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MISSING

The public health is the foundation on which
reposes the happiness of the people and
the power of a country. The care
of the public health is the first
duty of a statesman. —
Disraeli.



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Special Articles

HYGIENIC STORAGE AND DISTRIBUTION OF WATER—AND FIRE PROTECTION

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An efficient gravity supply and distribution when available fills the bill, but, unhappily, unless in large cities or towns or exceptional conditions but few houses have these needed conveniences. Even in large cities from many causes the water supply may fail at an unexpected moment and dire loss result.

So much is this the case that in towns with good water supply the sky line is variegated by unsightly tanks posted in odd situations and announcing where *cure alls*, *liquid refreshment* and *nicotine solatia* are obtainable.

GRAVITY SUPPLY FROM ELEVATED TANK.

Common sense dictates that if you have a supply of water always available and from a sufficient height you have all that is needed, hence the *tank gravity* system, and were it not for inherent defects it would fill the bill. The *standpipe* is more depended on for regulating and equalizing pump and pipe pressure than as a source of supply.

How to offset the defects of the tank sys-

tem is the object of this paper, and this the more as the expense for installation and maintenance of the better method can be very much less than what it now is for inefficient service. To fittingly discuss the subject we should know the defects of the tank gravity system:

1. Since the water tank must be for structural reasons but little above the roof—in case of fire there is but little available pressure, and that is limited, and the roof and upper part of the house is generally where pressure is most required.

2. It is costly to erect, owing to its situation.

3. A secure foundation is not easily obtainable, and this the more if it is to be adapted to a building already erected.

4. It must be outside to give height needed, and hence must run the risk of hurricane and frost.

5. Its foundations and support should be altogether independent of the building—hence the difficulty of adapting to old buildings. This was emphasized by the

late collapse of a large building, with loss of life and property, in Montreal. Let us think for a moment—200 gallons of water weigh a ton, and a tank should hold from 200 to 1,000 gallons—a weight of from one to five tons, and to this is added the weight of tank and fittings. Let this be posted from 40 to 80 feet in the air, and it means a costly engineering work.

6. Maintenance and supervision—These are apt to receive but scant attention, unless it be in continuous use, and this is the exception, as the tank is intended rather for emergencies; being out of the way it is apt to be unseen and unheeded. Filth is apt to accumulate and the purity of the water is always questionable because stagnant.

7. In case of conflagrations, buildings thus provided are dangerous to the fire fighters, because in the confusion if the water be not used or run off the supports (weakened by heat of conflagration) make the tank such a menace that firemen must hesitate to run the risk of injury to save property, when threatened with probable fall of tank.

8. Its situation makes it not readily accessible, and if not in constant use it is apt to be more or less out of commission, water leaked out or not filled, outside pipes frozen at valves, stiff and unworkable, though not defective.

* * * * *

The common sense that put the tank on the roof of the house, where gravity would at all times be at command for distribution, would at once concede the insuperable advantage of putting the tank in the cellar or underground in any convenient locality—provided distribution was always at command, and not dependent on any outside agency or mechanical contrivance.

The underground tank disposes of all the weighty objections above outlined—even cost—because the tank above is all that is needed. The subsidiary apparatus for filling the tank and distribution is about the same, no matter where located.

What we need is something that will take the place of gravity, be available at a moment's notice, and like it be placed in operative function by simply "turning a tap." This is at our command if we only interrogate nature by studying the properties of gasses.

THE PNEUMATIC SYSTEM.

In the air we have an elastic medium that, unlike many elastic substances, is not liable to be broken or lose its properties—hence it is reliable. Let us suppose our tank to be closed at the top and not open, as in the gravity system, and that water is then pumped into this closed vessel. The water will stay at the lowest place and push the air up above it, but the force required to compress this air is not wasted—it is still retained by the air, and is at any time available.

If the tank be pumped three-quarters full there will be a pressure of about 30 lbs. to square inch, equivalent to a gravity pressure of between 60 and 70 feet in height; and if more water or air be pumped in then any desired pressure is obtainable. Very few public water systems have an available pressure over 40 lbs. to square inch; it is more likely to be 15 or 20, or a gravity pressure of 30 to 50 feet. Hence it is not at all difficult to have all the advantages of a good city supply in any village or detached homestead. To have water for the bathroom, kitchen and any portion of the house, barn or outhouses and fire protection, etc., by simply "turning the tap" all the advantages of the gravity system supply without its disadvantages.

From a hygienic point of view it has most marked advantages. The closed tank prevents the entrance of any contaminating material, and the introduction of air with the water by aerating in so far purifies if there be any oxidizable material in it.

The *pneumatic system* has some little inconveniences peculiar to itself, and these we will consider:

1. Water under air pressure will absorb the air in time and promote lower pressure. Though a disadvantage from a pressure point of view it is of great value in aerating the water, not only on the score of purification, but it is rendered more palatable. Hence a gauge is necessary to inform the attendant what the pressure is, so that more air or water (or both) may be pumped in, and the pressure not only restored, but any additional pressure that may be needed can be given. The pumps are so arranged that they pump in additional air when delivering the water, so that this difficulty is not so prominent, and in any case the condition is under the

control of the attendant.

2. The tank must be filled, but this must be done with the gravity system. If in a city the tank may be filled from the public supply and kept as a reserve and the pneumatic system lends itself to a similar use, the public supply can be turned into the pneumatic tank, and it will take all the supply and pressure it can give, which is more than the gravity tank can do, as its pressure is limited by the height of the tank.

The pneumatic system has this failing: The pressure will fall as the air becomes absorbed, and it will require air to be introduced to keep it to standard. As to pumps—they may be worked by hand or power—by steam, gas, or gasoline or hot-air engine, windmill water power if available, or electric motor.

These details are technical and need not be discussed, as they will vary with the locality to be served.

Cost.

The question of cost is of more than ordinary moment, and I will quote from advertised prices of manufacturers that guarantee results. (It is evident that names can not be given here).

Outfit, \$39.85; steel tank, 140 gallons, tested to 125 lbs. pressure to square inch; pressure gauge, self-cleaning water gauge, brass hose bib, brass double acting force pump (water and air). This outfit does not include suction pipe to the well, nor distribution pipes, which vary with the service demanded. Larger tanks vary in price from \$15 to \$50; extra will give tanks varying from 220 to 700 gallons. The small tank requires frequent replenishing, and a larger one is preferable for many reasons. Outfit, \$64.75, in addition to the above, furnishes a 30-gallon (kitchen) hot-water heater, with connections for water discharge, at six different places. Outfit, \$137.70, fits up kitchen, bathroom, water-closet, and all fixtures, as well as outfit for pumping and distributing the water.

Gasoline engine, \$55.78. 1½ horse-power engine, with trucks, belt pulleys, pump jack. This can be used for any other engine work, as well as pumping.

It may be noted that the framework for supporting a gravity tank would alone cost more than the whole outfit, including bath-

room, water-closet and hot water and all house fixtures.

FIRE PROTECTION.

We are apt to overlook the very numerous losses by fire that take place in ex-urban localities. Looking at them as unavoidable, though this may to some extent obtain, yet there can be much mitigation of loss were there facilities for fire protection aside from the lower insurance premiums that an up-to-date water service would confer.

Allow me to describe a condition I have too often seen, and similar ones can be recalled by most people resident in the country and smaller villages:

Carelessness or a wandering spark ignites an outhouse and flames spread rapidly, there is but little help available, and this may be chiefly the female members of the household. The flames, uninterfered with, creep along from one part of the roof to another, leap an intervening space and seize another structure, and so on until everything is more or less consumed. There is plenty of water in the well or adjacent brook and mayhap 5 to 50 willing hands to help that are paralyzed by conditions. A few buckets of water rightly placed would stay the progress of the flames, but how many ordinary people are able to negotiate a slippery, steep, slanting roof, and even if this be attained the advancing heat must be contended with on a very insecure foothold. A few bolder spirits may face the difficulty with more or less success, but how are they to get water up there and how place it so that it will do the most good, under projecting eaves and in exposed places mayhap licked by the flames—quite an impossibility—for the heat of the advancing flames paralyze any attempt to get near enough to the exposed place with the saving water. Ladders may not be available, and if they be are most likely out of commission from fragility or out of repair, as anything not in daily use is apt to be.

How often have I seen a blazing spark light on shingles at a distance from the main conflagration that a cupful of water would quench, yet the whole structure doomed to destruction, because the roof was too steep for unskilled travelling on, or means of access to the roof unavailable even if the heat of the flames did not interpose.

There is an error in most of our building construction, especially private dwellings, in not having facile access to the roof and narrow pathways along the ridge of the roof to make every part readily accessible. This is much needed even for repair. It is not a difficult proposition, nor costly, and that it is not in common use must be the fault of our house constructors, who do not appear to think of its desirability, nay, necessity. Fancy finicals, etc., we have *in galore*, but a narrow plank walk along the ridge and fixed ladders always in place is far too exceptional. A chimney catching fire is not infrequent, but it is hazardous to approach it, and we must trust to luck. I speak the more feelingly on this subject, as I have these conveniences and know how serviceable they are.

Under the circumstances above detailed what a Godsend it would be if, with a few feet of hose and an available supply of water under pressure at the tap—even though limited in quantity—where a woman or even a child could stand on the ground away from the heat and direct the stream, even through the flames on to the projecting eaves of the roof and underneath and on to the threatened side or roof of the building. With water under 40 lbs. pressure there is no part of an ordinary building that is not accessible—with no risk to life or limb. With the pump and tank in a safe place, as it should be, willing hands could keep up the supply indefinitely. How many homes might thus be saved and dire loss prevented, except in those few cases where the fire may spread so rapidly as to prevent anything being done, even to saving of life. But even here a good water supply would limit the extent of destruction and dictates that the pump and tank should be placed where it would be out of danger.

Everyone knows the difficulty, nay,

danger of washing windows on the outside of upper storeys. Again, the flower garden needs watering, and this labor is apt to fall to the female members of the household, and carrying buckets of water means work that is apt to be minimized to the cost of the plants, but we need not dwell on the advantages accruing from water under adequate pressure that the pneumatic system gives.

It is not likely to be impracticable to put down a driven well beside the underground tank, with a very limited cost for piping, and no risk from frost. To prevent its being placed out of commission in case of fire it would be better to be placed in a small cellar by itself, convenient to all the places to be furnished with water. Water taps could be placed where wanted, being sure to have one on the outside for hose connection. Even with a power pump a hand pump is a good standby, as they are not costly. Pipes for distribution would need to be four feet under to escape frost and laid with sufficient fall (the larger the better) towards the drainage cock, so that the whole water system could be readily emptied if needed, especially in winter, when the house might be unoccupied.

There are many details that may be suggested that need not here and now be discussed, but we think we have outlined practical methods of obtaining water continuously under pressure, against which adverse criticism can not be justly made at a cost for construction and maintenance astonishingly small, and with a possible perfection of result that leaves little to be desired. There is no pet theory advanced and nothing of novelty, for the practical science of to-day would give to those who know it and desire it conveniences that are not sufficiently widely known.

THE PUBLIC SCHOOL DOMESTIC SCIENCE DEPARTMENT

AS AN INFLUENCE FOR ENFORCING PURE FOOD LAWS AND CIVIC CLEANLINESS.

BY MATIE PEARL CLARK

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Social service is a tremendous force in our new education. More and more the boys and girls of to-day are having impressed upon them their responsibility for their neighbors. They must do their share toward the health, comfort and happiness of those who are not only neighbors, but also of the whole community. As Mrs. Ellen H. Richards has said, speaking before the recent United States National Education Association Congress: "Social improvement means cleaner streets, more inspection of markets, dairies, factories and shops; in short, more expense for community living, but a simpler individual life. The cost of living must be considered a community problem."

One of the first laws taught the girl of our public schools is the law of supply and demand. It is the foundation of the commercial world. Commercialism quickly saw the opportunities in applying the factory system to home industries. It was not long before the housekeeper found herself face to face with the relative values of factory made and home made articles. At first the articles were of good quality, but soon competition became keen, and greed for gain made easy the temptation to take advantage of opportunities for adulteration. Before she was aware, the housekeeper became the prey of unscrupulous manufacturers who formed trusts, controlled the tariff, manipulated supply and demand, and increased the cost of living.

So the girl finds herself in a world of trusts that touch every phase of her daily life. Dr. Leffman has said, "a trust is a combination of persons who have obtained control of most of the means of production and selling of a certain article, who then proceed, by reason of such control, to limit the production, or make the community pay more for the articles than formerly, and who divide the increased pro-

fit among themselves." Here, supply and demand are manipulated for selfish ends.

As a means of self protection the girl is being taught the power of concerted, persistent demand. Where there is a demand, there is always a supply created. And she is beginning to demand pure foods and sanitary surroundings.

That individual efforts count, is shown in the work of one domestic science teacher in Portland, Oregon. She was asked to do something to improve the markets of that city. "Through the State Health Office all back doors were opened. She went to the newspapers; she asked the Woman's Club to go on a tour of inspection. All this was brought about in three days. On the fourth day a meeting of householders was called. The Health Department gave official sanction to the movement. Market men were notified they must clean up. A clean list and a dirty list were to be made and they must comply with certain regulations in order to be on the clean list. She worked two months, and the city once aroused, decided it was a good thing to have inspection made. A woman now has the office and has power of arrest."

The work of Miss Jane Adams is well known. She asked to be appointed inspector in one of the wards in Chicago where the death rate was highest. She gave special attention to garbage, and it was not long before that ward had the lowest death rate in the city. One could have no better example of the relation of filth to disease, or the importance of efficient inspection which means enforcing the city regulations.

The Woman's Clubs all over the land have been taking an active part in improving civic conditions, and have brought about many radical reforms, especially where women have been appointed inspec-

tors, or placed in charge of the street cleaning department.

Before the United States National Pure Food and Drugs Act went into effect five years ago, a demand came from the people in general, and the women in particular, for a pure food law. They had the aggressive assistance of Dr. Harvey W. Wiley, who made public the extent of food adulterations. Some states, like Massachusetts, New York and Indiana, had most stringent pure food laws, thus setting a precedent for the state laws and a standard for the National law.

While this National Law is defective, it has placed a check on the most serious abuses, especially regarding imported products and interstate commerce. It has tended to purify foods by exposing contents, adulterations and preservatives used in manufacture.

The public school domestic science departments have taken up the problem and are creating a demand for pure foods. Some schools buy foods in the open markets, test them for their purity, and place them on their white list or their black list. Sometimes they go farther, and place stores on their white list or black list. In a certain city the dealers learned this, and made an effort to get on the approved list, for they know the power of public opinion and the law of supply and demand. Naturally this has resulted in students demanding goods of certain brands that fulfilled the requirements for purity. That unscrupulous manufacturers fear investigation is shown by a specific case in the southern part of California, where the manufacturers went to the city superintendent and requested that such investigations be discontinued in the high schools.

This is very different from the manufacturer who is willing to have his place inspected. A certain candy manufacturer will frankly tell you he is using glucose and artificial colorings in his candies, and that his chocolate coatings are of many grades. He will also show in what ways he is complying with the pure food laws in regard to gelatine and grain alcohol. The girls in visiting such places learn to compare the value of factory-made and home-made products. They get new ideas of wholesale and retail cost, new ideas of the commercial value of the cleanliness of production. After visiting an unsanitary

bakery they have a new appreciation of bread made under clean conditions. They voluntarily advertise the clean place and condemn the dirty place. Honest manufacturers know this, and those factories that are run under model conditions appreciate the value of this voluntary advertising. Thus an indirect influence in the community is being felt in enforcing pure food laws and sanitary surroundings.

The public school girl of to-day studies city ordinances regarding the sale and exposure of foods and sanitation. She quietly investigates the grocery store, the butcher shop, the bakery, the dairy or milk depot patronized by her family. She makes reports in class and is given moral backing in patronizing the clean place and condemning the dirty one. Sometimes the boycott is used most effectively. But this is rare; more often supplies exposed to flies and dirt are simply refused. This is carried out in a certain country town in California, where a small community makes it difficult to eliminate the personal equation and the work must be done diplomatically.

The girl of to-day has discovered that while the ordinances are good they are often difficult to enforce for lack of enough inspectors. She realizes that public opinion and community interest, aggressive and persistent, must enforce these improvements.

Public school children and the community as a whole found how much they could do in exterminating the rats and mice in San Francisco and the bay cities three years ago. They learned that even the crumbs from their lunch boxes drew mice and flies to the school yards and the buildings. They learned a most vivid lesson of individual responsibility for the health of the community and what systematic and intelligent co-operation could accomplish.

Another field that is open to large results is the war against flies. Not only girls, but all the pupils of the schools, are being taught the danger of the common house fly. The State Inspector of Washington has just placed 20,000 circulars in the hands of the school children of that state to assist in fighting and exterminating flies. They take one to the first principles of civic sanitation — the destruction of all waste.

The high school girl learns through the

microscope how flies carry disease. She sees gelatine slides where a fly has walked across, and the bacteria deposited by his feet. In a certain high school she has voluntarily cleaned the steps outside the Domestic Science building when finding the dirt there attracting flies.

In California the domestic science departments all over the state are agitating for a clean milk supply. Whenever possible visits are made to model dairies. When the girl learns the value of healthy cows, the importance of well ventilated stables, the necessity of sterilized utensils, the necessity of absolute cleanliness of the men who do the milking, she realizes the importance of intelligence and training in the production of pure foods. She understands then why clean milk costs double that of ordinary milk. She also better appreciates the relation of milk to infant mortality and realizes that it is a community problem. And it is impressed upon her that she must do her share in demanding more inspection of dairies and proper distributing centres.

The public school takes up home sanitation in great detail, for, as Mrs. Williams, Supervisor of Domestic Science in the New York City Schools, has said: "Clean homes mean a clean city. There is a lot of science behind the proper care of the sink and the garbage pail, science that means much valuable aid to the municipal housekeepers, the Board of Health, and the Street Cleaning Department." The importance of a well constructed house, well lighted and ventilated, and with proper plumbing, are emphasized as essential requisites for a healthy family life. A clean water supply, and the disposal of waste, present specific problems in both town and city. The typhoid fever epidemics due to careless handling of milk, or polluted water supply, show the relation of home sanitation to the spreading of disease.

The relation of sanitation to public health is also a part of every high school course in domestic science. It often works in connection with the Woman's Civic Clubs, where outward results are very marked.

The large cities offer more difficult problems with their congested districts, their bad buildings poorly lighted and ventilated, with imperfect or limited water sup-

ply and neglect in disposal of waste. But even here, are found improved conditions, where the girls have come in touch with public school domestic science; physicians report better health conditions in the homes, and the children come to school with cleaner clothes and cleaner bodies. Furthermore, they carry home much printed matter in their own language, telling how to take care of milk, how and what to feed children, how to take care of them in hot weather, the importance of fresh air, and many other fundamental health laws. In New York City we find much interesting work of this character. Nearly all our large city schools are raising the standard of health among school children by improving lunch room conditions. Here, only pure wholesome foods are served, and the lunch rooms are generally under the supervision of domestic science teachers.

The public school domestic science department makes its classes familiar with city ordinances on foods and civic sanitation, and while much objection is taken in some quarters because of the cost of cartons and wrappings, the result of such domestic science teaching is an immense gain in the cleanliness of foods, and a true economy in the preservation of health. A study of civic ordinances tells students that fruits must be covered with nets or screened from flies and kept indoors as a protection from dust; street vendors of foods must keep their wares covered; that the up-to-date market or grocery store has tile floors, sanitary walls, tile or marble counters. Students are told that screens and glass receptacles now take the place of old wooden kegs, and that on the streets, the vendors of confections, nuts and popcorn must keep their products under glass — so pointing out the fact that the public is demanding civic cleanliness in regard to foods.

Many industrial, economic and social problems are involved in this subject of foods and civic cleanliness. One of the most difficult problems is to get offenders of pure food laws punished. Some come under the Federal Laws, some under the State or Provincial Laws, and others under municipal ordinances.

The State Board of Health in California publishes a list of the violators of the State laws. The district attorneys of the various counties conduct the prosecutions.

When a single list contains the names of more than one hundred violators, the housekeeper realizes the inspecting body is active and vigilant.

Interstate commerce is pretty closely watched by government inspectors. But investigations have shown that punishment and fines have been very light, or none at all. What is a fine of ten dollars to a manufacturer who is making thousands?

A specific case is the United States investigation into the use of benzoate of soda in foods. The United States National Law requires that such investigations be conducted by the Bureau of Chemistry at Washington. Dr. Harvey W. Wiley took hold of the work with characteristic thoroughness; the final decision being arrived at that benzoate of soda was injurious to health. The manufacturers protested and

demanding that a special commission be appointed to investigate the matter further. The request was complied with by President Roosevelt; and after a very superficial investigation Dr. Wiley's decision was reversed. When these conditions can exist, the consumer thinks government regulation must be something of a farce.

The public school domestic science department is endeavoring to create a public demand for pure foods, through intelligent instruction of the girls, who, in turn, influence the homes. Such united efforts all over the country are already showing results. But the real influence in the community will be felt when the girl of to-day becomes the housekeeper of to-morrow, when she will use to her fullest power the law of supply and demand in pure foods and sanitary surroundings.

A STUDY OF THE VENTILATION OF SLEEPING CARS

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For the purpose of securing a suitable exchange of air in railway cars many types of ventilators have been suggested and not a few have been given practical tests. About three years ago I was asked to report on the efficiency of one of these. It became evident that it would be necessary to establish some basis of comparison, since it does not seem to have been estimated in exact figures to what degree natural ventilation of railway car is effective. As the problem is of lasting importance and is likely to recur, it seemed advisable to make a fundamental study of the question and to place the results within reach of those who might have occasion to make use of them.

A very simple, if somewhat tedious, means of making this investigation was long ago established by Pettenkofer. It consists of estimating the vitiation of the atmosphere by determining the amount of carbon dioxide it contains, and from this computing the amount of air supplied for ventilation. All air contains carbon dioxide

as a normal constituent. The average amount in pure air is commonly stated to be 4 parts in 10,000. This is generally used in ventilation computations, though recent investigation has shown it to be a little too high.

The carbon dioxide in the expired breath averages more than 4 per cent. (400 in 10,000). The amount excreted hourly varies according to age, sex and the degree of bodily activity. In a mixed community of persons at rest it will average about 0.6 cubic feet per person per hour, and the variation will be small.

If there were no ventilation whatever the air of an ordinary railway coach, containing 4,000 cubic feet of space and occupied by 20 people, would have 34 parts of carbon dioxide per 10,000 of air at the end of one hour. This would continue to increase indefinitely in a direct ratio to the time, since carbon dioxide continues to be produced by the respiration of the occupants at a practically constant rate. But no car is air-tight, and the inside

air is being diluted constantly.

It is plainly impossible to measure directly the amount of air flowing into a car, since it enters at many points and at constantly changing velocities. But the amount of the interchange may be readily computed from the actual amount of carbon dioxide found from time to time by applying the figures given above to a simple mathematical procedure. Suppose a car contains 20 people and its atmosphere is found to have an average of 10 parts of carbon dioxide per 10,000. The incoming fresh air contains 4 parts, hence

each person present). The computation is better represented by the general formula:

$$A = v p \div (x - N)$$

- v = the CO₂ by one person (cubic feet per hour),
- p = the number of persons in the room,
- x = the proportion of CO₂ in the air of the room,
- N = the proportion of CO₂ in the outside air (0.0004),
- A = the air-supply to the room (cubic feet per hour).

TABLE I.—SUMMARY OF THE RESULTS OF NUMEROUS TESTS TO DETERMINE THE CONDITION OF THE AIR IN SLEEPING-CARS. (Normal carbon dioxide in air; 4 parts per 10,000.)

	Ave. No. of people in car.	Carbon dioxide per 10,000 parts of air.			Necessary air to maintain ave. carb. diox. cu. ft. per hr.
		Ave.	Min.	Max.	
Cars With Natural Ventilation:					
1. Decks open; doors and windows closed....	15	7.19	3.5	13.0	23,300
2. Ditto, but one or both doors open to vestibule	10	5.40	3.5	8.5	40,700
3. All decks, doors and windows closed	13	8.33	5.5	15.0	18,500
4. In lower berth (A).....	16	8.32	5.0	18.0	1,389
					per berth
5. In aisle opposite lower berth (B).....	16	7.32	4.5	10.0	.....
6. In upper berth (C).....	21	9.17	4.5	18.5	1,161
					per berth
7. In aisle opposite upper berth (D)..... (4 to 7; windows and doors closed.)	21	8.37	6.0	13.0	.....
Cars with Exhaust Ventilators:					
8. Decks open; doors and windows closed (day)	13	6.01	4.5	10.0	38,400
9. Ditto; for aisle only (night)	16	6.33	4.5	10.0	41,300
10. One or both doors open to vestibule.....	14	5.50	3.5	9.0	57,900
11. In lower berth (A).....	16	6.96	4.5	13.5	2,027
					per berth
12. In aisle opposite lower berth (B).....	16	6.33	4.5	10.0	.....
13. In upper berth (C).....	17	6.70	4.5	10.5	2,222
					per berth
14. In aisle opposite upper berth (D)..... (11 to 14; windows and doors closed.)	17	5.95	4.5	9.5	.....
Berth Tests.					
15. Cars with natural vent; lower berth.....	..	8.45	...	.....	1,354
16. Upper berth.....	..	8.85	...	.....	1,237
17. Cars with exhaust vent; lower berth.....	..	6.51	...	.....	2,391
18. Upper berth .....	..	6.70	...	.....	2,222
19. Berth with one person.....	..	7.36	...	.....	1,785
20. Berth with two persons.....	..	9.91	...	.....	2,027

Note—Observations (A) and (B) and observations (C) and (D) were made at the same level (lower and upper respectively), but on opposite sides of the berth curtains.

the respiratory contamination of the car air is represented by only 6 parts.

The 20 people produce 20 times 0.6 cubic feet, or 12 cubic feet of carbon dioxide per hour. With what amount of air must the 12 cubic feet be diluted so that the air will contain 6 parts of carbon dioxide in 10,000? The simple proportion, 6 : 10,000 :: 12 : ?, gives 20,000 as the answer (or 1,000 cubic feet per hour for

Some 15 or 20 years ago analyses of the air from passenger cars were made by Prof. Nickols, for the Board of Railroad Commissioners of Massachusetts. About the same time the Pennsylvania Railway took up the subject and had a few tests made. In 1894 a committee of the Master Car Builders' Association made a somewhat extensive report on the subject of car ventilation, and with it submitted the

results of several analyses of air from cars (see Table II.).

In 1904, Dudley* reported on analyses of the air of cars of the Pennsylvania Co., which were ventilated by the excellent system which he devised. He found from 10 to 18 parts of carbon dioxide per 10,000 in running cars, and 20 to 21 parts in cars standing still for 20 mins. The 52 people in the cars are assumed to have produced 0.72 cubic feet of carbon dioxide each per hour; from which is estimated 26,000 to 62,000 cubic feet of air-supply per hour for the moving and 22,000 to 23,000 for the still cars. More recently the air of cars running in the New York Subway (but more particularly of the subway itself) has been thoroughly studied experimentally by Soper.† Similar studies have been carried out in Paris by Lucien-Groux and others. But these cars have little in common with the railway coach.

In literature on this subject, the information concerning the actual conditions of the air in railway cars is very meagre. It is adequate on the application of ventilating devices, but there is no series of analyses extensive enough on which to base any comprehensive opinion as to the deficiencies of natural ventilation to be overcome, or as to the adequacy of the devices applied in keeping the air of the breathing-zone freed from the products of respiration.

The ventilating device upon which this report is based is designed to remove air by exhaustion from the upper portion of the car, and its operation is dependent on

train motion.‡ Anemometer readings have shown that each such exhaust ventilator will remove an average of about 15,000 cubic feet of air per hour at a train speed of 40 miles per hour, and proportionately more or less for faster or slower speeds. While there is considerable variation under apparently similar conditions, the outward flow is constant. One ventilator is placed over each alternate section of a sleeping-car, while two are applied to the smoking-room and one to the stateroom. Toilet and dressing-rooms are also equipped with one each in recent practice.

It is readily seen that a very large volume of air leaves the car through these openings it must enter somewhere. The question was, does it enter at such places and take such courses as to cause a free dilution of the air at the breathing level in the occupied car? There seems no adequate way to answer this question except by determining the carbon dioxide in such air, from which the amount of dilution may be computed as already indicated. It was desirable also to make determinations in cars not having the exhaust ventilators, but depending upon natural ventilation.

Nearly 3,000 carbon dioxide determinations were made for all purposes in connection with this work; about 2,000 of these were of the air from over 200 sleeping-cars. A considerable number were made of the air of day coaches, suburban cars, street-cars, stores, restaurants, offices, and the open air for comparative purposes, and others for the purpose of establishing certain facts experimentally.

TABLE II.—COMPARATIVE RESULTS OF TESTS OF CARBON DIOXIDE IN AIR.

Place.	No. of observations.	CO ₂ per 10,000			Equiv. hourly air supply per person, cu. ft.
		Ave.	Max.	Min.	
Sleeping cars (body).....	294	6.20	10.0	...	2,727
Sleeping cars (berths)	690	6.96	13.5	...	2,027
Day coaches (32 passengers)	43	9.38	21.0	...	1,100
Street cars	45	15.10	29.0	...	541
Elevated cars	17	13.90	26.5	...	674
Suburban coaches	47	14.30	38.0	...	583
Stores	23	8.80	10.0	...	1,250
Restaurants	51	16.10	26.0	...	496
Offices	26	13.91	19.0	...	670
Sleeping cars (12 passengers) .....	..	18.0	22.0	11.3	M.C.B.
Chair cars (17 passengers) .....	..	10.7	15.5	7.0	re-
Suburban cars (half-full) .....	..	13.8	21.7	6.9	port

Before proceeding to an analysis of the finding it is necessary to know the amount of carbon dioxid in the air surrounding trains in order to have some basis for computing air-supplies to cars. The locomotive emits an enormous volume of this gas, which, it is easily conceived, might play a considerable part in the amount of carbon dioxid found in the air of the cars. According to Leissner the air surrounding trains contains from 18 to 22.8 parts carbon dioxid per 10,000. My results are at variance with this; 46 determinations averaged 4.04; the highest was 10, the lowest 3.

It is a matter of ready observation that any lateral wind carries all the smoke from a locomotive stack well out of the path of the following train. Presumably this is true of the invisible gases as well as the visible carbon. When the wind is straight ahead or directly with the train, the smoke and steam are, as a rule, carried high enough by their propulsion from the stack and their heated condition to allow the train to pass under with a clear interval, the heavier particles only, such as the small cinders, falling in its path.

Of course, the smoke and condensed steam do not diffuse as do the invisible gases; but with these is mixed a quantity of sulphur dioxid, for which the sense of smell is very delicate. My observation has been, in the examination of tunnel air, that where flue gases have contaminated the air with 15 to 20 parts of carbon dioxid in 10,000, sulphur dioxid is readily detected. It occasionally happens that sufficient gas is carried into a train running in the open to render sulphur dioxid noticeable. It seems that my determinations of carbon dioxid in the air surrounding trains have not dealt with the conditions that could bring this about. Consequently I conclude that this is a relative rarity, and that 4 in 10,000 is a proper average to deal with in considering the air outside of moving trains.

It was soon observed that a few open windows in a moving train admit such a volume of the surrounding air as to render the respiratory contamination almost undetectable. Ventilation as a problem in furnishing an adequate amount of fresh

air then disappears. This is a fact which may be verified easily by directly measuring the rate of flow of air through an open window. I have measured up to 50,000 cubic feet per hour entering through a single side window raised only 6 inches. So we may dismiss the car with open windows from further consideration. And with it the whole subject of summer ventilation, so far as the term "ventilation" refers to supplying air and not to keeping the car closed and turn to the car running in cold weather with windows closed.

Adding to the open deck windows by opening one or both end doors to the vestibule (the outside vestibule doors remaining closed) would be expected to cause a greater air-supply. Such is the case, as shown by the records. [Table I.] Observations were made also where both doors and all the deck sash were closed. Whatever amount of the outside enters the car under these conditions must find it way in through natural crevices and is driven in and out by the pressure of the wind and the suction effects produced by the motion of the train. As would be expected under these conditions, the average carbon dioxid is greater than in either of the preceding groups and the computed air-supply is smaller.

The air-supply to sleeping-cars, as computed from 555 carbon dioxid determinations, is (for all but that of the completely closed car depending upon natural ventilation) a large one relative to the number of passengers, and would not allow the average carbon dioxid to go above 10 in any but this one condition unless the cars were crowded beyond their natural capacity. Such overcrowding in sleeping-cars is prevented by the assignment of space and refusing further applicants when this is all taken. It very rarely happens that sleeping-cars carry more than 25 passengers.

It should be understood that all of the above observations apply to the main compartment of the standard sleeping-car in motion; and in setting down the number of passengers only those persons were counted who were actually in this compartment, and who had been there for a

* "The Passenger Car Ventilation System of the Pennsylvania R. R.," C. B. Dudley.

† "The Air and Ventilation of Subways," Soper, 1908.

‡ The Garland Ventilator; Eng. News, December 23rd, 1909.

[Table I. gives a summary of the authors tables of records of observations in sleeping cars; Table II. shows the comparison of observations made in various place, and includes the figures of the Master Car Builders' Association mentioned above.—Ed.]

period of at least ten minutes at the time the samples of air were being collected. The smoking-room, the drawing-room, and other small rooms constitute separate problems.

In order to test the consistency of the results obtained, and to find if the carbon dioxid actually does go up in proportion to the number of passengers, the 555 observations were divided into four groups, according to the number of passengers (Table III.). It is seen that it increases with the number of passengers:

TABLE III.—RELATION OF AIR POLLUTION TO NUMBER OF PASSENGERS.

No. of Pass.	—Carb. diox. ; parts per 10,000—	
	Cars with nat. vent.	Cars with exhaust vent.
Under 10.....	5.91	5.58
10 to 15.....	6.62	5.95
15 to 20.....	7.38	6.46
Over 20.....	8.85	7.24
Average.....	6.88	6.11

A further method of determining the ventilation of the cars equipped with exhaust ventilators was applied as follows: When trains pass through tunnels the cars receive a considerable amount of engine gas. We may compute the fresh air supplied to these cars by observing the rate of disappearance of this gas (carbon dioxid) after leaving the tunnel. Determinations showed considerable irregularity, but the basic conditions also varied, and the final level to which the carbon dioxid was approaching was different for different cars. It is, nevertheless, clear that the disappearance of the gas is rapid.

When taking samples of air from the berths it was the rule to take, as near simultaneously as possible, an average sample from the aisle for comparison. Samples from each place were generally repeated at 15-minute intervals, until 20 or more had been collected in the car. Two lower berths on each side of the car were generally selected, and one or two uppers when possible.

Popular opinion ascribes better ventilation to the upper than to the lower berth in a sleeping-car. The reason generally given in support of this opinion is that the berth curtain entirely covers the lower and only partly the upper. It is supposed that the curtain hinders the progress of air-currents. The tests show that the air contamination is not very different on the two sides of the curtain; but it may be

contended that this is a matter of equalization by the diffusion of gases, and that the circulation of fresh air is chiefly through the body of the car.

In order to gain some information concerning the conditions that would obtain if the closed berth had to lose its carbon dioxid by diffusion through the curtain, a series of experiments was conducted with the purpose of determining the rate of diffusion under similar conditions. The results show that the berth does not act as a closed compartment, but is essentially a part of the general space of the car body, and is subject to the effects of air-supply and air-currents through and around the curtain very much as it would be were the curtain entirely absent.

Observations were made in crowded smoking-rooms of cars without ventilators. The occupants were from 4 to 7; the carbon dioxid from 10.5 to 20.5 per 10,000. The average carbon dioxid (14.88), with the average occupants (5.85), would be maintained by an air-supply of 3,225 cubic feet per hour for the room. Similar observations in smoking-rooms equipped with exhaust ventilators showed carbon dioxid from 7 to 16.5 per 10,000, with 4 to 8 occupants. The averages were 6.1 occupants and 11.41 carbon dioxid the equivalent air-supply would be 4,940 cubic feet. No account is taken of the carbon dioxid produced by the burning of tobacco and matches.

About 200 samples of air from still cars have been analyzed. It is usual to find that the carbon dioxid rapidly increases when a train stops running. This increase reaches its maximum only after a considerable time, and the final height is variable, depending largely on the force of the outside wind. A strong wind will drive much air into the car, a light one proportionately less. Among these 200 observations the carbon dioxid passed 20 per 10,000, but twice (20.5 and 21.5), both in lower berths. It is usual to find the maximum around 15 in cars that are occupied at stations awaiting very late departures.

It has been shown that an average of over 40,000 cubic feet of air per hour enters the breathing-zone of sleeping-cars equipped with the type of exhaust ventilator herein considered. It has been further shown that approximately twice this much air leaves from the upper portion

of the car through the six or eight ventilators. In the absence of specific intakes it is difficult to determine exactly in what manner this air finds an entrance.

Sleeping-cars are snugly built; the crevices are small, but no crevice is too small to admit air, provided a little pressure is behind it. A row of windows covers each side of the car, another row of small ones extends along each side at the deck level, and each end has a door. There is a sum total of approximately 500 lin. feet of crevices at their edges. If they average 1.50 inches in width and admit air at half the rate of the train speed, the 40,000 cubic feet would be more than accounted for. Some of these crevices are much larger than assumed, some are probably smaller. It is not unusual to find air entering certain areas of open windows at a rate equal to half the train speed, or even more. The crevices may act in the same way; the passage of air through such invisible openings is a much more important means of ventilation than might be thought. Pettenkofer showed that when all visible chinks were closed in a room the rate of ventilation was decreased only 28 per cent., as compared with the rate when the doors were closed in the ordinary way.

Samples of air were taken simultaneously from various locations in sleeping-cars, with exhaust ventilators and the carbon dioxid determined, in an attempt to find where the contamination is greatest. So long as the samples are taken well within the body of the car they show nearly uniform results for different levels and different locations; hence the general mixing of the air must be good. The carbon dioxid, on the average, is a little less close to the floor than higher up. This is consistent with the upward trend of the flow to the ventilator exits. There is essentially no difference between the breathing zone and the bell-cord level. There is a slight difference between samples taken at the breathing level and near the ventilator exits, the latter being lower; but the difference is not so great as would be indicated by the difference in the dilution of the lower air and the amount leaving the car through these exits.

It has been attempted to determine the ventilation of sleeping-cars in terms of air-supply, using carbon dioxid as the only

available basis of computation. In order to pass judgment on the findings recorded, it is necessary to know the hygienic significance of respiratory contamination of the atmosphere, and, if possible, to establish the cause of discomfort which may arise, supposedly as the result of an insufficient air-supply.

According to the older theories the sensations of discomfort arising in enclosed spaces had their origin either in an excess of carbon dioxid or an insufficiency of oxygen. Pettenkofer cast the first serious doubt on the correctness of these theories. Hermans proved that air containing 15 per cent. oxygen may contain 2 to 4 per cent. carbon dioxid and not be harmful. On removing the carbon dioxid there was no great discomfort even when the oxygen was reduced to 10 per cent.

It seems to be established beyond reasonable doubt that discomfort is not due to any change in the chemical composition of the air, but to physical changes only; and that to maintain a normal heat interchange between the body and the air is to avoid the development of those symptoms which are commonly attributed to poor ventilation. A certain amount of fresh air must be supplied, of course, but the most vital element of the ventilation problem becomes that of regulating the temperature of the air. The question of how to ventilate a railway car is therefore chiefly a question of how to regulate its heat.

It has happened that a few of the cars considered in this work have been uncomfortable, have been called "close" or "stuffy." The temperature of these cars has invariably been high. There has sometimes been an unpleasant odor. This cannot be ventilated away so long as its source remains. A high temperature renders such odors more noticeable. The most marked offensiveness I have ever noticed was in a day coach, where the air was of such a degree of chemical purity as to indicate ideal ventilation by any standard that has ever been proposed. The car was hot and had many filthy people in it. On the other hand, with perfect comfort has been associated the highest chemical impurity.

It seems probable, furthermore, that one main cause of the complaint of poor ventilation in the sleeping-car berth is purely psychic. We are used to sleeping-rooms with walls and ceilings far from us. In

the berth they are very close. Their very nearness is oppressive. It seems as if there cannot be enough air in this small space to supply our wants. The sensation is often quite independent of the amount of air supplied and even of the temperature.

Even under the older applied principles of ventilation, the air-supply of sleeping-cars, as determined in this study, is ample under nearly all conditions. The average carbon dioxide in the air of running cars falls well within the limits of contamination permitted by the earlier investigators, and it is relatively rare that the individual observations show more than 10 parts in 10,000. In the light of the newer conceptions, which have as yet been applied in practice only to a very limited extent, this air-supply is ample under all conditions observed. No danger to health is to be apprehended under the conditions ordinarily obtaining even in still cars. They are occupied only for short periods as a rule and are not uncomfortable if kept cool.

It would seem that the results obtained by the type of exhaust ventilator investigated in this study, which is now a part of the standard equipment of Pullman cars, are entirely adequate to meet the demands of hygiene, and that those difficulties and discomforts which do sometimes arise are due to other causes than lack of a sufficient amount of fresh air or to excessive vitiation. It is extremely unlikely that increasing the air-supply, which now amounts to from six to ten or more times the cubic content of the car each hour, and must maintain consider-

able motion of the atmosphere, would aid in any other way than by making overheating more difficult to bring about.

Overheating is the paramount evil. It is the thing to be chiefly guarded against in the attempt to maintain comfort and good hygiene. It is not feasible to cool the naturally overheated air in summer, or to dry it when excessively humid. Fan motors and open windows are the available means by which the difficulties arising in hot weather may be most readily overcome. Carry away the body heat as rapidly as possible by a strong current of air.

Though the avoidance of overheating in winter would seem to be an easy thing, its accurate control to meet the rapidly changing conditions under which cars may be operated is a matter of great difficulty. Experience has shown that it is necessary to have in sleeping-cars at least twice as much radiating surface as is demanded in common practice for heating the same space in houses; this in order to warm the large volume of air received and discharged so that it will maintain comfort to inactive passengers. To decrease this surface would be to fail to maintain a sufficiently high temperature on occasion.

A system is needed capable of being quickly and effectively controlled to meet rapidly changing conditions. Such a system is now being experimented with in which there are multiple units of radiating surface, each with a separate control. The results so far indicate that from this a more uniformly comfortable condition can be maintained.

STREET DUST AND STREET CLEANING IN RELATION TO HEALTH AND COMFORT AND ECONOMY.

BY J. H. LANDIS, M.D.,

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One of the great problems confronting a city is that of street cleaning. It is of importance because of its relation to pub-

lic health, because the thoroughness with which it is done adds materially to the comfort of the public, and because the

cost of maintaining an efficient department means the expenditure of large sums of money.

Gilman Thompson states the composition of street dirt to be as follows:—"First, ashes, house sweepings, etc.; secondly, excreta of horses and dogs voided in the streets to become dried, pulverised, and distributed by winds and traffic; thirdly, irritating powdered asphalt, ground from the surface of pavements and often mixed into a slimy paste with mud, horse dung, and the petroleum drippings from automobiles; fourthly, pulverised earth, plaster, iron, dust, cement, etc., derived from buildings undergoing construction or demolition, and carried about the streets in loosely constructed wagons; fifthly, the earth from street excavations usually impregnated with sulphides and other productions from leaking gas mains; sixthly, soot from chimneys; seventhly, garbage, which is frequently overturned in the streets; eighthly, human excreta, which, in crowded tenement districts, is often voided by children or adults in blind dark alleys and ill-lighted streets. In general, street dust contains particles which form mechanical irritants, organic matter, both animal and vegetable, of numerous and widely different conditions and character."

The sources he gives as follows:—(1) That due to the accumulation of the filth and refuse of the streets; (2) that swept from the soil by winds; (3) that from chimneys and smokestacks; (4) desiccated human sputum.

One glance at this rather incomplete list of the constituents of ordinary street dust cannot but create a feeling of alarm in the minds of trained sanitarians as to the possible results on health. It is a well-known fact that an epidemic of acute catarrhal affections of the respiratory tract can be predicted with certainty within a week following a period of high winds in dry weather. This source of infection is so well known that it is not uncommon to hear patients predict such an epidemic. They do not, as a rule, know the exact cause, but can predict the result with accuracy. When one considers the variety of infectious germs that are thus disseminated by the air, the question of street dust in its relation to public health begins to assume great importance.

Human sputum is doubtless the most

important source of street dust from a public health standpoint, and deserves special consideration. It is generally conceded that the cause of tuberculosis, pneumonia, influenza, and diphtheria is to be found in the discharges from the lungs, nose, and throat of those affected; that the poisonous germs causing tonsillitis, pharyngitis, bronchitis, and acute affections of the nose are transmitted through the discharges from the affected organs, and that scarlet fever, whooping cough, and measles are also disseminated through the medium of infected discharges. Moisture and organic matter furnish the conditions necessary for the life of these germs. Ordinary road dust contains over 10 per cent. of water, and the droppings from animals furnish the necessary organic matter.

Numerous experiments prove the resistance to external influences enjoyed by most pathogenic bacteria. Buchner found the tubercle bacillus in an active state in the dust of a room a year after the death of the occupant from consumption. While it is admitted that the conditions favoring continued existence are not ideal in the street, exposed as it is to the direct rays of the sun and to oxidation, there can be no doubt that occasional infection does occur from this source. The typhoid bacillus has a low degree of resistance when exposed to drying and the direct rays of the sun. Its dissemination through the air on dust particles is conceded to be very doubtful; yet this method of dissemination was regarded as probable by the commission appointed to inquire into the prevalence of typhoid fever among our troops stationed at Chicamauga during the Spanish-American War.

This conclusion is not justified by the research work of Germano, who found that typhoid germs "could not live in dust sufficiently dry to be disseminated by air currents." He found that the diphtheria bacillus resisted drying even when the process was assisted by the use of sulphuric acid, and that the germ retained its virulence up to the time of dying. On this experiment he based his belief that the disease might be disseminated in dust, and, while in the great majority of cases direct contact either with persons or articles of common use is the method of transmission, it is well to bear in mind the possibility of infection through dust. He

found the organism causing pneumonia, and those causing the various forms of streptococcic infection, to possess a high resisting power to drying, and concluded that they might be transmitted through the air on dust particles. His experiments with the diplococcus of cerebro-spinal meningitis led him to the conclusion that it might, without difficulty, be disseminated in the form of dust. Dr. E. W. Hope (Harrington's "Practical Hygiene") has apparently demonstrated that the dust of cities and large towns is responsible for the spread of infantile diarrhoea.

He presents evidence of the association of rainfall and its attendant cleansing of the atmosphere with diminished mortality from choleraic diarrhoea. The return shows the rainfall for June to September in each year, and the last column shows the annual average of deaths from diarrhoea during the third quarter of the year:—

Period.	Average rainfall.	Conditions.	
Six years.....	13.8in.	Av. wet summer.	.373
Fourteen years..	10.9in.	Av. dry summer.	.573
Extreme years—			
1891.....	16in.	Wettest summer.	.203
1895.....	7.7in.	Driest summer.	.819

While we should be slow in accepting the single factor dust as explaining the above mortality rates, one can hardly help but feel that Dr. Hope has constructed an almost faultless case of circumstantial evidence. The relationship existing between the dried, pulverised excreta of dogs disseminated with street dust and public health cannot be determined, but there is no reason to believe that its presence in the atmosphere can be anything but harmful. Ocular evidence of such pollution is to be found on all sides, and during a recent trip through one of the streets of a neighboring city such evidence was found no less than twenty-one times on one side of a single city square. The germs of tetanus and malignant œdema are pretty generally present in ordinary road dust, and the increased number of cases of tetanus in England during the past few years has been attributed to the increased amount of dust caused by the automobile.

Thompson expresses the belief that nine-tenths of the acute inhalation diseases and chronic catarrhal diseases are due to dirt inhalation. If this be true, or even one-half true, the enormous importance of the relationship existing between street dust

and public health at once becomes manifest, and the "extent to which street dust is contaminated with disease-bearing germs must depend largely upon the hygienic precautions exercised in a community." It must not be forgotten that street dust acts elsewhere than in the open air. Street dust and water make a more or less tenacious mud, and this, carried into the home, soon loses its water and becomes dust again.

Still another method of infection is through the exposure in stores, markets, and on sidewalks of meats, fish, fruits, and vegetables. Meats and fish furnish an ideal culture field for bacteria, and it requires no stretch of the imagination to see in foods so exposed actively growing fields of pathogenic and other organisms. "Sedgwick has shown that 10 litres of air taken 5 ft. above the surface of a macadamised street in a dust storm contains as many as 200,000 micro-organisms."

It is hardly necessary to refer to its influence upon the comfort of the public. During high winds it is blown about in clouds. It is raised by all kinds of mechanical violence and by the passage of vehicles, especially automobiles. It gets into our eyes, and may produce irritation of the conjunctiva. It covers the body and clothing, and damages fabrics in homes and stores. City life, in homes on macadamised streets especially, is made almost unbearable in the late spring and through summer and fall by the constant dust raised by passing automobiles. At a season of the year when life in the open offers the greatest degree of comfort and pleasure, this plague of dust drives one inside behind closed windows and doors. The immediate discomfort may be merely the first step in conditions which may not only produce still greater discomfort, but even threaten the health or life of those exposed. Among the pathological results which may follow are naso-pharyngeal irritations leading to acute or chronic disease of the frontal sinus, the middle ear or the antrum of Highmore; to pharyngitis, tonsillitis, laryngitis, or bronchitis, or it may "predispose to more serious diseases, such as consumption or pneumonia."

The cost of street dust cannot be determined by the cost of street cleaning. The immediate cost can be determined by the reports of the street cleaning department

of a great city. The remote cost must take into consideration the economic loss, due to sickness, the potential value of the lives lost, and the deterioration in value of merchandise damaged or actually destroyed. For every life lost through the acute infections contracted through this source, we may charge \$5,000. For every life lost through consumption, so contracted, can be charged \$8,000. It has been estimated that the merchants of Chicago lose through smoke and dust a sum of money equal to the annual tax collected in that city.

It is not correct to charge this loss to the merchants, for in fixing a selling price for their goods it is loaded to cover this loss and is paid by the public. The cost for the street sewer and catch basin cleaning of Cincinnati for 1909 was, in round numbers, \$411,000. If it were possible to add to this the cost in lives, sickness, and merchandise of various kinds due to street dust, the ultimate cost would be appalling.

A few words as to how the problem could be handled and the public health and wealth conserved. Treating with oil has practically eliminated the nuisance on macadamised streets and gravel roads. One has but to make a short trip through the country on alternating oil-treated and ordinary stretches of pike to see the wonders worked by oil. On the oil-treated portion hardly enough dust is raised to be visible; on an ordinary pike the passing

vehicle, especially if it be an automobile, leaves a thick cloud of dust. Streets paved with asphalt, bitulithic stone, brick, or wood block, if not frequently flushed, are almost as bad as a gravel road. Frequent sprinkling lays the dust and converts it into mud, another nuisance second only to dust. The presence of the so-called white wing force is effective on the streets where they are employed, but their employment on all streets is prohibitive on account of the cost. Flushing is effective on the proper streets, but cannot be employed on any but paved streets.

Sweeping by hand or machine leaves much to be desired. In Germany, it is claimed that the problem has been solved by the use of pneumatic cleaners, which act much as do pneumatic house-cleaning machines. A point in the problem, and the most important one from the standpoint of public health, is now being discussed, and promises much in the way of relief. I refer to the use of disinfectants or antiseptics in the water used in street sprinklers and flushing machines. At a nominal cost the water can be treated so that it quickly destroys pathogenic and other organisms. It is probable that this feature of street cleaning will be developed along practical lines, and that street dust will soon cease to occupy the important position in relation to public health which it does to-day.



Editorial

Programme for Canadian Public Health Association Congress.

The program for this year's C. P. H. A. Congress, in the carrying out of which it is anticipated a large gathering will take part, is a noteworthy one from every standpoint; covering three days, December 13th, 14th and 15th. It commences on the first of these days, Wednesday, at 10 a.m. with the general business meeting, with the adoption of a carefully prepared constitution, the registration of old and new members and the meeting of special committees.

At 2 p.m. on Wednesday, the 13th, comes the first general session at which papers of great interest will be read, including "Military Aspect of Sanation," by Col. Carleton Jones, Director General, Medical Services, Ottawa; "Duties of Authorities and private Citizens Towards Consumption," by Dr. C. J. Fagan, Provincial Health Officer of British Columbia; "Medical Inspection and Care of Immigrants on Ship Board," by Dr. J. D. Pagé, Medical Superintendent, Immigration Hospital, Quebec; "Conservation of Food by Cold," by Dr. P. H. Bryce, Chief Medical Officer, Department of the Interior for Canada; "Cheese Factory and Farm Well Waters," by Dr. W. T. Connell, Professor of Bacteriology at Queens University; "Factors in the Spread of Acute Intestinal Epidemics," by Dr. W. H. Hill, Director, Epidemiological Division, State Board of Health of Minnesota; "Municipalization of Milk Supplies," by Dr. W. A. Evans of Chicago; "Hygiene of Canadian Waterways," by Dr. William Oldright, Emeritus Professor of Hygiene, University of Toronto; Dr. F. Montizambert, Director General of Public Health for Canada; Dr. John G. Rutherford, Veterinary General and Live Stock Commissioner, and others prominent in the public health field will read papers, the opportuneness and importance of which cannot here be detailed.

The official opening of the Convention at the Royal Victoria College, Sherbrooke St. by the Patron, Field Marshal, His Royal Highness, Prince Arthur, Duke of Connaught, Governor General, will take place at 8.30 in the evening of the first day; the opening proceedings will be further honored by an address from the Hon. R. L. Borden, Premier of Canada, and addresses of welcome from the Hon. Sir Lomer Gouin, Premier of Quebec, and His Worship the Mayor of Montreal, to be followed by the address of the President, T. A. Starkey, M.D., D.P.H., F.R.S.I., M.R.C.S., etc., Professor of Hygiene at McGill University.

On Thursday the 14th, the meetings of sections will commence at 10 a.m., with that of the Medical Officers of Health. Dr. Louis Laberge, Medical Health Officer for Montreal, Convenor, has arranged an excellent series of papers; the speakers in this section including health officers of the several leading municipalities throughout Canada. The section of Laboratory Workers follows, and Dr. J. A. Amyot, Professor of Hygiene in the University of Toronto, has for this section completed arrangements in his usually efficient manner; a number of the papers here will deal with debatable points of much interest.

The third section meeting on the morning of the 14th, will be that of Sanitary Engineers and Architects, under the experienced direction of T. Aird Murray, M.Can. Soc.E., Toronto. Mr. Murray has arranged that papers be read in this section by prominent engineers and architects; the subjects including "Garbage Removal and Destruction," "Chlorination of North Toronto Water Supply," "Gravity Mechanical Filtration at Saskatoon," "Water Supply by Air Tank Pressure for Small Towns," "Mistakes to be Guarded Against in Water and Sewerage Systems for Towns," "Natural Ventilation as Applied to Private Houses." Mr. Murray himself will display certain excellent lantern views

of the Lethbridge sewerage disposal system.

For Social Workers, section four, Mrs. Grace Ritchie England, M.D., of Montreal, has secured the co-operation of Dr. C. Blackader, Professor of Pediatrics, McGill University; Dr. G. J. Adami, Professor of Pathology; Miss Helen MacMurchy, M.D., Toronto; T. A. Sherrard, of Westmount, who will speak on "Citizenship in Connection with Public Health"; Mrs. Smillie, of Westmount; and Miss Ellen Babbitt of the Russel Sage Foundation, whose paper will not only be of national, but of international interest.

At 2.30 p.m. on Thursday, the 14th, the second general session will take place. Here the symposium on Town Planning and Housing will deal with vitally important matters connected with this subject. Among well-known leaders of thought in this direction, we note the names of Dr. Charles A. Hodgetts, Dr. J. E. Laberge, Architect Rickson, A. Outhet, W. D. Lightall, K.C., and Architects Percy B. Knox and Colborne P. Merdith.

The annual dinner of the Association for the members, delegates and ladies accompanying them takes place at 8 p.m., Thursday.

On Friday, the 15th, in the final general session, comes the symposium on Biological Sewerage Disposal with papers by prominent scientists, including Willis Chapman, T. Aird Murray, H. W. Hill, P. H. Bryce, George G. Nasmith, J. O. Meadows, J. A. Amyot, and T. A. Starkey.

At 12 noon of this day, the business meeting and election of officers takes place; at 2.30 p.m., the meeting of the new executive council, and in the evening a farewell supper.

With the co-operation of Dr. F. C. Douglas, Secretary of the Committee on Local Arrangements, the prominent hotels of Montreal, some of which are advertising in this number of the Journal, have made suitable arrangements to accommodate members and delegates. Arrangements have also been made with all transportation companies regarding reduced rates of fare, in view of which the members and delegates are requested to obtain standard certificates from their local passenger agents when purchasing tickets to the Convention.

The Coming Report of the Ontario Registrar-General.

What the frivolous call "The hatches, matches and dispatches record" for the Province of Ontario for 1910, which has been compiled by the Registrar-General's Department, contains some interesting figures with regard to the vital statistics of the Province. The Report is in the hands of the printers, and will not be ready for the public for some weeks yet.

During the year there were 55,871 births; 24,036 marriages, and 33,539 deaths; or 24.9, 10.7, and 14 per 1,000 of the estimated population respectively for the County Municipalities of the Province (including cities and towns). For the 18 cities the figures are: births, 18,767, or 32.2 per 1,000; marriages, 11,793, or 20.2 per 1,000; and deaths, 12,303, or 21.1 per 1,000. The towns of 5,000 population and over are 15 in number, and their statistics are as follows: births, 2,918, ratio 21.6; marriages, 1,405, ratio 10.4; deaths, 1,109, ratio, 14.7.

Of the 33,539 deaths, there were 706 from typhoid fever; 2,287 from tuberculosis in all forms, as against 2,380 in 1909. Cancer was the cause of death in 1,077 cases; 222 died from diabetes; 327 from anaemia; 355 meningitis; 923 apoplexy; 2,240 organic heart trouble; 464 bronchopneumonia; 1,458 pneumonia. Diarrhoea among infants under two years of age was fatal in 1,374 cases, while 2,455 died when under four months of age, owing to weakness from birth or ignorance on the part of the mothers with regard to the care of children. In 284 cases women lost their lives in child-birth. Of the 1,626 deaths from affections produced by external causes, 91 persons took their lives by various methods, hanging being the favorite; 26.3 per cent. of this number selecting this means of exit from a weary world. 95 persons were poisoned accidentally; 43 were burned to death; 112 died from burns received; 33 died from gas poisoning; 266 were drowned; 64 shot accidentally; 209 killed by motor cars, landslides, steam and electric railways, etc.; 13 were frozen to death; 8 died from effects of heat, sunstroke; 11 killed by lightning; 18 by electric shock; 17 homicides took place, and the balance, 645, died from various accidental causes. Old age was the cause of death of 3,429 persons. 2,207 were still-born.

With regard to mortality among infants, it is found that among those under five years of age, 6,649 died under one year of age; 917, one year old; 424 two years old; 321 three years old; and 247 four years old.

March was the favorite month for births; there being 5,033 in that month. Of the children born throughout the year, 28,664 were males and 27,207 were females. There were 370 pairs of twins, 264 boys and 376 girls. Triplets surprised the happy father in five cases, 9 boys and 6 girls.

June continues to hold favor with the bride. Of the 24,036 marriages, 3,555 were celebrated in the happy month. September and December followed in the order named with 2,653 and 2,304 respectively.

There are two periods in a woman's life when friends are vastly interested in her age; when she marries and when she dies. The Report goes rather deeply into some of these figures, and while all the secrets are not disclosed, yet there is some interesting information in its pages.

With regard to the age at which persons marry, it is of interest to learn that, so far as Ontario is concerned, men do not marry, to any great extent, at a later date than women, although it is popularly thought otherwise. Last year 8,168 grooms, or about one-third of the total number of men, married between the ages of 20 and 24, while 47 per cent., or nearly one-half the women who entered the bonds of matrimony, were between those ages. With both sexes the next greater number were in the 25-29 group, and then come the 30-34 for the grooms and 15-19 for the brides. Under the age of 20, 453 men were married; one taking a bride in the 30-34 group; one selecting a lady whose age comes in the 35-39 class; one married a lady of the discreet age of 70, while two grooms showed a predilection for the same maturity of their brides. Fifteen women between the ages of 15 and 19 married men between 40-44; two became brides of men between 45-49; one married a man over 55; two, men over 60, and one a man over 70, as did also a lady of 25-29.

Cupid drives his bolt athwart denomination and conventions. Just at the present time the question of mixed marriages is holding a certain amount of public attention, but many of the good people who

discuss the matter of persons of different faiths marrying will be surprised to learn to what an extent such marriages are contracted in Ontario. It appears that in one year alone Methodists married Roman Catholics; Jews married Gentiles, while in many cases May wedded December. Out of the total of 7,351 Roman Catholics, no less than 1,509 married out of their denomination. Of the grooms, 665 married non-Catholic brides, and 844 professed Catholic girls became brides of non-Catholic grooms. Of these marriages, the larger number were between Catholics and Anglicans; then came Methodists, Presbyterians, Baptists, Lutherans, in the order named, but, rather strangely, no marriage between a Roman Catholic and a member of the Salvation Army is recorded, yet two married Jewesses, and five brides threw in their fate with as many Jews. The Jewish ladies did not show such a variety of taste, but exhibited a strong Anglican leaning, for, of the seven who married out of their faith, five married Anglicans and two Roman Catholic husbands.

Analysing the table still further, it appears that 631 Presbyterian ladies married Anglicans; 841, Methodists; 126, Roman Catholics; 41, Congregationalists, 55, Lutherans; and the collection of 74 are not classified. Of the Methodist ladies, 678 married Anglicans; 910, Presbyterians; 157, Roman Catholics; 290, Baptists; 57, Congregationalists; 83, Lutherans; and 6 passed into the care of as many Salvationists, while 98 of their husbands have yet to be gathered into any particular fold which finds a place in the table; 25 frankly confessing to being of no denomination at all. Roman Catholics have already been largely dealt with and, coming to the Baptists, it is found that 200 chose their husbands from the Anglicans; 219 from the Presbyterians; 362 selected Methodists; 68, Roman Catholics; 21, Congregationalists; 26, Lutherans; 28, from the untabulated, and six of the gentlemen were unattached denominationally. Fifty-seven Lutherans sought and got Anglican husbands; 71, Presbyterians; 78, Methodists; 85, Roman Catholics; one Hebrew and one Salvationist. Altogether, 87 Salvationists found their husbands in "the Army"; three married Anglicans; one, a Presbyterian; seven, Methodists; five, Baptists, and one is unclaimed.

BOOK REVIEWS

"Lippincott's New Medical Dictionary," "The Essentials of Food," "Aids to the Analysis of Foods and Drugs," "Aids to Bacteriology," "Makers of Man," "Old Age Deferred," "The Fourth Physician," "First Aid Charts," "What a Young Boy Ought to Know," "What a Young Man Ought to Know," "What a Young Husband Ought to Know," "What a Man of 45 Ought to Know," "What a Young Girl Ought to Know," "What a Young Woman Ought to Know," "What a Young Wife Ought to Know," "What a Woman of 45 Ought to Know."

"Lippincott's New Medical Dictionary."

Lippincott's New Medical Dictionary is beautifully bound in flexible leather, with thumb index and fully illustrated. Its value is corroborated by the demand for a reprint edition, and a new edition in less than a year from the date of its original issue. In this new edition over 5,000 additions and changes have been made in the index, seventy-one new illustrations have been added, and about 500 new words have been inserted, many of which appear for the first time in any dictionary. The author's aim is to furnish the medical student, the practitioner of medicine, the laboratory worker, and whoever else has occasion to use a medical dictionary with a single volume of moderate compass and at a reasonable price, which shall attain the ideals of the user in regard to thoroughness, accuracy, perspective and proportion; and this aim has been fully accomplished.

Condensation has been attained by the omission of unessentials, and in addition words having a same etomological element are usually grouped together; otherwise the arrangement of words throughout is strictly alphabetical. The etomologies are adequately attended to, and in the orthography the author has rightly leaned somewhat to conservatism. A good feature of the work is the cross references.—*Lippincott's New Medical Dictionary. A vocabulary of the terms used in medicine, dentistry, veterinary medicine and allied science, with their pronunciation, etomology and signification, including much collateral information of a descriptive character. By Henry W. Cattell, A.M. (Laf.), M.D. (U. of P.), Editor of International Clinics, Fellow of the College of Physicians*

of Philadelphia, etc. Freely illustrated with figures in the text...Second edition. Philadelphia and London: J. B. Lippincott Company; Canadian agent, Mr. Chas. Roberts, 608 Lindsay Bldg., Montreal.

"The Essentials of Food."

Written in simple language and appealing to the medical profession and laity alike, "The Essentials of Food" is a useful little work. It is intended to be a correct summary of present day knowledge regarding foods.

The author points out that there are five words signifying nutrients, and considers his subjects under classes so indicated, viz.: water, proteids, starches, fats and minerals. Dr. Stewart acknowledges his debt and the debt of all who have investigated the question of foods, to Professor William Crittenden, Director of the Scientific School of Physiology in Yale University; and he believes that it is to the credit of vegetarians that they have amply shown that much less flesh food is an advantage to the health of man, and quotes Dr. Pavey, a distinguished author and physician of the past generation in saying, among other things, that were it not for the temptation to exceed, induced by the refinement of the culinary art, the physician's aid would be much more rarely required. The little book is fully indexed and well printed.—*The Essentials of Food. By Donald Stewart, M.D., London: John Bale Sons and Danielson, Limited, Oxford House, 83-91 Gt. Titchfield St., Oxford St., W., 1911. Price 3/6 net.*

"Aids to the Analysis of Food and Drugs."

This is a volume in the Student's Aid

Series of Bailliere, Tindall and Cox, and fully reaches the high standard set by other volumes in the series. The work is not only useful from the standpoint of accuracy and the amount of information it contains, but from the fact of its moderate size, and that it is apparently the only book that has recently appeared, devoted to the analysis in condensed form of foods and drugs. The work concludes with valuable appendices and a full index.—*Aids to the Analysis of Food and Drugs. By C. G. Moor, M.A. (Cantab.) F.I.C., and William Partridge, F.I.C., 3rd edition. Students' Aid Series. 249 pages. London: Bailliere, Tindall and Cox, 8 Henrietta St., Covent Garden. Toronto: The J. F. Hartz Co., Limited. Obtainable from any bookseller... Price 3/6 net.*

“Aids to Bacteriology.”

“Aids to Bacteriology” is a companion volume in the Students' Aid Series to “Aids to the Analysis of Food and Drugs.” The author points out in his prefatory remarks that public health authorities, water works companies, agriculturists manufacturers generally do not efficiently appreciate the advantages to be derived from bacteriological investigations, but that a similar criticism with respect to the general medical practitioners can no longer be made. The work is written under twenty-two chapter headings, followed by appendices and an index, and containing valuable tables throughout. Among the chapters are those dealing with Bacteriological Apparatus, the Preparation and use of Nutrient Media; Microscopic Examinations of Bacteria; Diseases of Questionable Origin; The Bacteriology of Sewage, Shellfish, Meat, Soil, Air and Milk; and, The Bacteriology of Water.—*Aids to Bacteriology. By C. G. Moor, M.A. (Cantab.) F.I.C., and William Partridge, F.I.C. Second edition Students' Aid Series. London: Bailliere, Tindall and Cox, 8 Henrietta St., Covent Garden. Toronto: The J. F. Hartz Co., Limited. Obtainable through any bookseller. 1911. 3/6 net.*

“Makers of Man.”

A clever book, searching the borderland of the unknown and treating the lives of forty individuals as psychological overtones—a harmony in immortality with pre-

destination as its motif; this is “Makers of Man.”

There are one or two postulates in “Makers of Man” that may be questioned by the reader, but, on a whole, the book is one of the most instructive and entertaining it has been the reviewer's pleasure to come across. The author points out that in the psychological treatment of his subjects their psychical organisms are, from this point of view, to be regarded, not as mere animated “matter,” but each one as the organized experience, a psychosis, the sub-conscious and superconscious factors of which all play their parts in contributing to the feeling tone, modifying the opinions or determining the motives of conduct. “What presents itself on the physical side a newly perfected neuro-muscular system, is on the psychical side a newly established habit.” Further, “What happens at the synapses is not the generation, but rather the intensification of a pre-existence, the concentration of a diffused consciousness.” And again, “Life is a torch which is never extinguished, but is handed on from one generation to another, with all its established potencies intact.”

Concluding his introductory remarks, Dr. Whitby points out that “cerebral growth and organization are one aspect of character and a most important one, but the most essential is its manifestation as human thought and action, and the ideal significance of these; this epitomizes Dr. Whitby's subject. He divides greatness into four types for the purposes of discussion, the practical, aesthetic, intellectual and ethical; he considers the practical type or the man of action first, because, on the whole, the simplest and most primitive. In this class are included Caesar, Charlemagne, Richelieu, Cromwell, Napoleon Bonaparte, etc. Then he takes up the aesthetic type, the type pre-occupied with ideals, such as Dante, Leonard Da Vinci, Titian, and Goethe.

The third type, the intellectual, the author divides into two groups, the philosophers and the scientific discoverers. In this type he deals in a very interesting manner with the lives of Spinoza, Bacon, Galileo, Harvey, Descartes, Hegel, Darwin, and others.

The fourth type, Dr. Whitby considers the highest and most humanly significant, this type being called for want of a better

name, the ethical type, and including the consideration of the lives of Christ, Marcus Aurelius, Mahomet, Luther, Emerson, Renan.

Power in the crucible is considered in two noteworthy chapters. The first of these, chapter X., deals with Danger and Solitude—Solitude as a means of Power; and the second, chapter XI., the Classification of Sexual Types, Ambiguities, Need of Attachments, Woman in Relation to Man's Ideals, Sexual Versatility of Genius, the Higher Monogamy. In this section, one of the questionable points above referred to is the author's statement that all ethical ideals are ultimately traceable to the precepts and examples of what the world has agreed to regard as pre-eminent individuals, in so far, at least, as they are not mere products of social expediency and use and want.

"The demoralization of a *demigod*," says Dr. Whitby, "becomes intelligible when we learn that destiny has united him to a worldling and a scold"; but he qualifies this statement by saying that in every woman worth her salt, there is somewhere hidden a worldling and a scold. "It is a question of degrees; the tenderness may be veiled, but must not be eclipsed." Then what of this? "The transition from devil to angel is for woman the work of an instant. Paradox incarnate; the infliction of unendurable pain is often her veiled tribute to qualities beyond her comprehension, but not beyond her worship; is often the prelude to her most entrancing mood."

Dr. Whitby does not forget the criminal side of greatness; and here we find not the least of the sections that make the book most worthy of a place on our library shelves.—*Makers of Man. A Study of Human Initiative. By Charles J. Whitby, M.D. (Cantab.), With 47 half-tone and other plates. 424 pages. Full index. New York: Rebman Company, 1123 Broadway. Cloth, \$3.00.*

"Old Age Deferred."

Commencing his treatise on the causes of old age and its postponement by hygienic and therapeutic measures, Dr. Arnold Lorand, Carlsbad, Austria, quotes Seneca in saying that man does not die; he kills himself. Dr. Lorand introduces his subject by saying that, while it is still impossible for

us to create a young man out of an old one, it is quite within the bounds of possibility, to prolong our term of youthfulness for ten or twenty years; he enters very fully into the question of ductless glands in order to point out the marvellous influence they exert upon the various vital functions, paying particular attention to the thyroid and sexual glands which are carefully studied anatomically, histologically, experimentally and clinically.

The chapter headings will give one an idea of the value of the book. There are forty-eight chapters, as follows: On the Appearance of Symptoms of Old Age in Young Persons; On the Agencies which Govern Immunity Against Infections and Intoxications—The Origin of Fever; On the Agencies that Govern the Conditions of the Nervous System and Mentality; On the Influence of the Sexual Glands upon Vitality and Long Life; On Heredity and Longevity; On Means which can Help us to Determine the Probable Duration of Life; On the Causation of Old Age; The Rational Prevention of Premature Old Age and the Treatment of Old Age; The Destruction and Elimination of Toxic Products from the Body and Hygienic Measures for the Improvement of these functions; On the Destruction of Poisonous Products through the Thyroid and Parathyroid Glands; Hygiene of the Thyroid Gland; The Destruction of Toxic Products by the Liver and the Improvement of its Protective Functions; The Hygiene of the Liver; On the Destruction of Toxic Products by the Adrenals; Hygiene of the Adrenals and of the Circulatory System; A Few Remarks on the Cause, Prevention, and Treatment of Arteriosclerosis; The Elimination of Toxic Products Through the Intestines and the Improvement of this Function; On the Prevention and Treatment of Habitual Constipation; Hygiene of the Intestines. A Few Remarks on the Cause and Prevention of Appendicitis; On the Elimination of Toxic Products Through the Kidneys; Hygiene of the Kidneys, and the Prevention of Renal Disease; On the Elimination of Toxic Products through the Skin; The Hygiene of the Skin—Air Baths; On Rational Clothing; Improved Hygiene of the Skin and Kidneys through Bathing; Foot Baths; Hygiene of the Skin and Kidneys by Means of Perspiration; On Exercise, Swedish Gymnastics, Massage,

Sport, and Walking and Running Exercises; A Few Remarks on Cold Feet—Their Cause and Treatment; On the Benefits of Sunlight; On the Advantages of an Open Air Life and of Breathing Exercises; On the Dangers of Living in Confined and Ill-ventilated Quarters; Hygiene of Artificial Heating—The Dangers of Heat by Steam, and a Few Hints About their Prevention, Food Hygiene, General Remarks; On Protein Food, Animal Food, Meat, Fish, Eggs, Milk, etc.; On Carbohydrates and Fats, and the Great Advantages of Vegetables and Fruit; On the Advantages and Disadvantages of a Vegetarian Diet; On the Dangers of a too Abundant Meat Diet; A Few Hints on the Dietetics of Meat; On the Great Advantages of Much Milk in the Diet for the Prevention and Treatment of Old Age; On Blood as an Article of Food Containing Iron and Animal Extracts—Sausages and Blood Puddings; Some Remarks on the Hygiene of Eating—How to Obtain an Appetite; On Mastication; On the Uses of Small Doses, and the Deleterious Action of Large Quantities of Alcohol; Some Remarks on the Causes and Prevention of the Alcohol Habit; On Other Stimulants—Tea, Coffee, Cocoa, Tobacco—Their Merits and Disadvantages; On Sleep and its Importance in Ridding the Body of Toxic Products; On the Causation of Sleep, Sleepiness and Insomnia; Hygiene of Sleep; Prevention of Insomnia; The Treatment of Sleepiness and Insomnia; Hygiene of the Sexual Glands; The Dangers of Sexual Over-activity and of Total Sexual Abstinence; On Married Life as an Important Means for Prolonging Life; Hygiene of the Mind-emotions and Worry as Cause of Old Age; Hygiene of the Mind; Religious Belief as a Means of Prolonging Life: Disease Considered as a Self-defence of Nature; Hygiene of the Mind; Advice to Brain Workers; On the Prevention of Premature Old Age, and the Treatment of Old Age, Through Certain Drugs—Arsenic, Iron and Iodides; On the Prevention of Premature Old Age, and on the Treatment of Old Age by Animal Extracts; A Few Hints on Youthful Appearance; The "Twelve Commandments" for the Preservation of Youth, and the Attainment of a Green Old Age.—*Old Age Deferred; The Causes of Old Age, and its Postponement by Hygienic and Therapeutic Measures.* By Arnold Lorand,

M.D., Carlsbad, Austria. Third Edition, translated by the author from the third German edition. 480 pages. Philadelphia: F. A. Davis Company, Publishers, 1911. Cloth, \$2.50.

"The Fourth Physician."

A book that appeals to one from sentimental standpoints, an excellent volume for the office table, is "The Fourth Physician," by Montgomery Pickett. It is a holiday story of a new and distinctive type, displaying to the reader the aspirations and ambitions of a young physician and his advance from the coldness of scientific deduction to the warmth of the Christmas spirit. It is based on a play which won first prize over eleven hundred others submitted in a recent contest. The book is beautifully printed and well illustrated.—"*The Fourth Physician*," by Montgomery Pickett. Illustrated in color. Chicago; A. C. McClurg and Co., Publishers. For sale at all bookstores. \$1.00 net.

"First Aid Charts."

Dr. Ibotson has succeeded in producing charts under the names of "Emergencies, Accidents and Poisoning," "Fractures, Dislocations, and Sprains," "Wounds and Hemorrhage," "Insensibility or Unconsciousness," which will be very useful, not only to the student, but to the physician in practice, and to hospitals in general.—"*First Aid Charts*," by Edward C. B. Ibotson, M.B., B.S. Bristol: John Wright and Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent and Co., Limited. Procurable from all medical booksellers. 6d. each, or 1/6 per set of four.

"What a Young Boy Ought to Know."

This is the revised edition of a little book that is just what its title indicates. In his "Foreword to Parents," the author declares that information concerning the origin of life should reach the child through its parents. Realizing how few parents know how to present this difficult and delicate subject in a proper manner to the mind of an inquiring child, the author sets forth the entire subject in such a form that parents may present the thought in their own language, read suitable parts, or place the little book in the hands of the growing

boy as the judgment of the parent may determine. The whole subject of the perpetuation of life among plants, fishes, birds and animals is set forth in a manner as delicate and interesting as it is scientific and satisfactory to both parent and child. Children should not and would not be left to learn these truths from vicious companions if parents only knew of the better way here made so plain and easy. The author has produced a work which has been so prized, that already it has been translated into fourteen different languages in Europe and Asia; and the entire series, which includes also books to men, young and old, has attained a circulation of over a million copies.—*What a Young Boy Ought to Know. Revised Edition, by Sylvanus Stall, D.D. 193 pp., cloth, \$1.00, net; William Briggs, 33 Richmond St. W., Toronto, Ontario, Canada.*

“What a Young Man Ought to Know.”

The circulation of Stall's Books, which have gone through large editions in the English-speaking world and have also been issued in the languages of many European and Asiatic countries, is the best tribute that can be paid to their intrinsic worth and to the importance of the message of their author.

In this series of books, “What a Young Man Ought to Know,” has proven most popular. The enthusiasm of Dr. Stall's words in this book has saved many of our youth from an ignorant and debased manhood. Into the chapters of this revised edition, printed in clear cut type, Dr. Sylvanus Stall puts the mature wisdom gained from confidential correspondence and personal contact with young men, and from studious research into the latest medical literature. It is a book that is worth placing in the hands of every young man over eighteen years of age.—“*What a Young Man Ought to Know*” (Revised Edition)—By Sylvanus Stall, D.D.; William Briggs, 33 Richmond St. W., Toronto, Ontario, Canada. Price, \$1.00.

“What a Young Husband Ought to Know.”

If marriage is a divine institution, if the tenderest and most sacred relations of life cluster about the family and the home, then no words of praise can be too strong with which to commend this book. Its author

shows himself capable. Its paragraphs are candid and clean. In these pages the author lifts the relations of married life out of the impure thinking which degrade manhood and womanhood and rob marriage and home of blessing and happiness. It treats of matters of importance, is free from technical terms, is scientifically accurate, delicate and refined. Information is imparted which should save from the consequences of blundering, and enable its possessor to escape the ills which ambush in mystery and ignorance. The author has treated the most delicate subjects with that same force which characterizes the preceding books of the series, addressed to boys and to young men, and which won for these books such unsolicited and hearty commendation.—*What a Young Husband Ought to Know. By Sylvanus Stall, D.D. William Briggs, 33 Richmond St. W., Toronto, Ontario, Canada. Price, \$1.00, net.*

“What a Man of 45 Ought to Know.”

It has been aptly said that a man at forty-five is either a fool or a physician. In the earlier books of this Self and Sex Series, the author, Sylvanus Stall, D.D., associate editor of the *Lutherian Observer*, has sought to save young boys, young men and young husbands from mistakes which can only be avoided by intelligence. Few men know that important physical changes await them about middle life. Perhaps it may be truthfully said that men of forty-five are as ignorant of the nature of the changes through which they may be passing as boys at the period of adolescence. In this book, Dr. Stall, in that best way which distinguishes the earlier books of the series, sets forth the character of the changes which occur in the physical life of both men and women. The author makes out a clear case; apprises laymen of what intelligent physicians admit; prepares his readers to solve the mysteries of those changes and by intelligence to escape the consequences of ignorance. To many men the guidance of this book will be a timely benediction.—*What a Man of 45 Ought to Know.*—By Sylvanus Stall, D.D., William Briggs, 33 Richmond St. W., Toronto, Ontario, Canada. Price, \$1.00.

“What a Young Girl Ought to Know.”

It is just what every mother needs to

know when her children are growing up around her. It tells the mother how to present in a right way to the mind of a growing girl just what the mother would be glad to tell if she only knew how to tell it.

Mary Wood-Allen, M.D., clothes the facts of the origin of life in delicate language and surrounds them with an atmosphere of sacredness and purity. With the sympathy that a mother can feel, the author gives instructions in a manner that will safeguard her child from the consequences of ignorance.—*What a Young Girl Ought to Know.* By Mary Wood-Allen, M.D. New revised edition. Cloth, \$1.00, net. William Briggs, 33 Richmond Street West, Toronto, Ontario, Canada.

“What a Young Woman Ought to Know.”

The book is divided into three parts; the first treats of the value of the body and its hygiene; the second of special physiology and the laws of maturity, and the third of love, engagements and marriage.

The author brings to her task the training of a physician, the sympathies of a mother, and the character of a teacher who has discerned the highest ideals, and lived in accordance with them.

The chapters on the care of the body are simple, sensible, and practical, and the directions given have in mind one result, and that is the attainment and maintenance of good health. In treating the subject of special physiology, the author avoids technical medical terms, and tells the young woman of the physical laws governing her nature, how to obey them intelligently, and what penalties follow their violation. With the finer nervous organization of woman, and the high office assigned her, it is essential that she should know how to care for herself, as impairment of her physical organization not only means personal suffering, but often wrecks the happiness of others related to her. “Obedience is freedom,” is the keynote of the truth emphasized in these chapters, and a deeper realization of the divinity of womanhood and the sacredness of sex must irresistibly be borne in upon the mind of the reader.

The ineffaceable experiences of love, engagement and marriage are handled with a firm touch. The author would equip the young woman with such qualities of heart,

mind and body that each experience might yield its joy untrammelled by a single sad mistake.

Although writing with the wisdom of maturity, Dr. Wood-Allen never for one moment loses her sympathetic understanding of the sentiment of young womanhood, its overflowing enthusiasm, abounding life, and the impatience with which it meets the check of restraint. Her council is given tenderly, and without repellant harshness. The book should help every young woman who stands upon the threshold of an untried life to meet its difficulties intelligently, and to become receptive to its deeper meanings and higher possibilities.—*What a Young Woman Ought to Know.* The second volume to women by Mrs. Mary Wood-Allen, M.D., published in connection with the companion books to men, by Sylvanus Stall, D.D., under the joint title of *the Self and Sex Series.* William Briggs, 33 Richmond Street West, Toronto, Ontario, Canada. 264 pp. Price, \$1.00.

“What a Young Wife Ought to Know.”

This book takes the subjects concerning which young women everywhere are so ignorant, and lifts them into the exalted place they must ever hold in the minds of the intelligent. No other class are so entirely without information as most brides, young wives and young mothers. Three thousand years ago the inspired writer declared “the people are destroyed for lack of knowledge,” and the statement is still true to-day. This book to young wives and mothers should have been written centuries ago, and no time should now be lost in bringing the knowledge it contains into the hands of young women of marriageable age. It tells the young wife just what she needs to know, and tends to prevent those mistakes which have wrecked so many lives. It equips the young wife to discharge intelligently the duties of her responsible relation.—*What a Young Wife Ought to Know.* \$1,000 Prize Book, by Mrs. Emma F. A. Drake, M.D., 288 pp. William Briggs, 33 Richmond Street West, Toronto, Ontario, Canada.

“What a Woman of 45 Ought to Know.”

In this latest and concluding book of the series, Mrs. Drake has equalled in style and interest the character of her previous

book, "What a Young Wife Ought to Know," for which she received a prize of one thousand dollars. It is written in that wholesome, sympathetic manner characteristic of all the purity books in this series.

It should be read by every woman nearing and passing through middle life. It will do much to reassure nervous ones needlessly alarmed by patent medicine advertising and opinions of ill-advised friends, and will dispel apprehensions aroused by groundless forebodings.

This book is for single women as well as the married, and its pure yet stimulating teaching is calculated to give confidence to

the most timid. Besides telling of the heralds of the change and the various symptoms disturbing the mental and nervous equilibriums of women at this period of their lives, it gives many valuable suggestions for the improvement of the health and the care of the body. A careful following of the hygienic advices here given ought to lengthen the lives of our women and make their mature years the happiest and most useful of all.—*What a Woman of 45 Ought to Know. By Mrs. Emma F. A. Drake, M.D. Cloth, 211 pp. William Briggs, 33 Richmond Street West, Toronto, Ontario, Canada. Price, \$1.00, net.*

CURRENT PERIODICAL COMMENT AND WORKING NOTES.

In addition to contributions and editorials, noteworthy from a public health standpoint, in periodicals quoted herein for this month:—*The Canadian Medical Association Journal* (Vol. I, No. 11, received) contains Dr. W. H. Hattie's paper read before the Canadian Medical Association, last meeting, "The Prevention of Insanity" and an excellent editorial, "The Proprietary School."

Journal of the Royal Sanitary Institute (Vol. XXXII, No. 10, received), contains, among a number of excellent papers read at the last meeting of the Royal Sanitary Institute, "The Disposal of Refuse in the Tropics," by Major R. J. Blackham, R.A.M.C., D.P.H.

Journal of the Royal Army Medical Corps (Vol. XVII, No. 5, received), contains "The Work of Divisional Medical Units in the Field," by Col. L. P. Woodhouse; "A Criticism of Quinine as a Malarial Prophylactic," by Captain P. S. Lelean, R.A.M.C.; and an editorial, "The Nutritive Value of Bread Made from Different Varieties of Wheat Flour."

The Canadian Practitioner and Review (Vol. XXXVI, No. 11, received), "The Use of Cold Baths in Diseases of Children," by Jas. Newell, Ph.B., M.D., C.M.; and an editorial on "Prison Reform."

Journal of the Outdoor Life (Vol. VIII, No. 11, received), "The Physiology of Fresh Air," by Thomas H. Hay, M.D.; "The Treatment of Diseases Other Than Tuberculosis in the Open Air," by W. P. Northrup, M.D.; "Fresh Air in the Home," by Thomas Spees Carrington, M.D.

Le Journal de Médecine et de Chirurgie (Vle. Anne, No. 11, received), "Principales Indications à Suivre dans le Traitement du Lupus Tuberculeux," par le Dr. Gustave Archambault.

Dominion Medical Monthly (Vol. XXXVII, No. 6, received), "A Law of Sensitiveness," by Goldwin W. Howland, M.D., M.R.C.P.

The Prescriber (Vol. V, No. 61, received), "Preparation of Salvarsan Injections," by Thomas Stephenson, F.C.S., F.R.S.E.; (Vol. V, No. 62, received), editorials, "Bacteriophobia," "Excretion and Drug Action."

Journal of the Royal Institute of Public Health (Vol. XIX, No. 11, received) Harben Lecture No. 2, on "Biological Differentiations of Proteids by the Precipitin Reaction, with Especial Reference to the Forensic Examination of Blood and Meat," by Professor Paul Uhlenhuth, M.D.; "The Chemistry and Nutritive Value of Bread," by R. Murray Leslie, M.A., B.Sc., M.D.

The Western Medical News (Vol. III, No. 9, received), editorials, "Those Who Make the Laws Must Keep Them," "Post Graduate Course of Study for the General Practitioner."

Successful Medicine (Vol. I, No. 1, received), editorial, "What is a Nostrum?"

Oral Health (Vol. I, No. 12, received), "The Importance of Proper Oral Conditions in the Prevention of Disease," by J. W. S. McCullough, M.D., Chief Health Officer of Ontario.

The Canadian Teacher (Vol. XVI, No. 6, received), editorial, "What the School Really Does."

The Canadian Municipal Journal (Vol. VII, No. 12, received), editorial, "Public Health."

The American Journal of Clinical Medicine (Vol. XVIII, No. 11, received), editorial, "Are Diseases Increasing?"; "The Etiology, Nosology and Treatment of Pellagra," by George C. Mizell, M.D.; "Immunity to Infectious Diseases," by N. B. Shade, M.D.

The Fruit Magazine, Scientific Farmer and Canadian Citizen (Vol. IV, No. 2, received), "Irrigation and Drainage," by F. E. Jones.

Merck's Archives (Vol. XIII, No. 11, received), "The Betterment of the Blood," by Edward A. Tracey, M.D.; editorial, "Modern Therapy and Malignant Disease."

Contract Record (Vol. XXV, No. 48, received), editorial, "Noteworthy Congress at Montreal."

The Sanitary Record (Vol. XLVIII, No. 1144, received), "The Economics of Housing," by A. G. Anderson, M.D., D.Sc., M.A.; (Vol. XLVIII, No. 1146, received), editorial, "The Indictment of Health Authorities by the Local Government Board." *Medical Officer* (Vol. 6, No. 20, received), "Vaccine Treatment of Enteric Fever," by D. Stewart, M.B., Ch.B., D.P.H. *Journal of the American Public Health Association* (Vol. 1, No. 11, received), "Public Health and Public Hysteria," by Samuel Hopkins Adams, M.D. *The Canadian Engineer* (Vol. XXI, No. 20, received), "Railway Telephony," by Howard W. Fairlie. *Public Health Reports* (Vol. XXVI, No. 46, received), "Investigation of the Prevalence of Typhoid Fever at Charlestown, W.Va.," by J. R. Ridlon, M.D., Assistant Surgeon Public Health and Marine Hospital Service. *School Board Journal* (Vol. XLIII, No. 6, received), "The Identification of the Misfit Child," by Leonard P. Ayres, Ph.D.; "Education the Making of a Man," by Donald J. Cowling. *The Indian Medical Gazette* (Vol. XVI, No. 10, received), "Staff Tours and Their Uses," by Patrick Hehir, M.D., F.R.C.S., (Ed.); editorial, "The Thermal Springs of India."

The Havana Sewerage Scheme.

In an article published in a recent number of the *Engineering Record*, of New York, it is claimed that the sewerage work at present under construction at Havana is the largest contract for sanitary works ever made. Of three hundred miles of sewers and drains about 200 miles are already completed. The works are designed to meet the needs of twice the present population, and the system will, when completed, be one of the most perfect and comprehensive in existence. The ordinary sewerage system of a large town is of necessity generally a patchwork production, altered, adapted and repaired during the course of years, and it has seldom been possible to carry out a large scheme in its entirety at one time.

At Havana the sewage will be discharged into the sea at a point where the gulf stream will carry it away, and this was considered better than imposing upon the city the continuing cost of sewage purification. The two main intercepting sewers are 4 in. in diameter, and are constructed of reinforced concrete tubes 9 in. thick with flat bases 3 ft. 6 in. wide.

The difficulty of building sewers of this diameter in the narrow streets of Havana was found to be so great that it was decided to use concrete pipes made elsewhere. A syphon 7 ft. in diameter carries the sewage under the harbor. This syphon is a concrete-lined shield-driven tunnel. After passing through the syphon the sewage is lifted 24 ft., by means of Worthington pumps electrically driven, and flows on through a concrete lined tunnel piercing Cabana Hill, and thence through a subaqueous outfall of cast iron pipe laid in concrete, extending to a point 550 ft. off shore, where the water is 30 ft. deep, and where the average rate of

the current is four miles an hour.

For the surface-water drainage there are several separate systems of pipes, each having its outfall either into the sea or harbor. Generally speaking, all sewers and drains up to 20 in. diameter are made of vitrified clay pipe. All those of larger section are made of reinforced concrete. In some places it has been found to be impossible to keep water out of the trenches, and here the concrete pipes are being laid and jointed in the water.

For handling pipes and excavated material a system of overhead mono-rail tracks, supported on A frames, has been used, the entire plant being operated electrically. This plan has been found of great advantage in the narrow streets of Havana.

An Advocate of Face Creams and Powders.

The use of face creams and make-ups, says the *New York Medical Journal*, is universal and the moral aspect of the question is becoming settled. Our women now fearlessly and scientifically handle the complexion brush, the face cream, and the powder puff. Why is the face of a country woman of 60 years faded and wrinkled, while the face of a city woman of the same age frequently is smooth and beautiful? On account of protection against the elements. The city woman has been using her cream and powder for forty years, and has yet to experience any deleterious effects.

The idea that the faces of actresses are old looking off the stage is pure superstition. Many an actress courted of our fathers has a complexion the envy of our daughters. These are things the physicians should know and not be afraid to say.

Education vs. Nutrition.

"Education versus Nutrition," is the heading of a cartoon presented in the latest *Bulletin of the Chicago Health Department*. It calls attention to the importance of proper nutrition, along with the education of a child.

The cartoon depicts a pale faced youngster toddling toward a school building under the weight of a huge book, many times the size of his tiny luncheon receptacle, which he carries in his other hand. Beneath the picture is printed the following:

"Health must not be sacrificed to education. What will it profit a child, the man, and a community if he gain a world knowledge, and lose his health? A wise community will safeguard its future well being by recognizing its obligation to its child citizens. There must be no underfed school children."

Children and Sweetmeats.

A discussion in the *British Medical Journal* raises the question as to the advisability of allowing children to eat sweets. Careful investigation of the effects of sweetmeats has led several specialists to believe that not only may the teeth be injured thereby, but that not infrequently the consumption of jujubes, chocolates, acid-drops, comfits, and so forth, brings about stomach troubles that indirectly affect the whole system. On the other hand, there are eminent medical authorities who deny the harmful effects of sweet-eating. There is, however, no doubt that the continued presence of sugar in the mouth is favorable to the development of microbes which produce acid-substances very detrimental to the teeth. Further, any process of fermentation set up in this way may very well react unfavorably on the stomach. But it has yet to be proved that the proper care of the mouth, and due use of the tooth brush, will not counteract such effects; if the hygiene of the teeth be neglected, they will certainly decay, sweets or no sweets.

In any case, this is a matter which merits the fullest investigation, for, considering how common dental disease and faulty digestion are at the present time, it has become of national importance. Now that public institutions are making special endeavors to care for the teeth of school

children in an efficient manner, everything that tends to forward their efforts in this direction is particularly urgent. Moreover, it must be remembered that all sugary substances are energy-producing, and for this reason it is important that sweets should not be forbidden to children—who use up so much energy by their restless activities—unless really adequate reasons can be found for so doing.

The Dust Problem.

In a recent number of *The Journal of the American Medical Association*, Dr. H. S. Anders, of Philadelphia, discusses this problem at length and relates the efforts made in Philadelphia to suppress this evil. Letters were sent to the Mayors of Baltimore, Buffalo, Birmingham (England), Berlin (Germany), Budapest (Hungary), Cleveland, Denver, Detroit, Dublin (Ireland), Leipsic (Germany), London (England), Minneapolis, New Orleans, New York, Paris (France), St. Louis, Stuttgart (Germany), Toronto (Canada), Vienna, (Austria), and Washington, D.C. A summary of the replies shows:

1. In a majority of the cities where results were satisfactory, the principal cleaning was done at night, or completed before six o'clock in the morning.
2. Thorough sprinkling preceded sweeping. Sprinkling was also done two to four times daily in dry (non-freezing) weather to lay prevalent dust.
3. Flushing wagons or flushing from curb to curb with hose is the method used in preference to sprinkling and machine sweeping in the best cleaned cities.
4. Hand sweeping by blockmen in daytime is always preceded by wetting with a hand sprinkler.
5. Piles of dirt are immediately removed while wet or damp in covered wagons.
6. Last, but by no means least, is the dustless operation of dust and dirt removal by automobile vacuum street-cleaners, on the principle of vacuum house-cleaning which is now rapidly taking place of the old dirty, dust-raising broom and feather-duster. In one hour as much surface can be actually cleaned as was imperfectly gone over with duty accompaniments by horse-drawn sweepers in six hours.

It is a hopeful sign of the awakening of

the public to demands for civic cleanliness, that officialdom is beginning to respond in a readier performance of its duty and responsibility in safeguarding the public health and incidentally safeguarding respect for law, order and government. To avoid an insurrection of the citizenship, there must needs be a resurrection of statesmanship.

Toronto Water.

The filtration plant at Centre Island is nearly completed, and it behooves us, says *The Canadian Engineer*, to ask at this time, Of what use is it? After this filtration plant is in operation, what would it avail if a serious contamination of the water supply should occur? Filtration will certainly not remove the germs. Passed through sand filters, the lake water, containing little or no organic matter, and but little silt, will remain in its original condition. It will have practically no effect on the organic matter in solution, or the bacteria which are traceable to sewage contamination.

On the 28th of October the writer paid a visit to the chlorination plant at Hanlan's Point, where the water supply of Toronto is treated, and was astonished to find it under the constant control of a technical chemist, bacteriologist, and an assistant chemist under the Health Department. There it was noted that, while it is now the cool season of the year, instead of the chlorine treatment being lessened, it is steadily being increased, there being used at the present time .419 parts chlorine per million. Mr. F. B. Robertson, who is the chemist in charge of the chlorinating plant, finished the work left by Mr. Earl B. Phelps, one of the many consulting experts employed by the city in the past, taking the badly designed scheme of applying the chlorine to the water as it then stood, and revising and adjusting it, so that at the present time it is working well.

As is well known, the action of chlorine on water is not by any means permanent in its bactericidal effects. Akin to the ozone process, its result is due, not to the chlorine so much itself, but to the nascent oxygen liberated for the time being. Unless the water is pure, there still remains food for the cultivation of new generations of bacteria.

The city experts state that they will

treat the effluent of the sewage plant with chloride, and what the chloride does not sterilize will be looked after by the lake itself. Of what use, however, is it to treat the effluent with chlorine in order to kill off the microbes when the very food, the presence of which alone accounts for their existence, is still untouched? This is not a question which can be solved by the engineer or bacteriologist, but should be placed in the hands of a competent technical chemist. What the city now requires is thorough chemical advice and control. Eliminate their food and the microbes will soon vanish. Merely killing them off is not sufficient.

The recommendations by the Medical Health Department that the water be subjected to chlorine treatment after filtration obviously shows the scientific work of those who ought to know better. The city employs only two chemists engaged as such, and these are installed in a complete laboratory at the Island filtration plant under the Water Department. They are kept tinkering and experimenting away on water filtration, and this only spells more useless expense.

With proper handling it is probable that the city's water supply would require no treatment at all, or, at the most, would not necessitate the addition and presence of large quantities of such a powerful and obnoxious chemical, which, although destroying the germ, does not eliminate any more than a sand filter the filth from which it springs.

It appears to us that the time has arrived for the city to employ a competent and technical chemist, who is thoroughly experienced on work of this nature, for it is evident there is a conspicuous lack of technical knowledge among the city experts at the present time. If such a man were appointed he could investigate the advantages and disadvantages of the various systems, including chlorine, ozone, ultra violet ray, etc., for the treatment of water, and could also go into the chemical treatment of the sewage effluent. This question of sewage effluent is an exceedingly important one, and we are satisfied that if investigations were carried on along the line of methods of purification of effluent, other than chlorination, it would amply repay the city the expense of such an investigation.

Chinese Vitality.

Prof. A. E. Ross attempts to show in an article on "The Race Fibre of the Chinese," contributed to *The Popular Science Monthly*, that the lower class Chinese display great resistance to disease because of the lack of sanitation and the consequent deaths of weak offspring in infancy and youth; thus only the hardy members of the race perpetuate their kind.

The *Journal of the American Medical Association* comments on this proposition, summarizing Prof. Ross's theory and the manner in which it works out.

"The larger effect of hygienic measures," says the writer, "is a question which presents many moot points. From a humanitarian standpoint no one questions the duty of safeguarding by every means within the power of science the lives of the population, and especially the infant population. From the standpoint of physical race betterment, however, many regard hygiene and sanitation as of doubtful or negative value, since these measures allow the weak to live and perpetuate their kind.

"Assuming that in a considerable proportion children who succumb to bad hygiene and defective food are inherently weak — a theory by no means universally admitted — it would be conceded that if they were aided in reaching a maturity which must be more or less defective, they would transmit their weaknesses to their descendants, and thus contribute measurably to the deterioration of the race as a whole. An attempt to show how this works out under actual existing conditions as between the Chinese and the Western white population has been made by Prof. E. A. Ross.

"Ross says that, on account of lack of good hygienic conditions in China, out of ten children born, the three weakest will die in infancy and five others will probably fail to grow up, while in our own country, out of the same number of children born, only three will fail to reach maturity. This would seem to favor better hygienic conditions for the betterment of the race, yet Ross feels that there may be some doubt on this point.

"For, of the seven surviving, the five corresponding to the five additional Chinese who die, will, according to hypothe-

sis, be weaker in constitution and will transmit their weaker qualities to their offspring; while the two surviving Chinese are the hardiest of the lot and will transmit their hardy qualities to their offspring, thus in the end increasing the general stamina of the race.

"In order to test this idea, Ross closely questioned thirty-three physicians practicing in various parts of China, chiefly in missionary hospitals. Twenty-nine were positive that the Chinese physique evinces superiority in some respects over that of the white people of the Western world. It has been found that surgical shock is rare among the Chinese, that they endure surgical operations well and recover from them, from most serious injuries, and from septic conditions in an astonishing manner. They also stand higher degrees of fever, are more resistant to pus-producing germs, and are very tolerant of pain, while fewer Chinese women die from puerperal fever.

"This applies particularly to the lower classes, who live among the most unhygienic surroundings. The percentage of recoveries in the poorly equipped hospitals from the gravest injuries and operations equals or exceeds that under the ideal conditions of the best-equipped hospitals of Berlin or Vienna.

"This indicates a strong and abiding race vitality, and it may reasonably be assumed that it is a direct result of the survival of the strongest, or at least most enduring members of the race. In other words, the selective process imposed by unfavorable surroundings has established in the Chinese a higher degree of immunity to conditions inimical to survival.

"The deduction would seem to be that the way to produce a strong race, well endowed with vital qualities, would be for that race to multiply to excess and then to undergo murderous reduction by exposure to disease and unhygienic conditions. A second consideration shows that this process has its drawbacks. While under poor or bad conditions the Chinese will outdo the white man, under good conditions the latter rises to a higher level of efficiency.

"The Chinese who can underlive, cannot outwork the white man under the white man's conditions. In short, the low-caste Chinese seems to illustrate very well an often misapprehended fact—

namely, that the survival of the fittest is not necessarily the survival of the best, the most efficient, or even the strongest; it is simply the survival of those best fitted to survive in that particular environment, and not necessarily well fitted for any other environment.

"Those who are fittest for a white man's environment are less fit for that of a Chinese, and vice versa. The fitness of the low-caste Chinese is fitness to endure existence on the lowest terms. On the evidence so far presented we may dismiss the case against hygiene as an agency in the deterioration of the race with the Scotch verdict—not proven."

Typhoid and Western Canada.

Years ago, according to the *Vancouver World*, settlers in the Canadian west were obliged to drink water from the sloughs. They did not know very much about bacteriology in those days, but they took the precaution to strain out the larger animals by passing the water through a towel.

The towel has been discarded in most western centres; they pursue the typhoid fever microbe with chlorine and filters and other modern appliances. But the invisible enemies of the human race are tenacious of life, and too often succeed in evading the primitive measures of the local board of health. As long as the open well is tolerated in towns or cities typhoid fever will slay its thousands.

The most recent example of this glaring truth is Saskatoon. In spite of its poetic name, Saskatoon is not immune. There are hundreds of wells in that thriving metropolis and the citizens are so infatuated with the idea that nothing can be unclean in their bright, new town that they go on drinking from the cisterns in their backyards. The consequence of this optimism is that an epidemic of fever has filled the hospitals to overflowing.

There is nothing to be so much commended as the buoyant spirit of the people of our west. But there is nothing so pathetic as to see men in the full tide of prosperity and in the prime of life cut off by an epidemic which surely might be avoided. The old oaken bucket, so modern science has proved, is nothing but a nest for microbes, and the well in any urban locality is a menace. The best thing that

the municipal authorities of Saskatoon could do would be to fill up every well in town and find a pure water supply near at home.

The Business Value of Parks.

A business man went to visit Memphis not long ago, to see what advantages that city offered as a place to establish a branch of his factory, writes Henry Oyen in the *World's Work*. The first thing he said to the two Memphis citizens who met him on the train was:

"Now let us hop into a machine and go out and see how you are fixed for parks and boulevards and public buildings."

"Please explain," he was asked. "Do you mean to say that you are such a lover of the beautiful that you wouldn't locate your branch in a city that has not its fair proportion of parks, or an artistic city hall, and that sort of thing?"

"Lover of the beautiful, nothing!" was the prompt reply. "I make furniture. I must have plenty of good steady help to do it. No city is a good city for the man who must have good, steady help unless it has kept step with other cities and provided places for the help's sane and healthful recreation. That's just business. There is, also, a new day in the making of public buildings; and if a city hasn't kept step there, either, and hasn't started a movement for fine, artistic civic buildings it is a sign that something is wrong with the community. It isn't on its job."

The Club Woman Joke.

The club woman joke, remarks the *Chicago Journal*, seems to have gone out of circulation. It is not easy to be humorous at the expense of an institution that is doing big work in an effective way.

Take, for instance, the "campaigns of education" that are being promoted by the public health department of the General Federation of Women's Clubs.

Here are some of the subjects that form the basis of this year's crusade: "Tuberculosis; Ventilation and Fresh Air," "Mouth Hygiene," "Clean Food; How and Where to Get It," "School Hygiene," "Prevention of Blindness," "Infant Mortality," and "Food Sanitation."

What masculine crusade of recent years is as important to the welfare of the coun-

try as this national movement to educate the people to adequate understanding of the nature and importance of these topics?

The best physicians assert that public health is not so much a matter of curing disease as of spreading the knowledge of how to prevent it.

Along this line the work of the women's clubs is invaluable. It is inculcating in thousands of families practical knowledge of hygiene and right living. It is arousing a public interest that promises within another generation to revolutionize conditions in both the home and school.

No wonder that sensible men no longer deride the club woman. She has won a place of honor and achievement in the modern social system. That she will continue to occupy and adorn it goes without question.

Escaping of Contagion.

The November number of the *Toronto Health Department Bulletin* points out that when all is said about contagion, and the methods of carrying the same, we come back to the old query, "How do any of us escape?"

To tell the truth, we all take into our bodies every day by our mouths all sorts of germs, some of which may be disease producing, and the fact that only a few of us succumb to the effects of these germs, shows that we are able to resist them.

In other words, the body is immune to the attacks of those organisms, in most cases. The better the physical condition we are in, the better we can resist them. When we become over-fatigued, over-worked, under-nourished, chilled, get wet feet or are exposed to sudden change of temperature, then the mechanism that protects us against disease is apt to give way, and the tissues which are constantly resisting the inroads of these bacteria fail in their function, and we get perhaps a cold, or the grippe, or pneumonia, or rheumatism, or possibly diphtheria or scarlet fever. Tuberculosis or consumption particularly, is resisted by keeping the body in the very best physical condition.

To keep well requires constant care on the part of the individual in seeing that he is suitably clothed, fed and housed, that he gets sufficient sleep, exercise and fresh air.

It is the duty of the state or municipality to see that certain general regulations relating to the health of the community are carried out, but each individual must look after his own welfare, and try to keep himself in such a condition of health that he is at least immune to the great majority of infectious diseases.

Physicians and Contagious Diseases.

In the latest number of the *Quarterly Bulletin of the State Board of Health of Iowa*, Dr. Gullford H. Sumner, secretary, presents the question of disinfection in a number of its practical aspects. One of these articles is addressed to the physician. It is based on the general ground that although many of the physicians are thoroughly aware of the need of especial care not to spread the infection of one of his patients to the outside world and to other patients, there are many others who have given the subject hardly a thought. But at the same time one having in no ways a medical training may readily see that such cross-infection is not only possible, but even easy. It is a factor to distribution of infectious diseases that is recognized in the building of hospitals and the arrangement of the equipment and details of the same, and is one of the subjects appealing most strongly to hospital men, but outside the hospital doors it is true that but little attention is paid to it.

"One of the most important means to be used," writes Dr. Sumner, "in the prevention of the dissemination of infectious material, is the care taken by the physician before he visits a home where a contagious disease exists. There is a simple method whereby any physician may properly prepare himself to visit such an infected home." The secretary suggests for such occasions an outfit consisting of rubbers, overalls, blouse, handkerchief, and cap, together with a small hand-satchel, the clothing to be worn when coming in contact with contagion and the satchel to carry it to some place where it may be fumigated. This may be done at the physician's home by using a small box and the formaldehyde method, remembering that ammonia may be used to kill the formaldehyde odor and make the garments available for immediate use after fumigation.

Open Mail

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

House Ventilation.

Sir,—Air in houses may be polluted by the gases breathed from our lungs and that escaping from leaky stoves. Air contains enormous numbers of dust particles. The average city air is estimated to contain three million dust particles to the cubic inch. Country air contains two thousand dust particles to the cubic inch. The air indoors contains ten times as many dust particles as the air out-of-doors. With the dust, of course, are mingled the small dust plants with probable germs of disease. Ventilation is the replacing of the impure air of a room, or other enclosed space, with proper air from out-of-doors.

Inasmuch as the adult human body requires for regular use about five hundred cubic inches of air every minute, the air in the immediate vicinity of the nose is quickly used up and an equal amount of impure air is breathed out of the lungs. It is therefore necessary that pure air from out-of-doors be constantly pouring into our rooms and the impure air passing out.

One cannot do his best work if he is breathing impure air. One is more susceptible to disease if he breathes impure air, because his body is not strong enough to resist the disease germs when they are once admitted into the body. Disease germs which grow in the interior of our bodies also flourish best in a small supply of air. The proof that people are injured by breathing impure air, has been obtained by comparing statistics for a certain number of years gathered among men living in unventilated, and those living in well ventilated places.

Air does not move of its own accord. In our houses we best create a circulation of air by having two windows open, one for the impure air to pass out, another

for pure air to enter. One window open, however, will serve as two. Ventilating should be done in such a way as not to cool the room too much; for this reason the window is best lowered from the top, in order that the air may be heated before mingling with the air in the lower part of the room. The lower sash may be raised and a loosely fitted board inserted; fresh air then enters through the space between the upper and lower sash and is directed upward, thus avoiding direct draft.

It is better to have a window open all the time than to air the room only occasionally. There should be a constant removal of impure air and a fresh supply of pure air. An open stove or fireplace is a reliable means of getting rid of impure air.

Air is of even greater importance at night than it is during the day. The body recuperates mostly at night during sleep; then large amounts of oxygen are required, so there should be plenty of fresh air at night. The sleeper may be protected from drafts by a screen or chair between the window and the bed.

ELIZABETH JEFFERSON,
College of Agriculture, Ohio State University.

Purifying Smoke by Washing.

Sir,—In a method of freeing chimney gases from soot and dust by washing, which has given good results, the gases are drawn by a fan from the boiler, passed through a brick-lined chamber containing water sprays, and then led by a tortuous course to a rather short stack. For 300 cubic feet of hot gases per hour, one gallon of water is used. The pea clack coal contains forty per cent. of dust and in 24 hours the smoke-washing has collected as much as 1,600 pounds of grit, or about 1.5 per cent. of the coal burned.

J. C. K.

Meetings and Reports

DOMESTIC

ADVANCE NOTICES.

Canadian Public Health Association Congress, under the patronage of Field Marshall, His Royal Highness, the Governor General; December 13th, 14th and 15th, 1911. Royal Victoria College, Montreal. F. C. Douglas, M.D., Secretary of Committee for Local Arrangements, 51 Park Ave.

Child Welfare Exhibition, Montreal, October, 1911. 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, Ottawa. James Lawler, Secretary.

Sanatorium Medical Society.

During the month of November the Sanatorium Medical Society held their two regular fortnightly meetings in the Muskoka Free Hospital. Interesting papers were read by Drs. W. B. Kendall, C. B. Rose, W. E. Ogden, James Beatty and W. J. Dobbie. Cases were shown where possible, which made the meetings more practical. All the men took part in enthusiastic discussions which followed, in which Drs. Pratten, Finnerty and Alexander also joined.

Dr. Lollard McLeay, of Gravenhurst, was a welcome guest at the last meeting.

Canada and European Hygiene.

Dr. C. A. Hodgetts, medical adviser to the commission of conservation, and Major Lorne Drum, M.D., D.P.H., General Secretary of the Canadian Public Health Association, reporting on their recent three months' trip to Great Britain and the Continent, where they have been familiarizing themselves with the latest developments in sanitary science and public health work, state that special attention was paid to housing and to town-planning. At the

congress on infantile mortality, held in Berlin, Germany, they became conversant with the latest European practices in connection with the lowering of infantile mortality. This is a subject to which the Commission of Conservation is giving a good deal of attention in Canada.

The Dublin Congress of the Royal Institute of Public Health held in August last, was also attended, where an opportunity was afforded of meeting some of the most prominent sanitarians of Great Britain. From the papers read, and the discussions which followed, considerable and valuable information was obtained respecting the progress being made in different parts of the British Empire on town planning and housing of the working classes. More than usual interest was taken in the congress, as Lady Aberdeen filled the position of president. Through Her Excellency's kindness and forethought every opportunity was afforded to study the work being carried on in Ireland for the betterment of the people, particularly for the prevention of tuberculosis.

The second congress attended was that on infant mortality, which was held in Berlin, Germany. The work of the congress

was taken up under the following sections: 1, teaching and training of physicians, midwives, nurses and social workers; 2, infant welfare work in practice. Considerable discussion was aroused upon the question of milk depots and the care of milk. It was clearly shown that unless they are supplementary to what is known as infant consultations, they are likely to do harm by discouraging breast feeding and conducing to over-feeding.

The third section dealt with legislative and administrative measures adopted for the protection of infants, the supply and control of all milk intended for infants, the treatment of foundlings and guardianships, generally. One important feature apparently, has reached a more advanced stage in Germany than in any other country.

"The work of the congress, considered as a whole," Dr. Hodgetts declares, "cannot but have a marked and world-wide influence upon the work now carried on in every civilized country for the care of the infant population, and it is to be hoped, in accordance with the plans of the Canadian Public Health Association, that ere long a congress of English-speaking people will be held in some central place so as to create a more widespread interest on the part of English-speaking governments and municipalities, in the method and procedure adopted in many of the continental countries, particularly Germany and Hungary.

"To do anything like justice to the International Hygienic exhibition held in Dresden, would make an interesting report in itself. Suffice it to say the exhibit held in Dresden was most unique, and although well supported by most of the European countries, was deserving of more attention at the hands of the English-speaking countries."

During the trip all the larger cities of England, Scotland and Ireland were visited, as also, among other places on the Continent, were Brussels, Berlin, Dresden, Vienna, Munich, Ulm, Dusseldorf and Essen, where every facility was afforded by the local authorities to study housing conditions, sewage and water problems, the construction and management of public abattoirs, the measures adopted for the care of consumptives generally, and housing and town planning. All the important

town planning places in England were visited, the chief being the Garden City, Bourneville; Port Sunlight, Hampstead; Harborne Tenants (Birmingham).

All of these subjects will be dealt with in the form of reports to be subsequently presented to the Commission of Conservation, by Dr. Hodgetts. In this manner, the public health officer of the Commission has been brought in touch with, and is now fully abreast of, everything that is being done in Europe in regard to public health.

Underground Conduits for Montreal

St. Catherine Street will be the first street in Montreal to have its overhead wires put underground. This information has been placed before the Board of Control by the Electrical Commission in a communication, suggesting certain alterations in the law by which the city is authorized to proceed with this work of public welfare. After pointing out that the drafting of plans must be carried, on, not as a whole, but in detail for certain sections of the city, the controllers are informed:

"Working along these lines the commission is proceeding with the designs for placing underground the conduits for wires on St. Catherine Street, from Atwater avenue to Papineau avenue. The different companies having installations in the streets have been requested to furnish the commission with a statement of their requirements."

Ottawa School Inspection.

Dr. Shirreff, Medical Health Officer of Ottawa, points out, in regard to medical inspection of school children, that they seem to have the idea that the inspectors will gather all the children together in a room like a lot of sheep and then proceed with their work. This is not the idea at all.

In the first place, no child is examined by the inspector unless at the request of the teacher of the class. It is the teachers who pick out the children they think are suffering from any ailment and then have the inspector make his examination. Even then if the parents do not desire to have their children examined by the school inspector, they are allowed to have the examination made at their own expense.

There are five points in the Ottawa plan regarding the examination and inspection and what it includes:—

1. All children isolated by the teachers as suspected cases of contagious diseases.
2. All children who have been absent from school.
3. Children returning after previous exclusion.
4. Children referred by teacher for diagnosis.
5. Children previously ordered under treatment.

Dr. Shirreff mentions that in the plan the teachers would pick out the children, who would then be examined, and the parents notified of the results of the examination by the inspector, so that they could call in their own physician. The inspector would visit the schools at eight o'clock every morning, and the children designated by the teachers would be taken into a special room and examined. Many imagined that the work would be of an indiscriminate nature, when in reality it would be done through the teachers, and no child who was not indicated by the teacher would be examined. The diseases which would exclude children from school under this inspection are: scarlet fever, diphtheria, tonsillitis, measles, German measles, mumps, smallpox, chicken pox, whooping cough, ring worms, contagious skin diseases and pediculosis.

The St. John Board of Health.

The Medical Health Officer of the city of St. John, N.B., reports last year a busy one for the Board of Health inspectors. The campaign to compel owners of properties to install modern plumbing fixtures in their houses has been productive of much improvement along that line, although much yet remains to be done. Mr. James Howard, inspector of plumbing, reports that during the year, from Nov. 1st, 1910, to Oct. 31st, 1911, the total number of all new plumbing fixtures installed was 933. Of this, 456 were patent closets. These improvements were put into 51 new houses, and 171 old houses. Mr. Howard made altogether 230 tests of plumbing fixtures, and two tests for escaping sewage. He wrote out 272 special reports, and made 291 preliminary inspections.

During the twelve months just ended Mr. Solomon McConnell, inspector for the

Board, made 173 special inspections. He placarded 139 houses for scarlet fever and diphtheria, and left 68 notices of contagious diseases at the Public Library and office of the Board of School Trustees. Mr. McConnell attended sixteen meetings of the Board, and made 138 miscellaneous calls to various parts of the city. The number of premises disinfected during the year was 297. He visited houses in which were 87 cases of tuberculosis, and left literature on the proper treatment of the disease. There were 53 cases of infectious diseases which came under his notice, and 28 cases of typhoid fever. In addition, Mr. McConnell wrote out and delivered 162 milk licenses to small stores and 225 post cards to doctors on which to return information of cases of infectious diseases to the Board.

To Encourage Ontario Insane to Seek Treatment.

At a conference of medical superintendents of the Ontario hospitals for the insane at the Parliament Buildings in Toronto recently, it was decided to confer with the Provincial Secretary and ask the Ontario Government to put into force a system which would encourage voluntary admission to asylums whereby people would ask for treatment instead of being compelled to undergo it.

The question of fire protection at each institution was given consideration, and the manner in which fire drill is regularly carried out was briefly described by each superintendent.

The training of nurses and the regulations affecting the attendants, their duties, hours on duty, wages, holidays, and suggestions for improving all the conditions incident to those engaged in nursing and caring for those mentally afflicted were discussed.

Winnipeg's New Isolation Hospital.

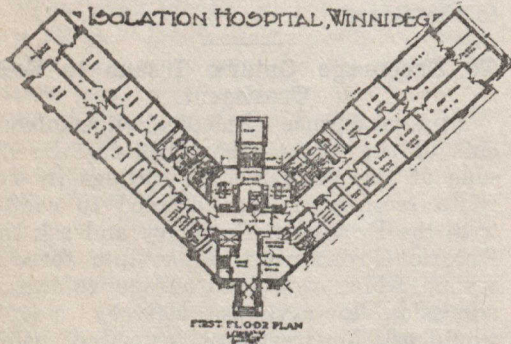
The accompanying illustration shows the design for the new isolation hospital being erected by the city of Winnipeg.

This design was submitted in competition with thirteen others, and won by Herbert B. Rugh,

The arrangement of the different rooms was pronounced by the hospital expert and jury of award, as the best layout they had ever seen for an institution for the treat-

ment of contagious diseases. Emphasizing the perfect control obtained by the arrangement of inside lobby and the double protection and isolation of each wing from the other by having the doctor and nurses enter the various wings by going into the doctor's room from the inside lobby, removing their outer garments and then stepping into the chart and gown room, where they put on their gowns and prepare themselves for their work, entering the ward from this room ready for work. In this way the double doors to the ward corridor are kept closed, except for the removal or admittance of a patient.

There were but two changes made in the plans. First, in connection with the receiving department in the basement, deten-



tion wards were added to provide space for taking care of patients with uncertain diseases. The other change was made in the emergency operating rooms on each floor, by having a small room partitioned off containing a bath tub, this bathroom to be used as the discharging bath, and the operating room as the discharging ward, as the number of operations in a children's hospital are very few and the room would be idle most of the time, unless used for other purposes.

The exterior finish of the building from the grade line to first floor window sills is to be cut stone, balance of building finished in dails brown vitrified brick with cut stone trimmings.

Foundation of the building will be concrete properly waterproofed.

The construction is to be fireproof, structural steel frame, and the floor construction to be reinforced concrete or tile.

Corridor partitions to be double four-inch hollow tile so constructed that the

space inside the partition will be used for ventilation flues. The main stairway to be ornamental iron with marble steps.

The floors of all bath rooms, sink and service rooms, lavatories and toilets to be tiled with 6 inch square flint tile and the walls to be tiled 6 ft. 6 inches high with sanitary wall tiling, having sanitary cove at floor and sanitary corners, etc.

The floors of corridors, wards and other rooms to be covered with Battleship linoleum, cemented down to the concrete, with plastic cove and border at floor. All ceilings to have plaster cove.

All windows to be steel casements, lower casement section to open in with adjusters, etc. Upper transom section to be hinged at bottom to open in and down with adjusters, etc. Storm sash to cover entire opening outside with ventilator at bottom. Screens also to cover entire opening.

Heating and ventilation to be of most modern type, all wards, corridors, etc., to be supplied with direct radiation, using the modulation system. All service rooms, kitchens, toilets, and wards to have "Vacuum" ventilation. Fresh air to be taken from point above the roof of building to fans located in basement, there to be heated, washed, etc., and blown into wards through galvanized iron ducts located in false ceiling of corridors, the foul air to be taken up in vents in corridor partitions to space under roof, then all drawn together and discharged by exhaustive fans through roof at the opposite end of the building from fresh air intakes.

Vent openings to be placed at floor and ceiling, so that in hot weather air can be drawn from upper part of room as well as lower part.

Plumbing and laundry fixtures to be modern in every respect. Building to be equipped with vacuum cleaning system throughout.

All signals installed are to be electric light signals. Building will be wired for electric light service and piped for gas to kitchens, etc.

Vent openings to be placed at floor and electric light service and piped for gas to kitchens, etc.

The building is designed to accommodate one hundred and fifty patients and contains 686,174 cubic feet, including porches, entrances, etc. 1,232 cubic feet is given each patient.

Quebec Province and Smallpox.

That there has been a notable increase in the number of smallpox cases in the Province of Quebec of late, with a promise of a return to last winter's alarming figures, and that it is now the time for all unvaccinated persons to see that they are provided with this safeguard, is the statement made by officials of the Provincial Board of Health. Since the weather started to become cold, reports have come in from outlying districts showing that cases of the disease have made their appearance, though as yet conditions are not such as to create much alarm. In one village on the north shore of the St. Lawrence quite a number of cases, which were at first thought to be chickenpox, have proven to be smallpox, and inspectors of the department have been hurried to the scene.

Speaking of the recurrence of the malady, Dr. Pelletier, secretary of the board, explains that, with the approach of cold weather the disease, if at all existing, is sure to spread. This is apparently due to the fact that people, especially in the country in Quebec, live more indoors in cold weather than when the temperature is warm. In many cases houses are not ventilated at all, or at best poorly ventilated, with the result that the condition of the atmosphere in the interior becomes vicious, weakens the inmates and renders them subject to diseases. Another condition which makes for the spread of smallpox is that in cold weather country people visit quite a good deal, hold house warmings, all indoors, then disperse to their homes, to start out visiting in some other direction. The disease is thus propagated, and soon becomes epidemic.

In accordance with custom, the Quebec authorities do not give out the names of municipalities which have reported cases of smallpox, as in the past obnoxious publicity given such localities as took is upon themselves to come forward and declare all cases within their boundaries has had a deterrent effect on the reporting of cases.

Toronto Milk Must Be Bottled.

The Medical Health Department of Toronto announces that after December 1st the sale of milk in bulk is prohibited in Toronto. It must be bottled.

Saskatchewan and Moving Picture Machines.

Under the provisions of section 7 of chapter 11 of the Statutes of Saskatchewan, 1910-11, His Honour the Lieutenant-Governor, by and with the advice of the Executive Council, has been pleased to approve of the following regulations for moving picture machines:

REGULATIONS FOR MOVING PICTURE MACHINES.

Passed pursuant to chapter 11 of the Statutes of Saskatchewan, 1910-11.

Every film, exchange, and every user, exhibitor, and operator of a cinematograph, moving picture machine or other similar apparatus shall observe the following regulations:

1. Users' or exhibitors' license shall be constantly attached to the machine licensed, and the film exchange and operators' licenses shall be produced on demand for inspection to any constable or peace officer or any other officer appointed by the Lieutenant-Governor in Council to enforce the observance of these regulations. Operators' licenses shall not be transferable, and film exchange and users' or exhibitors' licenses shall only be transferred on the written consent of the deputy provincial secretary. No cinematograph or similar apparatus involving the use of a fusible film shall be kept, used or exhibited in any building or place of public assembly, or places or buildings used for entertainment, whether such place or building has a license or not, unless a license or permit shall have first been obtained from the provincial secretary, and said cinematograph or similar apparatus shall be placed in an operating cabinet which must be lined inside throughout with two-ply of 14-pound asbestos paper and covered with metal, door opening outward with spring, and shall have no lock (provided that any other fireproof cabinet that passes the inspection of any provincial officer authorized to inspect the same, may be used) and shall be equipped with an automatic cut-off, each opening to be equipped with fusible links or wire, all wires conveying electricity to this cabinet to be properly insulated by porcelain tubes or other proper insulating substances, and the cabinet shall be kept clean and free from any articles not required for performance; said cabinet shall also be provided with a ventil-

ator pipe not less than twelve inches in diameter, leading to the outer air or to a chimney with an electric fan installed so as to create at all times when the machine or machines are in operation a forced draught through the said ventilator for the purpose of carrying off all gases and smoke that may arise through accidental ignition of the film.

2. All machines shall be equipped with fire-proof magazines, automatic fire-shutter, asbestos covered wire lamp, connections throughout with proper rheostat and shall be worked by hand. All films must be kept in an iron box and all films shall be transferred from one spindle to another in a metal rewinding box.

3. Every operator shall be of the full age of eighteen (18 years). He shall examine his machine and wire connections daily and must devote his time to machine while operating. He shall not permit any person to enter or remain in the cabinet during any performance (except a provincial or municipal police officer entitled to inspect the machine), and no smoking or lighting of matches shall be allowed at any time, nor shall reading matter be allowed in the cabinet or on the person of the operator. No operator shall operate a machine while under the influence of liquor.

4. All "exits" shall be marked with a sign, with letters not less than six inches long, with word "exit," and be accompanied with a red light (and no other red lights to be used on the premises. All doors shall open outward and not be locked during time exhibitions are held. All exits shall be thrown open for use at the conclusion of every performance.

5. The cabinet shall occupy a position which does not interfere with an aisle or passageway.

6. Two fire extinguishers of the carbonic acid gas, or other pattern approved by the chief of the fire department of the municipality in which the cinematograph or other apparatus is exhibited, in good working order, besides a sand pail and shovel, shall be kept continuously near the operating cabinet.

7. All halls, passageways, stairways, or approaches shall be kept free or unobstructed by any campstool, chair, sofa, hinged seat or other obstruction, or by allowing the public to stand in the aisles.

8. The Lieutenant-Governor in Council may appoint a board of censors to examine all films to be exhibited in Saskatchewan, and the film exchange shall submit all films to such board to be examined and stamped. The stamp of the Board of Censors shall be shown on each occasion before the film bearing it is exhibited, and any film exhibited which does not bear such stamp will be liable to seizure by any constable or peace officer or any other officers appointed by the Lieutenant-Governor in Council for the purpose of enforcing the observance of these regulations, and the persons who exhibit such films shall be liable for a breach of these regulations.

9. It shall be the duty of all municipal police officers to examine the licenses of any person using, exhibiting or operating a cinematograph, moving picture machine or other similar apparatus and to prosecute users, exhibitors and operators who are unlicensed or who violate these regulations.

10. A violation of these regulations or any of them shall render the holder liable in addition to all other penalties to the forfeiture of the provincial secretary's license.

11. All licenses shall be issued by the provincial secretary, and no person shall operate any cinematograph or other similar apparatus until he has received a license from the department of the provincial secretary, such license to operate to continue for one year and the fees therefor to be as follows:

For all film exchanges	\$100.00
Users' or exhibitors'	20.00
Operators'	10.00

12. All film exchanges whose films are exhibited in Saskatchewan shall have an office in the city of Regina.

13. No municipal corporation shall issue a license for any cinematograph or similar apparatus until the applicant produces a license from the department of the provincial secretary.

14. In all cities, towns and incorporated villages, it shall be the duty of the chief constable or chief of police to enforce these regulations.

15. These regulations shall come into force the first day of December, 1911.

J. W. McLEOD,
Clerk Executive Council.

New Health Regulations for Montreal.

The new health by-laws now in process of preparation for the city of Montreal will, we are informed, render it possible for that city to condemn and demolish unsanitary rookeries, to prohibit sleeping in rooms without windows, to limit the number of persons who may live in a single room, and generally to enforce certain of the elementary principles of common-sense and hygiene. That is excellent; outsiders will wonder, points out a Montreal daily, why it was not done before, and Montrealers, remembering why it was not, will give

thanks that it is possible to do it now.

Such a campaign of regulation should be supplemented by a campaign of construction. Many experts have pointed out the lines to be followed, and that there need be no loss, not even of fair interest on the investment, in the erection of sanitary workingmen's dwellings, provided they are wisely run. It is not perhaps a matter for a municipality as such, but it is distinctly a matter for those citizens who have the money to spare and the intelligence and public spirit to employ it in the general interest.

INTERNATIONAL

ADVANCE NOTICES.

Fifteenth International Congress of Hygiene and Demography, Washington, D.C., last week of September, 1912. J. W. Schereschowsky, Director. *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. *Far Eastern Association of Tropical Medicine*, second biennial congress, Hong Kong, China. January 20th to 27th, 1912. Under the presidency of Dr. J. Mitford Atkinson, Hong Kong; Dr. Francis Clark, Secretary-Treasurer General, Hong Kong.

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. *American Public Health Association*. Among the subjects to be discussed at the 39th annual meeting of the American Public Health Association, from the 5th to 9th of this month, December, are Asiatic cholera, the hookworm disease, tuberculosis, pellagra, infantile paralysis, typhoid fever, Mexican typhus, and hospital construction and management. Reports of various committees on standard methods for the analysis of water, milk, sewage, and the bacteriological diagnosis of tuberculosis, typhoid and kindred diseases, will be presented. Headquarters of the association will be at the Hotel Sevilla. The meetings will be held in the rooms of the Ateneo and Circulo de la Habana. Through the courtesy of the residents of Havana, a programme of entertainment has been provided, arranged, however, with due regard to the business meetings of the association. The social features include a visit to a tobacco plantation, a banquet at the National Theatre, a picnic on the grounds of the Tropical Brewery, a Spanish-Cuban verbena at the Hotel Seville, a trip to Morro Castle, and a visit to the wreck of the battleship Maine. Dr. W. C. Woodward, General Secretary, Washington, D.C.

Clinical Congress of North American Surgeons.

Some 2,500 surgeons from all over the North American continent gathered in Philadelphia last month at the Clinical Congress of Surgeons of North America. Dr. Albert J. Ochsner, of Chicago, re-

tiring president of the Congress, made a plea for what might be called free trade in clinical methods and for the abolition of prejudice, provincialism and personal conceit. He said the present age has made great strides towards efficiency. Merchants, manufacturers and financiers have achiev-

ed direct results by the sacrifice of personal conceit and by the use of good judgment, he added, and practical results in the profession have been marvellous.

Dr. Ochsner advocated a system of study on the part of surgeons, advising them to take a certain part of each year to visit clinics in various parts of the country. He stated it was with some such idea in view that the Congress was organized last year and already has proven successful. He suggested the development of a plan to utilize the resources which have been discovered, and advocated the organization in various cities of surgeons' clubs where the members could gather and compare notes.

Dr. Edward Martin, Professor of Surgery at the University of Pennsylvania, was elected President of the Clinical Congress for the ensuing year. In 1903 Dr. Martin was appointed director of public health and charities in the city of Philadelphia, but was compelled on account of private practice to resign this position in October, 1905.

Dr. G. E. Brewer, of New York, was elected vice-president; Dr. Frank Martin, of Chicago, general secretary; Dr. A. D. Ballou, business manager, and Dr. B. Ravel, of Chicago, treasurer.

International Sanitary Congress.

Advocating publicity instead of suppressing or concealing the facts is a policy which is finding favor with most of those engaged in combating contagious diseases. This policy had the hearty approval at the International Sanitary Conference opened last month in Paris under the official sanction of the French Government. The distinct purpose of the conference was to urge nations to make public the existence in their territory of diseases of the character mentioned, to improve the medicinal service on steamship lines and to induce steamship companies to observe stricter sanitary measures on vessels. With better international co-operation in such directions undoubtedly much more might be done to lessen the prevalence of disease.

American Association of Farmers' Institutes.

The sixteenth annual meeting of the American Association of Farmers' Insti-

tute Workers was held in Columbus, Ohio, November 13, 14 and 15. Among the reports of standing committees being:

Institute Organization and Methods — G. A. Putnam, Toronto, Ontario; J. H. Connell, Stillwater, Okla.; W. C. Latta, Lafayette, Ind. Discussion.

Institute Lecturers — B. Walker MeKeen, Fryeburg, Me.; D. M. Working, Washington, D.C.; F. S. Cooley, Bozeman, Mont. Discussion.

Co-operation With Other Educational Agencies — G. C. Creelman, Guelph, Ontario; K. L. Butterfield, Amherst, Mass.; R. A. Pearson, Albany, N.Y. Discussion.

Movable Schools of Agriculture — L. R. Taft, East Lansing, Mich; L. A. Merrill, Salt Lake City, Utah; A. L. Martin, Harrisburg, Pa. Discussion.

Boys' and Girls' Institutes — F. H. Rankin, Urbana, Ill.; Val Keyser, Lincoln, Uebr.; A. D. Wilson, St. Paul, Minn. Discussion.

Women's Institutes — Miss Martha Van Rennselaer, Ithaca, N.Y.; Miss Laura Rose, Guelph, Ontario; Mrs. F. L. Stevens, Raleigh, N.C. Discussion.

Other subjects for discussion were:

"What plan for 'following up' institute instruction can be adopted that will secure the introduction of better methods into farm practice?" "Should at least one common topic be agreed upon for discussion in every institute in the United States and Canada during the coming year?" "What number of lecturers should the state or provincial director furnish for each institute, and how much of the day's programme should these lecturers supply?" "What proportion of the 'state' appropriation should be used for local expenses?" "Is it advisable and feasible for the county institute to hold meetings quarterly or monthly throughout the year?" "What is the most effective method for conducting an agricultural instruction train?" "Should the institute systematically conduct field, orchard, household and kindred demonstrations? If so, how should the work be organized?" "Should the institute, for demonstration purposes, organize and conduct fixed vocational schools of agriculture for men and schools of domestic science for women? If so, how long should each continue, and what should the course include?" "How should the central department of institute

control in a state or province be organized to secure the highest development of the work?" "What are the respective duties and proper relations of the state or provincial director and local manager in a well organized system of institute work?"

"What should be the leading purpose of the annual round-up institute, and what the character of the programme to accomplish that purpose?" "What should be the character of the state or provincial director's annual report?"

UNITED STATES

ADVANCE NOTICES.

United States National Irrigation Congress. The Nineteenth National Irrigation Congress convenes in Chicago, Dec. 5, and its deliberations will continue to and including Dec. 9.

University of St. Thomas.

A new university has been founded by the United States in the Philippine Islands. There was already a University of St. Thomas, founded by the Spaniards in 1611, but it was thought that this old institution did not meet modern requirements. The new university comprises a College of Medicine and Surgery, which was opened in 1907, besides Colleges of Veterinary Science, of Agriculture, of the Liberal Arts, of Law and Political Science, and of Engineering. The teaching of pharmacy is to be provided for under the head of the Liberal Arts. No provision for instruction in dentistry has yet been made. The seat of the new university is Manila. A clause of the Act founding the university is to the following effect: "No student shall be denied admission to the university by reason of age, sex, nationality, religious belief, or political affiliation."

Proposed Hygiene Bureau.

Is not the health of the 20,000,000 school children of the United States as important as that of the live stock of the country? United States Commissioner of Education Claxton puts the query in his annual report, just issued, to Secretary of the Interior Fisher, at the same time recommending the appointment in the Bureau of Education of a specialist in school hygiene and sanitation, with assistants and clerks to aid him in the work.

Dr. Claxton declares his bureau should have more opportunity to study the needs of rural schools, which problem, he says, "is admitted to be the most difficult of all school problems." Industrial education, he contends, also should be studied

by a group of competent field specialists and assistants "to help toward the formulation of some clearly understood fundamental principles."

Tennessee and Pellagra.

A special pellagra report, for distribution among physicians, scientists and investigators, has just been issued by the Tennessee State Board of Health. The report shows that there are now 2,500 cases of the dread malady in that state, and that its spread has been rapid.

A feature of the booklet is the report of the pellagra commission, which was recently published, showing the personal investigation of 316 cases. This report is accompanied by what are said to be the best photographs of pellagra patients ever obtained in the United States. It also contains a map showing the relation of the disease to the principal streams, watersheds, highways of travel, and proximity of cases to each other. The majority of the cases were found outside corporate towns, as the map indicates.

In its investigation of pellagra, Tennessee is said to have taken more advanced steps than any other commonwealth.

The foreword to the report follows:

"It should be borne in mind that the 316 cases hereinafter referred to include only such cases as were personally visited by the several members of the commission.

"Including the 316 cases seen by the pellagra commission, together with such cases as have from time to time been reported by the county and city health officers, there are now approximately 2,500 cases of pellagra in Tennessee.

"In view of the fact that the state board of health has in preparation a treatise on

pellagra, explaining its nature, its history in Europe and in this country, theories as to its cause, and the manner in which the disease develops in a patient, so that the public can familiarize itself with the symptoms and understand the disease and cooperate with their physicians and health authorities for its prevention, this commission has not deemed it necessary to refer to this feature of the situation.

Question of Antitoxin Before the Conference of New York Sanitary Officers.

Dr. Simon Flexner, director of the Rockefeller Institute, speaking before the recent conference of New York Sanitary Officers, reviewed the history of the institute's work with the serum for epidemic cerebro-spinal meningitis, recapitulating what had been done by the institute for the last three or four years in the develop-

ment of this serum, which has been recognized for a year or more as an effective measure against the epidemic form of meningitis. As such it was turned over to the Board of Health of the city last February. Dr. Flexner said that the institute was now working on the serum for influenza meningitis and that the work had reached a satisfactory experimental stage. This serum has not yet been applied in cases of human beings.

Dr. W. S. Magill, director of the state hygienic laboratory, said that physicians should be more careful to follow directions in the use of the diphtheria anti-toxin. In France, where the diphtheria anti-toxin is widely used, the diphtheria mortality is three in 100,000, whereas here it is 16. More general and quicker use of the anti-toxin would help to reduce this death rate in the United States.

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.

Sir George Newman's Report.

A State cannot effectually insure itself against physical disease unless it begins with the children.

Starting out with this general proposition, the chief medical officer of the local Board of Education of England and Wales, Sir George Newman, in his annual report just issued, traces the effects of the medical inspection which now play so important a part in school life. The obligatory organization of medical inspection dates from the beginning of 1908, and the actual machinery itself is now fairly complete, but it is pointed out that the effect of ameliorative work has not had time to show itself in the returns of existing disease, ailment, or defect. The amount of leeway yet to be made up may be gathered from the official statement that out of the 6,000,000 elementary school children in England and Wales—

10 per cent. suffer from defect in vision.

3 to 5 per cent. suffer from defective hearing.

6 to 8 per cent. have adenoids, or enlarged tonsils, or sufficient degree to obstruct the nose or throat and thus to require surgical treatment.

40 per cent. suffer from extensive decay of the teeth.

30 to 40 per cent. have unclean heads or bodies.

1 per cent. suffer from tuberculosis in readily recognisable form.

1 to 2 per cent. are afflicted with heart disease.

Moreover, a considerable percentage of children are suffering from a greater or less degree of malnutrition. The chief medical officer points out: "It cannot be doubted that in the aggregate this formidable category of disease and defects means a serious amount of suffering, incapacity, and inefficiency, which at least must greatly limit the opportunity and diminish the capacity of the child to receive and profit by the education which the State provides."

The moral is obvious. As Dr. Newman says: "Every step in the direction of making and keeping the children healthy is a step towards diminishing the prevalence and lightening the burden of the disease of the adult, and a relatively small rise in the standard of child health may represent a proportionately large gain in the physical

health, capacity, and energy of the people as a whole."

Are the local authorities doing their part? Many of them, Dr. Newman reports, are proving themselves fully equal to the occasion and the task, and though unwilling to burden the local rate, they are grappling with the situation with zeal as well as moderation and good sense. "It must be admitted, however, that in respect of both means and methods the way is difficult and hard," he adds, "partly because there is at present no Parliamentary grant in aid of this work and partly because of the complexity of the issues which are raised in relation to treatment."

In the whole School Medical Service in England there are now just five short of 1,000 medical officers at work, of whom 79 are women doctors. In addition 335 nurses give their whole or part time to the work. In the reports of these local school doctors there is a mass of instructive and entertaining facts from which we cull the following:—

Among Halifax children who did not work out of school hours, the average height was 59.6in., weight 81.5lb.; while among children employed out of school hours the height was 54in., and weight 67lb.

Dealing with the treatment of enlarged tonsils, Dr. Forbes (Brighton) thinks it should be a routine practice before the children commence breathing exercises that a "handkerchief parade" should be held. The number of children coming with handkerchiefs would increase.

Seventy authorities have sanctioned expenditure on spectacles for scholars. Last year £1,000 was spent under this head.

In a number of schools there are regular tooth-brush drills, each child being provided with a mug, tooth-brush and tooth powder.

At Wolverhampton the children are taught to wash themselves, to care for their hands and nails, to brush their hair, to mend their clothes, to wash dirty pinafores, to eat nicely and daintily, as well as many other matters of great value to them in every-day life.

An elaborate scheme of "mothercraft" teaching is carried out in a Tottenham school, the course including the washing and dressing of a baby doll, preparing and cleaning of clothes, cutting out and making clothes and other home-life matters. The

girls are shown how a banana crate can be converted into an excellent baby's cot.

Although it is usually found necessary to make use of a doll for demonstrations, it has been found possible in a fair number of cases to arrange for the children to see, even if they cannot actually participate, in the washing, dressing and feeding of a real baby. At Bradford there are evening classes for mothers with their babies, conducted by trained nurses.

Boys who turn up at Wolverhampton schools with dirty faces and hands are sent to the lavatory to wash. The teachers call attention to torn clothing, missing buttons and unclean boots. In one school, as the result of the cleansing reform the number of scholars wearing collars, originally only 5 per cent., was increased to 80 per cent., and this without compulsion.

"Many of the teachers are enthusiasts, and the amount they do for the children is astonishing. These are a combination of health visitors, school-nurse, and boot club."—From report of School Medical Officer of West Riding.

Shower baths for elementary schools have recently been sanctioned in nine cases. The bath is usually available for all children and avowedly forms part of the training of the child, and is supervised by the teaching staff. As a rule, the children are bathed once a week.

Dr. Hawkes examined 1,581 children attending three schools of the poorer classes for "flat-foot." He found 65.4 of the boys, and 64. of the girls were affected to a greater or less degree. In 28.8 per cent. of the boys and 31.7 per cent. of the girls the second stage of true flat-foot had been reached. The defect, it was discovered, becomes more marked during periods of sudden increase in stature or height.

Excluding London, the number of meals provided for necessitous children has fallen from 8,766,635 to 7,734,242. In London the total number of meals increased from 7,300,000 to 1,100,000.

Committee for Aiding the Blind in France.

At the suggestion of the *Committee for Aiding the Blind in France*, there has just been established in that country a commission of specialists who are to study the relations of illumination to health. Half

a dozen lines of research have already been outlined by the commission, among which may be noted the investigation of ocular hygiene with relation to general health, taking into consideration the various means of lighting in actual use. The hygienic qualities of different illuminants will be investigated and determined, including such items as eye-strain, noxious gases and development of heat. The work will be continued towards the determination of the minimum quantity of light compatible with the normal functioning of the eye, incidental to which will be the establishment of rational standards of luminosity and practical ways of measuring them. Some attention will be paid to the matter of special kinds of illumination suitable for different lines of work, and, in conclusion, the commission will seek what light it can get on the causes of myoma and discuss possible means of prevention.

Austrian Prophylactic Society.

A society for the prevention of diseases and epidemics (*Gesellschaft zur Bekämpfung von Volksseuchen*) has been founded in Austria which will act in concert with the Public Board of Health and the Sanitary Department of the Ministry of the Interior. Its aims are to supplement the endeavors of the public authorities in combating diseases, to improve the general circumstances of patients and their families belonging to the poorer classes, to provide adequately trained attendants for the care and nursing of patients during epidemics, and to organize medical help and hospital accommodation in non-epidemic times. The society will also encourage investigation relative to the spread of diseases, as well as their prophylaxis and treatment, and will, so far as possible, make the general public acquainted with the results of these scientific researches. The society will endeavor to improve the knowledge, not only of the so-called epidemics, but also of all diseases which prevail extensively. The present intention is that the scientific part of the work shall be divided amongst all practitioners in the country through the instrumentality of the local medical unions and councils. It is thought possible that an international society for the study of epidemic diseases may in the course of time be called into existence.

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