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HYPER-VENTILATION.

By this heading it is not intended to imply that it is possible to ventilate too freely, or to supply an excess or over abundance of fresh air; but, on the other hand I would insist that a supply much in excess of what has heretofore, even up to the present time, been considered by our best authorities sufficient and ample, is absolutely essential to perfect health.

Pure air is now generally regarded as not only very essential to health, but as a valuable article of the *materia medica*, though it has not yet found a place in the pharmacopœa. Time was when it was thought to be 'too strong' for those affected with disease, though it was thought to be very good for strong healthy people who could 'stand' it. Though very many people now regard it quite differently, full value is not yet placed upon it by the masses, or even by physicians generally. At this season of the year, and for six months to come, all sorts of devices are, and will be, adopted to prevent its entrance into dwellings, and windows and doors made as tight as well taxed ingenuity can make them.

We are told that 2,000 or 3,000 cubic feet per head per hour is necessary, and that in ordinary states of the atmosphere, with the temperature of the air in a room 10° or 15° above that of the outer air, an inlet with a sectional area of 24 square inches would admit this amount. This in order that the carbon dioxide in the atmosphere of rooms should not exceed .7 per 1,000 volumes, as indicating the highest permissible amount of poisonous organic matter in the air. And this, too, as if the supply of outer air was limited, or cost a certain sum per cubic foot.

True, in cold weather, it costs something to warm the air in occupied rooms, and to the very poor this is a matter of deep consideration, and that cannot always be provided for, but to a very large number it is only a comparatively small item, if the warming

process is properly managed. To very many a little extra fuel is or should be of very little consequence.

The permissible maximum impurity in the air of rooms of our authors—.7 or .8 volumes of carbon dioxide per 1,000 volumes of air (Parkes thinks it ought not to exceed .6 per 1,000), exceeds by nearly 100 per cent. the amount of carbon dioxide in the outer air, which is usually only .35 to .4 per 1,000 volumes, while the amount of organic poison in occupied rooms with this amount of carbon dioxide in the air, as compared with outer air, would be, proportionately, still much greater. That is, with this standard, while there would be nearly twice as much carbon dioxide, there would be much more than twice as much organic poison in the air of inhabited rooms than would ordinarily be found in atmospheric air.

True, as is asserted, we cannot have the air in occupied rooms quite as pure as that outside, but if we wish to avoid every cause of disease, and to have the maximum of health and vigor, we must have this first essential of life purer than this. We must provide 5,000 or 10,000 cubic feet of air per head per hour.

I need not here dwell upon the injurious effects of breathing air rendered impure by respiration. These are pretty well known. The readers of THE SANITARY JOURNAL will know that breathed air is now regarded, and upon a large amount of valuable evidence, as one of the chief, if not almost the sole cause of consumption, the most fatal disease in this country and in many others. And the open air treatment of this disease is the one upon which most reliance is now placed.

It is to be hoped we will not fall into the error the opposite of that in which pure air was thought to be only safe and good for the healthy, and regard it as only essential to the sick, and the well as strong enough to live without it. This would not be very unlike some of the extremes in medical practice.

It is impossible to show or to prove that minute proportions of poisonous matters in the air breathed are injurious to healthy persons, the evil effects are so slowly accumulative; but that they are injurious and accumulative cannot be doubted.

Parkes observes, "I admit that I am not able to show by direct evidence, that impurity indicated by .7, or .8, or even 1 volume of carbonic acid per 1,000, and organic impurities in proportion, is injurious to health. We possess no means of testing the effects of such small quantities. Such a standard must be adopted, on the general evidence that large ærial impurities are decidedly hurtful, and that smaller amounts may be presumed to be so in proportion, although we cannot measure the action."

Who would doubt that the purer the air around us the better. We have nature's standard of purity in the outer air of most localities, and if we do not have it quite so pure in our dwellings the difference should be almost inappreciable.

The severely sick being much more susceptible to slight influences

than those who are well, we have abundant evidence, some of which I shall refer to below, that small proportions of impurities in the air retard or prevent recovery. It is but reasonable to assume that under these same influences the fullest measure of health could not be maintained by any one.

The late war in the United States furnished evidence of the high value of the *purest* air in disease. A recent writer on the open air treatment of consumption, in the *Proceedings* observes in reference to this that the hospital barracks were well constructed to secure good ventilation—much better in this respect than modern houses. The open ridge the whole length of the building, the open window by the bedside of every patient, to say nothing of the many openings left by hasty, careless construction, would certainly seem to furnish all that was desirable in that direction. But experience soon proved that there was purer air out of doors, and if fever took an unfavorable turn, or the wound assumed an unhealthy aspect, the patient was ordered into the air, with only the roof of a tent for his covering, when his condition would almost invariably improve at once.

During the same war, at the New York Hospital, severe cases of double pneumonia (inflammation of both lungs), after having been treated in the usual way, and the wards ventilated as well as possible, and no improvement following, were carried on litters into the open air during autumn and early winter, and placed on the south side of the hospital building with nothing to obstruct the freest circulation of the atmosphere. The patients were well protected with blankets and kept out all day, and sometimes till after dark. The physician, in charge of the hospital, Dr. Agnew, says the effect upon the condition of the patients was invariably favorable. There was marked relief in the breathing within half an hour after removal from the wards. He invariably noticed that recovery was quicker.

In clinical lectures in late numbers of the London *Lancet* (September, 1877), Dr. C. H. Jones, F.R.S., &c., physician to St. Mary's Hospital, refers to this subject of hyper-ventilation in the treatment of "certain perilous diseases." He refers to six cases. The first, one of "chronic ascites, effusion into both pleura, emaciation, fever,—recovery by free exposure to air." There was "fluid in three serious cavities." "As long as she remained in the general ward she rather got worse than better, but free exposure to fresh air certainly coincided with, if it did not produce, a very remarkable improvement, issuing in recovery."

Dr. Jones summarises the six cases:—Two of probable consumption ending in recovery; four of blood poisoning from chronic abscesses: two recovered, one very much benefitted, and one not, "perhaps from [exposure to air] having been too long delayed."

In reference to the manner of exposing his patients to the fresh air, Dr. Jones says, "if the patients are well supplied with good bed coverings, have warm shawls fastened round their shoulders, and hoods with flaps over their necks, they run no risk of being chilled by currents of cold

air. The upper sash of the windows should be sufficiently lowered to leave a space of three or four feet vertical and of the width of an ordinary window, for the outside air to enter. The door should be open sufficiently to allow a very free passage of air, especially in the summer. In the winter a good fire should be kept up, and the door not be so wide open. It is perhaps better that the patients' beds should not be placed directly between the windows and the door, but a little to one side. The nurses are to be strictly charged to keep the windows and doors open night and day—an injunction which, for their own comfort, they are too apt to disobey. Visits should therefore be made at unexpected hours.

Such ventilation as this is intended to place the patient in as nearly as possible the same condition as if he were in the open air, except that he is sheltered from wet and cold, or excessive solar heat. Its object is to increase the æration of the blood, induce or promote destructive oxidization of morbid matters, and to favour also their elimination from the lungs in the expired air.

I have myself placed typhoid fever patients in conditions like those mentioned by Dr. Jones, except that they were in private rooms instead of hospital wards; and that in cold weather in October and November.

When persons with "perilous diseases" are thus benefitted by free exposure to air, those in average health (though perhaps much wanting in vigor), need not fear like exposure; or, at least, exposure to fresh air from a window constantly open a few inches at the top night and day, when other means for an abundant supply of fresh air are not provided. Instead of this, we find almost everywhere now double windows to exclude the pure air, and in pleasant days a small opening is permitted in the frame of the outer sash for a few hours, and this is called *ventilation*. Is it surprising that but few who are born survive 70 years; that very many die during their first year of existence; or that there are so many ailing, so many invalids, so many sick?

E. P.

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## THE EFFECTS OF GROWING VEGETATION UPON HUMAN HEALTH.

BY W. EASSIE, C.E., F.L.S.

THE influence of plant life upon animal life for good and for evil, has never obtained sufficient attention, which is the more wonderful when we consider their close relationship. . . . The boundary line between the vegetable and animal kingdoms has been almost effaced in modern times, and it is difficult to say where the one ends, and the other begins. We are told, however, that the germinal matter of the lowest forms of vegetable life in water is universal, and that they are in a higher state of development there than in the air. The fungi exercise an important influence in inducing a diseased condition

in animals. When the human frame is not altogether healthy or able to banish the intruder, these forms may even pass into the minute cells of the lungs. One species is an almost constant attendant on cancerous affections of the stomach. A few spores of a certain fungus when rubbed into the skin have been known to produce a serious skin disease, and Dr. Lowe has induced skin diseases by inoculation with the granules of yeast. Fungi have always been considered as a greater factor in the spread of disease. But even when they have found lodgment in the mucous membranes they cannot be said to originate disease, though they may aggravate it. They are almost omnipresent in nature, and their spores have been detected in flakes of snow, in the Trade-wind dust, and in the wilderness. They can also for the most part endure the extremes of temperature without losing their reproductive power. The spores are very commonly found in the dejections of cholera, and the complicated bodies which constantly accompanied the cholera in its last march through the west of England were supposed to be fungoid in origin. Be this as it may, these lower forms of vegetable life often cause derangement in the animal economy. The deleterious effect of the ergot, for instance, is well known, and the presence of ergot in fresh dried sausages, and in mouldy provisions, produced by ergot in bread have sometimes proved fatal. I might instance also the danger to health which results from the growth and spread of this form of life under the floorings of houses. I have known barrowsful of this rank vegetation taken from between the joists of a drawing-room, and I have seen flagstones which have been moved out of their place by such underground growths. I cannot say that these engendered any complaint beyond a feeling of annoyance, but what might have resulted in the long run I cannot say. Some of the fungi at a certain stage are, however, especially loathsome and create nausea, and even sickness, in the passer by. Venturing a little higher up the vegetable scale, let us just notice the influence of low plant life upon water. All water exposed to the air contains the germs of vegetable life. Microscopic algæ, etc., are common in nearly all kinds of water. These perish, and are found in a condition of ferment and putrefaction, the reception of which into the system produces an apparent tendency towards the quicker inception of disease. The rapid growth of confervæ upon water is very noticeable, and indicates when water can scarcely be drunk with impunity.

And now a word concerning trees, which screen the soil from the sun like so many parasols, diminish the temperature by evaporation of moisture from the leaf, and preserve a proper circulation of that necessary moisture. Without them the rain would descend headlong to the river beds, and rush in torrents to the sea. Without them there would be little percolation into the soil, certainly insufficient to supply our underground springs. The countries in which trees have been remorselessly felled have invariably suffered owing to the meteorological changes which ensued. About the year 1490,

the Guadalquivir Valley supported about seven millions of robust men, but after the disappearance of the live oak and chestnut groves from the heights above, the population dwindled down to one and a quarter millions of cadaverous people forced to toil upon sandy and barren land. The effect of forestal destruction may be witnessed also on most of the continental rivers, for during the last fifty years the Elbe and the Oder have fallen 17 inches, the Rhine 24, the Vistula 26, and the Danube at Orsova 55 inches, all this accompanied by a corresponding diminution of the discharges from springs. And not only do trees from their stature greatly prevent the evaporation of what moisture falls, but even woody scrub also serves as a means of attracting and condensing the atmospheric moisture. Owing to the demolition of the dwarf vegetation on the hills of the North-West Provinces of India, by the freebooters about the decline of the Mahommedan Empire, these hills once covered with a good depth of soil, are now denuded and sterile to a degree. This disgraceful state of things is still proceeding even under British rule, and the people of Bangalore have now some 30 miles to travel before they can reach the jungle to cut down wood, which not many years ago came within 10 miles of this city. Much wiser are they in Egypt. There, the rainfall owing to the planting of date palms and olive trees has nearly doubled. In the Soudan the rain gauge in 1820 registered only a maximum of 9 inches, and now it indicates a yearly average of 16 inches. The temperature of the table-land of the Wady-Halfa, owing to the planting of currants and mulberries, has also been rendered so much less oppressive that it has almost become a by-word. Surely we should take a lesson for India and Canada and Australia from this, and, as in Germany, our laws should take care that the yearly growth balances the consumption. Our forests should reasonably be re-created and maintained, even if not a particle of wood some day enters into the composition of our navy. In New York State, the inhabitants obtain a rebate of highway tax equal to a dollar for every four elms, maples, locust, or fruit trees which they plant along the roads, and this is the proper way to restore the balance. We should even pay for a careful search into the adaptability of certain trees to certain soils. Who knows the limit at which trees benefit man as well as the earth, or the entirety of good results which accrue to London only from her scattered parks? We are even told by Dr. Buchan that the hereditary leprosy and other diseases of the Nile Valley are unknown in Abyssinia, some one hundred geographical miles nearer the equator, owing to the timbering there. In the matter of famine, too, this is greatly accelerated in India by the want of shelter, and the climatic improvements which result to the grasses and the straws of all crops grown in the vicinity of trees.

In conclusion, we can point to the beneficial influence exercised by certain trees over certain diseases, but I will only instance one example, the Eucalyptus, or blue gum tree, and its febrifugal qualities now so well established. When introduced at the Gape of Good

Hope, these trees altogether changed the climatic conditions of the unhealthy forests in that colony, and miasma disappeared as if by magic. In the Campagna of Rome, the marshy exhalations have been nearly destroyed in many places, and in the fen districts of England the paludal fevers have been diminished by this natural therapeutical agent. An instance is recorded from Sussex, where a malarial fever, brought from Rome, ceased to reappear after the gentleman planted a few of these trees under his casement window. Dr. Bertherand, who received reports from thirty localities in Algeria, writes in equally favourable terms of this tree. At the great iron mines of Mokta-el-Hadid, the first set of workmen perished from miasmatic causes, but when, from 1368 to 1870, some 100,000 of these trees were planted by the Company, the next batch of men were able to reside altogether upon the premises. Another case is cited, concerning a farm some twenty miles from Algiers, where 13,000 of the Eucalyptus trees were planted during the commencement of the year, and when the regular fever set in, not a case occurred in the near neighbourhood. The effect is said to be due to the rapidity with which they absorb moisture, and also to the presence of an essential oil which is exhaled from the leaves, and which is freely emitted when there is a breath of wind. It is a fast growing tree, and will attain in seven summers the height that an oak tree can only reach after a lapse of twenty years.

One word more, and that is to the equally happy effects produced by some flowering plants—the sunflower, for instance. This will absorb impure gases and nitrogen quicker than any other known plant, and will evaporate as much as a quart of water daily. On the banks of the Scheldt, a landowner who sowed the plant extensively on his estate, escaped altogether the miasmatic fevers which prevailed on the estates all around him. General Sherman, who also grew the sun-flower extensively on the Roman marshes, noticed upon one occasion that a village close by his residence was visited by fatal attacks of fever, but that owing to the sixty plants which he had sown in his garden, his house altogether escaped. These are well authenticated cases, and ought to make us reflect. Nor are mere flowers to be despised, for, according to Professor Mantegazza, the active principle of oxygen, which is ozone, and an oxidant, disinfectant and deodoriser combined, is generated largely by all plants possessing aromatic odours, and is thrown off under the sun's rays. The scent given off also by lavender, sage, and rosemary, is said to be efficacious in cases of plague. Assuredly we are only in the very alphabet of economical botany.—*Sanitary Record*.

THE CONGRESS OF THE SANITARY INSTITUTE OF GREAT  
BRITAIN.

(*Extracts from papers read—from Sanitary Record.*)

ON THE NECESSITY OF PLUMBERS AND BUILDERS POSSESSING A COMPETENT  
KNOWLEDGE OF THE LAWS OF HEALTH AS BEARING ON THEIR  
RESPECTIVE OCCUPATIONS. BY J. A. RUSSELL,  
M.A. M.B., B.SC. (PUBLIC HEALTH).

THE need of healthy dwellings is so patent that it is wonderful nothing has yet been done to instruct those who make and fit them up for us. We must remember that no trades are exposed to such temptation as those of the builder and plumber. A good plumber must be a man of more than ordinary honesty of character. The temptation to scamp the workmanship and material can only be realized if we consider that he is safe from any criticism; for the work is hidden from view, the public for whom it is done understand nothing about it, and are so repelled by the nastiness of the subject that there is no danger of their inquiring or examining too closely, and as for the "hands," all they know is, that they are working in the same way as their neighbours. It is in vain to pass Acts of Parliament, or frame regulations, while there is no intelligent public opinion in the trade to enforce them. The education of the workmen themselves is the true remedy. I am aware that it is supposed the English workman or soldier should obey and not think. But this old rule will no longer do. Intelligent work is required from the lowest grade in the army of labour. It is a most significant fact that officers of the Prussian army before Metz were required to give lectures to their privates, explaining the operations in which they were engaged. If workmen were aware of the loss of energy and illness entailed by the escape of sewage gas into dwellings, not to speak of the fearful results which may occur from specific disease, surely very few would be so heartless as to join lead pipes without solder, or put cement only on the top or exposed side of the joint in an internal drain, leaving the sides open. As it is, the greatest evil they can see from such a proceeding is the risk of a slight smell which they would think nothing of themselves, and consequently cannot sympathize with what they consider the over refinement that objects to it. Men who knew something of the effects of damp sub soil and walls, and the porous nature of brick and mortar, would, in general, take some trouble to have sub-soil drainage and damp-proof courses really effective. Moreover, by educating the ordinary hands, not only should we raise the standard of individual work, and create a public opinion in the trade, but we should provide the best possible check upon the doings of those men and masters who dared to scamp. The danger of falling into the hands of the sanitary authorities would be too great when every evil deed was observed by skilled witnesses.

ON THE PRESENT POSSIBILITIES OF SANITARY LEGISLATION. BY MR. R.  
BRUDENELL-CARTER.

After referring to the contagium of zymotic diseases, he said: It was perfectly conceivable that the poison of these diseases might not

consist of germs at all, but might be dead matter acting by means of chemical affinities, and an inconvenience incidental to the use of the word 'germ' was that it tended to impose a hypothesis as a truth. This want of certainty did not matter so far as scientific men were concerned, because they were not likely to be misled by what South felicitously called the 'terrible imposture and force of words.' He proceeded to deal with the inferences held by some that these diseases, as we now know them, are the results of distinct varieties of poison, that they have ceased to originate spontaneously, and that they always depend upon infection, as well as with the opinions held by others,—persons, too, whose opinions are entitled to weight—that the evidence is all against these suppositions ; that different types of disease may originate from a common cause, and that the epidemic maladies with which we are familiar, may arise even under certain combinations of circumstances. Dr. Budd and his followers held very strongly that every case, say of typhoid, whatever might have been the first origin of the disease, must now be the offspring of a pre-existing case, as strictly as a child must be the offspring of its parents ; but, on the other hand, there have been many instances of typhoid and of analogous diseases in which no source of contagion could be discovered, citing the fact of a single fatal case of cholera in the prison at Agra to a prisoner who had been in the jail for two years, 2,000 other prisoners being in the jail, and no second case of the disease occurring. Taking the reverse of the picture, many instances were found in which the origin of what at first seemed to be 'spontaneous typhoid' had been traced to its parent case as soon as the investigation had been undertaken by a person of sufficient skill and knowledge, and an example of this was pointed out in Dr. Buchanan's discovery of the channel through which typhoid poison found entrance to Caius College. The question raised in these points was not a merely speculative one, but was of the highest practical importance to all who sought the preservation of the public health. It was manifest that if every case of disease must now be the result of a pre-existing case, the entire extinction of such a disease was at least theoretically practicable. It would only be necessary to destroy all the newly-formed poison for a certain number of weeks or months, and the malady would disappear, and it would not be insuperably difficult to guard against its re-introduction from foreign countries. If it could be proved to be true that zymotic diseases constantly originated anew—that they arose out of certain combinations of favourable conditions, then the work of sanitary reformers, although by no means hopeless, was almost inconceivably more difficult and more arduous. Which of the views might be true was at present wholly uncertain, but, added the speaker, we must not suffer ourselves to imagine that certainty can be attained by the simple process of talking about 'germs.' It can only be attained by the patient investigations of competent observers—of men who are possessed of all the knowledge necessary to the correct appreciation of the nature

of the facts which come before them, and who sought for truth without reference to preconceived opinions. It must be admitted that the question was of great practical importance. We did not want, he said, to follow some philosophers in their disputes over the necessarily insoluble problem of spontaneous generation, but we wanted to know whether, as a matter of practical fact, a case of typhoid fever necessarily presumes a pre-existing case in a channel of contagion or only a pre-existing combination of physical conditions. The great difficulty of answering this question arose from the extraordinary complexity of the conditions favourable to the diffusion of disease which we have allowed to spring up around us. It could not be said that a case of typhoid had arisen spontaneously unless every possible channel through which the poison might have been introduced from without had been excluded. Such channels were at present innumerable, and one thing which ought to be sought from the law was their gradual closure. As soon as it was certain that the poison of typhoid commonly came by some particular inlet, that inlet should be made secure against it in the future; and so in time, by the mere process of stopping inlets or guarding them, we should arrive, by the method of exclusion, at certainties at present unattainable. He mentioned how scarlet fever was communicated to his own family by a dog who had come straight into his garden from children who were, it was afterwards found, down with the disease. Thus, he said, disease may be conveyed in some such unsuspected manner as this—by a stray dog, by a beggar, by a tradesman's messenger, in a public conveyance, in a place of amusement, or by casual contact in the street. The postman may have put it into the letter-box, or it may have been delivered with clean linen by the laundress. As long as all these possibilities exist we can be sure of nothing, not even that the disease has actually found admission through the particular channel we suspect. One of the things he thought we might ask from the law, even in the present state of knowledge, was adequate assistance in guarding some of the channels, such as soil-pipes and water-pipes, through which the diseases most familiar to us are now daily distributed. It could not be said that this would be asking the legislature to interpose in a small matter, or to take upon itself duties unworthy of an Imperial assemblage. Lord Macaulay said that "the business of a Government is to protect the lives and property of the governed," and both the lives and property of the English people suffered terribly from the state of things now permitted to exist among us. He showed that the "so called zymotic" diseases had caused in 25 years the loss of 2,500,000 lives in England and Wales, out of a total mortality of 11,000,000. By adding to the 2,500,000 the number of 500,000 for another five years, we arrive at a zymotic mortality of 3,000,000, or nearly equal to the population of London in a single generation. He multiplied the average annual mortality by six, and obtained what is a very low estimate of the average annual sickness, and, taking the average duration of sickness from estimates furnish-

ed by Dr. Buchanan, he showed that the total annual cost and loss occasioned by illness alone from zymotic diseases in this country, if it fell upon the wages-earning class alone, would amount annually to more than £2,500,000. He referred to Dr. Buchanan's facts in Mr. Simon's reports as to the changes which had been produced in certain towns by the works for promoting public health, and, quoting the report on Macclesfield, showed that whereas the death-rate used to be 33 per 1,000 it had fallen to 26, and that in four streets where inhabitants received over £158 4s. 9d. in relief from the poor-rate before the improvement, they afterwards received only £25 5s. 6d. If the inhabitants of this country were once to realize that the ten thousand annually-recurring deaths, say from typhoid fever, were not due to any supernatural cause, but were simply so many murders, resembling in everything but the elements of individual criminality, the starving to death of children in 'baby farms,' or the wanton destruction of life by any other description of neglect, the indignation which would be aroused would make short work of imaginary obstacles to reform. As long as the ignorance and the superstition remained, all that could be done was to regard insanitary abuses as giants to be circumvented, not as dwarfs to be overthrown, and every opportunity should be taken for endeavouring to spread abroad knowledge. In respect of this endeavour, and without any infringement of the liberty of the free-born Briton to diffuse present contagion where he pleased, the law might be so modified as to render assistance of the greatest possible value. He proceeded to urge that the first step to this end was to provide for the registration of every case of self-propagating disease which came under the notice of any public practitioner in his official capacity. He confessed that he should like to see more than this—that it should be a matter of statutory obligation upon every medical practitioner to report to the sanitary authority of the district every case of self-propagating disease; and such cases should no more be hidden than the breaking out of fire should be hidden from a locality. If such cases were reported, a Government Department could at once send down an inspector to investigate how the disease had been introduced—such "inspector," he begged to say explicitly, to be a physician thoroughly trained in the difficult art of sanitary inquiry, and he did not mean a "barrister, or an engineer, or a surveyor, or a person who does not know scarlet fever from measles." Such "skilled inspector" would not be sent down to interfere with the local authorities, but to declare the truth, to trace out the facts, communicating them to the local authorities, and should publish them in the local prints, bringing into prominence the cost of sickness. The report could show that in regard to typhoid fever, for instance, some passing tramps had poisoned farmer Jones's cesspool, that this had leaked into the brook, that the water of the brook was drunk by the villagers, that there had been so many cases, so many deaths of adults, so many of children, so much expense for temporary relief, so much for the

maintenance of widows and orphans left permanently chargeable, the total cost of which capitalised would be estimated at £1,500, all of which would have been saved by stopping the leak of the cesspool at a cost of £5. The statement thus submitted would show the cost of a piece of ignorant parsimony or an instance of presumptuous rashness, and this, he said, would be better than talking to the average "vestry," "board," or "guardian." mind about sewer gas in towns and polluted water in all places as abstract agencies. Such authority would realize the facts about farmer Jones's cesspool, and all talk of the misery caused must be put aside, the expense of the neglect only being dwelt upon. This action would furnish seeds of thought which would germinate surely if slowly, and would lead to a readiness to submit to legislative enactments manifestly necessary for the ventilation of sewers and the protection of water from pollution.

ON TURPENTINE AND TEREbene AS DISINFECTANTS.

BY T. MOFFATT, M.D., F.G.S., etc.

SOME years ago, while performing experiments with a view to ascertain whether flowers and their essences have any action upon the air while under the influence of the sunbeams, I perceived that oil of juniper and turpentine acted upon the oxygen and produced ozone. Since then, terebene, a substance obtained by the action of sulphuric acid upon turpentine, had been introduced, and is now, I believe, extensively used as a disinfectant. The disinfecting power of terebene is said to be owing to its developing ozone. Ozone is nature's disinfectant. It is a highly oxidised body, and it is readily dissipated by oxidising oxidisable substances, such as the products of decomposing animal and vegetable matter.

Turpentine, however, is a much more active ozoniser than terebene, and must therefore be a more effectual disinfectant. For the purpose of comparing the ozonising power of oil of juniper, turpentine and terebene, I put an ounce of each into glass vessels, from the covers of which ozone test papers were suspended. In ten minutes the tests in the vessels containing oil of juniper and turpentine gave signs of ozonic action; while that under the action of terebene showed no change. In the course of an hour these tests showed ozone to the amount of eight of my scale for turpentine and oil of juniper, and only one for terebene. Terebene is used as an atmospheric disinfectant, by diffusing it in the form of spray through the air by means of a spray bottle. To test its ozonising action in the form of spray, one ounce of terebene was diffused through 500 cubic feet of air—an ozone test paper was suspended for twenty-four hours in the apartment, but no indication of the formation of ozone was produced. The same quantity of turpentine was introduced in the same way, and an ozone test paper suspended in the apartment. In the course of twenty-four hours a decided trace of ozonic action was perceived. Test papers, however, placed upon furniture upon which spray had fallen like dew, became coloured. Test papers fastened to

furniture, upon which the spray fell, show a much deeper tinge than those tests which were exposed to the spray only. Dr. Richardson, in his lecture on Hygeia, refers to the polishing of furniture with bees-wax and turpentine, by which the air in apartments is rendered fresh and ozonic. With the exception of phosphorus, I know of no readier or cheaper disinfectant—as far as ozone is a disinfectant—than turpentine, and I know of no better mode of applying it than in the form of the old fashioned furniture polish, bees-wax and turpentine. Upon a piece of furniture just polished, I inverted a jar, having an ozone test paper suspended in it, and in a quarter of an hour the test paper was tinged; I allowed it to remain six hours, and it was then coloured six of my scale. The ozonising action of the polish continues nearly as active at the end of a week as it was on the day of application. From these experiments we learn that oil of juniper and turpentine by their action upon the oxygen of the atmosphere develop ozone, and that they do so more actively than terebene. Turpentine mixed with bees-wax forms a disinfecting furniture polish, the application of which has this advantage over other disinfectants, the mode of application removes all accumulations of dust, and destroys all germs of disease. I would suggest that all furniture, especially of bedrooms and hospitals, should be made of pine wood, and that it and all skirting boards and pannelling should be thoroughly polished at least once a week; and I advise that all cesspools and the like should be surrounded with fir trees and shrub-beries of the common juniper.

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#### HIGH MEDICAL EVIDENCE ON THE 'TEMPERANCE QUESTION.'

The following from the London *Lancet* will be interesting and useful to the readers of the *SANITARY JOURNAL* at the present time when Ontario is so generally agitated over the Temperance question.

Some time ago a Select Committee of the Lords was appointed for the purpose of inquiring into the prevalence of habits of intemperance and into the manner in which these habits have been effected by recent legislation and other causes. The medical witnesses examined up to the end of the recent session were Sir William Gull, Dr. Burdon Sanderson, and Dr. Lauder Brunton.

Dr. Lauder Brunton said that the popular notion of taking 'a good stiff glass of brandy to keep yourself warm' was quite a delusion, supporting his opinion by reference to the lumberers in Canada, who during winter will not allow spirits to be kept in the camp, and to the experience of Arctic expeditions, and also to a rarely scientific game-keeper to whom Sir Joseph Fayrer offered a drink from his flask one day while deerstalking, and who refused, saying, 'No, Sir, it is too cold.' He thought that a tired man before beginning his meal might get good from a glass of wine, and that 'often alcohol taken with

warm water at night, especially by a person who is cold, is an excellent means of bringing on a comfortable sleep,' acting thus by dilating the blood-vessels of the body generally, and so producing anæmia of the brain, on which sleep greatly depends. But he added, 'If a man eats and sleeps well he does not require alcohol, and he is better without it.' He referred to experiments showing that alcohol retards the growth of young animals. He urged that great pains should be taken to relieve the craving of drunkards by other than alcoholic means, quoting his favorite story of an observation by an old drunkard—a Scotchman: "The neighbours aye speak of my drinking, but they never speak of my drouth." He referred to a paper by Dr. Doyle, read to the Obstetrical Society, maintaining that drinking in women was often associated with a disordered or diseased condition of the uterus. Referring to drunkards who drink in fits, he compared their bouts to epilepsy, and mentioned two or three cases in which the anti-epileptic treatment was very successful. He recommended as substitutes for drink, and as a remedy for the "craving," carbonate of ammonia with gentian, with a little tincture of capsicum; in the intervals of the craving general tonics, especially iron. He mentioned that alcohol was a true food, 'an inconvenient food in health, but a very convenient food in fevers.' Therapeutically he regarded alcohol as one of our most valuable remedies. As regards restraint of drunkards, he thought a power of detention should be given, and that if you could keep a drunkard twelve months from drink he might be able thereafter to do without it.

Dr. Burdon Sanderson concurred in every point of Dr. Brunton's evidence. He said it was 'clearly established' that two ounces of pure alcohol in 24 hours was the limit which an ordinary man can take so as to have it used or oxidised; when not oxidised it accumulates, and so becomes injurious. Alcoholism, in its various forms, was the ultimate result of non-combustion or non-oxidation of alcohol. In this sense—the sense of being oxidisable, and so saving tissue, up to the amount of two ounces in the twenty-four hours—Dr. Sanderson maintained that alcohol was a food. As a food it was capable of conversion into heat. 'The only use that we know it can be put to is that of combustion. At the same time the question remains open whether it may not be converted into other kinds of force.' He admitted that alcohol, in a way different from all other kinds of food, deteriorated the organs; and that though a man might oxidise two ounces of alcohol, he certainly would not recommend him to take it; that quantity would be altogether inadmissible as a frequent dose. He would not recommend alcohol to a healthy man. He said that it exhilarated and promoted circulation. 'In case of illness, particularly fevers, it was quite indispensable.' Asked whether one ought to encourage or discourage its use, he said, 'My belief is that upon the whole the human race would be situated just as favourably if the use of alcohol did not exist.' He expressed himself emphatically in opposition to the legislative prohibition of the use of alco-

hol. The adaptedness of alcohol to the condition of fever consists in this—that a person when in fever does not require to exercise much muscular power, but he does require to keep up his temperature, and he must have the materials for this purpose; and as Dr. Brunton explained, alcohol serves as a substitute for tissues of the body. Alcohol was injurious when taken in cases of prolonged muscular exertion and in cases of exposure to the cold.

Sir William Gull, in his evidence, gave an account of the history of medical doctrine as to the use of alcohol, including Dr. Todd's—that diseases were chiefly due to debility, and required alcohol almost universally. Since then there has been a great change. At present we regard much 'the physiological course' of disease, and believe that alcohol has a value, but only a subordinate one, chiefly that of a sedative of the nervous system, calming the patient until by natural processes he is cured. The principal illustration of the use of alcohol taken by Sir William was in the case of typhoid fever with high temperature or uncontrollable delirium, and when opium would be injurious, and probably fatal. Though Sir William thinks we could not do without alcohol as a drug 'it is still over-prescribed.'

In conditions of fatigue, Sir William thought that instead of flying to alcohol, people might very well drink water, or take food, and would be very much better without the alcohol. 'If I am fatigued personally, my food is very simple. I eat the raisins instead of taking the wine. I have had very large experience in that for thirty years.' He 'thinks' a man occupied in the open air, doing a good deal of work, would find 'some beer' a good form of food. But 'he thinks beer is overdone.' 'In the case of Barclay and Perkins's draymen you can see how it is overdone.' Sir William thought that a moderately healthy person, so far from being benefited by alcohol, would be injured 'as regards the intellect. . . All alcohol, and all things of an alcoholic nature, injure the nerve-tissues *pro tempore*, if not altogether, and is certainly deleterious to the health. . . I should say, from my experience, that alcohol is the most destructive agent that we are aware of in this country. . . I think there is a great deal of injury being done by the use of alcohol in what is supposed by the consumer to be a most moderate quantity, to people who are not in the least intemperate, to people supposed to be fairly well. It leads to degeneration of tissues. It spoils the health and it spoils the intellect. . . I do not think it is known how alcohol acts on the human body, but I know it is a most deleterious poison. . . I would like to say that a very large number of people in society are dying day by day poisoned by alcohol, but not supposed to be poisoned by it.' As to the breaking off the supply of alcohol to persons suffering from alcoholism, Sir William gave a very clear note. 'I should not be afraid to stop it altogether in most cases. I should think it highly desirable to stop it altogether. Of course it depends upon the age of the patient, and the likelihood of doing him any good at all. . . It produces many diseases of the liver

from which arise disordered conditions of the blood, then diseased kidneys, diseased nervous system, or gout, or diseased heart. . . . I hardly know any more potent cause of disease than alcohol.' Sir William said in the higher classes there is great temperance, more abstinence than in the middle classes. He could not, from his own experience, assert that drinking among women was increasing, Drinking between meals he condemned absolutely as 'most injurious'; also 'the eleven o'clock beer' of servants, remarking that domestic male servants are amongst the most unhealthy classes of the population, only to be cured by abstinence and purging. He magnified water as 'of all dilutents and solvents of food' the best. On the question of restraint he spoke diffidently. He distinguished carefully between a habitual drunkard and a dipsomaniac, heredity attaching not to mere drunkenness, but to mental defect leading to it. He advocated punishing a mere drunkard, and doing it early. He would publish the name of a man found drunk, and if found a second or more times, he would put the number of times opposite his name for public reprobation, although quite aware that society would not at present agree with him in this. Sir William Gull is of opinion that the whole question of drunkenness cannot be dealt with by Legislation, but must be dealt with by society at large, by a better knowledge of the disadvantage of stimulants, and by a better moral condition of the whole of society.

We feel thankful to the medical witnesses already examined by the Lord's Committee for the masterly and clear way in which they have spoken. They all express what we believe to be the very general view of the profession, that alcohol as a medicine is indispensable, if not undesirable. Sir William Gull's evidence may seem to strongly biased against the customary ways of taking alcohol, but if considered carefully and as a whole, it must be admitted to be an admirable statement of the views of the best practitioners. We should recommend temperance societies to distribute broadcast the medical evidence, and especially that of Sir William Gull. It will be all the more influential for not going the whole length of 'teetotalers,' though we gather that Sir William in his personal habits is not much at variance with them. But the warning that he gives of the number of respectable people 'not intemperate,' that are dying day by day of alcohol, comes from a large experience, and cannot be disregarded. We entirely endorse his opinion on this point. Practically the question, from a physiological and medical view, is settled. We cannot dispense with alcohol in medicine. There are medical men, indeed, who believe otherwise, and who maintain that disease, even fevers, are better treated without alcohol. We shall hear more of this doctrine; but, in the meantime, practically alcohol is regarded by nine men out of ten as a most valuable medicine to be used with discrimination. But the time has fully come when any medical man prescribing it carelessly or indiscriminately will be blamed by the general judgment of the profession, both from an ethical and a scientific point of view.

## THE ENCOURAGEMENT OF TYPHOID FEVER.

We reprint the following sensible observations says the *Sanitary Record* from an article bearing the above title, which was published in the *Builder* for August :

The medical profession is the natural guardian of the public health. It is so *ex officio*. But it is more than that. A large acquaintance with many of the brightest ornaments of the medical profession, in and out of the British isles, leads to the certain conviction that the preservation of the health, not only of his patients, but of his neighbours, townfolk, countrymen, is a motive that presses on the life of the doctor with unslumbered force. No offence need be taken by the members of any other class and calling if we attribute to our physicians and cultivated men of medical science and practice a degree of active and disinterested beneficence to which it is hard to find a parallel elsewhere. And it is to this that the appeal must now be made. It is this willing horse that we have to spur. We must call on our physicians and family doctors to do some violence to their professional or personal delicacy of feeling in the interest of the common weal. There is little doubt that, as a rule, the higher are the intellectual and professional qualifications of the physician, the less is he disposed to volunteer advice. When he is consulted, he must, no doubt probe the case of his patient to the bottom. And so he does ; and in exact proportion, as far as our own experience extends, to the real value of the time of a physician, measured by quarters of an hour, is his apparent utter disregard to the lapse of time while he is investigating the symptoms, or listening to the complaints of a patient. But here the limit is drawn. Into the circumstances and habits of that patient, unless as they bear directly on the very point of his complaint, the physician shuns to pry. At times, indeed—all honour to them for the same—men of large practice will put some delicate or circuitous question as to the ability of a patient to pay golden fees without inconvenience ; but solely with the view of remitting or reducing such fees in case of real need. But if a man goes to consult a physician, say as to the state of his heart, the physician will not be likely to question him as to the condition of his scullery or his sink.

We very much fear that we shall have more royal, noble, and even medical victims to typhoid infection, unless the profession somewhat change their hand in this matter. It will be remembered that we are now more especially referring to the condition of connections with the sewers, and the escape into a house, or the water used to drink—as at Marlborough House, the War Office, and the Admiralty Offices—of that subtle and deadly gas which bears the germs of this disease, or at least, sets up the abnormal action which ultimately takes that form. It is to be expected, no doubt, that if called in to a typhoid case, the doctor will make some inquiry ; just, as, if he were called in to a case of consumption, he would inquire as to the

dry or wet condition of the subsoil, and the state of the ventilation. But we mean something more than this. What we wish to become the universal practice is, that, when a medical man is consulted on any occasion, at his own house, or on visiting a patient, whatever be the illness, whatever the symptoms, he should make minute and searching inquiry as to the possible escape of sewer-gas, or the contamination of water; and, if he visit the patient, should not only inquire, but see for himself, what the state of things is. If one or two of the most eminent men would set the example it would be universally followed. Those men who failed to take the trouble would by-and-by be stigmatised as heedless and unreliable practitioners. We freely admit that there would, at first, be much that would be disagreeable in this change of practice. The doctor must make up his mind to be stared at; to lose so much time in the course of the day; even to affront, and perhaps lose patients. But what we have before said is enough to show how thoroughly we are convinced that these drawbacks would be freely borne by the majority of the profession, if once convinced that it was an unavoidable professional duty to make such searching inquiries. Nor do we for one moment doubt that in the additional success that would attend the practice of any man who adopted this course, there would very soon be found a compensation for all the discomfort. Many things that were really obscure to the physician himself would become clear to him if he made a point of overhauling the places in which his patients lived. Why do the children of such a family so often want the doctor? Why have they hoarseness, sore throats, catarrhs, want of appetite, red eyes, or a hundred other things? In the luxurious and well-appointed drawing-room to which the little things are brought down, when the doctor's carriage stops at the hall door, the why may be very puzzling to the doctor himself. He knows, of course, what palliatives or restoratives to give, and he gives them. He prescribes, it may be, a wise course of regimen. He cures the little ones for that week, and ten days after he is called in again.

But if, instead of a state visit to the drawing-room, the physician insists on seeing his patient, so to speak, *in situ*, how different will be the case. 'I cannot allow Sir X. Y to go into the nursery when it is in such confusion,' says the fond mother. That is not Sir X. Y's view of the case. The more confusion the better, so that it results from the children making horses of the chairs, or even tents, of the scraps of carpet, which alone should be allowed in their dominions. But, ten to one, something worse than confusion will catch the eye,—or some sense,—of Sir X. Y. 'What is this, nurse,—do you burn gas in the nursery?'—'Only at night, sir.' 'And how long has this smell been perceptible?' 'Well, I think we perceived something when we came back to town; but we keep the door open. All gas-pipes smell sir!' 'Bring me a box of matches.' The physician strikes a light and approaches it to the gas-pipe, runs it along to the joint, and a slight, fairy-like flash blows out the match. Or the hot-

water pipes, carefully and conveniently laid into the night nursery, for the benefit of the bath, bring up around them a little jacket of foul air from the scullery or worse places. And then the closet itself,—but we need not go further. These are instances which must be familiar to us all. The little sufferer wanted the physician, indeed; but he was in far more need of the gasfitter, or, rather, of the quiet, decided grave man, who should say on going down. ‘My dear Mr. So-and-so, if you wish to have your children grow up healthy, send immediately to your tradesmen, and have all these matters looked to under proper advice.’

One example,—and we are sure it will awaken an echo of sympathy from many a one who has learned sad lessons from experience,—may serve for all. In spite of the labours of twenty or thirty years, of books, pamphlets, leading articles, lectures, speeches, Acts of Parliament; in spite of the loss of the noblest, the brightest, the dearest from our side by this fatal and subtle poison, to the spread of which, what are to a certain extent sanitary improvements, if unwatched by a competent eye, may directly tend; how many of our palaces, mansions, public offices, are still maintained as the seed-beds of preventable disease? We make one more appeal. Will not the eminent men who so well know the truth of what we say come forward, and endorse our recommendation; enforce it, rather, by turning advice into practice.

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#### ELEMENTARY ADVICE TO MOTHERS AND NURSES.

At a meeting of the Societe Medicale de Reims, M. Bienfait read a draught of the advice to be given to mothers and nurses by the Society for the Protection of Childhood.

“*Nursing*.—The duty of a mother is to preserve the life of her infant by suckling it from her own breast, or, if her health will not permit of this, by providing for it a nurse. If it be absolutely impossible to give the child human milk, or if this be insufficient in quantity, it ought to be supplemented by the milk of some animal (cow, goat, &c.), for *milk is the only nourishment suitable for a child during the early months of life*. Animal milk ought to be given under those conditions which render it most like the mother’s milk. It should be taken as far as possible from the same animal. It should be given, still warm, soon after it is drawn, unless it be taken fresh, in a glass which has been thoroughly cleansed between the time of milking and that of the metal. It should never be boiled. It should be diluted with slightly sweetened water, warm enough to bring the mixture to the temperature of the body (37 degrees centigrade; 98.4 Fahr.). The dilution should be made at the time of each meal: with one-half water during the first week; one-third water during the three following weeks; one-quarter water afterwards up to the fourth month. Dating from this time it should be given warmed in a water bath, not diluted, but with the addition of a very small quantity of

sugar. Glass vessels only should be employed for drinking (feeding) purposes, and they should be scrupulously cleansed after each meal. The remainder of one meal should never be offered to the child again. The hours of feeding ought to be regulated. During the day a meal every two hours is necessary, but an interval of four or five hours between the two meals from the middle of the night should be reserved for the rest of the nurse. After the sixth month various milk gruels may be given or light paps of cheese farina. About the end of the first year fat (meat) soups may be taken occasionally whilst still continuing the milk. The child will thus by degrees be prepared for weaning.

“*Weaning.*—The weaning ought only to be made after the eruption of from 12 to 16 first teeth, taking into account besides the season of the year and the health of the child. Even after weaning, animal milk ought still to enter largely into the diet up to the age of two years at least.

“*Toilet.*—Each morning, before the first meal, the child should be washed from head to foot, with water rather fresh than hot, and have his linen changed. Where needful, a hair brush and oil should be used every day to prevent the formation of *bouzet*, which is only an injurious crust (dandruff). Washing of the lower part of the body should be repeated as often as it becomes soiled with urine or the stools.

“*Clothing.*—The clothing will vary so as to protect the child from variations of temperature. The garments should always be large enough to permit of the greatest freedom of movements. The belly-band (binder) should form part of the clothing during the first months.

“*Bed.*—The mother and child should never sleep in the same bed. The cradle should be scrupulously clean; the air and the light should circulate freely around it; the curtains should be light, and should never be closed except on the side from which currents of air, too great heat of the sun, or that of a fire, might incommode the child.

“*Exercise.*—During the first days the newly-born should be held in the arms or on the knees for some hours; but, unless in an exceptionally mild temperature, should not be taken out before the fifteenth day. After this first going out it should be carried out every day during the mildest hour. These walks, short at first, should be gradually increased, the prolonged action of a pure air favouring in a high degree the development and health of the child. The day should then be divided between long sleeps and long walks at regular hours. In the intervals the child should be laid upon the floor upon a blanket, free to move and roll about. He will thus learn to raise himself alone, and to walk when the time comes without running the risks which the use of carriages and wheeled panniers, &c., entails. The midday sleep should be continued up to the age of three years at least.

“*Medical Requirements.*—The child should never be offered the breast of a nurse, other than the mother, unless she has been ex-

amined by a physician. Vaccination ought to be done by the age of five months ; sooner in cases of small-pox epidemics. The preceding rules will only admit of very rare exceptions ; they should not be departed from in any particular without the advice of a physician. Every indisposition of the child lasting over twenty-four hours imperiously demands the attention of a physician."

This instruction was adopted by the society.—*Canadian Journal of Medical Science*.—Translated from *Union Medicale du Nord-est*.

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#### PATHOLOGICAL CONDITION IN INEBRIETY.

Our drunkards are not made in the saloons ; they are simply graduated there. They take their initiation in their own homes, around their own home tables. The father and the mother lay in themselves the foundation, and carry by a constitutional germinal impulse over to their children a constitutional liking for stimulants. This liking existing in the child as a tendency, is developed under the table arrangements into an actual appetite ; and so, from the eating of stimulating and exciting foods, affecting the nerves of the stomach, there comes at length to be an irritable condition of the nerves of nutrition, and by reflex action, of the nerves of taste ; and so at length the waking up of a natural longing or desire for something to overcome the feeling of exhaustion, which, stimulants not in use, is always noticeable, and sometimes imperious in its demands.

It does not follow, however, that the appetite for strong drinks, considered from the alimentive point, is attributable only to the irritation caused in the nerves of nutrition and taste by reason of the use of highly-seasoned foods. Articles of diet which lack in themselves the constituents to make good the waste to which the nerve structures are subjected in performing their proper office, have a direct effect in awaking and producing the desire for stimulating beverages. Under a great variety of circumstances exhibited in our common life, men feel a strong desire for stimulants. That desire grows out of the starved condition of the nerves in their bodies. Furnished stimulants, this sense of starvation is overcome ; and for the time a factitious result is secured which the patient makes himself believe, and perhaps his physician is led to believe, may be substantially and decidedly recuperative ; but like every other fallacy, this hope of his rests on nothing ; and so, in the end, the stimulants and the tonics fail him. If you were to give to this debilitated, disordered, diseased, exhausted, living body, in the way of ailment, the means of repairing its starved nerve-tissues, the desire for stimulants would perish. Under the recuperating effects of nutriment, the longing for stimulants would disappear. While this is true of a sick man whose disease is marked by nervous debility, it is just as true of an habitual drunkard.

Every man is a drunkard by reason of the starved nerve tissues in his body. This covers both classes of drunkards—for we have two well-defined and separate classes of inebriates—one class, whose drunkenness is a disease primarily, disease only lying in the distance; the other, whose drunkenness is a disease primarily with reflex tendencies therefrom to viciousness. But whether it be your vicious or your sick drunkard, in either case the subject is such because of the greatly disordered, diseased, debilitated nerve tissue.—Dr. J. G. Jackson, *in The Laws of Life*.

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#### REPORT OF THE BOSTON COMMITTEE ON HABITUAL DRUNKARDS.

The Mayor of Boston appointed, last year, a committee of three, consisting of Rev. Dr. A. A. Miner, Dr. George C. Shattuck, and Dr. John E. Tyler, to examine and report on the treatment of drunkenness in the city institutions, and to suggest some measures looking for the reform of this class. The report of the commission is short and sensible. They condemn the method of dealing with drunkards which is common to all our large cities, by which men and women arrested and charged with intoxication, are fined in some small amount, generally \$10, or sent to a workhouse or penitentiary for some short period, commonly thirty days. If the fine is paid the burden falls upon the family or friends of the drunkard, who are innocent of all fault, and are sufficiently punished by the mere fact of his drunkenness. If he is sent to prison the term of his confinement is long enough for him to get sober, but not long enough for him to acquire habits of sobriety. The consequence is that a restoration to liberty is followed by a new spree and another commitment. The police statistics of London and New York establish this fact beyond peradventure. The worse defect, however, of this method of punishment, is its failure to make any distinction between drunkards and criminals. These conclusions lead naturally to the recommendation, which the commissioners make, for a new departure in the treatment of inebriates. They suggest that the city of Boston should convert the institution at Deer Island into a sort of reformatory, where all kinds of agricultural and mechanical labor can be carried on. Thither drunkards should be sent for terms long enough to enable their constitutions to recover thoroughly from the effects of alcohol and to give them an opportunity to acquire habits of industry. In some cases a year would be sufficient for this purpose; in others three years might be required. There would be enough of punishment involved in the reformatory process to make it thoroughly salutary. So long as the present system of fines and temporary imprisonment serves to manufacture drunkards instead of reforming them, this topic of the relation and duties of the community towards inebriates should be zealously studied, and we trust Boston will adopt the recommendation of its commissioners, so that the rest of the country may profit by her experience.—T. D. C.—*in Quar. Four. of Inebriety*.

## ON STATE MEDICINE.

Extract from the address of the President of the Canada Medical Association, delivered by Dr. Hingston at the meeting in Montreal in Sept., 1877 :

GENTLEMEN,—Is there, can there be, a more important work than 'to protect the public health, which is the life of the nation?' And to whom does this work of right belong but to those who, already familiar with Physiological and Pathological Sciences can best teach and instruct their application 'to the maintenance of the health and life of communities, by the means of agencies which are in common and constant use.'

Speaking, as I do to-day, to, and in behalf of the Medical Profession, in this our beautiful and beloved Canada, I should say there is no work more important ; no work more philanthropic ; no work more benevolent than that of awakening in our population, and through it in Governments and Municipal bodies, a knowledge of, and an interest in, all matters relating to public health. A knowledge of the laws of health should not be confined to the profession. They were openly taught to the people by a Moses, and were not strained through time, but came down to our own day monuments of wisdom.

The conviction is steadily gaining ground that a Board of Health should be established for the Dominion ; Provincial boards for each Province ; and local boards for every municipality. But where shall we commence? With the Legislature? Legislators are but the mouthpieces of the people ; and if party politics consume their time, they but act up to the standard by which the measure and quality of their work are to be valued. Give them, however, another, and a higher standard by which to estimate and measure the line of duty, and make them to understand that the health and happiness of a people, as Earl Beaconsfield observes, are the foundation on which depend much of the happiness and power in the State, and we will find them exercising all the ingenuity of the age, and all the knowledge of our most advanced Scientists and Sanitarians in securing the lives, and in protecting the health of the people. But can we reproach them for doing nothing, while we do so little towards disseminating correct information, and inculcating proper habits among ourselves? Let us do our share outside of what is the truly professional—for none so qualified as we to do—and salutary laws will be framed, and the people will observe them. It is said that our favoured Sister City, the Queen of the West, and the Capital of Ontario, has made 'several very vigorous and very unavailing attempts to form a Sanitary Association, with a view of aiding the authorities in improving the health of the city.' This city has been more fortunate, and has done more—but it required to do more. Legislation on health matters has been, so far, unformed, unfinished, and immature. When I entered officially, a couple of years ago,

upon the labour of endeavouring to improve the sanitary condition of the city in which we are now met, I found no law that could be put into force to carry out the most necessary sanitary measures ; and, in my earlier enthusiasm, struggled, with but partial success, to obtain some amelioration in sanitary legislation.

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**POISONING BY ORDINARY GAS.**—To have our rooms pleasantly illuminated with gas is to undergo a process of poisoning, the more disastrous because, instead of directly producing the characteristic symptoms of defective blood oxygenation, the gas-polluted atmosphere insidiously lowers the tone of vitality, and establishes a condition favourable to disease. It would be difficult to overrate the importance of this household peril. Pictures are spoiled by gas, gilt mouldings are tarnished, the colours of decorated walls and ceilings fade, and men and women of delicate organization are enfeebled and injured by the foul air in which gas is discharged and supposed to burn innocuously. The extent to which this evil works in the midst of domesticated families during the long evenings is not adequately appreciated. After the first few unpleasant experiences are over, the physical sensibility becomes inured to the immediate results of breathing an atmosphere charged, more or less heavily, with the products of combustion and unconsumed coal gas. It is not creditable to the ingenuity of practical men that no method has yet been devised by which the advantages of gas as an illuminating agent may be secured without the drawback of slow poisoning, with the host of maladies a depressed vitality is sure to bring in its train.—*Lancet*.

**A NEW METHOD OF DISINFECTION.**—The *Scientific American* state that M. Boschau has devised a method of disinfection based on the continuous and economical production of ozone by means of manganese dioxide, which is of timely interest. Ordinary light brown wrapping paper is thinly covered with size, and on the latter the pulverised dioxide is sifted, so that it forms an adherent layer. It is merely necessary to hang the sheets thus prepared in the apartment to be disinfected or aerated. M. Boschau states that he lined a trunk with paper thus prepared, and placed therein some old cheese and strong radishes, which he left in the receptacle for a fortnight. At the end of that period the materials were removed and the lid of the trunk quickly shut. Fifteen minutes afterward, on opening the trunk, not the slightest odor was perceptible, the ozone given off by the dioxide having completely disinfected the carbonic and butyric acids produced. The inventor proposes to manufacture wall-paper, prepared in an analogous manner, for use in schools, hospitals, etc.—*Canada Medical Record*.

**THE VALUE OF DRAWING.**—Mr. Hensman, in his eminently practical address to the students at Middlesex Hospital, strongly insisted on the value of drawing as a means of training to hand and eye. It

is more: the faculty of measuring the apparent dimensions and relative proportions of objects, plays a prominent part in the attainment of all forms of knowledge. Even an ideal subject is worked out in thought with the aid of mental forms and figures. The lecturer sees heads and subdivisions of his discourse; the lawyer, the topics and connecting link of an argument, in his "mind's eye." No practice is more generally useful to the mind as well as the body than drawing, and of all forms of this art that of sketching from memory is most exacting and educational. Let the student so examine the "appearances" before him in the dissecting-room, the museum, the pathological laboratory, and the hospital, that he may carry away a mental image of the form and colour, the relative size and the relations of the several parts. Then let him sketch from memory, and, returning to the object, verify his work, correcting its inaccuracies and supplying omissions. The mental results of this system of study will not be less beneficent than the manual. The same principle applies to note-taking. It is better to write *after* observation or hearing than during a demonstration or lecture, and it will greatly facilitate study if the jottings made are as far as possible pictorial and arranged in figure. The hint is a slight one, but if worked out intelligently it will produce good effects.—*Lancet*.

SOLID FOOD IN TYPHOID FEVER.—Dr. S. D. Tarney, in the *Ohio Medical and Surgical Journal*, advocates the use of solid food in typhoid as superior to liquids; his idea is, that as early in the disease as possible, before the stomach has lost its digestive power, the patient is to be given a substantial diet of plain, solid food—such as beef, mutton, roasted potatoes, and toast—three times a day, at his usual hours of eating. The food should be well prepared and made as appetising as possible. Little or no fluid is to be used during the meal. Notwithstanding the loss of appetite and aversion to food, the patient is urged to eat, if only a few mouthfuls. The habit of eating is to be kept up. In the course of three or four days the loathing ceases, the patient readily takes food, and frequently anticipates his meals with pleasure, and enjoys them with positive relish, *pari passu*, the gravity of the symptoms subsides; and the disease running a mild and regular course, the patient convalesces at the end of the third week with scarcely any other therapeutic means. Contrary to the established belief, he declares that solid food in typhoid is never an irritant; that it does not increase fever, nor cause indigestion, gastro-enteritis, aggravated diarrhoea, ulceration of Peyer's glands, hæmorrhage, or perforation of the bowels. So far from this, it is thoroughly and easily digested, and is a preventive of these accidents. In many cases which he has thus treated the food has in no instance been rejected from the stomach, the diarrhoea has ceased, and the fæcal discharges have become regular, semi-solid, and have borne all the characteristic appearances of healthy fæces.—*The Doctor*.

**THE PLEASURE OF HUNGER.**—People who labour for their daily bread and bring to their meals the keen relish for food which is the legitimate fruit of healthful exercise and honest toil, may find it difficult to comprehend the appropriateness of the heading of this article. Nevertheless, there is a real pleasure in healthful hunger which is well appreciated by the poor sufferer from dyspepsia, that hydra-headed disease which tantalizes its victims with visions of toothsome viands, and then so annihilates the appetite as to make the most dainty morsel absolutely loathsome and repulsive. When once brought into such a condition an individual is prepared to realize the pleasure of hunger. The principle holds true in this, as in many other human experiences, that there is more pleasure in anticipation than in participation. The peasant who finds it difficult by arduous toil to obtain even the scanty allowance necessary to maintain life, knows more of real pleasure than the epicure whose taste is cloyed with rich delicacies and stimulating sauces. There are thousands of people who never know what real, natural hunger is. Their meals are crowded so closely together that nature has not time to develop a normal appetite. The individual feels faint and 'all gone' at the stomach, and mistakes this uncomfortable sensation for hunger. But it is really no more hunger than *tinnitus aurium*, or roaring in the ears, is hearing; or than a smarting in the mouth is thirst. The uncomfortable feeling described is the result of weariness, exhaustion, rather than a demand for more work to do. Hence, instead of relieving it by placing an additional burden upon the digestive organs in the shape of food, nature's call for rest should be understood and obeyed. For many, the omission, of the third meal is all that is really necessary. This gives the weary stomach opportunity for rest with the other portions of the system, and the individual arises in the morning enjoying the pleasure of real, natural hunger instead of the abnormal, exhausting, painful sensation usually interpreted to be a demand for food when only rest is called for.—*Health Reformer*.

**ARSENIC IN WALL-PAPERS AND DRESSES.**—Of fifty samples of wall-paper recently examined by Professor A. P. Kerley, says the *British Medical Journal*, twelve were found to contain arsenic. The arsenic was present either as arsenite of copper or aceto-arsenite of copper. Two samples, not reported, which contained no green colour, were found to contain arsenic; and several papers with green figures contained no trace of arsenic. Six samples of green tarlatan, all that were tested, were found to contain large amounts of aceto-arsenite of copper. The higher the price paid, the more arsenic was found. The green coloring matter was held more firmly to the fabric by means of gum arabic and starch. From the results tabulated, it appears that a room sixteen feet square and nine feet high will have spread upon its walls, provided any of these papers are hung, from fifty-two grains to more than eight ounces of poisonous green colouring matter. The remedy is simple; be careful not to buy such wall-papers or dresses.—*Med. & Surg. Reporter*.

DISEASES OF OUR OWN CAUSING.—On an average, one-half the number of out-patients treated by a hospital surgeon suffer from diseases due primarily to a want of knowledge of the laws of health, and cleanliness. The ignorance of hygienic laws, which affects so disastrously the health of the rich as well as the poor, exists chiefly in regard to dress, ablution, and ventilation. This statement may, at first, appear startling; but an enumeration of the diseases that can be constantly traced to the above causes will show upon how sound a basis the statement rests. The following are examples: Varicose ulcers, from dress; skin diseases, from want of cleanliness; chest diseases and fevers, from defective ventilation. The vast number of ulcerated legs treated in the out-patient departments of hospitals, in work-house infirmaries, and in private practice, arise from varicose veins. Now a varicose ulcer is caused by a distended condition of the veins of the leg, which have to sustain the pressure of the blood caused by gravitation. The most frequent and flagrant cause of obstruction is the elastic garter. Children should never wear them at all, as the stockings can be perfectly well kept up by attachment of elastic straps to the waistband. If garters are worn, it is important to know how to apply them with the least risk of harm; at the bend of the knee the superficial veins of the leg unite, and go deeply into the under part of the thigh, beneath the ham-string tendons. Thus a ligature below the knee obstructs all the superficial veins; but if the constriction is above, the ham-string tendons keep the pressure off the veins which return the blood from the legs. Unfortunately, most people, in ignorance of the above facts, apply the garter below the knee.—Dr. Bond in *Pop. Sci. Mo.*

IMPURE AIR.—A man may eat arsenic, mercury, opium, or drink alcohol in small quantities for a considerable period, without an immediate attack of disease. So may he indulge in gluttony, in debauchery, or engage in the most severe labour of body or mind for a time without bringing on disease. When disease will appear depends upon the constitutional strength of the individual, the degrees of excess practiced, and the co-operation of other causes. Precisely so is it with breathing foul air. Strong persons will resist the milder influence longer than weak ones; but carry the air-poisoning to an extreme degree, or give it the aid of other causes, and it will speedily prostrate the most vigorous. Furthermore, it always tends to wear out life long before the natural period, making men and women gray, wrinkled, feeble, and lank, as if from great age, while their years ought to bear the signs of prime vigor.—*Black.*

SCARLET FEVER.—A house agent in London was recently fined five pounds and costs for letting a house in which three children had been suffering from scarlet fever, without first disinfecting the premises. How many similar cases could be found in Montreal? Says the *Canada Medical Record*; and in Toronto or other cities we may add

**THE CONTAGION OF SCARLET-FEVER.**—In reference to the length of time, at which a person recovering from this disease may communicate it to another. Dr. Houghton, Surgeon to the Guest Hospital, Dudley, writes to the London *Lancet* as follows: My eldest boy, being at the time on a visit with an aunt at Egbaston, near Birmingham, broke out with scarlet fever on the 6th of July, 1861. He made a good recovery, and returned home on the 16th July, on which day his mother, with her four other children, one an infant, went on a visit to my mother at Hadsworth (also near Birmingham) leaving home some time before the boy arrived. On the 6th of August my wife and the four younger children returned home, and the elder boy went to my mother's, contact between the children being carefully avoided. On the 13th of August, the eldest boy returned home, and joined the other children. On the 23rd of August my second boy broke out with the fever, which then went through the house, all fortunately recovering.

It thus appears that in thirty eight days after the *commencement of the rash* of scarlet fever the boy was capable of conveying the disease, for how much longer he might have been so capable it is now impossible to say. I simply record the facts that they may tell their own tale. The accuracy of the dates and facts may be relied on, as they are taken from a diary carefully kept at the time.

**RURAL SANITATION.**—At the first ordinary meeting, for the session of the Society of Engineers at Westminster Chambers, Mr. G. W. Usill read a paper on "Rural Sanitation," the subjects dealt with being chiefly ventilation, water, and the disposal of sewage. Statistics proved that the mortality from epidemics was considerably more serious in rural districts than in cities, partly from the gross neglect and indifference often met with in small towns and villages, and partly owing to the increased difficulties which the engineer had to cope with in introducing efficient systems of drainage and water-supply in such neighbourhoods. The question of rural sanitation was often lightly thought of by the inhabitants of cities, who were apt to forget the important bearing of the matter on their own health, seeing that they were largely dependent upon the country for their food-supply—notably, for instance, in the case of milk, which experience had proved was not an infrequent vehicle of infection,

**SUPERVISION OF SALE OF MILK.**—The Society of Public Hygiene of Berlin has appointed a special commission to overlook the milk, in such establishments as may accept their control. The state of health of children nourished by the milk of these establishments is to be inquired into, while a veterinary surgeon oversees the purchase, health, stabling, and condition generally of the animals. The proprietors are to inform the commission when any animal is taken sick, and not to use the milk of any animal pronounced unfit by the veterinary surgeon. The commission have the right of examining the milk at any time.—*The Doctor.*

# THE SANITARY JOURNAL.

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## ON THE ORIGIN OF CONTAGIOUS DISEASES.

The doctrine of a contagium vivium—or the germ theory, as affording the simplest explanation as to the origin, communicability, &c., of contagious diseases seems to be very generally accepted. A sort of vague idea that these diseases are produced by minute living organisms has prevailed from a remote period; but since the experiments of Pasteur on fermentation and putrefaction, and since the discovery, more recently, of organisms in the blood and tissues, it has assumed the position of an important pathological doctrine—a theory, or even something more. In October last, at a meeting of the Sanitary Institute of Great Britain, Dr. W. B. Richardson, who a year or two ago graphically delineated a model City of Health, delivered an address on the “Glandular origin of communicable disease.” Ten years ago he advanced the same theory, but it seems not to have been generally accepted. He entirely disbelieves in the germ theory; will not allow that it deserves to be called a theory. He holds, it seems, (*Medical Times and Gazette*) ‘that a patient suffering from communicable disease is for the time being a poison-producing animal; the substance or material by which each communicable disease is produced, and spread, being an organic poison, or septine, which is the result of disturbed glandular action, and the patient being temporarily in a condition analogous to that of a poisonous or venom-producing snake. He has noted that the number of the distinctly communicable diseases is closely related with the number of the secretions in the healthy body: ‘the poison of hydrophobia is from the salivary secretion; of diphtheria from the mucous glands of the throat; of scarlet fever, he believed, from the lymphatic glandular secretion; of glanders, from the mucous secretion of the nasal surface; of typhoid, from mucous glands of the intestinal surface; and so on. In some instances the blood itself is infected, and the corpuscular matter becomes the seat of the cataly-

tic change.' And the matter or particle which sets up the poisonous action, instead of being a living germ, is matter actually dead ; its power for evil depending upon its being dead. By this, then, also is explained the fact that under certain influences affecting glandular action the poisons may arise directly through nervous impression without the necessary intervention of an infecting particle. In many epidemics it is common, Dr. Richardson says, to see a number of examples of the prevailing disease, the origin of which is traceable only to fear or anxiety. (?) 'My theory,' he continues, 'explains fully the reason of this. It indicates that an extreme nervous impression acts on the glandular nervous supply, paralyses the glandular function, and thereupon produces the same phenomena as are produced in other instances by the action of a specific poison. The theory in this manner accounts for the origin of an epidemic disease from an impression made on the nervous system without the direct contact of poisonous matter, as well as for the after-propagation of the disease by distribution of poisonous particles, when that is communicated from an infected to a healthy person. It accounts equally for the production of disease and of a poisonous glandular product under conditions of starvation and cold, by which the nervous tension is reduced. Again, it accounts for the production of disease and of a poisonous glandular secretion under special atmospheric conditions in which the activity of the atmospheric oxygen is reduced in sustaining power.' By it we can also account for the distinct 'heredity' of some of these diseases. The impression of disease made on a nervous centre is transmissible, and thus a tendency to typhoid fever, to diphtheria, to scarlet fever, is transmissible ; and as this tendency or susceptibility is, for a time at any rate, worn out by one attack, the glandular function being modified, we have in this an explanation of the protection afforded, sometimes for a lifetime, against future attacks of the same disease.'

This glandular theory or hypothesis of Dr. Richardson strikes us as having had its origin in one brought forward over two hundred years ago by Dr. Wilkes ; who held, and wrote a book to prove, that every organ of the body has its peculiar and appropriate fermentation, and that a morbid state of these ferments is the cause of all diseases. At least, one seems to be about as unsatisfactory and incomprehensible as the other.

Most persons believe that in the simplicity of the germ theory lies its great merit. Grant the existence of a living contagium, and it

seems easy to explain the entire phenomena of contagious diseases ; the incubating period, the fever, the local lesions, definite duration, &c.. With our present knowledge of germs, it seems much easier to understand how they would retain for a long time their specific poisonous properties ; dead matter would be much more likely to be decomposed or oxydised. What particular connection would dead contagious matter have with filth ? Would it be as easily propagated in water or air as living germs ? Dr. Richardson asks, if the germ theory were true, how could anyone escape fertilization ? It is most natural to suppose that the specific germs would not attack every one, but only the fittest. Though it is said of the terrible epidemic of measles with which Fiji was visited in 1875, that it ceased only when every person had been attacked. But Dr. Alfred Carpenter, in an address delivered last year before the members of the British Medical Association, (referred to and published in part in SANITARY JOURNAL, Sept. 1876,) sought to explain this point, and to our mind did so most simply and satisfactorily. 'I much doubt,' he says, 'if this potent force or living organism, take it as we please, could have any effect upon the body *if the recipient were perfectly healthy; if no impurity existed in the fluids of the body* ; if the blood contained nothing foreign to a healthy and natural state. If this be so, a question, arises, as from whence these impurities proceed, and how their effects are to be guarded against. I venture to put forth an hypothesis for consideration, which will explain much which is difficult to understand on any other view. Some impurities must exist ; they are the used-up matter, the result of the act of life, or they may be inherited tendencies, which has resulted from former neglect of sanitary law, and which have depreciated the quality of the stock, and rendered it more susceptible to bad influences. The impurities naturally increase if there are any defects in the sanitary arrangement of the individual corpus. Their presence is of no moment if they are not in excess, and if they are removed from the body as fast as they are formed, or in the course which they naturally follow.'

This seems a simple answer to Dr. Richardson's question, 'how could anyone escape fertilization' by germs ? Summed up, it means simply, a careful obedience to sanitary laws, even through more than one generation. This also affords an answer to another question of Dr. Richardson, 'how can any infected person ever recover ?'—When the impurities in the fluids of the body on which the germs live and thrive and multiply are all consumed.

In the glandular theory of Dr. Richardson there is much that requires explanation; and many points in it we should like to touch upon did time and space permit.

The germ theory we believe to be established on a solid foundation, though future investigations in reference to it are required, and must and will be prosecuted, and by capable men; and such investigations will lead to incalculable benefits to the human race.

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#### ON THE VENTILATION OF WATER-CLOSETS AND SOIL PIPES.

There are those who strongly object to a water-closet in the body of a dwelling house, under any circumstances, however well it may be constructed and ventilated. It is held that with the best possible construction, pernicious emanations may find their way into rooms, through defective pipes, the unsealing of traps, etc. So that even with the best construction and ventilation the maximum of safety is only reached when the closet is built in a part of the building projecting or jutting out from the main body, in order to permit of a passage with two or more doors, like an ice-house approach, with a window in each outside wall for the purpose of free ventilation and isolation. In this country, this arrangement would incur a little extra cost in warming, during at least three or four months in the year. The expense of heating however, would be comparatively trifling, the space required being small, even including the small ventilated anteroom. The outside walls of the projection should be well constructed, deep, and hollow. In a good dwelling house, warmth might be supplied by a flue from the furnace; in many of the ordinary houses in use, the cooking-stove pipe might be conveniently carried through the closet, and with a steady coal-fire the heat supplied by it would be ample.

In the last number of the SANITARY JOURNAL we gave an extract in reference to this position or arrangement for water-closets, from a well known and popular little English work on 'Healthy Houses,' by a well known author, Wm. Eassie, C. E., F.L.S. The text of Mr. Eassie's remarks is, that the best *position* for water-closets is such as we have described above. He says, 'the windows of the ante-room should if possible range on both sides, reaching to the top of the ceiling; if this is not convenient, narrow air-bricks should be inserted in the line of cornice: This, to keep the air pure in the passage,

which opens on the one hand into the dwelling, probably the hall, and on the other, into the closet. Mr. Eassie writes ; ' these rules may seem sumptuous, fit only for large mansions.' ' This may be so for a little time longer, but the time is speedily approaching, when these matters will be regarded differently.'

Very much surprised indeed were we a few days ago, only, to find in the Toronto *Mail*, a communication from a well-known medical man in this city, under the head of ' Water-closet Ventilation,' condemning an article in this JOURNAL, as having a '*pernicious tendency.*' Pernicious! *neco*, to kill—death, instead of life. We certainly breathed more freely after reading on to near the end of the letter, and learning what it was that the writer regarded as having a tendency to kill ; that it was only the extract referred to above, which urged ' that all water-closets should be located in towers, separated from the dwellings.'

We were quite and sorely puzzled to understand why an old contributor and friend of the JOURNAL should have written as had Dr. Workman, the writer of the letter, and to the *Mail* ; not even sending a note of warning to this JOURNAL, for the benefit of a chance reader of it who might not see his letter in the *Mail*. He had not even sent us a copy of his letter, to make sure we should see it, and be enabled to reply to it.

We did not see this letter of Dr. Workman's in the *Mail*, as it happened, for weeks after it was published. We at once wrote a reply, but the *Mail* objected to publish it, because of the length of time which had elapsed since the letter appeared. There are many readers of the *Mail* who do not see the SANITARY JOURNAL, and Dr. Workman's letters are read universally, and have weight, and we must say, we think we did not receive generous treatment, certainly, if even fair, from either the writer of the letter or the *Mail*. Perhaps we ought not to blame the latter, under the circumstances.

With all deference to Dr. Workman, for whom we have always entertained the highest respect, and for his opinion, on many things, we are compelled to say we do not believe we can so simply and inexpensively as the doctor proposes, and carries into practice, with a tube from the pan soil-pipe, above the trap, to a chimney, however strong the draft of this, guard always *safely* against the subtle poisons lurking in the pipes and drains of this modern, but without the greatest care, dangerous luxury, the water closet ; even if situated in a projection of the main-building, as it ought to be. The only real

safety, then, is in withdrawing all the sewer gas from the house drain and soil-pipes, and *never afterwards allowing it to become sewer-gas*, by constantly keeping the drain and pipes filled with fresh atmospheric air.

Several of our readers have recently asked our opinion on this subject; especially with reference to the open grating in the back yard. Instructive papers on the same were published in numbers 1, 3 and 5, of the current volume of the SANITARY JOURNAL, and the principles of ventilation therein advocated are seemingly those which are now very universally accepted and acted upon. Some difference of opinion exists as to the open grating in the yard, but we are rather at a loss to understand why it should be so; unless it is that its use or object is not thoroughly understood. The yard grating is not intended to ventilate the sewer, but the house drain. It may act as an inlet for fresh air, which should pass up the ventilator of the house drain leading to the roof, or higher. With a proper trap between the grating and the sewer, and an uninterrupted open shaft extending from the house drain below the grating, high up to the top of the house or highest chimney, we believe there would be a pretty constant current down the grating and up to the top of the ventilator, thus keeping the drain and pipes filled with fresh instead of foul air. With such a current there would be no bad smells come from the grating.

This grating furnishes an inlet for the outlet tube referred to by Dr. Oldright, in a paper in the first volume of the SANITARY JOURNAL, September, 1875, and recently in a communication in the *Mail*. Dr. Oldright in this JOURNAL, suggested two tubes as 'better than one,' leading to the top of the house. But we believe one connected with a grating in the yard, being low down, will secure by atmospheric pressure a more regular, constant current and better ventilation of the house drain, which would thus be kept *free from foul gases*, and there would be little or no risk of foul air escaping through traps or flaws in the pipes into the house. If adverse currents forced air down the ventilating tube and out of the grating, there would hardly be any smell—the pipes being constantly filled with fresh air. This arrangement, especially in connection with a tube leading from the pan soil pipe, above the pan trap, to a chimney, as proposed by Dr. Workman in the SANITARY JOURNAL, in February 1876, and with an isolated closet as advocated by Mr. Eassie, would give the maximum of safety, with the present knowledge on Sanitary Science.

This plan of ventilating is shown in number 1, vol. III of this Journal, though the trap, at the distant or sewer side of the grating at the bend, is not well shewn, but was omitted by the engraver.

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### THE SMOKE NUISANCE.

It might be supposed from this heading that we were about to write in reference to the smoke issuing from chimney-tops. But such is not the case. We desire to draw attention to what is in some respects a much greater nuisance,—the smoke issuing from the mouths of pedestrians on the side-walks. If people will draw into their mouths and bodies the smoke from burning tobacco—bad enough at best—but often of the vilest sort, they have no right to puff it out of their bodies into the face, and to the utter disgust, of neighbouring pedestrians.

In some cities across the southern border, we have been told, smoking on the streets is prohibited by By-Law. If some one of the worthy Aldermen of Toronto would bring in a measure for prohibiting the same on the streets of this city, and get it passed, they would certainly be entitled to the lasting gratitude of thousands, male and female, who cannot now walk the streets with any degree of comfort, while they would set a worthy example which other Canadian cities and towns might profitably follow. We hope and trust that some of them will at least give this matter consideration. Besides lessening this, to many, most disagreeable nuisance, prohibiting the use of tobacco on the streets might tend somewhat to lessen its use—the quantity consumed, which would be a useful sanitary measure. Furthermore, very young boys, not more than seven or eight years old, are frequently found smoking on the streets. Many of them, probably, would not be allowed to smoke at home, and they would hardly be permitted to smoke in the saloons, if smoking on the streets were prohibited, or, finable, a check might be put upon this evil, and it is a very serious evil. Injurious as tobacco is known to be to adults, it is ten times more injurious to young and growing boys.

Altogether, this matter is of sufficient importance to demand the attention and consideration of our law-makers.

## Annotatious.

### ON THE OPIUM HABIT.

It is believed by some that the opium habit is on the increase in Canada. We know of more than one who use daily a large quantity of this drug and cannot seemingly live without it. The *Medical and Surgical Reporter*, Philadelphia, in a leading article refers to it in the United States, and says: On various occasions, in this journal, we have asked the earnest attention of the profession to the great and growing danger of the extension of the opium habit in this country. Some recent developments point strongly to the conclusion that many of the second and third class drug stores of this and other cities depend for no inconsiderable share of their proceeds on sales of opium, laudanum, or morphia, to those who consume it with the regularity of a Chinese opium smoker. . . . The *Reporter* continues: The Chinese minister in London has lately represented, in a memorial, the fearful effects of opium-smoking on his fellow-countrymen. The most lurid coloring of temperance lecturers, describing the results of alcoholism, pale before this calm recital of the depopulation of provinces, the acreage of arable lands gone to waste, the number of families extinguished by this fatal passion.

‘Dr. J. Dudgeon, of the English Hospital at Peking, has lately published a telling article on the subject of the relations of opium-eating to population. . . . Should children be born the opium eater, their vitality is less than ordinary, and should they survive to maturity, they are as women, barren, and, as men, sterile. Hence, in a number of instances, the complete extinction of a family can be traced to indulgence in the drug. Now, as in nearly one-half of the eighteen provinces in China opium-smoking is already a habit with nearly one-half of the population, the enormous and pernicious results which half a century will exert are only too evident.

‘No habit so completely enervates the will, and renders the struggle of the unfortunate who is once in its power ineffectual to break from its grasp. It reminds one of the devil fish, or squid, described in Victor Hugo’s *Toilers of the Sea*, which fastens one by one around its victim its long and pliant arms, ‘as tough as leather and as firm as steel,’ until the wretch sinks helpless into its jaws.

‘The only reliable means of escape is, by the patient wholly and willingly resigning himself to the care and supervision of a physician in an institution especially adapted for that purpose.

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### WORK OF THE MICHIGAN STATE BOARD OF HEALTH.

At the regular quarterly meeting of this board in October, the Hon. Leroy Parker, chairman of the committee on legislation, made a brief report relative to the subject of boards of Health in Cities and Villages, and mentioned that since the last meeting considerable

progress had been made in securing health officers for such boards. The secretary stated that the progress in this direction had been great, and it was largely due to Mr. Parker's efforts.

Dr. H. F. Lyster read a continuation of his paper on the subject of Healthy Homes. He considered the subject mainly with reference to their location and the measures to be taken to secure good drainage, and traced much of the ill health of people to dampness in and about their dwellings. He had issued a circular to the correspondents of the board, and with this paper he presented the substance of about 40 replies received, showing the nature of the soil, practice as to tile-draining, sources of drinking-water, character of cellars, disposition of decomposing organic matter, etc., about the homes in the several localities.

The Secretary read an outline of a report of the work of his office during the last quarter. It included the distribution of about five thousand copies of the document on 'Restriction and Prevention of Scarlet Fever,' and sixteen hundred copies of the Fourth Annual Report of the Board, the printing of six thousand copies on the 'Treatment of the Drowned.' Much time had been given to the compilation of 'Weekly Reports of Diseases,' and a large amount of miscellaneous correspondence and other business had been transacted.

During the year large additions have been made to the library of the board.

**EFFECTS OF TOBACCO.**—Dr. Henry Gibbons, one of the editors of the *Pacific Medical and Surgical Journal*, in a little work on tobacco and its effects, writes as follows:—The use of tobacco tends to vitiate the sense of taste, and to create unnatural and morbid thirst, which craves some other means of gratification than the pure and wholesome beverage provided by the Creator. In this way it leads to the use of strong drink, and becomes a stepping-stone to intemperance. It has been contended that tobacco is in some degree a substitute for alcohol, and tends to protect from intemperate drinking. But such is not the experience of mankind. Bad habits do not go singly; they are gregarious. One brings another of its kind. The man who loses his self-control in one respect is less his own master in everything. There is no slavery more relentless than that of tobacco—no chain harder to break. Even the appetite of the drunkard is often more easily overcome. Besides, tobacco leads away from good company and into bad company. From the family circle and from the society of virtuous females it is often excluded: from corrupt society *never*.

**IN REFERRING TO INFANTILE MORTALITY**, an exchange truly says, 'The regard for infant life is one of the greatest virtues in a community, both for its own sake and for what it implies. It is opposed to all the vices—to drunkenness, to unchastity, to idleness, to coarse selfishness. The care for tiny lives as yet unproductive and giving to their parents nothing so much as trouble, is a virtue that should be cultivated in a community.'

**PURE, CLEAN MILK**, of good quality from healthy cows, allowed plenty of good air and good food, is as desirable as it is difficult to obtain. A man in whom we have every confidence, living several miles out of the city, has just commenced the sale of such milk, and is resolved to supply it or none, and he ought to be patronized. We can recommend this milk to our readers, and any of them in this city wishing to try it, can have some left with them by sending a P. O. card to Box 275, city, with the address, etc.

**GREAT DISCRIMINATION** should undoubtedly be exercised by medical men in prescribing alcoholic beverages, even ale and porter. But there are many cases in which it seems impossible to do without some one of them. Those who require such, will find, we believe, Davies Bros. ales and porter very superior. We learn, too, some leading physicians, in Toronto highly recommend their lager for nursing women, convalescents after fever, etc. This beer contains less alcohol, with, it is said, the same amount of nutrient matter.

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#### BOOK NOTICES.

**TRANSACTIONS OF THE CANADA MEDICAL ASSOCIATION.**—This work, which has just been issued from the press, forms a respectable appearing octavo volume of 240 pages, with seven full sized plates, and contains the proceedings of the Association, President's address, reports of committees, and eight Medical and six Surgical papers. The price is \$1.25. Subscriptions and orders should be sent to Dr. Osler, 1351 St. Catherine Street, Montreal, Secretary Publication Committee.

**WHAT ANÆSTHETIC SHALL WE USE?** By Julian J. Chisholm, M.D., Professor of Eye and Ear Diseases, University of Maryland, &c., &c. Read before the Baltimore Academy of Medicine. Baltimore; The Sun Book and Job Printing Establishment.—In this Pamphlet the Author says; There is no remedy really good in medicine which is not capable of mischief. More persons are killed every year from the abuses of opium than have been attributed to chloroform from its discovery even to the present time. \* \* Chloroform when judiciously used, is one of the safest active remedies of the materia medica, supplying nearly every good and avoiding nearly every danger.

**ORANGISM, CATHOLICISM, AND SIR FRANCIS HINCKS**, by J. A. Allan, Kingston. Toronto; Hart & Rawlinson, 5 King Street West.—This is a well written Pamphlet, reprinted from the October Number of the *Canadian Monthly and National Review*.

**A CASE OF PUERPERAL SEPTIC FEVER**, reported by George J. Northrop, M.D., and some remarks on the Relations of the Medical Profession to the People, by Henry B. Baker, M.D., of Lansing, Mich. Detroit: W. A. Scripps.—A very suggestive paper, reprinted from *Detroit Medical Journal*, September, 1877.

**ON THE ORIGIN AND DEVELOPMENT OF THE EPITHELIAL TUMOURS OF THE ANTERIOR OF THE EYE-BALL**, with some general remarks, by Adolf Alt, M.D., Heidelberg, M.C.P., and S.O., &c. Montreal: Lovell Printing and Publishing Company.—This is a reprint from the Transactions of the Canada Medical Association.