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THE
SANITARY JOURNAL.
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VOL. I.]

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[No. 11.

Original Communications.

SEWAGE.

BY WILLIAM OLDRIGHT, M.A., M.D., LECTURER ON SANITARY
SCIENCE, TORONTO SCHOOL OF MEDICINE.

(Concluded.)

6. THE JUNCTIONS of drains, whether they be in a vertical or horizontal plane, should not be at right angles, as the interruption of the stream and the eddies thus formed will cause deposit, which, when once commenced, will rapidly increase. The tributary stream should be made to enter in a course somewhat parallel to that in the main sewer.

7. THE SLOPE OR FALL requisite for good drainage will depend on various circumstances: the nature of the matters to be carried off, the volume of fluid, the equableness of flow, and the facilities for flushing. The velocity required to remove deposit will be in inverse proportion to the volume of water. If solid matters be conveyed in a shallow stream, it will be evident that they will be more apt to lodge if that shallow stream run slowly than if it run rapidly.

On the other hand, the velocity itself in drains of similar shape and size, will be in direct proportion to the volume: the deeper the stream, the greater its pressure of gravitation in the effort of the water (if I may use the popular expression) to find its own level.

It is sometimes desirable to be able to calculate the velocity of water in a sewer, in view of its bearing both on the self-cleansing action of sewers, and also in computing the amount which a sewer of a given area will discharge in a given time. I, therefore, give the following formula for calculating this velocity:—

$$V. = 55 \sqrt{2 HS}$$

V. being the velocity in feet per minute,

H. the fall in feet per mile, and

S. the hydraulic mean depth.

This S. (the hydraulic mean depth) is ascertained by dividing the sectional area by the wetted perimeter, the wetted perimeter being the portion of the sewer in horizontal section touched by the fluid. This, in circular sewers, is always one-fourth the diameter.

Various experiments have been tried as to the carrying force of sewer streams. It has been found that small pieces of brick require a velocity of 960 ft. per minute, and iron slugs a velocity of 1,410 ft. per minute to carry them onward.

But what is more to the point for us is, that experience has led to the conclusion that a velocity of 180 ft. per minute, when running half full, is necessary for efficient house drains.

By the formula given above, it will be found that this would necessitate:—In a 4 inch drain, a fall of 1 in 92, and would take 7.85 cubic ft. per minute; in a 6 inch drain, a fall of 1 in 137 and would take 17.66 cubic ft.; and in a 9 inch drain, a fall of 1 in 206, and would take 39.76 cubic ft.

It must be borne in mind that the above calculations as to the necessary slope, are based on the presumption of the drain running half full; but, in many drains, so large a quantity of water is not often poured at once as that indicated above; in some the main house drain is, under ordinary circumstances, never filled half full, for it is merely the common outlet of a number of smaller ones, and unless these are simultaneously filled, it will not be half full.

Hence, the greater necessity of providing means of flushing

house drains, by causing a body of water to rush swiftly through them, thereby washing out any deposit that may have accumulated.

8. FOR FLUSHING house drains our first care should be to see that there is provision for nearly filling them, either by the simultaneous action of a number of small inlets, or by one large one. In houses where there is a closet pipe, it is generally about two-thirds the size of the drain from the house to the street, and by filling it with a good head of water, the latter drain will be nearly filled.

Many contrivances will readily suggest themselves for supplying a body of water, differing according to circumstances. The most primitive will be the sudden emptying of a tub or two of water every few days.

As my paper has already dragged out to such a length, I will not enter into the consideration of the various apparatus for the flushing of street sewers, and of various other matters relating to them; they do not come so constantly under the direction and control of householders in general, but are more in the province of the engineer, and are fully treated in works on sanitary engineering, and to one of the best of these, Baldwin Latham's, I would refer the reader who is interested in such matters.

The question of the

DISPOSAL OF SEWAGE

has been so well handled by your correspondent, M.D., that I have almost nothing to add.

In some towns where the sewage is utilized for irrigating purposes, intercepting sewers have been introduced. Their troughs cut the main sewers at right angles, near the outlets of the latter. When the stream in the main sewer is small, and the sewage concentrated, it drops into the trough of the intercepting sewer. During a heavy rain, or the operation of flushing, the first and concentrated part falls into the intercepting sewer; but as the volume increases, the velocity also increases, and the stream shoots over the line of intercepting.

sewer. The contents of the latter are carried off to be used for agricultural purposes, whilst the comparatively innocuous portion empties into some convenient channel, or stream, or into the sea or lake.

As I said at the outset, I shall not have time to consider the *pros* and *cons* of the various modes of disposing of sewage matter. One fact, however, disposes of the dry removal system in my mind, namely, that it cannot be carried out in the present condition of the public mind and with our present social, municipal, and domestic arrangements.

I am aware of the ignorance and carelessness which have existed, and still exist, to a great extent in the construction of drains, especially house drains; but a very slight expense is required to correct these defects at the outset; the system can be kept more directly under the supervision and control of a city commissioner and engineer (the dry system would require a few dozens of them), if endued with greater powers in supervising the construction and condition of private, as well as public, drains; the builders of houses being obliged to obtain and register a certificate of inspection. I maintain that in the sewer system, more depends upon a few intelligent heads, and less is left to the carelessness of the less educated or less appreciative portions of the community. Besides, what is to be done with the immense quantities of fluid refuse? and what will be the result of endeavouring to lessen the amount of waste water?

The subjects of

SURFACE AND SUBSOIL DRAINAGE

I shall not have time to consider. Their importance, in a sanitary point of view, in large communities is greatly overlooked. Its effects on the air we breath, and the water of our wells will be apparent to all, although too often treated with carelessness and neglect.

I would for a moment direct attention to the foundations and basements of houses, to ask whether it would not be worth while to pack and embank them with puddling clay,

especially if they be situated in a porous surface overlying a clay or rock substratum. The soakage of water into basements, besides being unpleasant and destructive, is a prolific, and often hidden and unsuspected, source of disease, especially in soils made out of rubbish, such as is common in some of the gullies of Toronto.

This soakage may also be lessened by surface slopes and drains (cut in the soil), and by porous tiles a few feet below the surface.

In conclusion, I would say that this paper has grown much larger than I had intended it to be. If I seem to any of your readers to have taken up some self-evident and trivial matters, I trust that the importance of the subject and the great and general neglect of it which exists will be taken as my excuse.

ON THE RELATIONS OF THE MEDICAL PROFESSION TO PUBLIC HEALTH.

[Read before the York Medical Association, October 12th, 1875.]

BY EDWARD PLAYTER, M.D.

I assure you gentlemen I have experienced no small degree of diffidence in endeavouring to comply with your expressed wish at our July meeting, that I should read a paper on the present occasion, and I must confess that I should hardly have attempted to prepare one had I not felt that, after having been the first honoured by being requested to present a paper before our newly organized Society, I could not take the responsibility of neglecting to establish a precedent for that which is so useful, so conducive to the welfare of such organizations, as is the reading of papers, a precedent which I trust others more competent may regularly follow. You kindly permitted me to choose my subject, and I have selected the one most deeply interesting to me. I have no particular facts or notes to bring before you, no statistics, no new theories to offer, and propose simply to make a few remarks, which I hope may not prove altogether uninteresting, upon the relations of our profession to Public Health, touching upon the prevention of disease.

Though a commonplace saw, it is an old one and a true, that "prevention is better than cure;" and it applies more directly to our occupation than to any other. No one of course supposes that all or nearly all diseases can be prevented. So long as erring humanity exists, disease will prevail, more or less; but that a very large proportion of the prevailing diseases may be prevented, no one I suppose will deny. Strictly speaking, it may be said there is but one disease, which in its essence is not preventable, namely, old age, which is indeed hardly in the proper sense a disease at all. There are many diseases however, of which we can conceive the possibility of prevention in the future, of the etiology of which we as yet know but little; hence the present division into preventable and non-preventable disease. It is quite reasonable to believe that with additions to our knowledge as to their causes, the ratio of the former to the latter will constantly increase. Mr. Simon, the well known medical health officer, Great Britain, and we have no better authority than Mr. Simon, in 1871, writes, "It seems certain that the deaths which occur in this country are fully a third more numerous than they would be if our *existing* knowledge of the chief causes of disease were reasonably well applied throughout the country." He estimates that 120,000 *preventable* deaths take place annually in England and Wales. Now, I take it that Mr. Simon estimates that this proportion of deaths may be prevented by the application of proper *Public Health* laws. What proportion then of deaths arising from inflammations and numerous forms of chronic disease may be prevented by individual hygiene? Probably another one-third. Then Mr. Simon speaks of our *then existing* knowledge; as our knowledge in this respect increases, probably a still larger proportion of deaths may be prevented. "Not yet," said Dr. Osborne, Vice-President of an Association for investigating the preventable causes of disease, at a recent meeting of the Association. "Not yet," was there by any means a full comprehension of the slow, silent, and disastrous consequences of the habitual use of adulterated food and drink, of the very lights burnt, and, as regarded certain colours, of the very clothes worn. Rooms were decorated with papers whose delicate and beautiful hues charmed the eye, while there was effluent from them a deadly poison. It had yet to be learned how much of chronic ill-health was due to these respective causes, and how far change of air owed its salubrious effects to an escape from these noxious influences."

Numerous examples of the benefits of sanitary measures are upon record, on the other side of the Atlantic, wherein the

death rate of towns has been reduced directly and in a marked degree by the practical application of Public Health measures. But I need not dwell upon this point. Canada is not in a better sanitary condition than is Great Britain. We all know full well that most diseases are self-created, that, while we cannot prevent the natural and gradual decay of age, and death in the end, health and life are to the uttermost in our own individual keeping. We, as members of the medical profession, know this better than any others; we, more familiar than any others with the marvellous structure and actions of God's noblest work, and with the actions upon it of the numerous and insidious external agents of disease, know better than any others how to deal with these agents, with these causes of preventable death. What a field then is before us for the exercise of our knowledge. Does not the field for *cure* fall into comparative insignificance. For after all, nature maintains her supremacy in the healing art. She will yield but little to us there. Her power to heal is vastly greater than ours. Our most legitimate field appears to be that of *prevention*. What then is our duty? Dr. Benjamin Lee, of Philadelphia, in a report to the twenty-sixth annual meeting of the Medical Society of Pennsylvania, in July last, declared that the physician who simply devoted his energies to the treatment of a patient, with typhoid fever for example, was morally guilty of manslaughter should the disease become fatally epidemic. His first duty was to set on foot investigations as to its origin. Which investigations, says Dr. Lee, "he should pursue untiringly, calling in the aid of experts if himself unsuccessful, compelling the members of the family to aid in the search, on the pain of losing his services, giving himself or them no rest until he has satisfied himself of either the absence or presence of a local source of pestilence, and, if the latter, has devised and instituted measures for its removal. Nothing short of this will relieve him of his responsibility, in the eyes of the hygienist."

It is the duty of all men, as it appears to be the aim of all right thinking men, to place themselves in that position in the world, to employ themselves in that capacity, in which they can benefit in the highest degree their fellow creatures. The aim may be regarded as almost instinctive in its character, and to have its origin in some ingenerate principle akin to that of self-preservation; for the most natural result of benefits conferred is a proportionate amount of benefits received. Usually, what is true of individuals is true of numbers or classes of individuals. It ap-

pears to me that the position of the medical profession in its relations to health and disease is not that which confers upon society the greatest amount of benefit, nor that which will ultimately command or secure to the profession from the public the maximum of good. The physician is associated in the minds of the masses, as he is in reality, with disease rather than with health. Is this as it should be, or as medical men desire it to be? Do they wish to be associated in this way with misfortune, with what Chambers designates as partial death, with defective life, with contagiums and parasitic germs with the loathsome pestilence? Would it not be much more agreeable, more ennobling, more profitable, to be regarded as associates, defenders, worshippers of Hygiea, the "sweet smiling goddess of health?" The science of medicine appears to have been built up, so to speak, on the wrong side of disease. Physicians occupy the position of an army standing indifferently or idly in the rear, and only commencing to act when the country is invaded, and the enemy is in the midst of the citizens active in destruction, rather than that of an army at the front, ever vigilant and ready to prevent the first encroachments of the enemy. Is this an honourable or a profitable position for the members of our noble profession? The duty of the physician is far from being limited to expelling disease; he must as far as possible expel or remove the causes. The science of cure is but a small part, and indeed a secondary part, of the science of medicine. On the occasion of a public ceremony in King's College, London, in June last, Dr. Lyon Playfair said, and most truly, "the physician has to cure his patient, trace the origin of disease, and prevent its recurrence." Without presuming to alter this eminent and liberal physician's definition of the duty of the medical man, may we not entertain a hope that his duty may ultimately be regarded rather to trace the origin of disease and prevent its occurrence. Let prevention rather than cure be regarded as the *first* duty of the physician. Sir Wm. Jenner said, "no one acquainted with the present state of the science and art of medicine will for a moment question, that to prevent disease is its first and most important aim." If there chance to be one in the profession who is so selfish as to have doubts in regard to its being his duty to endeavour to extirpate that upon the existence of which his daily bread depends, he should bear in mind that "bread cast upon the waters will return;" and moreover, he may rest assured that the public can afford to pay infinitely better for prevention than it can for cure, and the public will pay. If the medical profession can be instrumental in saving

in this way hundreds of lives and millions of money to the country, the people will not object to pay for it, either directly or indirectly; and whether they do or not, our duty is plain. As the Committee on Statistics, of the Georgia State Board of Health, in a recent address to the medical profession of the State of Georgia, observed, particularly in regard to registration, it is "a duty at least irksome and disagreeable—one that no penalty could drive us to, and no price could pay us for, and yet, *because it is a duty*, high and benevolent, and involving a blessing to humanity, it would most surely be done."

A few words now as to the *manner* in which we may be thus instrumental:

At the 29th annual meeting of the Wisconsin Medical Society, in June last, the President, Dr. Reeve, addressed it as follows: "To popularize medical knowledge is one of the pressing duties of the day. The field for legitimate medicine in this direction is broad, and too largely uncultivated, yet we rejoice that here and there the good work has begun. The interests of humanity, the interests of scientific medicine, the thirst of the people for knowledge, all speak to us a lesson—that we give to the people, in suitable language, pure and healthful medical literature: thus may we save them from many a snare, and from many a destructive pitfall. If we believe our science to be true, let us so present it to the public mind that its truthfulness will be appreciated, and its practice honored and trusted. If there is ought in it incapable of bearing the closest scrutiny, let that part of it fall, however venerable its usage, or however largely supported by authority. Legitimate medicine claims for itself no exclusive privileges, it seeks to conceal nothing, as it needs to conceal nothing; it shrinks from no scrutiny, but ever courts an investigation of its principles and its practice, of its science and its art,"

The editor of the *New York Medical Record*, in an article deprecating newspaper advertising, in the form of publishing medical papers in the daily press, observes:

"In view of the acknowledged necessity of educating the public in medical matters, a very interesting question comes up—how can this be done with propriety, how can the profession accomplish good in this direction without danger of violations of the Code? * * *

"The time has passed to declare that it is wrong to publish any medical matter in the daily papers. There is some information which we can impart and to which the public are entitled, and it is as much our duty to furnish such information, as it is to discharge any other professional obligation. * *

“Our duties to the public refer entirely to the prevention of disease and not to its cure. A general knowledge is sufficient to appreciate the truths of the former, but a special education is absolutely necessary to understand the latter. On sanitary matters the general public is well calculated to judge, and is prepared to receive instruction. For instance, in matters of drainage, cleanliness, ventilation, and other hygienic measures, they are well enough informed to appreciate what is new and useful, and to apply the truths accordingly. In so far as pure Sanitary Science is concerned, the profession may be considered as speaking to a well educated, appreciative, and discriminative audience.”

Dr. Lee, above mentioned, after drawing attention to the fact that the death rate of London was, 200 years ago, 42 per 1,000, and that now, with a population about seven times as great, the death rate is only about one-half; due chiefly “to sanitary legislation, judiciously conceived and faithfully carried out,” and that the death rate of Paris has been reduced one fourth in the past thirty-one years by the same means, says: “With such convincing results staring them in the face, can anything more be needed to arouse our legislators, state and municipal, to a sense of the urgent importance of this question and of their duties under the premises! Yes, unfortunately, I blush to say it, for it is the shame, not of our legislators only, but of our people, of whom are the legislators, one thing more is needed—to show them that this matter has a financial aspect. It must be brought home, not only to their hearts and their hearth-stones, but to their tills and burglar-proofs. They must be taught that a human life has an actual cash value, as certainly as that of a horse or a cow, and that when, by neglect of well ascertained precautions they waste human life, they are squandering untold millions of substantial wealth as well.”

It is gratifying to find that “here and there the good work has begun,” even on this continent. In the U. S., one State after another is dropping in, and forming a State Board of Health. Georgia is one of the last, and its Board consists almost entirely of medical men. Though the President of the Board, Dr. Thomas, of Savannah, who is a member of the Legislature, and was chiefly instrumental in having the board established, says, in a communication which I have received from him, “Strange as it will doubtless appear to you the greatest opposition to the measure, came from physicians in the general assembly.” It is to be hoped, for the credit of the profession, the opposition was from political motives. But I will here again quote a few lines from the address above mentioned, to

the Medical Profession of the State: "By great energy and the pursuance of the most judicious but honest policy, and by earnest appeals in the cause of humanity, this long desired object was accomplished, for our own State, during the last session of our General Assembly. The registration of vital statistics, and of facts and occurrences bearing on public health and longevity, became a law of our commonwealth. This great boon, so long yearned for by the thoughtful and the benevolent of our profession, is an enterprise *strictly our own*; it was initiated by medical men; by them it was principally carried into accomplishment; and to them the responsible trust is confided, as a special and peculiar province—a province *not* of gain, and still less of enjoyment; but on the other hand, one of toil, and of labor, and of anxious care. By Physicians, principally, are the first facts to be observed; by them they are to be recorded; by them they are to be reported; by Physicians, again, are these same facts to be tabulated and generalized; and lastly, it is by the faithful and painstaking labor of Physicians only, that these multitudinous and often incongruous facts can be made to yield the *reward* of love to repay the *labor* of love, so anxiously sought for and so diligently done. What is this reward? It is not at all a sordid or a mercenary one; and yet, while its ultimate and grandest end is the preservation of human health, individual and general, and the prolongation of human life, there are other benefits to be educed from the faithful registration and report of vital and medical facts, which directly concern the advancement and improvement of medical science itself."

In Alabama, Dr. Baker, Secretary of the Michigan State Board of Health, informs me, the State Medical Society has now been legally established a State Board of Health, and the County Societies are to act as Local Boards. This is all very pleasing and highly honorable to the Medical Profession. Massachusetts and Michigan are taking the most active part in sanitary matters, and are doing a good and noble work. At most of the meetings of the State *Medical Societies* in the U. S., the subject of Public Health, is dwelt upon to a greater or less extent. In Canada, as you know, Dr. Brouse has repeatedly agitated the subject, and pressed upon the Dominion Government the importance of Sanitary Legislation; and our Medical Council has moved in the matter. As to instruction in Sanitary Science in our Medical Schools, the subject is yet apparently regarded as the least important branch of the science of medicine, though it is now taught to some extent; while in the student

life of most, or perhaps of all, of us here, hardly the first A. B.C. of it was alluded to. I trust the day is not very far in the future when it will take the precedence of Practice of Medicine itself. Each and every one of us, gentlemen, can do something to advance the Science and the cause. For example, we may each strengthen more or less the hands of Dr. Brouse in Parliament, if not before, at the next general election. At the last general election in Great Britain, I may observe, Public Health Legislation was a plank in Mr. Disraeli's platform. We can do much individually, in private practice. Dr. Playfair says, "the medical man is gradually becoming more a confidant of the inner circle than even the priest," and his influence is consequently great. He could give advice regarding ventilation and the removing of filth, for example, in connection with the dwellings of his private patients, and also on many other matters not within the scope of the health officer, and as the *Philadelphia Medical and Surgical Reporter* observes, we ought as *a unit* to exert ourselves to diminish the consumption of alcoholic drinks, and tobacco; these curses of civilization.

Fearing, gentlemen, that I have already wearied you, I will now conclude in the eloquent words of Dr. Osborne, in his address to the Society for investigating the preventible cures of disease, previously referred to: "He exhorted the Branch, as members of a noble profession, as philanthropists, and as citizens, to bring all their highest mental powers, their best energies, their fervent resolves, to aid in a holy warfare against all preventible diseases. Ten thousand hands could not be ready, hearts willing, and voices raised, all in vain. They might not achieve a victory that should win the applause of a senate or the shouts of a people, or secure for themselves individually social distinction or titular aggrandisement; but there would remain for them the quiet enjoyment that flowed from a sense of duty performed, a mission fulfilled, a conscience satisfied—a satisfaction that no patent could confer, no fountain of honor bestow."

GERMS AND FERMENTS.—M. Wurtz has shown at the Paris Academy; that milk, wine, cane-sugar, flesh, gelatine, placed in contact with a certain quantity of chloroform, are perfectly preserved for an indefinite period, without undergoing fermentation, or giving rise to the production of any living being, whether animal or vegetable. On chemical fermentation, on the contrary, chloroform seems to have no effect, whether in preventing or retarding these processes, such as take place in the germination of barley, mustara-meal, etc.—*Med. & Sur. Rep.*

To the Editor of the Sanitary Journal.

Dear Sir,—I have read with increasing interest the articles and epitomized matter which you have so judiciously put together on your speciality, viz., "Sanitary Science." The attention of legislative bodies has, hitherto, not been sufficiently aroused to the condition of the public health, and I trust that your enterprise and spirit to enlighten the public on that vital subject, may be properly supported. Allow me to offer a few suggestions as to legislative enactment in the premises. 1st. The general responsibility for the health of the public should rest on the shoulders of the General Government, viz., that minor corporate bodies should feel that sanitary measures are not permissive only, but imperative, that is to say, that all such bodies should be under governmental supervision, and that such measures should be taken as the Government may see fit, by the appointment of health officers, whose duty it should be to carry out all instructions in detail as recommended by the immediate commissioner or inspector appointed strictly by the Government itself.

To complete the machinery, I would advise the appointment of two commissioners from each Province, whose headquarters for consultation on all sanitary matters shall be at Ottawa, there to receive and consider all statistics and suggestions from sub-officers of the various parts of the Dominion, and to issue such general orders to them as may seem advisable under the circumstances.

I am aware that powers are vested in corporate bodies, for the passage of bye laws for the preservation of health; but as a rule, the bye-law is a dead letter, little or no attention being paid to the carrying out of the same, quiet tolerance of nuisance sometimes producing disease, at other times, fear of giving offence indirectly to those in authority—difficulties which could not arise should the powers of all local sanitary supervisors be vested and supported by the General Governmental protection. For your next issue I shall be happy to suggest some other matter.

I am, dear Sir, yours, &c.,

C. V. BERRYMAN, M.A., M.D.,

Examiner on "Sanitary Science," College of Physicians and Surgeons of Ontario.

RULES AND REGULATIONS

ADOPTED BY THE MICHIGAN STATE BOARD OF HEALTH.

BY W. H. BAKER, M. D., SEC., B. H. LANSING, MICH.

(Received too late for October number.)

FOR PREVENTION OF DISEASE.

RULE 1.—No privy-vault, cesspool, or reservoir into which a privy, water-closet, stable, or sink is drained, except it be water tight, shall be established or permitted within fifty feet of any well, spring, or other source of water used for drinking or culinary purposes.

Reason.—Soil, especially if it be sandy loam or gravel, or clay with inclined strata or layers, is often an unsuspected conductor of the liquid contents of such receptacles to wells or springs of water. Many well authenticated cases of typhoid fever and other dangerous and often fatal diseases have been traced to the use of water so contaminated.

2. Earth privies, or earth closets, with no vault below the surface of the ground, shall be excepted in Rule 1, but sufficient dry earth or coal ashes must be used daily to absorb all the fluid parts of the deposit, and the entire contents must be removed monthly.

Reason.—Dry earth or coal ashes are nearly complete disinfectants if used in sufficient quantities to absorb all the fluids.

3. All privy-vaults, cesspools or reservoirs named in Rule 1 should be cleaned out at least once a year; and from the first of May to the first of November of each year shall be thoroughly disinfected by adding to the contents of the vault, once every month, one or two pounds of copperas dissolved in a pailful of water.

Reason.—During the hot season putrescent gasses are given off from the decomposing excreta in such vaults. These gasses are not only very offensive, but are frequently the cause of dangerous diseases. They contain compounds of ammonia, which are decomposed by solution of copperas and the foul odor destroyed. In a family vault two pounds of copperas a month is usually sufficient. In vaults used by a large number of persons, five or more pounds of copperas should be used monthly.

4. No privy-vault or cesspool shall open into any stream, ditch, or drain, except common sewers.

5. No night soil or contents of cesspool shall be removed unless previously deodorized by mixing with solution of cop-

peras; and during removal the material shall be covered with a layer of fresh earth, except the removal be by the "Odorless Excavating Process."

6. All sewer drains that pass within fifty feet of any source of water used for drinking or culinary purposes shall be water tight.

7. No sewer drain shall empty into any lake, pond, or other source of water used for culinary purposes, nor into any standing water.

8. No garbage, materials manufactured in whole or in part of wool, silk, leather, India rubber, etc., or other materials which evolve offensive gasses during combustion, shall be burned within the health limits of this corporation.

9. No house offal, dead animals, or refuse of any kind shall be thrown upon the streets or left exposed by any person, and no butcher, fish-monger or vendor of merchandise of any kind, shall leave any refuse upon the streets, or uncovered by earth upon the lots of this city [village or township]; and all putrid and decaying animal or vegetable matters must be removed from all cellars and out-buildings, on or before May first in each year.

10. All families, hotels, restaurants and others accumulating garbage are required to have a proper covered receptacle for swill and house offal, and to cause the contents to be regularly removed as often as twice a week between the first day of May and the first day of November, and once a week at all other seasons.

11. Between the first day of May and the first day of November, no hogs shall be kept within the limits named except in pens with floors, kept entirely free from standing water, and regularly and freely disinfected; and during the months named no hogs shall be kept elsewhere within the jurisdiction of this Board within eighty rods of any dwelling, except in pens with dry floors, or kept free from standing water. This Board will order the removal of such animals at any time, when they appear to be prejudicial to the public health, safety, or comfort.

12. No animals affected with an infectious or contagious disease, shall be brought or kept within the limits of the jurisdiction of this Board, except by permission of the Board. No diseased animal, or its flesh, and no decayed, diseased, or unfit meat, fish, vegetables, or fruit, or diseased, impure, or adulterated milk or other article, shall be sold or offered for sale as food.

13. No slaughter-house or abattoir shall be established or

used as such within the limits specified, and none elsewhere within the jurisdiction of this Board, unless kept free from all obnoxious smells, and all offal be removed every day; and no melting or rendering house, and no place for manufacturing or other business giving rise to obnoxious or injurious vapors or odors, shall be established or used as such within the jurisdiction of this Board, except by its special permission and location.

FOR PREVENTING THE SPREAD OF CONTAGION.—14. Every child should be vaccinated before two years of age; and this Board recommends that all persons be revaccinated as often as once in five years.

15. All incorporated manufacturing companies within the jurisdiction of this Board shall cause each new employee to be vaccinated on entrance, unless proof is furnished of previous successful vaccination.

16. No person shall become a member of any public school within the jurisdiction of this Board until vaccinated, or furnishing a certificate from some physician that he or she has been successfully vaccinated.

17. Any householder in whose dwelling there shall occur a case of cholera, yellow fever, scarlet fever, diphtheria or small-pox, shall immediately notify the Board of Health, of the same, and until instructions are received from the Board, shall not permit any clothing or other property that may have been exposed to infection to be removed from the house, nor shall any occupant take up residence elsewhere without the consent of the Board.

18. Any physician who may be called to a case of any of the diseases specified in the foregoing rule shall at once report such case to this Board and receive instructions in regard thereto; and whenever there shall come under the observation of any physician such number of cases of scarlet fever, measles, typhoid fever, diphtheria, dysentery, or cerebro-spinal meningitis as in his opinion to justify the belief that a considerable epidemic thereof exists, he shall at once report the same to the Board, with such suggestions in regard thereto as may seem to him best.

19. No person or article liable to propagate a dangerous disease shall be brought within the jurisdiction of this Board without the special consent and direction of the Board; and whenever it shall come to the knowledge of any person that such person or article has been brought within such limits, he shall immediately give notice thereof to this Board, together with the location thereof.

20. No person sick with any of the diseases specified in Rule 17 shall be removed at any time except by permission and under the direction of the Board.

21. Persons affected with any of the diseases specified in Rule 17, and all articles infected by the same, shall be immediately separated from all persons liable to contract or communicate the disease, and none but physicians, nurses, and the clergyman of the family shall be allowed access to persons sick with these diseases.

22. Persons recovering from any of the diseases specified in the preceding rules, and their nurses, shall not leave the premises till they have been thoroughly bathed, and their clothing disinfected by washing in boiling water, or heating to 250° Fah.

23. All vessels used by such patients shall be disinfected by solution of carbolic acid or chloride of lime, then emptied, their contents buried in earth, and the vessel cleansed with boiling water.

24. All personal clothing, bedding, towels, etc., and all articles in contact with or used by the patient, shall be washed in boiling water, or exposed to a temperature of 250° Fah.

25. Infected feather beds, pillows, and hair mattresses shall have their contents removed and disinfected by thoroughly exposing them to the fumes of burning sulphur, and their ticks washed in boiling water; but no article shall be burned without the direction of the Board. Infected straw beds and excelsior mattresses shall have their contents removed and burned, and their ticks washed in boiling water.

QUESTIONS ON SANITARY SCIENCE.

The following are the questions on Sanitary Science given to students at the last examinations (Oct. 1875), before the College of Physicians and Surgeons of Ontario. Dr. Berryman, examiner.

1. What diseases are more particularly developed in the vicinity of slaughter-houses, and in thickly populated districts? Give the probable prognosis.

2. What are the various systems of purifying water for ordinary purposes in large cities?

3. On chemical analysis, how would you know good water from bad?

4. Given—an epidemic of Cholera in a large city—what are the duties of the Corporation and its Medical advisers?

5. In advising Corporate Bodies on general Sanitary measures, what would you recommend?

6. What are the more modern inventions for preventing the emanation of smells from public drains?

7. What modifying influence has Climate on Disease? Give some examples. In treatment what would guide you?

8. Give the heat, and describe the ventilating process of a public building, as a Hospital, Prison, or Lunatic Asylum.

ABSTRACT OF REPORT OF THE MICHIGAN STATE BOARD OF HEALTH.

FROM DR. H. B. BAKER, SEC.

The Michigan State Board of Health held its regular meeting at Lansing, Oct. 12, 1875.

The members present were, Drs. H. G. Hitchcock, R. C. Kedzie and A. Hazlewood, Rev. C. H. Brigham, Rev. J. S. Goodman, and Dr. Henry B. Baker.

Dr. A. Hazlewood, as committee on epidemic, endemic, and contagious diseases, read an article on "Trichinæ. The paper gave a historical review of the subject, mentioning the names of Zenker, Virchow and Leukart, as the prominent investigators whose researches have developed most of our knowledge concerning this parasite. Their combined researches are thus epitomized by Professor Heller: "Man becomes infected with trichinæ by the use of trichinous pork. The muscle trichinæ in the stomach become freed from their capsules, and develop in the intestines of cats and dogs, and also in that of man, to mature sexual worms, which attain their full growth at the end of about seven days and give birth to living young. These young trachinæ migrate from the intestines in which they are situated to the muscles of the same person or animal. During their migrations they are found in the mesentric glands, abdominal cavity, and pericardium. They penetrate into the interior of the muscular fibres and cause the destruction of the contractile tissue. Within the muscles they grow to perfect muscle trichinæ. These migratory processes bring about in man a severe febrile disease—trichinosis—which may result in death.

Dr. Kedzie read an article on "The Use of Poisons in Agriculture." He gave a specific description of "Paris Green," the aceto-arsenite of copper, which has been so largely used for the destruction of *Doryphora decemlineata* or "Potato Bug." The

paper was based on numerous analysis of soil, and of straw and wheat raised on soil dressed with Paris green. The analysis failed to detect any arsenic in straw or grain; the analysis of soils proved that the arsenic does not remain as Paris green, but unites with the hydrated oxide of iron, a substance present in all fertile soils, forming a compound insoluble in the usual solvents of the soil, such as carbonic acid and ammonia. There is, therefore, no danger of contamination of well water by the washing of the poison from the soil. In the discussion which followed Dr. Kedzie suggested that the ill-effects which have been observed from the use of potatoes might be due to the destruction of the vines by the bugs.

Dr. Kedzie made some remarks concerning danger from the ill-construction of public halls, hotels, etc., in their means of exit. He was requested to prepare a paper on that subject; and also an article on the subject of regulations to be observed by druggists concerning poisons. He reported that he had prepared ninety sheets of ozone paper for distribution to meteorological observers.

After some other business the secretary read a communication from Dr. Stoddart, of Albion, and Dr. Beech, of Coldwater, relative to criminal abortion. Dr. Stoddard proposed that every death of an unborn child be considered a "sudden death" and as such a proper subject of enquiry by a coroner's jury.

A communication from A. Nash, M.D., of Lapeer, was read, giving cases of sickness from drinking impure water.

Circulars are to be issued to school directors and teachers transmitting documents on "Treatment of the Drowned," for distribution to the 500,000 school population of the State; also a circular to editors in Michigan, asking their co-operation. Rev. J. S. Goodman was authorized and requested to make investigation into the sanitary condition of the common country schools of the State.

The secretary was directed to procure books, periodicals, etc., for the Library of the Board.

Rev. Mr. Brigham read a paper on the influence of occupations upon health, referring to the dust and impure air of factories and offices, and to the need of more recreation and out-door exercise. Dr. Baker read a brief paper on "Reproduction of Disease Germs," and also one entitled "A Sad Case of Failure to Prevent Deaths Believed to be Preventable," both of which were ordered to be printed in the annual report.

The secretary's quarterly report mentions that 2,500 rules and regulations recommended for adoption by Local Boards of Health have been published and distributed to all township,

village, and city Boards of Health in the State, all publications of the State, Sanitary Journals and individuals interested in the subject. A pack of pamphlets and placards on "Treatment of the Drowned" has been sent to the Chief of Police in each city of the State for distribution, and a circular soliciting correspondents has been sent to seventy physicians and sanitarians in the State. An improved meteorological blank register has been published, and its distribution commenced to meteorological observers throughout the State. It is hoped that more specific knowledge may be gained respecting the influence of meteorological conditions upon certain diseases

A NEW KIND OF POISONOUS DRESS.—According to a report by Prof. Gintl, in the *Lotos*, it appears that the public are exposed to a new source of poisoning from the use of arsenicalglycerine and the arseniate of alumina as mordants. He states that these substances are now coming largely into use, especially among the English and Alastian manufacturers of cotton printed goods, as substitutes for albumen, which is much more expensive, some substance being required to fix especially the aniline colours, which are now so much in demand. Such goods have recently been sold in Austria and especially in Prague, containing according to Professor Gintl, as much as fifteen to twenty-five grains of arsenious acid, in the form of arseniate of alumina, to the yard; and this is by no means an insoluble salt, but one much more poisonous than the much abused green arsenic colours. The more suspicious fabrics are stated to be those of a violet ground with white figures, and those printed in brownish yellow or reddish brown designs, and which are sold at low prices.—*Sanitary Rev.*, Sept. 25.

THE NEW BONNET.—"Wife, do you know that I have got the pneumonia?" "New monia, indeed! You're the most extravagant man I ever did see—to go and lay out money for such trash when I need a new bonnet so much!"

SUNNY RAYS.—There is a prospect of some return to a renewal of the beneficent influences of the sun, from the sheepish followers of fashion. This fickle goddess has recently started the doctrine that, as a reaction from the tanning effects of a summer's out-of-door exposure, the winter's change adds new brilliancy to the complexion. Fashionable butterflies now seek for the most complete tanning that the summer's solstice can effect, in order to secure a corresponding reaction, and insensibly gather health and invigoration.—*Pop. Sci. Mo.*

WOMAN'S DRESS AND HER DISEASES.—In an address before the Pennsylvania Medical Society, the president, Dr. Atlee, drew attention to the bad effects of the change wrought by absurd fashion in the habits and dress of women. He held, that in proportion as women have departed from simplicity, in that same proportion have their infirmities increased. The confined waist and weighty dress of women were mercilessly ridiculed. Fashionable women were compared to pea-fowls strutting the streets and taking a scavenger-like promenade, gathering filth and exhausting strength. The pernicious effect of the fashionable shoe was explained. Nature intended the heel and sole to be on a level, but fashion raises the heel two inches above this level: Woman is thus walking down hill, and as far as health is concerned may be said to be going down hill all the time. The fashionable woman is a burlesque and caricature on nature.—*The Doctor, London.*

INSECTICIDE.—According to the *Industrie Blatter* of Berlin, the use of wild rosemary (*Ledum palustre*) is recommended as a substitute for the well-known Persian powder. This plant whether fresh or dry, will kill lice, bed-bugs, fleas, moths, beetles, and their larvæ, the maggots, and blue-bottles, and probably other insects. It is also the best remedy for mosquito-bites, and the bites of all other insects. A little of the tincture of the plant applied to the bite not only relieves the intolerable itching, but also relieves the pain. If the tincture be mixed with glycerine and rubbed on the skin it will drive the mosquitoes away.—*Sanit. Rec.*

ALCOHOL.—SOME NEW POINTS.—It gives us pleasure to announce that the essay with the above title, by Dr. Kinne, has been awarded a prize of \$300,00 and is to be published by the National Temperance Society, New York. This essay claims to demonstrate that alcohol is in no case a stimulant, that its well known effects, such for instance as a quickened pulse, a flushed face, and a heated surface, are due to its action as a paralyzing force, and that its well known therapeutic value, must be accounted for upon entirely different physiological principles. And as it is strictly scientific in character, and in no sense controversial or partisan, its issue from the press will be looked for with interest.—*Pen. Jour. of Med.*

A DEATH in Chicago, and one in this city, were chronicled in one week in August, from mistaking a bottle containing poison for one with medicine. Is it not time that a special form of bottle be used for deadly compounds.—*Med. & Surg. Rep. Phil.*

A JUDICIOUS CUSTOM.—Attached to the notice of the death of a little child, of scarlet fever, published in a contemporary, is the following significant warning: "In consequence of the nature of the disease, the funeral service will be private, and, therefore, hour and place are not given." This evidence of good sense, and of feeling for others, on the part of the parents, should entitle them to the increased love of their friends. Malignant diseases are often spread by contact at funerals, simply from the fact that invitations are extended to the services, to old and young, without intimation being given as to the cause of death.—*Med. & Surg. Rep.*

VALUE OF HYGIENE.—In the *Bulletin General de Therapeutique*, Dr. Dauverge (perc) alludes to a recent article by Prof. Bouchardat, which concluded, "As they advance in life, young practitioners will find, like myself, that pharmaceuticals do not fulfill all their promises, and they very frequently return to the employment of well-directed hygienic modifications. Such is the history of all reflecting and observant practitioners."

AVERAGE OF LIFE.—The yearly mortality of the globe is 42,403,000 persons. That is at the rate of 115,200 per day. 4,800 per hour, 80 per minute. Among 10,000 persons, one arrives at the age of 100; one in 500 attains the age of 80; one in 100 to the age of 70. In 100 persons, 95 marry.—*Ec.*

POISON OF TOBACCO.—Science has sped another dart at the peace of the tobacco-smoker. It has heretofore been made known that nicotine, hydrogen-sulphide, and cyanogen exist in the smoke of tobacco; but now Dr. Krause, of Annaberg, declares that he has found in it carbonic oxide, a principle never before detected in the substance. The quantity of the oxide and of carbonic acid differs according to the kind of cigar used, the way of filling the pipe, etc. The manner in which the smoke is drawn, whether by strong or weak inhalations, also influences the products by effecting the combustion. From twelve experiments made by Dr. Krause, it appears that the quantity of carbonic acid varied from 5.2 to 13.8 in 100 of smoke, the average being 9.3. As the consumer of the weed never gives out all the smoke, but takes a portion of it into his lungs, a certain amount of carbonic-oxide poisoning is inevitable. "The more awkward the smoker," says Dr. Krause, "the more rapidly will the action of the carbonic oxide make itself felt. Hence the evil effects of early studies in smoking, the results of which are commonly ascribed to nicotine alone."—*Health Reformer.*

PROPHYLAXIS OF PUERPERAL FEVER.—Dr. J. H. Miller Moberly (*New York Medical Record*) formulates the chief points for practice as follows. 1. The most scrupulous cleanliness must be observed by all concerned. 2. Unremitting vigilance on the part of the physician. 3. The antiseptic treatment by carbolated oil, and by salicylic acid and by thymol. 4. The early condensation of the uterine walls by means of ergot. 5. The thrice daily employment of the thermometer. 6. Large doses of quinine in the incipiency of the disease.—*Brit. Med. Jour.*

A PROPHYLACTIC FOR SORE NIPPLES.—Dr. Julius Fehr writes (*New York Medical Record*, August 21st):—The curative, as well as the palliative, treatment of sore or cracked nipples being well known to be futile, my aim for a long time was directed to the finding of a reliable prophylactic. After trying a good many formulas of others, and combinations of myself, I came at last to the use of tannate of lead, the "cataplasma ad decubitum" of the *Pharmacopœia Germanica* with the addition of a little glycerine to modify, in some degree, the excessive drying properties of that preparation. This "plumbum tannicum pultiforme" I had applied, for about one month before parturition, two or three times a day, directly to the nipples. This I found "tanned" the nipples in so thorough a manner that they were perfectly able to withstand all suckling and all pulling on the part of the infant successfully. At the same time, I use a piece of cotton felt, about one inch and a half in diameter, and half an inch in thickness, with an aperture in the middle large enough to give free access to the nipple. This will not only prevent the pressure of the garments on the nipples, but will give, at the same time, to the nipples a chance to develop themselves better, which is often so much needed.—*Brit. Med. Jour.*

REVIVAL OF A LOST ART.—The School Board for London has arranged that 300 selected girls shall be taught cookery by the teachers of the National Training School for Cookery at two centres—one in Marylebone and the other at Greenwich. The Society of Arts offers five free teacherships of cookery to be competed for, and the Education Department gives four shillings a-year to schools on behalf of each girl taught cookery according to the code.—*San. Rec.*

FEVER AND MILK.—Dr. Ogston, of Aberdeen, records in the *Glasgow Medical Journal* an outbreak of typhoid which, after a most careful inquiry extending to every conceivable channel of infection, was traced to the milk supply.

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SPECIAL NOTICE.—While thanking those who have paid for the SANITARY JOURNAL, we are very sorry to be obliged to again remind a large number of those who receive it that we cannot possibly continue to publish it without *money*. We hope each one will not think his two dollars can make but little difference to us for a little time. This is too apt to be the thought of many we fear. We have incurred great expense in publishing, and Christmas is not far off, at which time every one should strive to be 'square' with the world, as regards accounts, if he desires to be happy and healthy. We trust this reminder will meet with a ready response from our friends, or those interested in public health, and that each will be so good as to forward at once the small amount of subscription to the editor, Box 1972, Toronto. If each one would do this, we should be able to enlarge the JOURNAL at an early day, without, of course, raising the price.

OVERWORK.

The subject of over-work, especially of mental over-work, has recently been attracting a good deal of attention. Three or four months ago the Rev. Mr. Greg lectured in England on "Life at High Pressure," and no doubt alarmed some people by depicting the dire consequences inflicted on individuals and on society, by the hurry and the worry in the competitive race for wealth and position. He appeared to imply that the nervous system is too much wrought upon by incessant work, and that many are breaking down under the pressure. Dr. Samuel Wilks, of Guy's Hospital, London, on the other hand,

seems not to believe in this theory of attributing so many evils to overwork, and denies that people generally are suffering from the effect of wear and tear. He says: "More persons are suffering from idleness than from over-work. Medically speaking, I see half a dozen persons suffering from want of occupation to one who is crippled by his labors." It appears evident that the experience of Dr. Wilkes has been with a well-to-do class, with too much leisure on their hands, while the observations of Mr. Greg have been more confined to those striving over-much daily and hourly not for bread only, but for wealth or position, or both. Of these there are undoubtedly many. It seems to be very generally believed that the marked increase in heart disease and insanity is very largely due to over-work, or over-strain, together with the anxiety and excitement usually connected therewith. The over-worked man is usually a 'nervous,' over-anxious man. In the present 'fast' age, it can hardly be doubted that there are many such. Our best authors assert that that terrible disease the general paralysis of the insane, until the present century unknown, is not usually hereditary, but affects the healthiest, strongest, and most energetic. "A grim caricature of our present aims and ambitions." Such as these are not the ones who would be likely to suffer from want of occupation or inaction. Moreover, it would not be easy to show how idleness, unless carried to an extreme degree, would give rise to heart disease. Unquestionably, this subject of over-work demands the attention of all who take an interest in the future well-being of society.

The *Sanitary Record* gives some valuable hints as to how the effects of over-work may be distinguished in the early stages, as follows:—

"Over-work exists when the sense of energy once possessed is distinctly impaired; when it is found an effort to get through what was once a cheerful task; when what was once found comparatively easy is beginning to be felt a trial, and above all, when errors or omissions, the direct outcomes of a flagging and wearied brain commence to manifest themselves. To spur on an exhausted brain, and by application

and longer hours of toil to compel the over-taxed nervous system to complete its round of duty, is one of the most disastrous and erroneous measures that can be adopted. Whenever work, itself unaltered, looks larger than of yore, and is felt to be more trying, then the system is commencing to feel the effects of over-work, which, however, may actually have existed for some time unnoticed."

Dr. Wilks says those are happiest, and we suppose, healthiest, who have some second occupation to interest them—that is "a pursuit besides their bread-earning employment." Upon this the '*Doctor*' observes, "We believe there is much truth in this, and we recommend all our professional brethren to have their hobbies as well as their practice."

PROPHYLACTIC IN SCARLET FEVER.—Dr. J. Muir, of Carthage, New York, formerly of this Province, and Member Medical Council, Ont., draws our attention to the great value of inunction with warm oil or lard, "to be removed with the infectious excreta and particles of cuticle, at regularly arranged periods by the warm sponge or other bath," in preventing the spread of scarlet-fever, and also in "soothing," and "comforting," the suffering patient. The doctor appears to have had much practical experience in this treatment; several years ago, in a communication to the London *Lancet*, he mentions 30 cases, ranging in severity from simple to malignant, treated by him in this way, only one of which proved fatal. It is not difficult to understand the soothing and comforting effect of both the inunction and the bathing, while there can be no doubt as to their value in preventing the spread of the contagium.

CITY VENTILATION.—It is now proposed, by Dr. Duffield, in a paper read before the Detroit Academy of Med., to supply fresh air to dwellings, offices, etc., by means of shafts 200 or 300 feet high; bringing down "the pure air from the sky." The doctor argues that it will not cost more to supply air in this way than it does to supply water. He also proposes that the sewer air should be, by means of tall shafts, delivered far away from human habitation.

EARTH CLOSETS, complete in structure, and forming a very nice piece of furniture, are for sale by Messrs. Cleverdon & Combe, Toronto. These gentlemen also furnish the necessary dry earth, in any quantity; which is provided by Mr. John Davis of Davisville. This method of disposing of human excreta is unquestionably the most natural one, and we believe the best sanitary method, and we should be pleased to see the earth closet brought into much more common use. Mr. Cleverdon informs us that if their use should become general, the entire closet could be manufactured in this country, (a part being now imported from England), and at a lower price than that at which it is now sold.

A ROYAL SON OF TEMPERANCE.—The announcement that Her Majesty the Queen would become a patron of the Church of England Temperance Society, is followed up, says the *Lancet*, by the announcement that His Royal Highness Prince Leopold will become President of the Oxford branch of that Society. This will, undoubtedly, strengthen the temperance cause greatly, and do much toward the suppression of a great evil.

HAIR-Died.—An exchange says, one Jacob Benjamin, aged fifty-five, a well-known and wealthy pawnbroker of Baltimore, died on the 20th September from erysipelas, produced by the use of hair-dye. In the *Health Reformer*, for August last, a case is mentioned of a woman, once “of good capabilities” and “of a business turn,” who is now a “mere wreck, not capable of taking care of herself,” and is in an asylum for the insane, in which the sad change is, by herself, her friends and the family physician, attributed to the use of hair-dye during a number of years.

A PLEASANT CLIMATE.—In San Francisco, according to the *Pacific Med. and Sur. Journal*, the highest temperature in the Month of July last was 73°; in August the highest was 69°. The mean temperature at noon-day was 63° in both July and August. The mean at night, or at the coldest period, was 53°3' in July, and 53°7' in August.

MILK REFRIGERATORS are now largely used in England, by the best dairy farmers. The preservation of milk depends very much on the rapidity with which it is cooled, after being taken from the cow; hence the value of the machines. Rapid refrigeration destroys infusoria, and also neutralizes the animal odor, so objectionable to some persons.

A MODE OF "COSTLESS VENTILATION" is thus described by Dr. P. H. Bird, F. R. C. S., in the *Sanitary Record*: 'Raise the lower sash of the window two or three inches, and fill in the opening underneath the bottom rail with a piece of wood; this leaves a corresponding space between the meeting rails in the middle of the window, through which a current of air enters, and is directed towards the ceiling.' It is estimated that in order to keep the air of an inhabited apartment sufficiently pure, it is necessary to provide 3,000 cubic feet of fresh air per head per hour. How this quantity, or a tenth part of it is to be obtained during the coming season by the occupants of some dwellings, even of some elaborate ones, with double windows and no special provision for ventilation, is a deep mystery. A little extra fuel would be wisely and economically used in warming an abundance of fresh air, introduced as above. An opening should be provided, as it may best be, into a chimney, or even stove pipe, for example, for the escape of foul air.

PROTECTION FROM QUACKERY IN TEXAS.—The law of Texas now provides (*Paci. Med. and Surg. Jour.*) that no one shall practice Medicine in that State, who has not received the degree of M.D., or passed an examination before a Board of Examiners appointed by the County Court. An effort is being made to give the appointment of examiners to the State Medical Association; and it is even proposed that graduates shall pass the examination.

A NEW AND CONVENIENT SYSTEM of applying carbolic acid by fixing it on paper sheets has been invented, says the *Sanitary Record*. The absence of the danger, which attends the use of the liquid acid, is a special recommendation.

IN THE STATE OF ALABAMA the State Medical Society has been legally established, a State Board of Health, and the county Societies are to act as local boards of health. When shall we have such an organization so creditable to the medical profession legally established in Ontario.

THE BOARD OF HEALTH OF MASSACHUSETTS calculates that \$50,000,000 might be invested in drainage in the State, without loss, as the generally improved state of health would give so much greater effectiveness to labor.

FOR CONVEYING INVALIDS.—It has been found by actual experiment in England that the "Hammock System" for conveying invalids in railway carriages possesses advantages over all others. Neither jar nor jolt is experienced by the invalid in the hammock. It is now proposed, says the *Popular Science Monthly*, to extend the benefits of the system to the general travelling public, and thus reduce the discomfort of railway travelling to a minimum.

A FRUIT MISSION has been suggested, *Medical and Surgical Reporter*, Philadelphia, to supply the charitable institutions for the sick and poor with good fruit, free. Flower missions have been productive of much good, and sister missions for distributing fruit to the sick and poor could not fail to be equally cheering to many a weary feverish sufferer.

REVIEWS AND BOOK NOTICES.

LECTURES ON PUBLIC HEALTH, delivered in the Lecture Hall of the Royal Dublin Society, pp. 203: Hodges, Foster, & Co., Dublin.

This is a volume containing ten lectures, delivered as a scientific series, under the auspices of the Royal Dublin Society, and a Sanitary Association recently formed for promoting a knowledge of Public Health. They are illustrated with maps and diagrams, are replete with valuable information, and will well repay attentive study; having been delivered by men of experience and position. Though Ireland has heretofore been behind Great Britain in sanitary matters, much is now being done in this way, and Trinity College, Dublin, has been the first of all the Universities to establish a qualification in State Medicine.

The introductory lecture of this series, by Wm. Stokes, M.D., D.C.L., F.R.S., &c., (Reg. Prof., Univ. Dub.), on "Sanitary

Science in Ireland," is graphic in detail and highly interesting. In considering the forces antagonistic to sanitary improvement, Dr. Stokes believes them to be "poverty and destitution with their long train of evils, ignorance, apathy, insufficient and improper food, filthy habits, overcrowding, bad ventilation, insufficient clothing, the living in ruined and neglected tenements, the destruction of proper pride, and the blessed influence of home."

"The subject of public sanitation," he says, "which implies Preventive Medicine in its widest sense as distinguished from Curative Medicine, touches every hearth and home in the country; every man, woman, or child, from the highest to the lowest; every institution in the State, its power, its defences; its education, its manufactures; every trade, every occupation, domestic purity, domestic happiness, national prosperity, national health, longevity and morals; the duties of property, the exercise of charity, and the blossoming and the fruit of our common Christianity. Its end is to improve and to preserve man's body in the best condition, and through it his immortal part. 'The body of man,' says Dr. Acland, 'is not only the casket which contains the soul. It is more—it is a casket which under certain conditions, moulds and modifies the soul.'"

He refers to the important question of Registration of Sickness, and says facts are accumulating to prove that the death-rate in a locality bears no approximate ratio to the amount of unhealthiness there. And while life has been lengthened in cities "at the same time the sickly and infirm period of existence has been prolonged probably in a greater degree than even life itself. Chronic diseases, or, at least, functional disorders, have increased, vital force is lowered, man's work is arrested, his duties are unperformed, his objects fail, though he still lives. Weakly, diseased children are now mercifully helped, as they never were in olden time, to grow up into weakly, ailing adults, whose children inherit their unsoundness. Is this true sanitary progress? Does it deserve the ostentatious parade of a decreasing death-rate? Lastly, personal antecedents and remote causes of death now generally escape notice."

On the subject of Preventive as compared with Curative Medicine, his remarks coincide with those in the Paper in the first pages of this number of the SANITARY JOURNAL. "If a comparison be made as to the relative value of these branches of medicine to the world, I believe it will be seen that Preventive has, or will have, a larger influence for good

than Curative Medicine." He concludes that, for the present, till we know more of germ life, "We must mainly trust for disinfection to cleanliness in the *widest* acceptance of the word."

In lecture II., by Dr. Reynolds (Prof. Analyt. Chem.), on the "Discrimination of Good Water and Wholesome Food," simple, practical rules are given for detecting common adulterants in foods and drinks.

Lecture III., on "Meteorology in its Bearing on Health and Disease," by Dr. Moore, Diplomate in State Medicine, is an elaborate and a fair representation of the present knowledge on this subject. On the influence of season on thoracic and abdominal affections, he lays it down that, as in summer the tendency to disease and death is chiefly connected with the digestive organs, and in winter with the organs of respiration, "in summer a rise of mean temperature above the average increases the number of cases of, and the mortality from, abdominal affections." In winter a fall of mean temperature below the average increases the sickness and mortality from thoracic affections. Regarding scarlatina, his observations agree with Dr. Ballard's inferences, "that a mean atmospheric temperature of about 60°, or between 56° and 60°, is that most favourable to the outbreak of scarlatina. 2. That for its free development it is necessary that the humidity of the atmosphere shall not much exceed 36, or be much less than 74. 3. That a higher temperature than 60° does not appear to be in itself unfavourable to the spread of scarlatina. 4. That a fall of mean temperature below 53° tends to arrest an epidemic of the disease."

The next lecture, by Dr. Little, (Prof. of Med. in R. C. S), is an interesting discourse on the "Geographical Distribution of Disease."

"Zymotic and Preventable disease" is the title of the fifth lecture, by Dr. Grimshaw. Some of his conclusions are certainly open to discussion. Simple fever he regards as a "mere attempt" at either typhus or typhoid, not sufficiently developed to be identified with either. He agrees with English sanitarians in regarding typhus as originating *de novo* from overcrowding, and typhoid from decomposing sewage. It does not appear to be fully established that scarlatina arises from decomposing slaughter-house refuse. "Relapsing fever," he says "is believed to be the direct product of famine, but being contagious, may communicate itself to well-fed persons."

There is a lecture by the well-known Dr. Mopether, on the "Prevention of Artizans' Diseases," in which he pleads

earnestly on behalf of the poor seamstresses of Dublin, earning and living upon 3s. a week—for more holidays and reasonable hours of labour; another lecture on “Liability to Disease,” by Dr. Hudson; one on “Antiseptics and Disinfection,” by Dr. Macdonnell, and one on the “Construction of Dwellings,” by Mr. Geo. Henderson, architect, practical and easily understood.

The last lecture, highly interesting, valuable, and well worthy the careful attention of our Members of Parliament, is by R. O'Brien Furlong, M.A., Barrister, &c., on “Sanitary Legislation.” He says, “Now-a-days, politics are more attractive to *orators*, and more exciting to constituents, than the health and well being of the people, which the law-givers of ancient empires made their chiefest care.” While evidently believing in the absolute necessity for the enactment and vigorous application of Sanitary laws, in Medical Health Officers, and in special Medical Inspectors, debarred from private practice, he urges the great importance of educating the masses in sanitary matters, and thus, as it were, and as Mr. Michael puts it, constituting “every man and every woman in his or her own household, an officer of health.”

We are sorry space does not permit us to notice further this interesting and instructive volume.

REPORT ON POSITION, PNEUMATIC PRESSURE, AND MECHANICAL APPLIANCES IN UTERINE DISPLACEMENTS. By H. F. Campbell, A. M., M. D., Prof. of Surgery and Gynæcology, University of Georgia.

The subject of this Bronchure appears to demand the attention of every practicing physician. Excellent illustrations are given of the proper “*genu-pectoral position*” of body; and Dr. Campbell’s “*Pneumatic Self-repositor*” is described, which is said to be simple and convenient, and to cost little more than an ounce phial. The writer insists that no pessary should ever be applied, or its application attempted, *until after the dislocated organ has been reduced by knee-and-breast posture, assisted by pneumatic pressure*; and holds that in reduction of retroversions, except in cases of adhesion or impaction, *nothing is necessary but “genu-pectoral pneumatic pressure.”*

THE DOCTOR, London, Eng. A monthly review of British and Foreign medical literature; large 8vo., Pp. 20., 6s. stg. per annum, presents, in the smallest compass, an epitome of the practice and literature of the profession.

NEW YORK MEDICAL JOURNAL, James B. Hunter, M.D., D. Appleton & Co.; \$4 per annum. This is a handsome monthly, of over 100 pages, consisting chiefly of original clinical reports, reviews, and translations.