VOL. VII. FEBRUARY, 1885. No. 4.

THE DOMINION SANITARY JOURNAL

DEVOTED TO THE

PUBLIC HEALTH

AND KINDRED SCIENCES.

EDWARD PLAYTER, M. D., EDITOR.

GEORGE WRIGHT, M.A., M.B., Assoc. Lectr. Mat. Med., Toronto School of Med.,
J. W. MACDONALD, M.D., L.R.C.S.E, Londonderry, Nova Scotia,
A. B. LAROCQUE, M.D., Medical Health Officer of Montreal.
ALAN MACDOUGALL, Mem. Inst C.E., and Consulting Sanitary Eng., Toronto,
J. A. U. BEAUDRY, Civil Engineer, Montreal,

ASSOCIATE EDITORS.

BEAUTIFUL, HEALTHY HOMES.
PURE AIR, PURE WATER, GOOD FOOD.
HEALTHY, HAPPY, CONTENTED FAMILIES.

SALUS POPULI SUPREMA LEX.

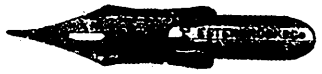
CONTENTS.

Sanitary responsibility of the citizen 77
Cholera, its history and favorite soil 81
Man a cooking animal—principals of digestion 84
Sceplessness—Toronto Sanitary Association 85
Bad effects of smoking—Peptonization—Medico-legal decisions..... 86
Prevention of corpulence —Precautions against Measles..... 87
Leading articles—House building—the Home-Water carriage system 90–91
Matters recent and current—Sewer ventilation—Toronto Mains and Trunk Sewer—Cholera and Typhoid—Toronto's only chance—Sanitary matters in Ottawa—and in Montreal—Sewage disposal—The Cholera bacillus, Koch, Klien and others on it—Practical Sanitation—Ontario Registration report—The Age of Melancholy—Sewage in bread, &c.; and other items ....91 to 97
Personal—Montreal meeting..... 99
Literary and Scientific—Books—Current Literature ....100 to 102

Monthly, $1.50 per Year, in advance; $2.00 if not so paid.

Single Copy, 13 Cents.

Address SANITARY JOURNAL, OTTAWA.



THE

SANITARY JOURNAL.

VOL. VII. FEBRUARY 1885. No. 4.

THE SANITARY RESPONSIBILITY OF THE CITIZEN.

Below are selections from an admirable address delivered at the meeting of the American Public Health Association, St. Louis, Mo., in October last, by Albert L. Gilion, A. M., M.D., Medical Director U. S. Navy, President of the Association :—

All I will attempt this evening will be to convince you that the sanitarian is not a grim-visaged, self-denying, self-tormenting ascetic. If you have come pre-supposing that the priesthood of Hygeia find pleasure in mortifying the flesh, and making of this fair natural earth a repulsive artificial purgatory, begin at once to undeceive yourselves. The votaries of health eat, drink, and are merry, singing the pæans of Apollo, but bearing in mind the Nautch girl's admonition to tune the sitar neither high nor low:

"The string o'erstretched breaks, and music flies:
The string o'erslack is dumb, and music dies."

From its birth this Association has carefully avoided committing itself to the indorsement of fanatical extremists, who, with however commendable purpose, annul the good less radical measures accomplish.

The American Public Health Association denounces intemperance in any form and councils temperance in all things. It shows how crime is begotten by sin, and sin begotten by disease, and disease begotten by filth, and filth begotten by ignorance; but it does not seek to dispel ignorance and remove filth and overcome sin and punish crime by manacling the thinking man with irons and binding him with thongs that cut into the flesh, and weigh him down from freedom to act. It infringes upon none of his inalienable rights to do with himself what he will, save when his selfish doings in any way affect or concern his neighbors and his offspring. He can dose himself with nostrums until, as Dr. Farquharson stated in the British House of Commons, quoting from the Registrar-General's report for 1881, twenty had died from chloral hydrate, eight from chlorodyne, five from Godfry's cordial and soothing syrups, and fifty-one from other patent medicines, and if the remains are decently interred or, better, cremated, no doctor among us would thwart his effort to rid the world of one more fool. If it has been your idea that the members of this Association have come to preach a holy war against all the indulgences of life, you need have them with you not many days to be undeceived. Let me begin at once to undeceive you.

The Public Health—the health of the community—is only the health of its individual members, and health is only that condition of well-being, well-feeling, and well-doing of each man, woman and child, which enables him and her and it to enjoy pleasure, and communicate it to others, to be happy and make others happy. It is our self-appointed office to point out the way that leads to this Castle of Delight, our self-imposed duty to see that ignorance, indifference, and inaction do not hinder those who aim to reach this goal.

The sanitarian is the natural guardian and mentor of this mortal body from the moment when two animated wandering microscopic molecules mate and mingle into that one other which is to grow into what you and I are, until, fifty, sixty, perhaps a hundred years after, its elements are given back to the cosmic storehouse whence they had been borrowed. With that other attribute of man which defies death and the grave he has no concern; nor does he magnify his proper charge by deriding the metaphysics of the theologian nor the latter make men more mindful of their souls by disparaging their bodies. Each of these two great classes of the teachers of humanity has hindered the other; the latter perhaps the more, since the neglect of the body has been the foundation of all the suffering and sorrow of this mun-

dane existence. And why should this human body be condemned? Is it not the most wonderful mechanism of which the human mind can form conception? Is not its development from a single wriggling monad into the Divine paragon so marvellous that his own intellect cannot conceive its how? Is not the rosy, chubby, gleeful child- the thewed and sinewed man—or best of all, she with curves of beauty where he has points of strength, the lovely vision, whom art vainly essays to portray—are not these the most beautiful of all the beautiful sights this world offers or the imagination conjures?

If we have minds that enable us to know ourselves, intellect to reason why we are, sensations to perceive our environment, emotions to link us to our fellow-beings, is it not only because within this corporeal form there is a mass of cells—a structure sound in all its parts, nourished by pure blood, formed from good food and drink and air? Close, one by one, these windows of the soul, out of which it looks upon this world or in upon itself—obliterate vision and hearing and touch and taste and smell, be the tenant within never so great nor grand, he is buried in a tomb that has no exit.

A thing so beautiful, so marvellous, so wonderful that man cannot even imitate its inanimate outlines, this organ of his intellect, ought to command our profoundest admiration and our ever-zealous care. Fashioned in the image of the Creator, made but a little lower than the angels, why should we neglect this thing of flesh and blood, and bone and sinew, till its beautiful outlines are marred, its parts jangled and out of tune, its vigor wasted and prematurely worn, it is only fit for the decay which has been invited? Were there no other motive, that strongest of all human incentives, self-interest, should induce us to care night and day with earnest, watchful thought for this living, moving, feeling, thinking body. I am what I am, and if I am to aspire to excellence—to attain the highest possible development—to feel and do and become all that man may be, I can only do it by cultivating, developing, improving, and beautifying this thing, which is myself; and this brings me to the a-b c of all Sanitary Science, that science whose advancement is the prime object of this Association. The first step toward the improvement of the Public Health is the physical purification of the individual. Teach him to care for his own bodily welfare in childhood, in youth, in adult life. The one foul centre soils in a hundred tangents. Only healthy parents can engender healthy offspring. Only healthy children can grow to healthy men and women by being properly clothed, fed, and nurtured, and these can only remain such by keeping at bay the warring enemy of disease. The bravery of the army is but the bravery of each soldier, the sound sanitary condition of the community only the sum of the cleanliness and vigor and salubrity of each of its constituent members.

These are such simple and self-evident truths that it seems idle to present them; yet these are the only problems we have to propound. There is no mystery, no mysticism in our philosophy. The topics we have selected for our annual programme mean only this: the hygiene of the household and of the school, of the householder and his children, how to secure wholesome food and pure water in what way to remove the waste that becomes filth and breeds disease. This is all there is of it.

Fellow-citizens of St. Louis, this Association comes here in the hope of awakening in you that interest in your own welfare which you have no right to disregard, if not for your own sakes, at least for the sake of your children, and for the sake of the community of which you are a part. Scarcely one of you but has suffered some sad bereavement. Do you realize that quite half the deaths that are happening around and among you need not have happened, that these neighbors and relatives have died from diseases due to preventable causes, diseases which this and kindred Associations, State and Municipal Boards of Health, are aiming to make no longer possible? In Russia, where sanitary neglect is proverbial, the average duration of life is only twenty-six years, over sixty in every hundred children dying before they are five years old. Even in the United States almost half the dead, forty per centum, are children who have not passed their fifth year of age. The total mortality reported in the census of 1880 was 756,893, among which were 8,772 deaths from measles, 16,416 from scarlet fever, 22,905 from enteric fever, 65,565 from diarrhœal diseases—all preventable, but these are not all the preventable maladies.

First, is the house you live in thoroughly protected against sewage? Do you know this to be so of your own knowledge? Have you taken the trouble to see with your own

eyes, or with the eyes of some competent inspector, that the joints of the drain-pipes are hermetically sealed, that the earthen soil-pipes are not deflected, and cracked or perforated by rootlets, that the outlets are securely trapped, the sewers unobstructed, flushed, clean and ventilated? Is there a pool of fecal matter under your cemented cellar-floor? Does the polluted sewer-air, shut off perhaps from your bed-rooms, find its way through some neglected or unthought of kitchen-sink or some plumber's ingenious labor-saving overflow, and permeate every part of your beautiful home? If you have not this assurance and your wife or your child die from typhoid, from diphtheria, from scarlet fever, then let your conscience say to you as Nathan said unto David, "Thou art the man. The evil that has arisen against thee in thine own house be on thine own head." Do not, like a wealthy friend of mine, whom I met at a summer resort where he was seeking to recuperate the health of his wife and himself from a sickness they had shared with the child, who died, sit down and wring your hands and bemoan your lot when, as in his case, a windowless, unventilated closet, most convenient to the luxurious chambers of his Philadelphia palace, had made it a viler habitation than the peasant's well creviced hovel or the frontierman's open-sided log-cabin.

A_e in, thou merchant, thou banker, thou learned judge and reverend divine, and thou, too, oh sapient doctor of St. Louis, is this milk, real milk, your children are drinking? this sugar, only sugar, they are eating? Is it butter, honest butter of the churn and not of the laboratory, they are spreading upon their bread? and is that bread of flour or of chalk and alum and starch and what not else? Are your bakers and butchers and dairymen honorable men, whom it is supererogatory to suspect and whom you therefore never question, neither yourself nor the well-paid, intelligent, skilful inspectors whom you have employed to do this questioning, and to see that no tainted and diseased meat, no immature and decayed vegetables, no pernicious or adulterated groceries are offered for sale, nor even brought within the limits of your fair city?

But bread and meat, fruit and vegetables, food and drink may all be good and wholesome, and still by your culpable, criminal carelessness you may deliberately admit into your bodies an impurity that is fouler than all others. Since the Lord God formed man of the dust of the ground and breathed into his nostrils the breath of life, and man became a living soul, that breath of life has been to him the one essential of his living. . . . Deprive him of air, he dies; poison that air, he becomes diseased. Bountiful nature supplies him without cost of labor or thought with this great need of existence. A boundless ocean surrounds and permeates him. Foul it, it purifies itself. Only when the devilish ingenuity of man thwarts nature's efforts, cribs, cabins, and confines it, does it retain the poison he has added.

Citizens of St. Louis, are you of this devil's handiworkers; do you immure yourselves and your children in houses where foul air has no exit and pure air no entrance? Do you do all you can, besides breathing into it and adding to the effete exhalations of your bodies, to befoul it by sewer and coal and illuminating gas and hot-air furnaces? Do you congregate in churches to hear the Word that is to save your souls, and implant in your lungs the seeds of malign growth that will destroy your bodies? Do you go to theatres to be made merry and come away with cause for tears? Are you sure that here to-night the air around us is not full of abominations, that only need be made visible to cause you to rush pell-mell out-doors?

Are you weary with my catechising? One question more. Do you go to school with your child? Do you ever ponder why it does not eat; why its face is wan, its shoulders rounded, its form bent, its gait tottering, its sight bleared? Why it is petulant and peevish and perverse? Why it talks and walks in its sleep, sees ghosts, or does not sleep at all? Have you ever worn the magic ring of Mr. Bultitude, and put your intelligence in the childish form and breathed the vitiated school-room atmosphere it breathes, sat on the racking benches, in the blinding glare, sniffed the latrines that even dogs shun, and then with glad, grateful hearts, boasted how much grander are the education and civilization of the nineteenth century than when unkempt teachers taught in the open air under the shade of green trees? . . . .

What shall we do to be saved? we, who live in cities. The means are simple—*Organize!* Individual effort may accomplish little, very little, but the concerted, systematic efforts of intelligent men and women can change the face of nature; and this is the

second of the objects of this Association—"the promotion of organizations and measures for the practical application of public hygiene." We have no especial form of organization to suggest to you—no pet theories to advocate—no particular scheme to recommend. There are many roads to Rome. Choose the one you will—only, all travel together. In time the shortest and safest will commend itself.

. . . . . .

Citizens' Sanitary Associations need not be antagonistic or substitutive for municipal institutions. In the language of the Sanitary Protective Association of Newport: "The Association will not conflict with the public authorities; but will supplement their action. It simply aims to have every house in the city in a proper sanitary condition— . . .

Now, this is precisely what should be done in St. Louis, and without delay. The spectre of pestilence is on your horizon. You have had timely warning of its approach. It will be too late to bar out the grim fiend after his shadow has fallen across your threshold. If your city is scourged you—you, intelligent citizens, and you only, will be to blame. It will not fill the vacant places in your home to denounce incompetent authorities. Take the matter in your own hands and begin to clean: it is the Augean task of Hercules. The lair of the beast is amid muck and moisture. Open and let in the light; clean and whitewash every cellar and hovel, till their shall be no such thing as that abomination "cellar-air," air which causes the saliva to flow when you get a whiff, air laden with all sorts of microscopic pests. Empty every cesspool, fill up every stagnant puddle, clear out every neglected alley, *cul-de-sac*, and obscure lot, destroy rubbish, burn rags and mouldy straw, and rotten soggy planks. Where there are fresh air and dryness and cleanliness there can be no cholera; and where these are not it will come in spite of proclamations and perfunctory quantities. Fumigations and disinfections which mask putrescence and substitute medicinal smells for sickening stenches are as ridiculous as the noise of gongs and tom-toms and exploding fire-crackers, and jin-galls by which the Chinaman hopes to frighten the devils who desolate his home and country, and worse than useless, from the false sense of security which they give. Even the exorcism of prayer had better not be attempted kneeling, but upon the feet with both hands hard at work.

I may be permitted to quote a leaf from my own personal experience that is valuable corroborative evidence of the good that follows efficient sanitary supervision. Early in the year 1855, I became an officer in the navy, and I was not long in discovering that a medical officer, in the first place, was not regarded by his line associates as an officer at all, and in the second, that his functions as the "pill-dispenser" he was assumed to be, were sought to be exclusively restricted to the healing of wounds and sores and the curing of such as might become sick, without his presuming to enquire why they became sick, and how they might be prevented from getting so. Fortunately I had been taught that the science of medicine had a wider outlook than the sick-room, and that the office of the physician was something else than to be the tinker of broken bones and the mender of human mechanisms that human stupidity, human ignorance, and human arrogance had needlessly marred. I had no lack of so-called legitimately professional occupation. I lived among the sick and dying. In thirty months there were thirteen hundred and forty-five cases of sickness in the little community of only two hundred officers and men, the daily sick-list often ranging from thirty-two to thirty-five a day, month after month; and among them no suffering women or feeble children; no old people or lives wrecked by penury or toil, but all of them stalwart, adult men, chosen for their vigor, for a career that ought to be exceptionally salubrious. We buried twenty-eight out of the two hundred: how many among those who deserted or were invalided or discharged from the service were buried by other hands I know not, but the Pension Office daily brings to notice such shattered lives that come begging its meagre bounty. While improper diet, insufficient clothing, ill-judged exposure, filth and foul air and reckless wetting the decks made men ill, not all the drugs in the dispensary, nor ten times the medical officer's skill could make or keep them well. Surgeon in title, physician in vocation, I had the lesson taught me that before all I must be a sanitarian, and ever since I have been an ardent one, and to-day I can bear personal testimony to the observable effects of official supervision as it has been insisted upon in the navy by my colleagues of the medical corps, in spite of opposition that has amounted to insult and indignity. During the past year, as a member of the Board of Inspec-

tion of the navy, I inspected a vessel which had returned from a three years' cruise, part of the time on the unhealthy coast of Africa. Among her complement of two hundred and twenty officers and men, there had been during these thirty-six months but a single death from disease, an average daily sick-list of 4.22, including trivialties that were formerly not recorded at all, and only seven men invalided for disabling diseases. This is the story of only thirty years of sanitary progress; this is an observable effect of sanitary supervision. Dark, damp, dismal, unventilated, feted decks, crowded with listless, surly, discontented, wretched, ailing men—vicious, as well as sick—on the one hand; on the other, bright, clean, dry, airy, unencumbered decks, with comfortably clad, well-fed men, contented, cheerful, hale and hearty. . . . . .

Only the fittest ultimately survive, and it should be our aim not merely to add a span to each poor puny life, but to make the strong stronger till the evolution of the race into the highest order of which humanity is capable shall have been accomplished. Every human being cannot be made to live threescore years and ten. Some are doomed from birth to prematurely die, and we cannot save them, but we can and ought to save those that have a right to live who are now slaughtered in hecatombs by preventable diseases.

CHOLERA, ITS HISTORY AND FAVORITE SOIL.

By Dr. Max Von Pettenkofer. Selections From a Special Report Transmitted to the "Lancet," London, Eng.

All readers know that cholera originated in the East Indies, and most individuals are also aware that the epidemic spread into Europe in the present century (1830). We shall first speak of its age in India, the home of cholera. There the disease appears to have existed at all times; not only at the time of the discovery of the sea passage to India by the Portuguese, but long before, as the oldest Sanskrit writings show. Many Hundreds of years before the birth of Christ the disease was accurately described and its epidemics spoken of as attended with *mahâ mârî (magna mors*, great death).

In the seventeenth and eighteenth centuries, A.D., there are abundant proofs and desciptions of epidemics of this disease. This desease is best known in Europe under the names of cholera, cholera morbus, Asiatic cholera, since the epidemic of 1817 to 1819, in which the English army, under the command of the Marquis of Hastings, during a war against the natives, was rendered unfit for fighting and almost annihilated. But cholera had never visited Europe till the present century, when in 1830 it appeared in Russia and spread to Poland, where war was prevailing. Since that time, sometimes at longer and sometimes at shorter intervals, cholera has appeared in Europe. The question why cholera remained years in India before it first began to migrate is one of great interest, but one which can not be satisfactorily answered. The principal consideration appears to me to be that the event happened at the time when intercommunication in all directions, both by water and land, had become more rapid. The first steamship appeared in the Indian waters at the beginning of the second decade of the present century. By land also intercourse was greatly accelerated. The Russians possibly took cholera from India, Arabia, Afghanistan, or Persia, through couriers and stage-coaches. It soon became clear that cholera, the specific cholera-germ, was in some way or other propagated along the paths of human intercourse, and it also became evident that unless the germs found a suitable soil within a certain time they did not flourish. Observers soon discovered that cholera was more prone to appear in certain regions and to affect certain localities, while it shunned other districts; and, again, that other regions were only visited at intervals of many years. It is also a fact that Asiatic cholera never yet appeared at a place which had not previously been in communication with a region where cholera prevailed; and, further, that the disease from an infected locality never yet passed on to another place if the journey lasted a certain time without interruption. The large intercourse between India and Europe, more particularly England, by means of ships which sailed round the Cape of Good Hope, had never succeeded in carrying cholera from India to England; it was only by the overland route that cholera reached England. Neither had the Cape or Australia ever been visited by cholera. It is possible that in the future the communication may be so much accelerated that cholera may get to these countries. In much the same way South America escaped during the epidemic (1830-1840) in Europe and North America. It

was supposed that in South America yellow fever was enough to prevent cholera, or that this disease kept out cholera, until suddenly, in 1854, after a service of fast sailing-vessels between Philadelphia and Rio de Janeiro had been established, the chief town in the Brazils experienced a terrible epidemic of cholera. When cholera passes overland it dies out unless it finds a suitable soil within a certain time. Rainless deserts are unfavorable to cholera. Caravans which pass from infected localities through deserts have never spread the disease, provided the journey in the desert lasted at least twenty days. Cholera always requires for its propagation favorable stations on land, and, as a rule, if the course of epidemics be traced, a gradual extension in successive years is found to take place in fixed directions. . . . .

No doubt can be entertained that the configuration of the earth has a certain influence. Relatively low-lying sites are very favorable to cholera. Where the surface of the earth has an undulating outline, it will be found that districts and individual houses which are situated on the summit of the undulation very frequently have no, or only a very small, disposition to the development of an epidemic of cholera, while in the hollow of the undulation under like conditions the opposite holds good. The truth of this statement is seen in single districts where parts or single houses exist on the summit and others lie low.

Another feature which is found in every epidemic is the falling off of the disease in the neighborhood of and on mountain-ranges. The Himalayan Mountains, those of Lebanon and the Alps, have always formed the places of refuge for fugitives from cholera. Now and then an epidemic occurs in the mountain. The immunity, or the slight susceptibility, of mountain-ranges for cholera is witnessed in India as plainly as it is in Europe. . . . . Some time ago Jameson, in his description of the epidemics of 1817 and 1819 in India, said, "Cholera does not appear to like a rocky soil." French epidemiologists (Boubée and others) have said the same thing. I studied this point in Bavaria in 1854, and then collected so many facts that I came to the conclusion that cholera requires for its epidemic development a porous soil through which air and water easily percolate, and that a compact soil was decidedly inimical. It will be sufficient to give a couple of illustrations. When the cholera broke out in Munich the inhabitants scattered themselves on the mountains. Many settled in the valleys, where several fell ill and died. The greater part of the town in which the better hotels were situated lies upon compact chalky soil, and the smaller part was built upon alluvial soil. In this part the cholera assumed an epidemic character. In the higher-lying districts (Schrödelgasse) the epidemic began in the beginning of August, and in the lower lying areas toward the end of September, while the greater part situated on chalk was not affected. Among the Jura Mountains to the left of ths Donau lies a village called Kienberg, which is built on rock. In this village the cholera broke out so fiercely that within a month thirty per cent of the inhabitants died. When I went there I found many houses emptied, while other houses had not had a single case of illness. I then thought that drinking-water was at fault. But the whole village drew water from a single spring at the foot of the slope on which the village was situated. From a study of the soil I found that all the houses built upon porous and rather loamy sand had been attacked, while those which lay upon the compact soil of the Jura rocks had escaped. The greater part of Kienberg stands upon a cleft of the mountain which had been filled up by fine soil which had resulted from the wearing down of the higher parts of the mountain (alluvial soil). That some doubt should be thrown on the decision of the commission which had adopted my views on the influence of the natural state of the soil on cholera was not to be wondered at. I spared no pains, however, in going to the Krain and Karst Mountains, where cholera apparently was raging on a bare, rocky soil, and instead of contradiction I found a further corroboration of my views. The towns lying among these mountains were found to suffer from an affection which unquestionably proceeds from the soil—namely, ague. The mountains are freely cleft, and the clefts are filled with porous soil, allowing of the free percolation of water and air, so as to be nothing more than an alluvial soil. Here streams rush down the mountain-side, turn off at its base, and run on richer still in water. You may often find there a cleft having the shape of a funnel, filled with porous earth; the nature of the cleft and its contained earth may be determined by sinking a so-called Dolione, when the bottom

will be found to be solid stone. Through the Adelsberger growth the rapid Poik flows; and on the other side of the mountain in which the grotto is situated the waters of the Poik roll off under the name of the Unze; the Unze again flows off at the base of a mountain, as a navigable river, on the other side of Laybach. As I proceeded from Laybach to Novomsto (Neustadt), I saw shining in the distance before me and far below the mountain a village, which turned out to be Rasderto, where I learned from my companion, a schoolmaster, that ague prevailed, and, indeed, I found many sufferers confined to bed from this complaint. Rasderto lies below the sites which the cholera infested. At the base of the rocky hills on which Rasderto is situated, there flows a stream which is so powerful that it turns a mill.

In order to study the cholera at Malta I proceeded thither in 1868 at my own expense. . . . . Investigation proved that the Maltese rock was as porous as Berlin gravel, and that more than a third of its volume consisted of air-containing pores. . . . . It will be readily understood that I now no longer concerned myself as to an explanation when I heard that an epidemic of cholera had broken out at a place which apparently had a compact soil.

Not only does the physical nature, but also the chemical constitution, of the soil have an influence on the occurrence of cholera—to wit, the presence of organic matter and water. The influence of the soil on the development of infectious diseases can only be understood by a study of the organic processes which take place in it. The processes are eventually dependent on the action of the lower organisms, which require for their growth a certain temperature, so much water, air and food-stuffs. In order to explain the occurrence of cholera on such varied soils as those composed of granite, sand-chalk, and shell-chalk, we must suppose that the soil contains in its interstices much organic matter and water. Farmers know how useless pure soil is, whereas the luxuriant growth of plants when the ground is manured is well known to all. These observations are applicable to the lowest plants, the bacteria, no less than to grain and vegebles. The germs of putrefaction and fermentation abound in the free atmosphere, but they only grow and multiply where they find suitable food. The hygienic uses of cleanliness here find their explanation and scientific foundation. The refuse from houses, dissolved or suspended in water, forms an excellent nutritive, material for the lowest organism which are so harmful to us. Emerich has shown that the purest water after being used to clean the floor of a room contains in a very short space of time abundant germs of disease, so much so that a drop of it injected under the skin of a rabbit or Guinea-pig is followed by a fatal result. With this dangerous slop-water it is the custom to charge the earth in and about our dwellings. Since man began to live in towns where drainage was in vogue, diseases dependent on conditions of soil (cholera and typhoid fever) have undergone a striking decrease. Just as a field, when excessively manured, does not always remain good for vegetation unless remanured, so it is always with the uncleanliness of the soil in the neighborhood of our houses. As soon as we cease to make unclean—to manure—so soon do our towns begin to purify themselves, just as a churchyard after a time becomes purified. In a similar fashion does good drainage act in cleansing our towns, and the necessity of a pure water-supply is thus vindicated. It is in this way that, according to my view, cleanliness acts as a deterrent to cholera, Cholera-germs may come, but cannot fructify under such circumstances. That sites naturally exist which, without human interference, are unfavorable to cholera, has already been shown.

Where water entirely fails the organic processes soon come to an end; this is true of the soil of the earth. In rainless deserts the soil is dry except the most superficial layer during the night. In such desert places no organic processes can go on; this is shown not only in the absence of vegetation, but may be proved by an investigation of the nature of the soil ("Grudlutt"); this air under ordinary circumstances contains much carbonic acid, which proceeds from the processes of organic life; but where the soil is free from water the air of the soil much more closely resembles that of the atmosphere above it. This fact has been experimentally proved by Professor von Zittel by a comparison of the free atmosphere with the air of the soil of the Libyan Desert. These observations are believed to explain how it is that cholera does not appear on a very dry soil. Just as too much water is bad for certain plants, so is it also for some members of the lowest class of the vegetable kingdom.

It is likewise conceivable that the organic processes in the soil on which epidemics of cholera depend may be effectually checked by an excess of subsoil-water, or by a want of material. Micro-organisms have been divided into two classes: anaerobe and aerobe. If now we have to deal with an organism which requires oxygen for its existance (aerobe), it is not difficult to understand how the excess of water might deprive the soil of the necessary proportion of air. The more the pores were filled with water the less air would be contained in the soil. In heavy clay soils the water drives the air completely out, and thorough desiccation would be required to replace all the air. Klebs and Tommasi-Crudeli have already discovered a micro-organism which flourishes only in a moist soil containing air—the bacillus malariæ.

MAN A COOKING ANIMAL—PRINCIPLES OF DIGESTION.

In a recent Lettsonian lecture, delivered at the Medical Society of London, T. Lauder Brunton. M.D., F.R.C.P., F.R.S., of St. Bartholemew's Hospital, spoke as follows: Man had been defined as a cooking animal. This definition might not be absolutely correct, and there might be some of the lowest races unacquainted with methods of cooking, although other characteristics entitled them to be called men. Yet the definition was, in the main, true, and the fact that man cooked his food, while the lower animals ate theirs raw, was one of the most marked distinctions between him and them. The practice of cooking was familiar to man at a very early stage indeed of his history. Long, long before the historic epoch, when man's only implement consisted of broken flints, he cooked his food by roasting, and the charred remains of bones, which he had roasted in order to enjoy the savoury marrow, had been found in caves, along with fragments of the skeletons of the cave-bear, woolly rhinoceros, and other animals long ago extinct. There was little doubt that roasting was the first method of cooking adopted, for no implements were required, beyond a piece of pointed stick, to hold the food in front of the fire. Boiling was a considerably more complex process, and required a vessel in which to hold water. The simplest method of boiling, and the one which was probably first adopted, appeared to be that of heating the water, by putting red-hot stones into it, until the temperature was sufficiently raised. But after man had learned to make pottery, and to bake it in the fire, so that heat could be applied from the outside without the vessel cracking, the simpler plan of boiling the water by putting the earthen pot upon the fire would be sure to be followed; for man, as a rule, liked to save himself trouble, and usually took what seemed to him to be the easiest plan.

Health in man, as in other animals, depended upon the proper performance of all functions. These were (1) tissue-change, (2) removal of waste, (3) supply of new material. For the activity of man, like the heat of the fire by which he cooked his food, was maintained by combustion. It was with the supply of new material that they had to concern themselves chiefly in the present lectures. The body might be roughly compared to a cylindrical box, through the centre of which ran a tube, open at both ends, but not communicating with the cavity of the box. Food and drink, when swallowed, were still outside the body, and in certain circumstances remained so just as much as if they had been laid against the skin. Sometimes food which had been swallowed passed through the intestine, and was evacuated almost or entirely unchanged. It had simply fallen, so to speak, from the mouth to the anus, much as it might have fallen from the neck to the feet, had it been laid against the skin. There was one great difference between the skin and the intestine, namely, that the nerves of the intestinal tract were more sensitive than those of the skin, and in passing over the mocus membrane the substance might have exercised a greater action on the body, reflexly through the nerves, than it would have done in passing over the skin, but otherwise the condition in the two cases was much the same.

In the alimentary tract, provision was made both for solution and for absorption, and those two processes were included under the term digestion. Digestion, like the health generally, might be strong or weak. Some persons were able to take with impunity quantities of indigestable food of various kinds, which in other persons would cause discomfort, pain, vomiting or diarrhœa. Some were able to take meals at irregular hours, to do hard work for a whole day without food, and then consume an enormous dinner, to go through all sorts of anxiety without

the least diminution of appetite, and to drink all kinds of strong liquors without appearing to be any the worse. Others, again, suffer if their meals are not served exactly at the usual times; a little extra work or a little anxiety would either destroy their appetite or impare their digestive power; a meal somewhat too hearty, or the slightest indulgence in wine or alcohol, was sure to be followed by unpleasant consequences. Yet even those persons might go on for months and years with comfort, digesting their food perfectly, provided only that they took care to fulfil the necessary conditions. Their digestion was healthy, but it was weak.

When digestion was imperfectly performed, the person was said to suffer from indigestion. Indigestion might occur in those who habitually had either a strong or weak digestion, and by proper methods it might frequently be cured in both. They might sometimes be able to strengthen the naturally weak digestion, though they could hardly expect to alter the natural constitution of the patient, so far as to enable a man who had naturally what was called "a weak stomach" to compete with one who had naturally got the digestion of an ostrich, at a civic feast or at a succession of private dinners.

SLEEPLESSNESS.—Sleep is a perfectly natural function. (*Lanset*). It is not a negative act, but a positive procees. Herein lies the difference between real sleep and the poison-induced torpor which mimics the state of physiological rest. We ought to be able to sleep at will. Napoleon and many busy men—the late Mr. Wakley, for example—developed the power of self-induced sleep to such an extent as to be able to rest whenever and wherever they pleased, for longer or shorter periods, as the conditions admitted. We have been led to believe that Mr. Gladstone at one time possessed this faculty. If that be so, his recent insomnia must be assumed to have been the result of such intense brain worry as inhibited the control of the will; or there may, of course, be physical causes which render the apparatus of the cerebral blood-supply less manageable by the nerve centers.

In any case, it is much to be deplored that, in the study and treatment of insomnia, the profession generally does not more clearly and constantly keep in memory that what we call sleeplessness is really wakefulness, and that before it is justifiable to resort to the use of stupefying drugs the precise cause of disturbance should be clearly made out. This, of course, takes time, and involves a scientific testing of the relative excitabilities of the sense-organs, central or radial and peripheral. The discovery of the cause, however, affords ample recompense for the trouble of searching for it. With the sphygmograph and a few test appliances, such as Galton's whistle, an optometer, and other instruments, the recognition of the form and cause of sleeplessness can be made in a brief space, and then, and then *only*, we protest, it can be scientifically—*i.e.*, physiologically treated.

THE TORONTO SANITARY ASSOCIATION appears to be doing good work. At the regular monthly meeting on the 2nd inst., Mr. Langley, president, in the chair, Mr. S. Curry, architect, gave an address on plumbing and drainage, illustrated by numerous diagrams. He said the best method for securing good plumbing would be to have all plumbers registered, and to insist on all work being done up to a certain approved standard. One great cause of complaint was ventilating pipes, which defeated themselves by being connected so that sewer gas might pass through them and into the room. A number of illustriations were shown where pipes which were supposed to ventilate a room really conducted sewer gas into it. Waste materials of the household should be carried out of the house within the shortest possible time. To do that, it was necessary, to have a direct line of piping, of good material, smooth on the inside, laid to good fall. The fixtures should be of approved pattern, made to retain no filthy matter of any kind, in order that decomposition could not go on in or about them. The traps should be close up to the fixtures, and of such form as would not allow any filth to be retained in them, and they should contain no more water than is absolutely necessary for an efficient seal. All pipes should be placed so that there would be no danger from frost, and in such positions that they could be easily got at with the least possible trouble. . . . . The city, with the object of draining vaults, was at present building a large number of sewers with but little fall in back lanes, where there was only a small amount of fluid sewage to be removed. As there was no means of effectually flushing such sewers they would become abominable, elongated cess-pools. Referring again to plumbing, the speculator must

assume his share of the blame. He must have a cheap job or he would not make money. He was afraid the architects were not entirely free from blame. They often preferred to keep down the cost of plumbing and drainage, and spend the money thus saved on the finish or decorations. Thus it would be seen that the plumbers were not the only ones to blame.

BAD EFFECTS OF SMOKING.—A New York man of letters (*Harper's Weekly*) confesses to his friends that the practice of smoking is the most demoralizing vice of which he is guilty. "If I have been smoking all day," he says, "I feel tired when I leave my desk to start for home—sometimes very tired. During the rare periods which I do not smoke I depart from my office at the end of the day without the sensation of weariness, and also without the headache that I so often have after burning three or four cigars. With other sendentary men the conditions may be different, but to myself no indulgence so unstrings me as habitual smoking, except the indulgence of allowing myself much less than eight hours for sleep. Yet I think it very likely that, as a distinguished physician once told me, an occasional cigar does lubricate the nerves."

PEPTONIZATION.—An observation has been communicated by M. Marcano (*Lancet*) to the Academy of Sciences, suggestive of what may prove a valuable process for the conversion of albuminoids into peptones (partly digested food.) If a small quantity of the fresh sap of certain plants—the agave, for example—be added to chopped meat first covered with water, and the mixture kept at a temperature of 30° to 40° C., an active fermentation is immediately set up, with evolution of inodorous gases. At the end of thirty-six hours the fibrin has disappeared, and a liquid is left containing peptone equal in weight, when dried in a stove, to one-fifth the fresh meat used. This fermentation appears to M. Marcano to be due to the vital action of micro-organisms, and to resemble the peptonization of the gluten of flour by a bacterium which is said to take place in bread making. A large number of other fruits and juices are stated to be endowed with properties similar to those possessed by the sap of the agave. M. Marcano is of opinion that the new method of peptonization will afford a simple and economic means of preparing pure peptone quickly and at a low price, and suggests that it might be applied upon a large scale, so as to allow of the export of meat from South America in a form more nutritious and economical, [and digestible] than the extracts.

RECENT MEDICO-LEGAL DECISION.—In a Michigan case (*Phil. Med. Times*) a tramp was run over by a locomotive. A surgeon was summoned to help him, and sent a message to the superintendent and asked if he should do so. Superintendent answerd, "Yes." Nothing was said about pay. The surgeon sued the superintendent, under the theory that he was personally liable. The court held, however, that there was no contract between them of such a character as to make the superintendent liable. The effect of this decision is to oblige the surgeon to look to the tramp for compensation.

ANOTHER CASE.—Apropos to the article in a late number of this JOURNAL on expert testimony is the following: In Kansas, physicians were called to give expert testimony, the judge charged the jury that such testimony "should be received and weighed with caution," and the question was whether this was a proper direction or not. On this point the higher court said, "The testimony of experts is to be considered like any other testimony; it is to be tried by the same tests and receive just as much weight and credit as the jury may deem it entitled to when viewed in connection with all the circumstances. We think this is probably as good a general rule as any that could be adopted. .. While many courts speak disparagingly of some kinds of expert testimony,—that with regard to handwriting, for instance,—yet we think that all courts hold that the testimony of competent medical experts is entitled to great respect and consideration. In the present case, we think think the expert testimony of the physicians and surgeons, who were in fact appointed by the court, and who made a personal and professional examination of the plaintiff's eyes, is entitled to great consideration, and that the court below erred when it instructed the jury that such testimony should be 'received and weighed with caution.'"

A DR. SMITH in the *Medical Record* reports that a woman, a patient of his, swallowed a shawl-pin four and one half inches long. After three days it passed safely through the bowels.

PREVENTION OF CORPULENCE ON PHYSIOLOGICAL PRINCIPLES.—As analysed by the *Birmingham Med. Rev.*, Nov. '84, (*Therapeut Gaz.* Phil.) EBSTEIN, in his work on corpulence, gives some valuable practical points for the reduction of obesity. According to him, fattening is strictly analogous to the fattening of cattle, and depends on over-feeding. He, however, disputes the current view that fat makes fat; on the contrary, he thinks fatty food protects the albumen and prevents its forming fat. His plan of treatment, therefore, consists in moderating the quantity of food, and while cutting off all vegetable carbo-hydrates, sugar, starch, etc., allowing a moderate quantity of fat, two or three ounces daily, to be taken. He also suggests that the diet should be monotonous, greasy and succulent, so as to cause satiety rapidly. He disallows beer, but permits light wines. The plan appears free from the objection to Banting's starvation method. The following diet was used successfully by Ebstein: *Breakfast.*—One large cup of black tea—about half a pint—without sugar; two ounces of white bread or brown bread, toasted, with plenty of butter. *Dinner.*—Soup, often with marrow; from four to six and one-half ounces of roast or boiled meat, vegetables in moderation, leguminous preferably, and cabbages. Turnips were almost, and potatoes altogether excluded. After dinner, a little fresh fruit. For second course, a salad or stewed fruit without sugar. Two or three glasses of light wine, and immediately after dinner a large cup of black tea, without milk or sugar. *Supper.*—A large cup of black tea, an egg or a little fat roast meat, or both, or some ham with its fat. bologna sausage, smoked or fried fish, about one ounce of white bread, well buttered, occasionally a small quantity of cheese, and some fresh fruit.

PRECAUTIONS AGAINST THE SPREAD OF MEASLES.—Measles is *very infectious.* (Dr. Simpson, Medical Health Officer, Aberdeen, in Glasgow, *Sanit. Jour.*) It is of no consequence whether the case is a slight or severe one—it is equally capable of spreading infection. The disease lasts about a week, but the infection lasts a month, so that, although the patients are quite well, they may give measels to those that come near them, or even into the same room. All persons (especially children) who come near the patient, even for a short time, are liable to take the infection, provided they are susceptible of the disease. The disease is also readily spread by articles of clothing. The most usual mistakes to make are to allow other children (relatives or friends) to see the patient "for a few minutes," and to allow the patient to go out before the disease has completely disappeared. Both these are *sure* modes of spreading infection. Two precautions are necessary—isolation and disinfection. 1. Isolation.—When a case is recognised as measles, the patient should be at once separated from the rest of the family, and placed in a room by himself; if possible, this room should be light and airy; the patient should not be allowed to leave this room till the medical attendant is prepared to certify that all danger of infection is over; and no one should on any pretence, be allowed to enter the room, except the person in attendance on, or taking charge of, the patient. No more communication than is absolutely necessary should be allowed between the sick-room and the rest of the house; and the person in attendance should remember that infection may readily be carried by the clothes that she is wearing. Her outer clothes, therefore (those that are from time to time in contact with the patient), should never be taken outside the sick-room, but should be put off when she is about to leave the room, and put on again on her return. In a family where measels prevail, the remaining children, if not sent away, should not be sent to school, nor allowed to mix with the neighbours. 2. *Disinfection.*—Everything requiring to be taken out of the sick room should *first* be disinfected. Handkerchiefs, pianofores, and other small articles of clothing carry the infection, and they should have boiling water poured over them, along with some disinfectant, before being removed from the room, and should be thoroughly washed and cleaned as soon thereafter as possible. When the patient has recovered, and is pronounced free from infection, he should be clothed either with clothes that have not been in the sick-room, or in clothes that have been thoroughly disinfected. The room *and all its contents* should then be disinfected. If these precautions are carefully and thoroughly attended to there will be no danger of infection spreading.

GIVE THE GIRLS AN EQUAL CHANCE.—From "Physical Training of Girls," by Dr. Lucy M. Hall, in the *Popular Science Monthly* for February. An eminent French writer has said, "When

you educate a boy, you *perhaps* educate a man; but when you educate a girl, you are laying the foundation for the education of a family." He might have added that to this end the physical training was of equal importance with the mental. In these days the subject of the physical training of young men is occupying much attention, and the discussions are broad and full of interest. The fault is, that the needs of both sexes in this respect are not equally considered. An erect figure, an organism in which the processes of life may go on without the ceaseless discord of functions at war with each other because of abnormal relations—in short, the added advantages which a fine physical adjustment gives to its possessor—are as necessary to one sex as to the other, and for the same reasons. If physical education and consequent improvement are things to be desired, it is not that a number of individuals as a result of this training shall be able to perform certain feats of strength or agility, but in its broadest sense it is for the improvement of the race, and the race can not materially advance physically, intellectually, or morally unless the two factors which constitute the race share equally in whatever tends to its greater perfection.

PRECAUTIONS AGAINST CHOLERA.— Mr. Ernest Hart, whom everyone knows is a leading sanitarian in England, recently lectured on "National Precautions against Cholera," at the Parkes Museum. Mr. Hart was severe on European quarantine by land or sea, and on the notorious report of the Vienna Convention, and hopeful as to the comparative immunity of this country in case of invasion. Rome with its pure water supply had escaped, and Paris would probably have been equally free but for a temporary supply of a highly polluted water; while Naples owed its lamentable losses to a soil impregnated with sewage, to its filthy habitations and foul water. In spite of his hopeful prediction, Mr. Hart admitted that the prevalence of typhoid was the true index of cholera risk, and we could not consider ourselves proof against the latter disease until we had banished the former. He summed his lecture by urging—(1) That quarantine was useless; (2) that medical inspection of ports was essential, and with this should go means of isolation, compulsory notification of infectious disease, and the active exertions of all local authorities to free the districts under their control from the conditions which rendered them liable to the extension of epidemic disease; (3) that disinfection was of most doubtful value; (4) that cleanliness in its fullest and widest sense was the prime element of safety. Votes of thanks were passed to Mr. Hart, and to Director-General Crawford, who presided.

SULPHUR FIRES IN CHOLERA EPIDEMICS.— In the autumn of 1872, when sanitary officer at the Sonepore Fair, and during the height of the pilgrimage, when the people thronged in thousands to the bathing ghats, Deputy Surgeon-General Tuson first used sulphur fires as a prophylactic measure against cholera. These fires were made fifty yards apart, and kept alight during the whole time that the fair was at its height. Not a single case of cholera occurred; a remarkable circumstance, since cholera had generally broken out at previous fairs. A similar good result was obtained at Dinapore, where cholera was actually prevailing. In the pamphlet on this subject, Dr. Tuson has adduced certain facts and arguments in support of the contention that sulphur fires are efficacious in epidemics of cholera.

CHLORINE AS A DISINFECTANT.—An investigation reported upon by Dr. Klein *(Scientific American)* is the application of chlorine as an air disinfectant, especially in respect to swine disease. It has been shown that this disease is highly infectious, and that the infection is easily conveyed by the air, which is the usual manner of the communication of the disease. It is known that a healthy pig placed in the same stable with a diseased one is sure to take the disease, though the animals are carefully kept apart from each other. Dr. Klein experimented as to the extent to which this atmospheric communicability obtained in an atmosphere impregnated with as much chlorine as the animals could endure without evincing discomfort. It was found that a healthy animal could with safety be placed in the same compartment with a diseased pig, even for so long a time as six hours, for five successive days, provided the air in the compartment was maintained well fumigated with chlorine gas, two good fumigations up to a marked pungency in the six hours being required. It was also found that one good fumigation with chlorine neutralized effectually the virus in a compartment from which a diseased pig had been removed, so that another animal could be placed in it without danger of infection.

AGAINST OVER-PRESSURE IN SCHOOLS.—Commissions have been at work (*Pop. Sci. Monthly*) in several of the German states investigating the conditions of over-pressure in the schools, and official action has been taken on their reports to relieve the evil, for which physical exercise has been found not to be a sufficient counteractive. In Hesse, a limit has been fixed to the amount of home-study that may be imposed, and tests of progress that necessitate much reviewing have been forbidden. The Saxon Government has issued decrees against excessive attention to technicalities and the imposition of useless exercises in the classical departments, and particularly against the "*extemporalia*," or dictation exercises in the foreign languages, which, it is said, are calculated to produce in the student "a feeling of anxiety and vexation instead af an agreeable conciousness of knowledge." In Baden, the teaching-hours and the hours for home-study have been reduced, and the memorization of Latin words is disapproved of. The study-hours have also been reduced in Alsace-Lorraine, and six hours a week of physical exercise imposed. A petition, signed by teachers, physicians, and others, has been addressed to the Prussian Chamber of Deputies, setting forth the mischievous effects of excessive strain upon the nervous system of scholars, and asking that an end be put to an abuse which "threatens, little by little, to reduce the cultivated classes of Society to a state of moral weakness that shall render them incapable of great and manly resolution."

EFFECTS OF TOBACCO ON YOUTH.—Dr. G. Decaisne (*Pop. Sci. Monthly*) has made special observations of the effects of tobacco in thirty-eight youths, from nine to fifteen years old, who were addicted to smoking. With twenty-two of the boys there was a distinct disturbance of the circulation, with palpitation of the heart, deficiencies of digestion, sluggishness of the intellect, and a craving for alcoholic stimulants; in thirteen instances the pulse was intermittent. Analysis of the blood showed, in eight cases, a notable falling off in the normal number of red corpuscles. Twelve boys suffered frequently from bleeding of the nose. Ten complained of agitated sleep and constant nightmare. Four boys had ulcerated mouths, and one of them contracted consumption, the effect, Dr. Decaisne believed, of the great deterioration of the blood, produced by the prolonged and excessive use of tobacco. The younger children showed the more marked symptoms, and the better-fed children were those that suffered least. Eleven of the boys had smoked for six months; eight, for one year; and sixteen, for more than two years. Out of eleven boys who were induced to cease smoking, six were completely restored to normal health after six months, while the others continued to suffer slightly for a year.

A SANITARY LEAGUE.—Active efforts are being made for the formation of a "Sanitary Protective League" in New York, with reference to placing the city in the best possible condition to repel an invasion of cholera. The movement was suggested by Mr. C. F. Wingate, and the interest of over fifty gentlemen having been aroused, a preliminary meeting has been held. Joining the league involves no pecuniary outlay. What is most desired is the help and influence of persons who will promise to sustain and stimulate the health authorities in their official work; to improve the sanitary condition of their own houses, and to care for the safety of employés and dependents. The pledge has been signed by a large number of person, including many prominent citizens, and an organization will shortly be effected. The plan embraces the union, if possible, of all the sanitary societies now existing in the city. The work of the league includes personal investigations of the food supply. Sanitary tracts will be published and circulated throughout the city free, and all information available will be given to the public in regard to cholera and the best means to prevent it. Such a league has been in existence four years at New Orleans, and its usefulness has been demonstrated by the continued absence of yellow fever from the city. Even were cholera not in the question, such a movement would deserve hearty encouragement.

IN VIENNA, one of the most important innovations during the year is the new method that has been adopted of collecting and removing town refuse. In place of doing this in open carts, each household is supplied with a barrel with a close-fitting lid. When this is filled, the lid is well fastened on, the barrel placed on the cart and removed to the place appointed, without the possibility of any household dust and filth, impregnated with disease-germs, being blown about, and possibly disseminating disease along the line of route.

Leading Articles.

HOUSE BUILDING—THE HOME.

The home of the Canadian, like that of all Englishmen, is his castle. It therefore should receive in every aspect much consideration. And this from the first conception of it to its completion and ever after, that it may be convenient, light, clean and dry, and comfortable as to temperature, and perhaps above all, well ventilated—else it cannot be clean. The health depends more than most people would think of upon the condition of the house.

Any one therefore, who contemplates building a house, should take abundance of time for considering and maturing the plans, and for preparing the materials. This not only concerns a good satisfactory dwelling-house, but is a matter of economy. Much of the material for building requires *time* above all else for preparation; and in order that the interior of the house may be satisfactorily arranged, and "extras" avoided during its construction, the details of the plans must be considered and matured. As the *Builder and Woodworker* says: "The ordinary man has very little knowledge of the amount of labor required to get out complete working drawings for a good-sized building. Now the intending builder contemplates building in the spring, say April or the beginning of May. What does he do? Instead of going to an architect during the winter months, when work is slack, and giving him his ideas, so that he may have time to work them out and develop them, he waits until a week or two before he is ready to build. Then the intending builder rushes off to an architect and wants plans submitted to him at once. But every house must be treated by itself and separately, and the architect, like the physician, diagnoses the case, and takes measures accordingly. First he takes a survey of the ground. Then he prepares sketches, plans, and submits them to his client. Nine times out of ten some modification or alteration is desired—an alteration may be trivial in itself, but which may necessitate considerable careful thought and study."

The site for the dwelling is of the utmost importance. It should be so elevated as to permit of deep under-drainage. If ever the plan should be adopted as it probably will be, which has been suggested by Dr. Richardson, of building dwellings upon arches so that the air could circulate freely under them, it will probably be many generations hence. In the mean time deep and thorough underdrainage will promote a free circulation of air under the dwellings as well as promote dryers of soil. The drains should be at least three feet below the basement or cellar floor. They should be plentiful, and of course of porous material such as tiles.

In the construction of the building, abundance of window-glass should be used to let in the sunlight freely, and the rooms, especially the bed-rooms, should be made as large as circumstances will permit, as large rooms are much more easily ventilated than small ones. Consideration should be given to these points rather than to ornamentation. A few hundreds of dollars spent in such ways as will best promote the health of those who are to occupy the dwelling, may save many thousands of dollars in expenses connected with sickness, if not of a severe form, of that of a more general and constant want of health in the family.

THE WATER CARRIAGE SYSTEM.

The almost automatic water-carriage system, in a well-elevated city, topographically, with a free outflow, and with an abundant water supply, with streams of water flowing almost constantly through our dwellings, washing away all waste matter, is beautiful in theory. And when the art of plumbing, as it relates alike to the principles and methods of constructing the system—the traps, ventilation of the drains, &c.—to the supply of material, and to the workmanship, becomes a perfect art, as it will in the course of time, the water-carriage system will then be very pleasant, and probably beautiful, in practice, too, as well as in theory. As it is generally adopted at present, it is dangerous. There is an unsettled state of opinion amongst the best

authorities in relation to the position of traps, and to the ventilation of sewers; there is a want of a perfect trap; there is a want of a perfectly non-corrosive material for drains and soil and other pipes; there is scamping as well as ignorance in relation to the plumbing work, manifested, little or much, in spite of all care and oversight; all of which, with other defects and dangers, make the system exceedingly dangerous. And not only is it directly dangerous to the city in which it is constructed, but with the present method of disposal of sewage, after it has been removed from the city, emptying it into streams, rivers and lakes, instead of purifying it by means of a sewage farm or of some less natural chemical process, it is, from contamination of the water supply, rendered exceedingly dangerous to other cities and towns; or, as in the case of Toronto, dangerous in this way, too, to the city it relieves of sewage. But human progress, it appears, is not made without penalties, and the penalty of perfecting the water-carriage system for our dwellings has been, and will continue yet for some time to come to be, a vast sacrifice of human life. It is probable that this penalty, this sacrifice of life, even with the system imperfect as it is, is lighter than that of the vilely barbarous system of storing excretia in the vaults, and casting the slops upon the ground at the back door. Indeed any system would be better—none conceivable could be worse, than the old disgusting method of closet vaults. Fortunately, however, there are other methods for safely removing and disposing of waste matters besides that in which open pipes extend from the system of street sewers (which often contain cess-pools of stagnant sewage) directly into our bed-rooms and kitchens. In an elevated city with a free outflow, and with abundance of water, the system under consideration is less objectionable than in a city with opposite conditions. But even in the most favorable circumstances, the writer, after many years of observation and study of this subject, rather than have complete connection between the sewerage system and the sinks, baths and closets in a dwelling, would much prefer the use of earth or ashes closets for the excreta, and disconnection in the yard of all the waste pipes for household slops—bearing with the extra trouble which the latter would give in frosty weather. This may seem to many like advocating a retrograde course, but it is simply in favor of making haste slowly, and of progressing cautiously and safely. If all connections between the sewers and the sinks, baths and closets in our houses were entirely cut off in the yard by an open grating, giving complete separation between the pipes and the drains and sewers, many premature deaths would be prevented—many lives saved. Many now are discarding fixed washing stands with wastepipes in bed-rooms, and we should like to find the discarding principle extended to the present usual method of disposal of other household slops.

Matters Recent and Current.

SEWER VENTILATION is a question which is always being more or less discussed. Complaints of the foul smells from sewer gratings are frequent in most cities, and it is proposed by some to ventilate the sewers by means of pipes carried up from house drains to the tops of the houses, and even to use the soil pipes of the houses for the purpose. A sewer, from which offensive smells arise, is clearly a badly constructed sewer, and is not carrying off the sewage properly, and the best way to remedy the matter and remove the smell is to have the sewer taken up and laid in a more perfect manner with a freer outflow. A foul smell from a grating indicates, unmistakably, stagnant putrifying sewage not far off, and to provide a remedy simply for conveying the effluvia to some point where it will not offend the sense of smell, is like treating a symptom of disease without attempting to remove the cause. Sewers should be so constructed as to carry away all sewage before it has had time to decompose and give rise to offensive gases.

"OF ALL EXPEDIENTS," Dryden has written, "never one was good." In the case of sewers as at present constructed, some sort of ventil-

ation appears to be expedint and even necessary. But the proposal to draw sewer gases to the dwellings rather than to draw them away, is an exceedingly questionable one. Beyond the fact that the principle is objectionable, the effect of atmospheric pressure on many pipes, varying widely in height, has yet to be learned, and in all cities there are adjacent houses some of which are much higher than others, and the discharge of gases from the shorter pipes of the lower houses would be liable to prove a serious nuisance to the occupants of the upper flats of the higher houses.

A MUCH BETTER PLAN would be to have high heated shafts at or near the outlets of the main trunks, and with street openings mostly closed, a current would be set up and could doubtless be constantly maintained from the houses towards the shafts. Unless the soil pipes in the houses were used as ventilators, in the other plan, this one of a large heated shaft would be much the less expensive of the two.

THE PROPOSAL to extend the Toronto main sewers to the distant ends of the wharves was such a "make shift" that it is surprising any one thought it worth while to seriously consider it. It was almost on a par with the proposal somebody made to construct a trunk sewer along the edge of and within the bay. It is disgraceful that such a wealthy city as Toronto cannot grapple successfully with its present disgusting and murderous system of sewage disposal and its foul water supply. It would doubtless raise companies of able men to fight Arabs and defend the interests of Great Britain in the Soudan, but its wealthy "property owners" appear not to see any glory in defending their wives and children from the more devastating microbes of disease.

THE TRUNK SEWER is not to be built, it would appear, until water will flow uphill. So in effect, it is reported, said one of the city aldermen the other day. An alderman, too, who, though noted for greater physical than mental capacity, contrives in some way to be usually with the majority. Well, so long as the people will elect such men to manage their public affairs, they deserve to suffer; and people nearly always get what they deserve.

CHOLERA AND TYPHOID FEVER appear to have some interests in common. It is very generally conceeded by all who have studied the laws which seem to regulate the spread of epidemics, that the fever and the cholera persue the same course, and that wherever the fever is prevalent, there in that locality are favorable conditions for the outbreak and spread of cholera. If the cholera crosses the Atlantic the coming summer, Toronto may naturally expect a full share of it, and will most likely get it. Certainly, judging from the history of cholera, more favorable conditions for its development and spread than exist in that city could hardly be found or even prepared.

THE ONLY CHANCE for Toronto ever to become a fairly healthy city is for it to have a well-constructed intercepting trunk sewer built from the Garrison creek to the Don. And in order that this may not make matters worse than they are, as they relate to stagnant sewage and sewer gases, the flow of the sewage in this trunk would have to be accelerated either by a *vis a tergo*, not easily accomplished, or by obtaining a much greater fall eastward in the grade of the sewer than the natural declivity of the locality would give, by sinking a large deep well at the eastern extremity for the reception of the sewage. From this the sewage would have to be pumped onto high ground, and be purified, either by means of a sewage farm or by some chemical process, when the purified liquid could be allowed to flow into the lake. The bay would then have to be well dredged. With a pure lake water supply, all the wells in the city should then be closed, and all out closet vaults entirely eradicated. Were all this done, very soon a large proportion of the

numerous worthy and busy medical practitioners now in the city would have to turn their attention to some other occupation, or practice their profession elsewhere.

IN OTTAWA, we learn from the Medical Health Officer, the public health is on the whole good. No cases of typhoid fever, nor of diphtheria, have been reported, and we have not learned of any for many weeks. In Lower Town there are unsanitary conditions which demand early attention, or if there should be an importation of cholera germs in the spring there will be probably such an explosion as will do a thousand times more damage than could be covered by the amount it would now cost to remove the evils. We hope to see the local board take vigorous action in the matter at an early day. Spring will soon be here. The board have been wisely looking after the ice supply and the slaughter houses, but the conditions above alluded to are of greater importance.

IN MONTREAL the citizens are becoming alive to the necessity of putting their "house in order" and making preparations for the cholera. The people and the city papers are speaking out very plainly in relation to the disposal of waste matters and denouncing in plainer terms than any city in Canada, so far as we have observed, the use of the present universal vile system of out-closet vaults for storing excrata. It appears there are about ten thousand of these cess-pits in the city—not so many seemingly as in Toronto. The *Montreal Herald* truly says: "There is nothing that pollutes the air so quickly and with such injurious effects as human excrata. Nature has wisely and mercifully made all such matter offensive to the senses." Alas the senses of some people appear to be morbidly obtuse, or the powers of patient endurance are marvellous.

A PAPER ON SEWAGE DISPOSAL was read on the 2nd inst. by Dr. I. Baker Edwards, chief Dominion analyst, in connection with the natural history society of Montreal, Dr. Sterry Hunt occupied the chair. The reading of the paper was followed by a rather warm and interesting discussion on the comparative merits of the dry earth and water carriage systems, the manner in which the board of health perform its duties, and the propagation of disease by night-soil. In this many prominent citizens—Mr. Ald. Mooney, Col. Crawford, Rev. Mr. Campbell, Mr. Radford, Mr. Clendinning and Drs. LaRocque and Wanless and others—took part, amongst whom we recognize the names of quite a number of old subscribers to the SANITARY JOURNAL. It was said that the law which does not permit the board of health to compel the householder to empty a pit, no matter how large or how deep it may be, until it is filled within a foot of the surface, prevents that body from applying a remedy to this dreadful state of things. And yet this is almost the universal law in Canada. Mr. Radford said that the people of Montreal were ignorant and asleep with regard to all matters relating to public health. All agreed that the sanitary condition of the city is bad and needs to be improved without delay.

TO HEAP'S PATENT CLOSET, Dr. Edwards, in his paper, paid a high tribute. He said, "having been consulted by the health sub-committee on this subject I have, after due consideration, strongly recommended the cremation and carbonization of the night-soil, and the abolition of all cess-pits and privy vaults within the city, and the substitution of dry closets and frequent removal. I believe it to be practically both the best and cheapest yet devised. The only practical objection to the closet which has hitherto existed is removed in Heap's patent closet, in which the fluid is separated from the solid excreta. These are claimed by the inventor to be the "best in the world," having taken thirteen prize medals in open competition with Morrell's Moule's and other makers."

SO MUCH ON CHOLERA has been given in the JOURNAL during the last few months that little more can be said upon it that would instruct the reader. We need only reiterate —for with the general apathy it can not be

too often told—that the universal advice of all the best authorities on the subject is, to destroy all traces of decomposing organic matter of every sort—in short, to wash, disinfect and be *clean*—and not to rely upon quarantines, which, as many state, are liable to do more harm than good by giving a false security. The general opinion is that the disease will reach this continent next summer, it may be early. It will travel along the lines of railways, and the cleanest places will suffer least. Towns which are perfectly clean it will not visit. As to its being contagious—communicable from one person to another—there is a difference of opinion. As to its development on filth, and spread therefrom by air or water to the human body, there is no difference of opinion. And the worst of all filth is that putrifying in badly-built sewers and in privy vaults.

THE REPORT on births, marriages and deaths for the Province of Ontario for the year 1883 is but just received as we go to press. The volume manifests the usual care in its compilation, and while there was a fair increase in the number of births registered during the year, there was a falling off in the number of deaths. There were considerably more than twice as many births as deaths registered. In the chief cities, the registrations must be fairly complete, but when many counties only register a death rate of from 7 to 10 per 1,000 of population, it shows great defects somewhere. The chief officer in the work, Mr. Inspector Crewe, appears to do all that can reasonably or possibly be done in the circumstances to make the system successful, but now, after thirteen or fourteen years of such imperfect returns, it is plain that either one or the other of two things must be done: either prepare for enforcing the system by persistent fining of all who neglect to register, or alter the system entirely. We purpose noticing some interesting points in the report in our next issue.

WHY NOT ABANDON the collection of vital statistics so far as the Ontario system is concerned, and leave the work to the Federal authorities? We can see no possible advantage in the province incurring the expense of a continuation of the system, and believe that if the matter were fairly laid before the Federal and Local Governments, an arrangement might be settled upon by which the former would extend still further the method first put in operation about two years ago, and collect the vital statistics of the whole Dominion.

PRACTICAL SANITATION—THE OUT-CLOSET.—A physician and member of parliament, now in Ottawa attending the session, who has a large general practice in Ontario, and who, by the way, is one of the oldest subscribers to this JOURNAL, has been describing to the editor the way in which he has his out-closet arranged, and how the excreta is disposed of at his home in a county town. It is well worthy of imitation by thousands of heads of families throughout the country. As he remarked, some would think the plan a very troublesome one, but he is of a different opinion; it is comparativley no trouble at all or the trouble is not worth mentioning. He had two ordinary coal oil barrels sawed in two transversely, thus providing for four closet seats. These are fixed on runners and the whole placed under the seats. The closet is raised, and open behind, below the seat, in order that the tubs formed by the half barrels may be drawn out when filled and returned again under the seats. Every day, ashes from a large tin can in the closet are thrown over the excreta. When the tubs are full, they are drawn out by a horse and the contents put upon the garden. There is no offensive smell whatever. The father of the writer, at his home, 30 years ago, disposed of the closet excreta in a similar manner, the only difference being, that a long plank box was used instead of tubs, and earth instead of ashes.

THE ENGLISH CHOLERA COMMISSION, Drs. Klein and Gibbes, have published their preliminary report. It has been given in some of the daily papers and we need not occupy the space of this JOURNAL with it. Suffice

it to say that it is quite opposed to the views of Koch. "Coma bacilli," they find, are not peculiar to the cholera process, being found also in other intestinal affections; they are not present in the ileum in cholera in 'almost a pure cultivation;" they do not behave differently from other putrefactive organisms when tivated; and they do not communicate cholera to rabbits, cats, or monkeys, when introduced into the circulation or intestinal canal. Other experimenters, as professors Finkler and Prior, of Bonn, and Klebs of Zuric, had arrived at a similar conclusion, and last month, in a paper published by Dr. Emmerick of Munich, the author ignores the coma bacillus as the cause of Cholera.

AS OPPOSED TO THESE INVESTIGATORS, however, we find that at a meeting of the London, (Eng.) Medical Society, Jan. 12, '85, Dr. Heron showed specimens, under the microscope, of the coma bacillus, and of the Finkler-Prior bacillus, and drew attention to the fact that there exists a striking resemblence between the two bacilli when examined in this way. Dr. Heron also showed specimens of these two bacteria, growing in nutritive gelatine and upon prepared potatoes, and he pointed out the striking differences which distinguish their respective modes of growth. The differences in growing in nutritive gelatine and upon potatoes are so marked as to make it easy for anyone to tell at a glance to which category either one of the growths belongs. These two facts, namely: the resemblance of form under the microscope, and the pronounced difference which distinguishes the growths of the two bacilli in artificial cultivation, emphasize, Dr. Heron said, the importance of bearing in mind that mere resemblance in form is not sufficient to justify the assertions that two organisms are one and the same. The bacillus of Finkler and Prior, is evidently as stated, a putrefactive organism, "as anyone can ascertain for himself by the use of his sense of smell," and as it differs in such a marked degree in its mode of growth in artificial cultivation from the coma bacillus, the assertion of Drs. Klein and Gibbes (of the English Cholera Com.), that the latter "does not behave in any way differently from the other putrefactive organisms" is not correct.

A GOOD SUGGESTION was made by Dr. Heron, that there should be some way of diagnosing with certainty any case of cholera, especially when an epidemic threatened, and that some medical men ought to be trained to be at once able to apply the test in doubtful cases. The Finkler-Prior bacillus, known to be a putrefactive organism, is associated with cholera nostras—ordinary English cholera, and was believed upon its discovery to be identical with the coma bacillus of Kock. It is probable that Koch will soon be heard from in reference to these opposed views. He has significantly observed, it is said, that two years ago, representations similar to these now made in relation to his coma bacillus were made in relation to the bacillus of tubercle. Truly, as we not long ago observed, there is much yet to be learned in connection with contagiums.

"THE AGE OF MELANCHOLY," is the heading of a long leading article in a recent number of the London (Eng.) *Medical Times and Gazette*, and in its decadency it sends up a wail of despair:

> 'Were it not better not to be,
> Than live so full of misery?"

It has become so cranky and so contradictory in its views, so domineering and yet so fossilized, that want of patronage, probably, makes its existence a burden. It is absolutely insane on the vaccination question, and regards the Jenner process as the "only preventive of small pox" we possess. Yet time and time again it gives, as if unconsciously, reports of epidemics of the disease being stamped out in certain and various localities by means of isolation and quarantine alone. It winds up its "melancholy" article as follows: "The spirit of melancholy is abroad. L'Allegro is being driven from our shores, and Il Penseroso is in the ascendant.

Anxious forebodings wrinkle many brows. We have lugubrious art. The beauty of our women is pathetic. Our wit is cynical, and even our humour has in it a tinge of sadness." Poor thing. There are many happy, even jolly people in the world yet.

THE OVER-PRESSURE investigating committee's report, London (Eng.), actually adopts, it appears, several of the principal recommendations of Dr. Crichton Browne's report; though the committee was composed of men long engaged in supervising London schools, and who would naturally be reluctant to acknowledge they had overlooked grave evils which had grown up under their care, and it was presided over by Mr. Sidney Buxton, who is so declared and ardent a disbeliever in over-pressure that, as a journal gives it, "he has sometimes forgotten the common courtesy due to those who differ from him." The committee has reported "that dull, delicate and under-fed children on the one hand, and excitable and over-axious children on the other, do occasionally suffer from the excessive strain imposed on them under the system."

A LAST MONTH'S number of *Union Medicale* relates a startling circumstance brought to light by the recent cholera epidemic in Paris. In one of the best localities of the city, renowned for the exquisite productions of its bakers, and especially for the manufacture of *pain de luxe*. "Some of the neighbours of these bakeries had complained again and again of the nauseating odours which pervaded their apartments, but the appearance of cholera at last gave point to their remonstrances, and the sanitary inspectors who were sent to investigate the matter found a communication between the water-closets of these houses and the reservoirs of water used for the making of this bread. The communication was forthwith cut off, but an immediate result of this procedure was to give rise to a sensible deterioration in the quality of the bread. It appears that chemists have no difficulty in explaning that water saturated with "extract of water-closet" conveys a special property of raising the dough, giving to the bread the agreeable aspect and even taste which constitute the fundamental qualities of *pain de luxe*.

A MEMBER of the French ministry, at an assembly where the matter was since discussed, related "that in early life he had practised as an advocate in a provincial town in which was a famous pork-pie manufacturer. This person had a quarrel with his neighbour because of a communication which existed between the privy of the latter and the well of the pork-butcher. He succeeded in compelling him by law to cut off the communication, at a very great expense, but from this time he gradually lost his customers, and what he produced was in nowise superior to the goods of his competitors, which could be purchased at a lower price. After puzzling himself for a long time, he was struck with the coincidence of the loss of custom and the stoppage of the nauseating compound supplied by his neighbour, and he induced the latter, by means of a large indemnity, to restore the communication. The pork-pies, of course, at once recovered their former succulency."

A NEW LUNACY BILL in Great Britain, provides, though unfortunately in an indirect manner, for the extinction of private asylums. Terrible abuses have been found to exist there in such asylums, and it is high time some such action were taken. In the United States too, abuses of the most revolting character have been of late discovered in private asylums. In the Province of Quebec, it has been recently found that a sad state of matters exist in connection with like provisions for the insane. An Act should be passed by the Federal Government prohibiting altogether the use or establishment of private institutions for the care of that most unfortunate class of our fellow creatures who cannot care for themselves.

THE TERRIBLE EPIDEMIC which prevailed last autumn in S. W. Virginia and S. E. Kentucky, according to the *Boston Medical Journal*, caused about 1000 deaths. The district invaded is an area of about 80 miles by 70 miles; and sparsely settled, the railroad and telegraph being as yet unknown there. Rain had not fallen for months, and the crops had failed. The springs and streams were nearly dry and the little water left was strongly impregnated with mineral substances and decaying vegetable matter, and doubtless too with the resulting bacterial organisms. Most of the farm stock was destroyed.

THE BACILLUS of infantile diarrhoea, it has been announced by M. M. Clado and Damaschino, at a recent meeting of the Societe de Biologie of Paris, France, has been discovered. It is said to be about three times the size of the tubercle bacillus and curved or crescentic in shape. The numbers found are in proportion to the severity of the disease, and they disappear as the stools improve from green to yellow, as recovery takes place.

PHYSICIANS ON SCHOOL BOARDS.—At the meeting of the Vienna Public Medicine Society, Dr. Baginsky, a well-known writer on school hygiene, recently drew attention to the advisability of medical inspection of schools (*Med. Press*). His conclusions were as follows: that, notwithstanding the improved hygienic condition of schools, the infantile organism is still subjected to injurious influences depending on school-attendance; that improvement is for this reason not one to be intrusted to architects and pedagogues, but to be carried on on a physiological basis; that it is therefore fitting that the decision as to improvements, both as regards buildings and systems of teaching, should be submitted to the physician; that every school committee should have a physician among its members; that the activity of every school committee as a whole, and of the medical member in particular, should be continuous; that periodic revisions do not fulfil the desired aim; that absolute independent power of deciding should be permitted to no member of such a committee, either as regards changes in the form of the school or in the studies,—not even to the medical member.

THE FAMILY POISONER.—Modern civilization has, says the *Hydraulic and Sanitary Plumber*, developed a new calling which, though widely pursued, seems as yet to have no specific name. The individual who follows it ought to be much better known than he is, and to help give him the prominence he deserves, we propose for him the title of the family poisoner. This individual never confines his business entirely to the specialty indicated, but always combines it with some other business or trade; sometimes with plumbing, with the furnishing of "interior decorations," with the selling of "family groceries," with the keeping of a "family liquor store," or with the manufacture of candy and other like things. A good deal of money is made by it or saved, which in general amounts to pretty much the same thing. But from its peculiar nature it cannot very well be carried on alone; the most vivid imagination could hardly conceive of its profitable establishment as a separate industry. Altogether the outlook for the business of family poisoning is not very good.

THE SAVANNAH *Times* reports that a piece of lead waste pipe which had been knawed through by rats has been found in that city. A leak occurred, and a search resulted in the discovery of a hole in the pipe large enough to put one's thumb through. The pipe showed the marks of the rats' teeth. The rats had probably been attracted by grease.

IT IS SAID that a company has been organized to form an artificial lake at Northfield, Staten Island, N. Y., for the purpose of supplying water to towns in New Jersey, through iron aqueducts to be laid across the narrow portion of Staten Island Sound.

THE SECOND CREMATORIUM has recently been completed in the United States, and dedicated. It is at Lancaster, in the vicinity of the largest cemetry of Philadelphia. The first cremation has taken place—the cost being $35.

THE Italian Government propose to spend twenty millions of dollars in improving the sanitary condition of Naples. After the horse is stolen, etc.

IT IS PROBABLE that a state board of health will be established in Pennsylvania at this session of the legislature.

A MUSEUM OF HYGIENE, similar to the Parkes Museum in London, is shortly to be opened at Turin.

WASHINGTON correspondents think there is little hope for any health legislation this session.

THE Illinois state board of health is conducting a sanitary survey of the state.

DISINFECTION BY SULPHUR FUMES.—In a communication to the French Academy (*Therap. Gaz.* Phil.) M. DUJARDIN-BEAUMETZ relates the results of the experiments which he performed at the Cochin Hospital as to the relative disinfecting powers of sulphurous acid and certain other substances. (*Jour. de Méd.*, Oct. '84). He concludes that sulphurous acid is the best of all disinfectants, and shows that all germs and microbes, even those of anthrax, are destroyed in a room in which this acid had been generated. M. Beaumetz was thus able by means of the microscope to confirm the ideas generally held as to the efficacy of this disinfectant, and to prove its superiority to disinfection by heat, a means, by the way, whose difficulty of accomplishment is not sufficiently appreciated. Of all the means of production of sulphurous acid, one only is practicable for purposes of disinfection, viz., the combustion of sulphur with enough alcohol to ignite it; other methods which have been recommended, such as the burning of sulphide of carbon, require special apparatus, and are not entirely free from danger. In the disinfection of a room, all the objects should be left in position, and about one ounce of sulphur burned for every cubic yard of space which it is desired to disinfect. The best means of avoiding danger from fire is to employ two earthenware vessels placed on top of one another, the upper and smaller one containing the sulphur and alcohol, the lower one containing wet sand. If then the upper jar breaks with the heat, the burning sulphur falls onto the wet sand and not onto the floor. The room which is being disinfected should be kept closed for 24 hours after lighting the sulphur. Bleaching from the fumes of the sulphur must be expected; all metallic objects are attacked, though they may be protected by first coating them with oil. The The above is the ordinary method employed in most of the hospitals in France, and it cannot be too highly recommended.

HOW SCARLET FEVER IS SPREAD.—The following authentic instances have been recorded. Dr. (later Sir Thomas) Watson is the authority for this: Scarlet fever had attacked several persons in a large household. When it was fairly over the house was left empty, and (as was supposed) most thoroughly ventilated and purified. A year afterwards, the family returned to the house. A drawer in one of the bedrooms resisted for some time attempts to pull it open. It was found that a strip of flannel had got between the drawer and its frame, and this the housemaid put playfully around her neck. An old nurse who was present, recognising it as having been used for an application to the throat of one of the former subjects of scarlet fever, snatched it from her, and instantly burned it in the fire. The girl, however, soon sickened, and the disease ran a second time through the household, affecting those who had not had it on the first occasion. Dr. Murchison relates the following: An officer, aged 22, on 5th September, visited a friend in London whose little girl had scarlet fever, but so slightly that she was not confined to bed. He took the girl on his knee and kissed her. On the morning of the 8th September he was quite well, but towards evening he was attacked with headace, heaviness, and sore throat, followed by a dusky rash, ulcers on the tonsils, constant delirium, sleepiness, and a great prostration, and died on 14th September. Dr. Murchison relates another sad case concerning himself. In the afternoon of 14th May, 1860, while from home, I was myself seized with general pains, fever, sore throat, and great prostration. I did not get home until eleven o'clock, and all next day I was very ill in bed with the same symptoms, but there was no rash. Suspecting that I had scarlatina, I sent for a medical friend to advise me as to sending away my only child, but by the time he arrived, I was so much better that he gave a decided opinion that my attack was not scarlatina, and next morning, as I was able to get up and attend to my duties, I believed that he was right, and did not send my child away. I have no doubt now from the sequel, and from what I have seen in other cases, that my attack was scarlatina. At the time I was much exposed to the disease, I never had scarlatina before, nor have I had it since, and for months after that attack I was anæmic, and out of health. On and after 16th May I saw my child as usual. On the morning of 20th May she was attacked with scarlatina in a malignant form, and she died on the 27th.

To THE HON. DR. SULLIVAN, we have much pleasure in extending our warm congratulations on his recent appointment to the Senate. The doctor is deservedly popular with the profession generally, as shown by his unanimous election in 1883 to the honorable position of president of the Dominion Medical Association, and, moreover, as we find, by the warm approvals and congratulations, in relation to the appointment, from the medical journals of Canada, and the appointment we are persuaded will be fully appreciated by the profession. Dr. Sullivan is a pleasing, vigorous speaker and will doubtless make himself heard and felt in the discussion of legislative questions in the Senate.

THE HON. SENATOR GOWAN, too, has our warm congratulations on his appointment. As one who has we believe given attention to public health matters, and as an old subscriber to this JOURNAL, we trust, as a legislator, he will help on the cause we advocate. We are always sure of help from the medical men, and hope for it from others.

A SPECIAL MEETING of the Montreal medico-chirurgical society has just been held (13th inst.), attended by members of the board of health. The chief object of the meeting was to discuss matters relating to the prevention of cholera, and the proposed health bill for the province of Quebec. The meeting was largely attended, all the leading physicians of the city being present. We much regret that it came too late in the month for us to give more than the following brief notes, on what was a highly interesting meeting :

Dr. LaRocque, city medical health officer, always to the front in such work, read a short paper on the subjects for discussion, the most important and practical points being, 1st. The question of the public health bill for the Province of Quebec, constituting a provincial board. 2nd. The very great advantage derived from the reporting of the principal contagious diseases. 3rd. To appoint district physicians to assist in the management of contagious diseases in order more effectually to prevent their spread. 4th. The question of the abolition of yard privy vaults. 5th. The importance of flushing the sewers at certain points. 6th. The more thorough and systematic inspection of houses and premises. 7th. The more careful surveillance of the food supply, as meat, fruits, milk, &c. 8th. The house refuse, shall it be carbonised ? 9th. The first measures to be adopted on the appearance of cholera—ambulance, hospital provision, medical service. 10th. The great importance of personal cleanliness secured by frequent washing of the entire body in tepid water.

Ald. Mooney, chairman of the city health board, said the board were working on the principle "that prevention was better than cure." If they could get the city in a clean state, they had no fear but that the medical men would keep out the disease.

Dr. Howard said, seeing that the Dominion government had made quarantine regulations, it did not concern them much how cholera was to be introduced, but it was the duty of the provincial government to see that proper sanitary laws were enacted and enforced. Dr. LaRocque most faithfully and energetically worked as medical health officer of the city. He wanted the Quebec government to enact sanitary laws.

Dr. Campbell said he did not now look with the same dread on the possible introduction of cholera as he did when a student in 1854.

Dr. Hingston said that it was a disgrace to the Province of Quebec that they had no health law. Ontario had a bill which Quebec might copy with advantage. He thought that if they made some improvements in the Ontario bill it would be well nigh perfect. (Applause.)

PUBLISHER'S NOTICES.

SINCE THE LAST ISSUE of the JOURNAL a large number of local boards of health—in townships, villages and towns—have subscribed for from 3 to 10 copies, and this number will be sent to the secretaries of many of the boards which have not yet subscribed, but from which the publisher hopes soon to hear, if the secretaries will be so good as to bring it before the board.

THE NEXT NUMBER will contain articles, among others, under the following heads: individual hygiene, water supply—urban and rural, disposal of excreta and house refuse, modes of propagation of cholera, and increase of cancer.

QUESTIONS AND ANSWERS.—Space will be given in each number of the JOURNAL for questions and answers on all subjects pertaining to health. Questions not answered by others, will be answered by the editor.

A GREAT MANY in arrears have perhaps overlooked the accounts sent out with the January number. *Please remit.*

"ON DIT," that at an early day there will be commenced in Ontario the publication of a semi-monthly journal for the family circle, devoted to physical, mental and moral culture and progress. It will be, it is said, unpretentious but popular in character, and, although in no way in sympathy with Mr. Frederick Harrison's views, will be called "Man."

Literary and Scientific.

THE JEWS—FROM *Harper's Magazine* FOR JANUARY.—When John Evelyn went to Rome, two centuries ago, he found the Jews in that city living in a quarter by themselves, called the Ghetto. They were confined to the same quarter some years ago when the Easy Chair was in Rome. But the Ghetto is now gone. Two Jews sit in Rome in the Italian Senate, and eight in the House of Deputies. It is five centuries since the Jews were excluded from England, and it was the ancient law of the land that a Christain man or woman who married a Jew should be burned. But the last Prime Minister of England was Benjamin of Israel, or Benjamin the Jew, and a Jew whom the Queen raised to a baronetcy has just received honors and gratitude in all countries upon the completion of his hundredth year. It is a marvellous change in opinion. Isaac of York, in Scott's *Ivanhoe*, was the old Jew. The Rothschilds and Moses Montefiore are the new Jews. Indeed, one of the best signs of the changed opinion and of the self-respect of the race is the fact that the great-grandson of the English Jewish rabbi Moses Cohen, who was the first teacher of the Jewish law in South Carolina, and one of the first in America, does not hesitate in his address in Charleston on the birthday of Sir Moses Montefiore to say that he and his brethren meet as Jews. They are not afraid of the name. Like John Wesley, who caught the epithet of Methodist which was hurled at him and his friends in derision, and made it one of the most honoured names in the Christian nomenclature, so Mr. J. Barrett Cohen quietly appropriates the name Jew, and it is he who speaks of Lord Beaconsfield as Benjamin the Jew. Certainly the birthday of Sir Moses Montefiore was a day upon which his religious fraternity had the highest reason to congratulate themselves, and to recall with pride the glories of their race. Its achievements in every department of affairs and art are prodigious, except in the industrial arts. They have supplied the treasuries of nations; they have directed national affairs; they have enriched human life with philosophy and science and every form of art; they have extended the domain of commerce and of trade; they have lived in all lands and contributed to the prosperous activities of every people, but distinctively industrial they have not been; they have been in nations and among them, but not of them. The Roman Ghetto was symbolic of their separation from the very communities in which they lived. This exclusiveness and separation Mr. Cohen attributes to the Jewish law of marriage and the Jewish dietetic laws. The general superiority which he claims for Israel he attributes to its long training in the law of Moses. The careful and hereditary discipline of the moral and physical man has tended to make the Jew pure and good, and strong and healthy.

"CANADA AS A WINTER RESORT," in the February *Century*, is very pleasant reading. Following are a few selections from it:—"How could an Englishman who has been brought up upon the damp and delusive pictures . . . of a London winter . . . be able to picture what a genuine Canadian winter means? Fancy what a difference it would have made to the literature of the world had the English poets had such a winter to write about. But Canada should yet produce the true poet of winter, for the true poetry of winter is here. . . . Nothing is truer than that the winter has an invigorating influence upon mankind. The Canadians are hardier and healthier than their cousins across the border, mainly because of this and of their indulgence in open air exercises. Dr. Hurlburt, of Ottawa, who has given special attention to the subject of climates, shows very clearly, in his contrasts of the Old World with the New, that the regions of the Old which lie in latitudes and positions similar to the greater part of the United States, are inferior for the abode of man to those which correspond with Canada. . . . As I said before, it is by no means every delicate person who should make Canada his winter resort; but it is well known that our winters have cured chronic cases for which Colorado and Florida were alone supposed to be beneficial. Every winter numbers resort to Montreal, Quebec, Halifax, and Winnipeg for no other reason than that for which they once went to tropical climates. I know of patients who were regularly sent to Bermuda and the West Indies, and others to such winter climates as Nice, without more than temporary benefit, who were completely cured by the outdoor life of our Montreal and Quebec winters . . . One clergyman who had come out from England for some affection of the throat, was determined to do his share of shoveling snow. He had very thin moccasins on his feet, and during the day as there was a warm wind, they were wet through. He never expected to see England again, but that one day's work cured him effectually." If space permitted we should like to give more of this interesting paper.

A SPLENDID AEROLITE, the *Telegraph* reports, fell on the farm of C. Francois, at Chateau Richer, a short distance from Quebec, at 3 a.m., on Saturday December 13, 1884. It was dug from the ground, in which it had embedded itself, and measured about a foot in diameter. The people were so startled by the intense light, and say that the falling meteor presented the appearance of a huge ball of fire, which lighted up the whole country almost with the brilliancy of the noonday sun.

BOOKS AND PAMPHLETS.

A TEXT-BOOK OF HYGIENE. A comprehensive treatise on the principles and practice of preventive medicine from an American standpoint. By George H. Rohé, M.D., professor of hygiene, college of physicians and surgeons, Baltimore, etc., pp. 324, 8vo. Baltimore: Thomas & Evans.

We have not yet been able to make careful examination of this new work, but from the half-hour devoted to looking through it, we are much pleased with it. The aim of the author, stated in the preface, has been to place in the hands of the American student, practitioner, and sanitary officer, a trustworthy guide to the principles and practice of preventive medicine. He appears to have treated the various subjects of the book in a practical manner, and the arrangement of the whole is good. Perhaps the greatest fault in connection with the book is its brevity, considering the class of readers for whom it is intended. We consider it superior to most other handbooks on public health which we have seen. The author does not claim that there is much in it that is new, but "hopes nothing in it is untrue." We probably shall refer to it on another occasion.

ORIGIN OF SPECIES. By H. B. Philbrook, editor *Problems of Nature*, pp. 76, New York.

This is a remarkable book, and, if one could realize and believe it, it would be startling, if anything in this age could startle one. We find in it, "in each plant all the process that is necessary to construct what can be converted into a human being is being constantly operated. In these orders of creation the same process is being performed. The operation is simply a work of the agent of creation we call electricity. It is a fact that this wonderful agent called electricity is the very holy breath of God that is rendered Holy Ghost in the translations of the Bible. This holy breath of God is the very substance of which the soul is constructed, and the great prophet so states. In reference to Darwin's works the author says, "a more complete failure is nowhere to be found in any great mind's production, and it is only charitable to state that this author was in doubt as to its being true, and frankly admitted it.

THE OFFICES OF ELECTRICITY IN THE HUMAN BODY; an explanation of growth, mind and the work of repair. By H. B. Philbrook, New York. This was published in the first five numbers of *Problems of Nature*.

REPORT OF THE NATIONAL CONFERENCE OF STATE BOARDS OF HEALTH, held at St. Louis, Oct. 13-15, 1884.

Subject:—The threatened extension of Asiatic cholera to North America, and the action necessary to prevent or limit a cholera epidemic. Illinois state board of health, Springfield, 1884.

SEWAGE DISPOSAL BY FLUSH-TANK AND SUB-SURFACE IRRIGATION, by the drainage construction company, Newport, R. J.

PRACTICAL RECOMMENDATIONS FOR THE EXCLUSION AND PREVENTION OF ASIATIC CHOLERA IN NORTH AMERICA.

An address delivered at the opening of the national conference of state boards of health, St. Louis, October 13, 1884, by John H. Rauch, M.D., secretary, Illinois state board of health, Springfield, Ill.

CURRENT LITERATURE.

THE POPULAR SCIENCE MONTHLY for February contains good articles on the following subjects: sight and hearing of railway employees, by William Thomson, M.D.; the larger import of scientific education; evolution and destiny of man, by W. D. LeSueur; food and feeding, by Grant Allen; and physical training of girls; with much other interesting and instructive matter. There is, too, a pleasing paper—why birds sing—by Dr. B. Placzek, a translation from *Kosmos*. In this we are told that "love-life is more largely and intensely developed among the feathered races than any other of the families of animals." For March we are promised papers on the following subjects: Science in politics; the Darwinian theory of insects, by G. J. Romanes, F.R.S.; medical expert testimony, by Dr. Frank H. Hamilton; Cholera, its modes of propagation, by Dr. Max von Pettenkofer; the painless extinction of life, by Benjamin Ward Richardson, M.D., F.R.S., (illustrated); the chemistry of cooking, by W. Mattieu Williams; English experience with cancer, by H. P. Dunn F.R.C.S.; and the parental foresight of insects.

HARPER'S MAGAZINE for February is a very good number. The frontispiece—the mermaid and the sea wolf, from a painting by F. S. Church, is exceedingly pretty. Hatfield House and the Marquis of Salisbury, with protrait of the marquis and numerous other illustrations, is the first pape "Lord Salisbury dabbles in chemistry. In his room is a large cupboard with glass doors displaying a portentous array of chemicals. His lordship is also a successful amateur in photography. He has put to practical use his scientific talents by planning the lighting of Hatfield House by electricity. This is done in a very thorough and workmanlike manner. In the dining-room the lights are so hung from the ceiling that when in full blaze it is only the sharpest eyesight that can discern the wires by which they are pendant. To others the lights shine as stars in the lofty domed roof . . . . In the House of Lords, half leaning on the table, and speaking in a level, conversational tone, as if his helpless victims were not of sufficient importance to inspire either gesture or declamation, he lets fall some of the most rasping sentences which it is possible to combine in the English language." In the March number we are to have: "The House of Orange," with thirteen illustrations, and "A glimpse of some Washington homes," with eleven illustrations.

THE FEBRUARY ("MIDWINTER") NUMBER OF THE CENTURY, the first edition of which was 180,000 copies (the largest number of CENTURIES ever published), contains—besides such notable contributions as General Grant's article on Shiloh—the beginning of a novel by Henry James, entitled "The Bostonians," which introduces the reader to a characteristic group of the "strong-minded" of both sexes. Mr. Howell's descriptive papers, entitled "A Florentine Mosaic," also begin in this number, with their accompaniment of etchings and sketches by Pennell. Perhaps the most timely illustrated feature of this number is Dr. Beer's paper on "Canada as a Winter Resort," with Sandham's graphic and spirited pictures, from which we give a few brief extracts elsewhere. Mr. Howell's novel, "The Rise of Silas Lapham," is continued, and Miss Litchfield's "The Knight of the Black Forest" is concluded. The "short story" of the number is a *long* story by Mark Twain, entitled "Royalty on the Mississippi," with Kemble's humorous illustrations. For March among other good things we are promised, what recent events lend special interest to, "The Land of the False Prophet," by General R. E. Colston, formerly of the Egyptian General Staff, and leader of two expeditions in the Soudan. Numerous illustrations and careful maps aid the descriptions, with a portrait of General Gordon, from a photograph made in 1867. Also, four profusely illustrated articles on the American Civil War.

THE MIDWINTER (FEBRUARY) ST. NICHOLAS IS another of the many charming numbers of this admirable magazine for young readers. Among the many new things in this number are "Driven back to Eden"; "English Kings in a nutshell," filling six pages of beautiful, instructive illustrated reading; "Little Red Ridinghood," with a very pretty and odd picture; "Ralf's winter carnival" and "winter days," illustrated; and other funny things, and always funniest of all, the Brownies, with four illustrations, the little male fairies riding terror-stricken sea-fowls—"The albatross and crane are there, the loon, the gull, and gannet rare."

HARPER'S YOUNG PEOPLE, being a weekly and yet a lower priced periodical, occupies a somewhat different field, and is rather perhaps for *younger* people. Dropping in weekly, the sometimes impatient little folks have not so long to wait for their literary treat. The last few numbers have been exceedingly good. Two full page illustrations, "cold comfort" and "apple blossoms" are respectively very pathetic and lovely (as our little girl said). There are, too, some very funny things such as "Winter sports at the North Pole," illustrated—polar bears skating and others on sleds blown along by the force of the wind against the concavity of open umbrellas; and an elephant with toothache that sought the "nearest dentist," with eight illustrations.

HARPERS WEEKLY is strong in its denunciation of the dynamiters, both in language and illustrations. It says:—"This dynamite devilry moves only the execration of mankind. Mr. Parnell and his associates, unless they are fools, are not deceived. They know that such acts alienate universal sympathy from any cause in aid of which they are perpetrated." In the number for the 14th inst. is a portrait of Mrs. Yseult Dudley, and another of "Chinese Gordon"—represented as a pleasant looking man, with a high bold forehead. As suiting the day, too, it gives a double-page illustration—the "seige of the lovers."

THE *Montreal Star* gave in full all it had promised in the carnival number, which, as everyone knows, was universally pronounced a magnificent production, highly creditable to the country. Those who think such a display of winter and ice will do Canada harm hardly think deeply enough. It is better to let the people abroad, who believe the winter here to be a terrible period of snow and frost, know that it can be made highly enjoyable. Only will not some enterprising publisher in Toronto publish next fall a like display of the Industrial Exhibition? Too utile, prosaic, perhaps.

THE METALS which are found to longest retain heat and brass and copper, next iron, and lastly in order lead.

FIFTY MILLION dollars have already been spent on the Panama Canal, and the work has hardly begun.

TWO CASES of the successful joining of divided nerves have been reported to the Paris Academy of Sciences, function being restored, in one case to a nerve which had been divided for fifteen years.

CROWS, DR. C. C. ABBOTT avers, have twenty-seven distinct cries, calls or utterances, each readily distinguishable from the others, and each having an unmistakable connection with a certain class of actions.

A BAVARIAN chemist is reported (*Am. Invent.*) to have invented an enameling liquid which renders any species of stone or cement harder than granite, and gives it the indelible appearance of any mineral that may be desired.

THE LEADING PECULIARITY of rice is the very large proportion of starch and the very small proportion of gluten which it contains, there being but one part of gluten to thirteen parts of starch. In wheat there are two parts of gluten to every nine parts of starch.

A TIGER in the act of eating a buffalo, says the *American Inventor*, has been accidently photographed in India. The poor creature, which was tied to a stump in a field, had just been focused, when out popped the tiger from a neighboring wood. The artist released the spring shutter of the instrument just as the buffalo was laid low by the beast's paw, and the "sun picture" was taken before the dying moment occurred. It is said to be a most tragic tableau, and a great achievement in the art of photography.