district women leaders will be found to canvass the blocks for new members and to inspect the stores and laundries therein. Whenever a woman discovers a violation of the laws she is to report it at once either to the Board of Health or to the central committee of the league. Each member is also to make a visit to the bakery where her bread is baked, the factory where her soup is canned and the laundry where her clothes are washed. Any one may join the league who pays 5 cents dues and signs a pledge that she will make these personal investigations and report to the central committee.

Another part of the league's work is to inquire into the prices asked in different parts of the city and to secure a proper uniformity based on wholesale rates and varying market conditions. The women say there is a wide difference in prices asked for staple articles, some dealers taking advantage of the fact that their customers are ignorant of what they should pay and charging them whatever they wish, often having one price for one person and a different one for another. The work of the league is not to be a burdensome one. Its members are to do it on their regular marketing rounds and to be always on the alert for abuses and matters that need correction—this is not only for their individual benefit, but for that of the public in general.

It is a commendable undertaking by the right people and is sure to have excellent and immediate results. When housewives once insist on having exactly what they order and having it in good condition; when they are particular as to good measure and cleanliness; when they convince the grocers that they are informed as to prices; in short, when they become exacting as to quality, quantity and condition

on a basis of knowledge and intelligence, the dealers will make haste to conform to their reasonable demands. Many dealers, not dishonest, grow careless and negligent from sheer lack of feminine supervision; others intentionally take advantage of customers, but all alike will be the better for the proposed oversight. When women take food supply matters in hand they may have conditions as they will. The plan of the New York women might well be emulated in other cities.

Public Health at the Trans-Mississippi Congress.

The Trans-mississippi Commercial congress, with 4,000 delegates from every state west of the Mississippi and from Alaska and the island territories, recently met in Kansas City for its twenty-second annual session. Many of its recommendations in previous years, notably those regarding irrigation, drainage, waterway development and postal savings banks, have had their influence in national legislation. Last meeting the health of the country and how it should be treated by state and nation was considered.

New Jersey Sanitary Association.

The thirty-sixth annual meeting of the New Jersey Sanitary Association was held at the Laurel-in-the-Pines, for the year just closed.

Addresses—"Some Features of the Larger Water Supplies of the State," by Morris R. Sherrerd, consulting engineer, New Jersey State Water Supply Commission; "Outline of Proposed Anti-Tuberculosis Campaign in New Jersey," by Dr. A. Clark Hunt, State Board of Health. "The Responsibilities of Local Boards of Health to the Community, with a Plea for More Uniformity in the Local Health Code," Dr. Edward Guion, Atlantic City; "Some Observations Upon the Collection and Disposal of Garbage," Samuel A. Greely, civil engineer of Milwaukee; symposium, "Infant Mortality," Dr. Charles G. Kerley, New York City; Dr. David E. English, Summit; Dr. Henry L. Colt, Newark, and Dr. G. K. Dickinson, Jersey City; "History of the Fly," with stereopticon views, Dr. Dickinson, Jersey City.

"Progress Toward the Control of Animal Infection in the State and Its Relation to

the Public Health," Dr. H. E. Stearns, Arlington; "The Moral Phase of the Social Evil," Rev. Herbert M. Gesner, Atlantic City; "Schools Health," C. N. Kendall, Trenton.

A U. S. Army Venereal Prophylactic Package.

Experiences with various prophylactic unguents in the U. S. army has done much to diminish venereal disease among the enlisted men. Col. L. Mervin Maus, U.S.A. Chief Surgeon Department of the Lakes, suggested a small tin collapsible tube containing a paste made of phenol 3 per cent., calomel 25 per cent. and lanolin 72 per

cent. He has found this simple method absolutely a preventive for all three of the venereal diseases—gonorrhoea, chancroids and syphilis—if properly used within a half hour after contact.

The method of use is as follows: One-third of the paste is squeezed into the urethra, the remaining two-thirds applied externally. Washing the genitalia is not necessary, if the tube is properly used. Colonel Maus has practiced this method for one year among the troops of the Department of the Lakes, and has failed to observe any infection following the proper use of the tube.

THE EMPIRE AND THE WORLD ABROAD

ADVANCE NOTICES.

Pure Food and Health Society Congress of Great Britain, London, England, March, 1912. Particulars later.

Congress of the Universities of the Empire, London, England, July 2nd, 3rd, 4th and 5th, 1912. Fifty-one universities have arranged to send representatives; and among the questions proposed to be discussed by them are the following: University Organization; Universities in Their Relation to Teachers and Undergraduate Students; Universities in Their Relation to Post-Graduate Research Work; Universities in Their Relation to Schools and to Agencies for Higher Education. Other subjects for discussion will probably be: Whether any Common Understanding Will be Possible Among the Universities of the Empire as to the Extent to Which They Could Recognize Each Others' Entrance Examinations; The Desirability of Increased Facilities for Post-Graduate Study; The Possibility of Some Plan of Interchange of Professors; What Could be Done by Universities in Regard to After Careers of Students, and the whole question of the Financial Support Given from Public Sources to Universities. Inquiries with regard to the Congress should be addressed to Dr. R. D. Roberts, at the Congress Office, University of London, South Kensington, London, England.

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

Imperial Conference of Teachers' Association, London, England, July 12-16, 1912.
Royal Sanitary Institute, Congress and Exhibition, York, England, July 29th to August 3rd, 1912. President Most Rev. His Grace the Lord Archbishop of York; E. White Wallis, Secretary, 90 Buckingham Palace Road, London, England.

Harveian Oration on Tuberculosis.

Dr. C. Theodore Williams delivered the Harveian Oration in commemoration of William Harvey, recently, before the Royal College of Physicians, London, England.

After referring to the researches of Harvey and to the results that have followed from the discoveries he made, Dr. Williams gave an account of the knowledge of tuberculosis that existed in Harvey's day, and

traced the steps by which it has progressed. After referring to the effects of sanatorium treatment, to the introduction of a system of graduated labor as a substitute for walking exercise, and to the various forms of tuberculin, he considered what were the prospects of the crusade against tuberculosis in England, and how they could be furthered. It was probable, he said, that a large proportion of the two-thirds reduction in our phthisis mortality during the last fifty years was due to such agencies as improved drainage, less overcrowding, better food, more air and sunlight, improved standards of cleanliness, and greater opportunities for play and exercise. Other beneficial factors were town-planning schemes, and improved education by tuberculosis exhibitions and teachers. Turning to the question of treatment, he claimed that the dispensary system introduced by Dr. Philip was of the greatest use, as home visitation of the consumptives and connecting them with philanthropic and other agencies was thus secured. He suggested that the out-patient departments of consumption hospitals ought, if well organized, to fulfill the same functions. Few cases were fitted for admission into a sanatorium, and the consumption hospital was the proper place for most members of the working classes, who seldom came up for treatment, except when they were in an advanced stage of the disease. After treatment in hospitals they might improve sufficiently to benefit by removal to a sanatorium, which was intended to receive consumptives in early stages, and able to take exercise.

"I am convinced," Dr. Williams concluded, "that any comprehensive scheme for dealing with consumption in this country, should include the establishment of a large number of consumption hospitals scattered over the country in close connection with dispensaries and sanatoriums, and as a further link in the chain, some form of labor colonies and exchanges should be available. The task of further reducing and abolishing tuberculosis is not a hopeless one, but it does not lie wholly with the doctors. It lies also with those who have it in their power to remove or lessen the principal causes of tuberculosis, namely, the overcrowding of our cities, the way to open spaces and ventilation, the insanitary houses, the lack of a good supply

of water and pure milk. If all these defects were remedied the number of phthisis cases would be comparatively small. The Government and the Local Authorities could insist, too, on the removal of advanced cases of consumption to a hospital or infirmary, and thus do away with one chief source of infection, and we should soon see a rapid fall in the number of contact cases and in the mortality tables."

British Society of Medical Officers of Health.

The annual meeting of the British Society of Medical Officers of Health was held in London recently, when Professor Bostock Hill, Medical Officer for Warwickshire, delivered his presidential address.

He prefaced his address by a graceful acknowledgment of the honor conferred not only on himself, but his father, Dr. Alfred Hill, who was not only the first president of the enlarged Society of Medical Officers of Health, but the father of the British Medical Association. Proceeding to trace the evolution of the Medical Officer of Health, he made a brief reference to the wonderful sanitary administration of Rome in the height of its power, declaring that from the point of view of civilization and of municipal government, a greater disaster probably never befell the world than the fall of Rome, for on this event much of the carefully elaborated municipal work perished, and succeeding generations had slowly to endeavor to raise again a system of public health administration. Coming to modern times, he remarked that the nineteenth century must ever be memorable as that in which modern hygiene was born, and that in which the medical sanitary officer first came into existence.

In the first decades of the century the most important sanitary work accomplished was undoubtedly the passing of the Act for establishing the registration of births, deaths and marriages, which enabled the statistician for the first time to collect statistics in a scientific form on which should afterwards be based the present administrative system of public health. Between 1848 and the year 1872 the main work in the evolution of the medical officer of health was educational. Facts accumulated, based on statistics and the progress of

medical science, and the Royal Sanitary Commission was appointed in 1869, and its report, issued in 1871, was accepted by the Government of the day as a basis for legislation, and the Local Government Board was established, with Mr. Stansfeld as its first president. By the Public Health Act of 1872 medical officers of health could be appointed, though their appointment was optional in the new sanitary districts. It was not till the Public Health Act of 1875 became law that the appointment of these officers and of inspectors of nuisances in the various sanitary districts of England became compulsory. It should, however, be noted that the corporation of the city of London, and that of Liverpool, had obtained powers previously to make such appointments, and in 1847 Liverpool appointed its first medical officer of health. The first association in the public mind of the medical officer of health was with what he termed "drain-pipe hygiene." He held that one of the first steps in the urgently needed public education was the instruction in what they now knew to be the really important work of public health. This was rendered somewhat difficult because the public still clung to the old idea that everything hygienically bad was due to sewer gas, and that drains in some way or other were at the bottom of all the sanitary evils which flesh is heir to. Year by year, as sanitary legislation evolved, they noticed the conception of the work of the medical officer of health was altering, and noticed that it was becoming wider and wider in its scope. Year by year there was a closer association between it and the treatment of disease, and their association was producing a new series of professional problems which time would duly solve, but which now rendered the carrying out of their work day by day more difficult.

He had been for some time past driven to the belief that one of the most important points in connection with the work of the Medical Officer of Health was the education of the public as to what was the meaning of modern hygiene, and he had come to the belief also that this could only be done by a medical man who was a specialist in hygiene and therefore a medical officer of health. He probably did not go far wrong when he said the great practical

step of sanitary education — the medical inspection of school children — was the most important advance made of late years in the way of informing the public as to the scope of hygiene and giving them a truer idea of the work of the medical officer of health. It was no exaggeration to say that the conception of hygiene was widening day by day, and nothing was stronger as a proof of this than the introduction of such legislation as that dealing with invalidity insurance, and by that also foreshadowed dealing with Poor Law administration. But it was not only important they should endeavor to do their utmost to educate the public to the true state of affairs, it was essential they should pay attention to the professional education of the medical officer himself. Having enlarged on this subject, Dr. Hill described how he had endeavored to carry out the views he held in the administration of the county he had the honor to serve, and in conclusion remarked that full appreciation of the medical officer of health would only come in the future when he had had time and opportunities to utilize his powers for the public good, and in the meantime his most pressing work was that of educating the public in what might be done. Strong in his faith, in his work, and in himself, he must neglect no opportunity presenting itself to him of preaching the doctrine now so little understood that the happiness which may be the lot of the human race is unattainable to those who lack the blessing of health.

Ship Inspection at Nicolaieff.

The British Vice-Consul at Nicolaieff says:—"Under an arrangement made by this Vice-Consulate, which has been in existence for many years, a doctor visits British ships (1) daily in the case of those moored alongside the quay, and (2) in the case of those moored in the roads previous to coming alongside, when specially summoned, the ship providing the boat to take him off. The fee for this attendance is 10r. (£1. 1s.) for the entire duration of the ship's stay in port, whether that stay be one of days or weeks. Last year the average stay in port was eleven and a half days. It is also irrespective of the number of sick men on board. It is at the master's option to accept or refuse the ar-

rangement. For the sake of convenience, the fee is paid through this Vice-Consulate and an official receipt given therefor. Should a shipmaster refuse to accept this arrangement, and a man fell ill, he would not be able to secure a competent qualified doctor's services for less than 5r. a visit, in view of the port being nearly three miles distant from the residential quarter of this town. If more than one man required attendance, the fee would be still higher. It should be understood that this is a mutual private arrangement between the doctor and the shipmaster, and therefore a master who refuses to accept it on one voyage, on the grounds of having no sickness on board or the ship's stay being very short, risks not being able to profit by it on another voyage, when it would be advantageous to the ship to do so. This arrangement is carried out by two doctors nominated by this Vice-Consulate."

Calcutta Health Report.

The report of the health officer of Calcutta (Dr. T. Frederick Pearse) for the year 1910, recently published, is a document of very considerable interest, for it brings home to those who live in this country the very different conditions of life which exist in certain parts of our Indian Empire. The population of the city of Calcutta at the census taken this year was 890,493, an increase of about 42,000 over that recorded in 1901. This increase is much less than has occurred in previous decades, and is entirely due to immigration, for although the births in the ten-year period 1901-1910 numbered over 150,000, there were during the same time nearly 300,000 deaths. It is true the method of birth registration has admittedly been not altogether satisfactory, even though peripatetic registrars have been employed to search out the occurrence of births with a view to their registration, but this does not account for the enormous disparity between the number of births and deaths. Since October, 1910, these registrars have been disbanded and their work has been done by the vaccinators, with the result that the last quarter of 1910, unlike the other quarters of that year, has shown an increase in the number of births registered compared with similar periods in previous years.

The death rate in 1910 was the lowest recorded for over 20 years. It was 26.7 per 1,000, and, compared with the previous year, showed a saving of no less than 5,000 lives. In one district the death rate was 30.5, and in another it was 33.3 per 1,000. In every district, however, there was a lessened mortality, a circumstance which Dr. Pearse attributes to the fewer deaths from plague and smallpox. While this result may be considered satisfactory, it is disquieting to find that the number of deaths from other diseases has not been materially lessened. Dr. Pearse divides the city into three areas according to their remoteness from the centre, with the result that in urban Calcutta the death rate was 24.8 per 1,000 in 1910, compared with 31.4 per 1,000 in 1909; in suburban Calcutta it was 38.0 per 1,000 in 1910 and 42.1 per 1,000 in 1909, and in the fringe area it was 17.2 per 1,000 in 1910, compared with 28.2 per 1,000 in 1909. This striking reduction in the fringe area is thought to be due to displacement of the population as well as to the more healthy conditions prevailing there.

The infantile mortality rate was 273 per 1,000 births, and in some parts even this high rate was increased, for in six separate wards it varied from 350 per 1,000 to 447 per 1,000. There was a remarkable difference in the infantile mortality rate among the different nationalities. Among the Hindus it was 252 per 1,000, among Mohammedans 343 per 1,000, among non-Asiatics 141 per 1,000, among mixed races 260 per 1,000, and among other classes 238 per 1,000. The high rate among the Mohammedans, it is thought, may possibly be due to the defective registration of births among these people.

Since the year 1905 there has been a distinct decline in the number of deaths from malaria in Calcutta, and it is gratifying to find that in 1910 this decline was maintained. The deaths which did occur were chiefly in the cooler months of the year, and were considerably fewer than during the period of the monsoon. The mosquito brigades are employed in Calcutta during the six months from October to March, and are doing good work, not the least being that the visits of the inspectors act as an incentive to cleanliness.