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HEALTH JOURNAL

A Monthly Review and Record of
SANITARY PROGRESS

—EDITED BY—
EDWARD PLAYTER, M.D.

Public Health and National Strength and Wealth.

For Contents see next page.

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VOL. XIII.

FEBRUARY, 1891.

No. 2.

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CONTENTS:

On Preventing the Spread of Infectious Diseases.....	21
Sewage and Water Supply of Small Towns.....	22
The True Temperance "Platform".....	23
Von Esomarch on Practical Disinfection.....	23
Value of Sunlight in the Home.....	25
Predisposition, Immunity, and Disease.....	26
Wasted Energy.....	29
Left-sided and Right-sided Disease—Interesting and Practical.....	30
On the Collection and Disposal of Sewage.....	31
Miscellaneous Notes and Extracts.....	34
Editorial Notes.....	37
Notes on New Books and Current Literature.....	39

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CANADA HEALTH JOURNAL.

A Monthly Record of Sanitary Progress.

VOL. XIII.

FEBRUARY, 1891.

No. 2

ON PREVENTING THE SPREAD OF INFECTIOUS DISEASES.

DURING last year, 1890, in the twenty-nine cities and towns which make a record of their deaths and report them to the Department in Ottawa, there were over eleven hundred fatalities from the four principal diseases of childhood—diphtheria, scarlet-fever, measles and whooping cough. Besides these fatalities there were not less than thirty or forty, probably fifty, and possibly one hundred, thousand cases of these diseases which ended in recovery or partial recovery. From the well known facts concerning these diseases, facts which hardly any body now disputes, the only way to acquire or "take" any of them, is by exposure to the presence of either some one sick with the disease or some place or thing which had in some way become infected by a previous case. If these thousands of sufferers, mostly innocent children, with not less than at least five times as many more throughout the rural districts of Canada, had not been permitted to expose themselves, often carelessly, sometimes indifferently or even wilfully permitted, to the infections, not one of these cases would have occurred. These deaths, therefore, five or six thousands of them in all, with the vast multitude of cases without death, with the inestimable suffering therefrom, with all these tens of thousands of breeding places or foci of infection which extend their deadly influence into and throughout this year and the next and farther, were all avoidable or preventable,—with sufficient organized care they might all have been prevented.

There is altogether too much indifference, shameful indifference, shown and too little care exercised, by parents in regard to the strict isolation of those over whom they

are the responsible guardians. If these diseases are ever to be stamped out, as they could be, or even their prevalence and mortality greatly reduced, much more intelligent and complete effort must be put forth, not only by parents and the public generally but by health authorities. Isolation is hardly anywhere carried out as it should be, and disinfection is mostly worked out in a routine and perfunctory manner. Think of the case communicated to a Toronto Daily, noticed in the January issue of this JOURNAL: A case of diphtheria. "The doctor gives very full instructions as to the proper disinfection, but neither tenant nor landlord seem willing to assume the expense, and as the doctor has no authority to enforce the carrying out of his instructions they are ignored." "The doctor notifies the health department." "An inspector is sent, who calls at the house, hurriedly asks a few questions—the mother says he shook like a leaf—and hastens away. Soon after the death of a child the female portion of the family, notwithstanding the fact that they had been living for days in the poisonous atmosphere of the room, hastily gathered together their clothing, and as far as can be learned, without the slightest effort to disinfect their persons or clothing, took a train for a neighboring town." This JOURNAL has reported many such cases of carrying the infection to other centres—"neighboring" or perhaps far away towns.

As Dr. Lindsley, secretary of the Connecticut State Board of Health, in the Monthly Bulletin of that Board, says, "If such culpable disregard of public safety is not a crime against the community, then the careless switchman who derails a passenger train, or the heedless engineer who

plunges it into an open drawbridge are not criminals, and incendiarism and burglary are trivial misdemeanors.”

The “Press,” the leading Dailies and Weeklies, could do a great deal in enlightening the masses of the people relative to the importance and value of the most complete isolation possible of all cases of infectious diseases, and to wholly dispel the belief, not now so general as it used to be,

that it is better for young children, while yet young, to “take” scarlet fever, measles and such like diseases and have the trouble and danger over; as if all children were destined to necessarily suffer from such affections. With a more enlightened public and vigilant sanitary officers such diseases could be in a few years entirely stamped out and become only a thing of the past.

SEWERAGE AND WATER-SUPPLY OF SMALL TOWNS.

A NUMBER of towns it is gratifying to observe are making or are about to make provisions for a public water supply. Many of them however have no special sewerage system and are not even providing for this. Such a course is a mistake. Certain portions of cities in like manner are sometimes supplied freely with water from the public source, where there are no sewers in the locality for carrying away the excess of water. There should invariably be some provision for carrying off the waste water from all buildings, even with the use of dry earth closets. Otherwise the soil will become most injuriously saturated with impurities. This is a rule laid down by the most experienced sanitarians, and the practice of it is of obvious utility and indispensableness.

Many small towns are prevented from introducing sewers and enjoying the more approved sanitary conditions thereby secured, by a false impression of the expense involved. The old-time sewerage system which provided for storm water as well as sewage proper, required very large costly sewer pipes. An objection to this system is the washing into the pipes of considerable quantity of sand and gravel, which formed dams at frequent intervals, causing the sewage to accumulate in pools, and filling the pipes with offensive gases which sooner or later found their way into the homes connected with the sewage system. The modern “separate system” of sewerage provides two separate

pipes, one for carrying away the storm water, the other for the sewage, and is much less expensive, as sewers must be made absolutely impervious, while for storm water ordinary drains will answer. In some towns, indeed, on a high or rolling situation, the storm water may be carried off by surface drainage. It is found that small pipes answer the purpose of sewerage conduction much better than large pipes, as the stream more nearly fills the pipe, flows more freely, and thus keeps the pipes freer from sediment. An eight-inch sewer laid at a grade of even one foot in one hundred, will it is said carry away much more sewage than will be discharged from a row of houses, each with forty feet “front,” two miles long, each house occupied by five persons; it being supposed that each person will furnish not less than 60 to 80 gallons per day of sewage or contaminated water. It has been estimated that in average soils, an eight-inch sewer pipe can be laid at an expense, including cost of pipe, of less than two thousand dollars per mile; the expense to each forty feet of front being only about \$10.60, and the interest at 4 per cent., forty-two cents a year, or eight cents per head of occupants. With a sinking fund to pay off the principal in 20 or 40 years, so that the next generation, who would receive equal benefit would aid in the payment, the yearly cost would be far less than is constantly being paid almost daily for some trifling, useless or injurious luxury.

THE TRUE TEMPERANCE "PLATFORM."

THE root, the foundation upon which all intemperance is built up is a want, hereditary or acquired, of that physical equilibrium and stamina that gives to the human organism the power of self-control. If all the good people who are now deeply interesting themselves in the cause of "prohibition" would throw the weight of their influence into the cause of "the public health," and assist the true temperance people—the sanitarians, they would do vastly more good than it will ever be possible for them to do in efforts toward an impossible "prohibition," and they would be surprised at the progress made in true temperance in a few years. Will not everybody concede that, if every family could have the comforts of a clean home, however humble, abundantly provided with pure air and sunlight and wholesome, well cooked food, and with provision, public or private, for frequent bathing for the promotion of personal cleanliness, there would soon be a great decrease in the desire for alcoholic stimulation? If to these were added provision for a more complete and general system of physical training in the public schools, for the free distribution of information or knowledge for the prevention of disease by both individuals and communities or municipalities, and for replacing the saloons and other places of resort for

"dram drinking," by "coffee houses," the desire and demand for the habitual use of alcoholic beverages would soon come within the limits of fair moderation. It is for these aids to temperance as well as to health—for health is secured only by temperance—that sanitarians are aiming and striving. Health is the working man's capital. Disease, continued, leads to poverty, and with it a desire for partial oblivion under the influence of some intoxicant. With this desire fully developed, if alcohol be "prohibited," some other intoxicant will be obtained. In spite of all laws man will gratify strong desire. Is it not wiser to lessen or remove the desire than to make efforts, all too likely to be in vain, to prevent the gratification of the desire by prohibitory legislation? We earnestly appeal to all temperance people to consider well the relation of this most vital question of public sanitation to the temperance cause. They will then, if they consider it deeply enough, perhaps be disposed to join the yet small army of sanitarians in striking deeper, and directly at the true and prime causes of both intemperance and disease. We earnestly appeal to them to "come over and help us," and during this time of near "elections" to support those only who will in every possible way support the cause of true temperance and health.

VON ESMARCH ON PRACTICAL DISINFECTATION.

WE have received the first number of a new publication, *Hygienische Rundschau*, edited by two eminent men, Prof. Carl Fraenkel, of Konigsberg, and Dr. E. Von Esmarch, of Berlin. Von Esmarch enumerates some of the points that should be specially attended to in the use of the steam disinfecting apparatus, not only in large public institutions, but where the process has to be carried out on a comparatively small scale. He agrees with most authorities that steam, either circulating or under

pressure, and without the admixture of air, is by far the best means of disinfecting clothing and other articles that will withstand the action of moist heat. As to whether circulating steam or steam under pressure is best, he thinks that it is entirely a matter of convenience, but it will be readily understood that where large chambers have to be constructed it would be difficult and extremely expensive to build them with sufficient strength to withstand any great pressure from within. Even in the case of smaller

sterilizing chambers, the expense of obtaining them sufficiently strong is so great that in most cases their use is precluded.

The main desiderata for a perfect disinfecting apparatus are that it shall be close to the source of a steam supply; that there shall be sufficient steam developed to fill it thoroughly and keep up the temperature for some length of time; that the steam shall descend in at the top and passed out at the bottom, in order that every crevice of the apparatus may be filled; and that where it is used in large establishments, it shall be placed between two rooms, into one of which articles to be treated are to be taken, and passed in at one door of the sterilizer, while the other room should be at the other end of the sterilizer, and into it the clothes should be passed, so that they shall not again be brought into contact with unsterilized clothing, etc.

Articles that are to be disinfected should not be allowed to remain too long in contact with steam, and before being steamed they should be thoroughly heated, so that there is no opportunity for the steam to condense on cold surfaces, and in the same way they should be well dried by heat after the steaming process has been concluded. Twenty minutes is long enough to allow most ordinary articles to remain exposed to a moist heat of 100° C., so that they should be left for this length of time after the temperature has once been raised to this point, this being determined by an electrical contact thermometer or a thermometer placed in a tube through which the steam escapes; some simple manometer should be used to determine the pressure that has been obtained by super-heating the steam. The greatest attention should be paid to this point of time of exposure, for it is the experience of all medical officers of health that nothing deters people from sending their clothes to be sterilized so much as the fact that they are frequently ruined by too long an exposure to the action of the steam.

A certain amount of discrimination must be used in determining what articles

can be safely steamed, and an officer of health who ordered stamped plush, leather, skins, or waterproof material to be exposed to heat would render himself liable to be heartily laughed at by all practical men; whilst a washwoman would be able to advise him that linen or similar material placed in contact with iron would be absolutely ruined by "iron mould." Grease should always be removed if possible before the articles are put into the sterilizer, otherwise it becomes fluid and is liable to spread to other parts. Blood and pus are, of course, coagulated by the heat at the same time as they are sterilized, and can be afterwards removed by means of chlorine or other chemical solvents.

Musty bedding and old clothes should on no account be put into the sterilizing chamber along with new articles and fine linen, as the fusty smell, which is never destroyed by the heat, is communicated from one to the other, and can only be got rid of by long-continued exposure to a plentiful supply of fresh air. Lastly, Dr. von Esmarch insists that disinfected clothing should not be sent back to infected rooms, and that in all large towns there should be some establishment to which poor people might be taken whilst their houses and clothing are being disinfected. As the British Medical Journal says, "It may be said that these are all truisms, but they are truisms that are constantly being forgotten, especially by men whose experience is not very extensive."

THE GREATEST OBSTACLE to the correct application of sanitary principles is either the ignorance or carelessness of those likely to be benefited. Men of general intelligence will allow their farm yards, cellars, ponds, drains, &c., to be breeders of disease, which may endanger not only their lives but that of the neighborhood, simply through carelessness, or fear of temporary expense, and through ignorance often of the serious consequences involved. If the masses of the people possessed proper education in sanitary matters the death rate in the rural districts especially would be very much lessened.

VALUE OF SUNLIGHT IN THE HOME.

THE potent influences of sunlight upon health can hardly be exaggerated.

Mr. Wingate in an article in the *Building News* says: "No element is more important to consider in selecting a home than sunlight. Its presence is indispensable to health and comfort; its absence is a sure aid to gloom, want of happiness and disease.

Dr. Weir Mitchell, in his interesting researches on snake poisons, found that the poisons of the deadly cobra, if exposed to sunlight for a brief time, became harmless. Prof. Huxley has shown that yeast increases indefinitely in volume amid darkness and damp, while in sunlight just the reverse is the case. Sunless houses are the creators of sickness.

Yet it is amazing to find so many houses built in utter disregard of the necessity of sunlight. There are hundreds of city homes, expensively built and occupied by wealthy tenants, which are as deficient in light as an average tenement house. Yards barely ten feet deep are common, especially with corner houses, and scores of families with ample means and refinement seem content to live in rooms which have no outlook beyond a blank wall or the rear windows of their neighbors. The inconvenience and destruction of comfort and privacy caused by this deprivation are patent, but a more serious consequence is the injury to health. Dr. Bell, in his recent work on "Climatology," says: "Free access of light favors nutrition and regularity of development, and contributes to beautify the countenance, while deficiency of light is usually characterized by ugliness, rickets and deformity, and is a fruitful source of scrofula and consumption in any climate." This statement is corroborated by a fact noticed by Dr. Hammond, that "various experiments demonstrate that the action of light is of benefit in many conditions, anæmia, chlorosis and phthisis being among the number." It is probable that one of the chief benefits derived by invalids from a winter sojourn

at Alpine or tropical resorts is due to the larger amount of sunlight enjoyed.

What Florence Nightingale says of the value of light to those who are ill, indicates no less its necessity for those who are well. "Second only to fresh air, however, I should be inclined to rank light. Direct sunlight, not only daylight, is necessary for speedy recovery. Instances could be given, almost endless, where in dark wards, or in wards with a northern aspect, even when thoroughly warmed or in wards with borrowed light, even when thoroughly ventilated, the sick could not by any means be made speedily to recover.

The dark side of the street is far more subject to disease than the light side. Sir James Willie found three times as many cases of disease on the shaded side of the barracks at St. Petersburg as on the other side. Dupuytren is said to have wrought a cure in the case of a lady in a seemingly desperate condition, by simply removing her from her dark quarters to a brighter residence, and keeping her as much as possible in the daylight.

Dr. Farrar, who has paid special attention to the effect of the presence or absence of light in living rooms upon health, found that in his own case when occupying a room facing north, his general health was not nearly so good as when his window had a southern exposure. General experience will confirm this conclusion. Human beings, like plants, need an abundance of light, and if denied it they pine and wilt.

WINDOWS.

The height of a window has an important bearing on the amount of sunlight which is admitted, and also upon the ability to ventilate a room. If a window is low a stratum of hot air may lodge near the ceiling; hence, the windows should be high enough to carry off the foul air when they are lowered. Curtains, lambrequins, and other draperies to windows and doors also hinder the admission of light and the free circulation of air, while they accumu-

late quantities of dust. A well-known New York physician, who has had occasion to observe this fact, has abolished curtains altogether in his house, and moderation in their use is recommended.

Dr. Richardson objects to houses built

in the Queen Anne style, because of their insufficient light. Those who occupy them live in shadow, and he calls their small windows, overhanging cornices, and sharp small pitcher roofs, enclosing attics with windows, an "architectural perversity."

PREDISPOSITION, IMMUNITY, AND DISEASE.

BY W. BARNHARDT, IN THE POPULAR SCIENCE MONTHLY, JANUARY, 1891.

IT is a generally recognized fact that whole classes and families of animals, as well as single individuals, frequently are liable to succumb to some influence apparently obnoxious to health, while others, although exposed to the same danger, proved exempt from such injury. This experience concerns the action of vegetable and animal poisons, as well as the attacks of the various diseases to which flesh is heir. Destitute of a satisfactory interpretation of these divergences, we have recourse to the expression "predisposition" for explaining the inability of offering resistance to the foe—a word which does not actually explain the matter, but furnishes a convenient term. Germs of disease are to be found every where, but only predisposition permits its development. Immunity, on the contrary, is the condition of the system which prevents an outbreak. The fundamental cause of this condition is as little known as the cause of predisposition; only in a few cases have we been successful in tracing it back to certain chemical and physiological processes occurring in the body.

The action of carbon monoxide on different animals affords a suitable instance of what is called immunity, and illustrates the kind of circumstances on which it may sometimes depend. Carbon monoxide is an air-like compound, which is contained to a large amount in the illuminating gas produced by the decomposition of steam by red-hot coals, and to the presence of which the poisonous qualities of this gas are chiefly due. A mixture of one part of carbon monoxide and ninety-

nine parts of common air, when breathed, will in a short time kill any of the warm-blooded vertebrates. Cold-blooded vertebrates, such as frogs, can for a considerable length of time stand the exposure to such an atmosphere; arthropoda or insects are not in the least affected by it—they possess immunity from it. Searching for the cause of these differences of effect, we find it to be the tendency of hæmoglobin, the albuminous matter constituting the red corpuscles of the blood, to combine with carbon monoxide. In the process of respiration in warm-blooded animals hæmoglobin takes up oxygen, which thereafter, as a necessary agent in the exchange of matter, is delivered to the different organs of the body. Carbon monoxide prevents the absorption of oxygen, being absorbed in its place; but, unfit as it is to replace oxygen in its vital functions, it causes serious derangements, which end in suffocation. In cold-blooded vertebrates respiration is of more subordinate importance; although as well as in warm-blooded animals, it consists in absorption of oxygen by hæmoglobin, the need for oxygen is much lower; a frog can live for a considerable time without the accession of air. Hence the effect of carbon monoxide is a much slower one. The blood of insects contains no hæmoglobin; carbon monoxide is not absorbed by it, and is not a poison to them, provided that a sufficient amount of oxygen is always present. Carbon monoxide, consequently, acts as a stronger poison upon warm-blooded animals; its effect is weaker in cold-blooded vertebrates; and insects are proof against its effects.

In a few instances only has the cause of immunity become as well disclosed as in the one mentioned. Neither differences of organization in animals nor in the constitution of the poisonous substance generally afford any clew for interpreting an exceptional want of effect. Unaccountable is the immunity of rabbits against belladonna leaves (*Atropa belladonna*, deadly nightshade). You may feed them with belladonna for weeks without observing the least toxic symptoms. The meat of such animals, however, proves poisonous to any one who eats it, producing the same symptoms as the plant. Pigeons and various other herbivora are also to some degree safe from this poison, while in warm-blooded carnivora it causes paralysis and asphyxia. In frogs the effect is a different one, consisting of spasms. The meat of goats which had fed on hemlock has sometimes occasioned poisonous effects. Chickens are nearly hardy against nux vomica and the extremely dangerous alkaloid, strychnine, contained in it, while in the smallest amount it is a fatal poison to rodents. More remarkable yet in this respect is the immunity of *Choloepus Hoffmanni*, a kind of sloth, living on the island of Ceylon, which, when given ten grains of strychnine, was not much affected. Pigeons are possessed of high immunity from morphine, the chief alkaloid of opium, as well as from belladonna. Eight grains were required to kill a pigeon, not much less than the mortal dose for man. Cats are extremely sensitive to foxglove (*Digitalis purpurea*), which on the contrary may be given to rabbits and various birds in pretty large doses. Many kinds of fish may be killed by just a trace of *Cocculus indicus*, although their meat is not made injurious by it. Laughing gas, or nitrogen monoxide, a means used to relieve pain in light surgical operations, affects man more than any other creature; when breathed in a mixture of four parts of laughing-gas and one part of oxygen it produces a pleasant kind of intoxication together with diminished sensibility, though in animals no such effect has been observed.

The immunity of certain animals against the bite of venomous serpents is remarkable. Numerous observations have been recorded proving the polecat, hedgehog, and buzzard to be proof against the bite of the viper; it is mortal for most other animals of the same size and nearly related to them.

Immunity, however, is not limited to the relations of animals to poisons of vegetable or animal origin, but is manifested as well in conditions and processes in the healthy animal organism and in its susceptibility to diseases. The resistance offered by the living stomach of an animal to the dissolving effect of the juice secreted by the stomach itself has to be explained by immunity. A watery solution of pepsin—the digestive principle of the stomach—acidulated by muriatic acid, and thus as to composition, corresponding to the digestive juice of living animals, upon addition of pieces of the stomach of any mammal, dissolves them, forming a perfect solution. The stomach of the living healthy animal, on the contrary, does not undergo the least change by the secreted juice; it is proof against the digesting effect of its own secretion, as well as to a certain degree against various sickening external influence.

Prominent naturalists are at present occupied in inquiring for a reasonable way of interpreting the cause of sickness and the conditions of immunity from it, or the resistance offered by a sound organism. Sickness, as well as health, according to one of the prevailing theories, depends upon chemical causes, viz., on the presence and predominance of various complex substances generated in the juices and tissues of the body by unknown processes, in which bacteria may sometimes play an important part. According to another theory, the living animal cells are engaged in a continual struggle against intruding micro-organisms. Animal cells are considered as individuals similar in character to the order of *Amœbæ*, which unicellular organisms of the class of *Protozoa*. Metschnikoff found that certain cells of the animal body are endowed with

the faculty of swallowing and digesting intruding bacteria of every kind, harmless ones as well as pathogenic ones, or such as produce disease. Not all elementary organs of the body are equally qualified for this purpose, the function being intrusted to certain cells of the tissues and blood, which Metschnikoff calls *Phagocytes*. Health as well as disease depends upon which party is victorious in the struggle. Health is insured as long as the cells are capable of overpowering the intruding bacteria; an animal in such a condition is secure against disease. Experiments performed by Metschnikoff have given evidence that the bacilli of splenic fever are easily devoured and digested by *phagocytes*. On the other hand, several observers of late have maintained that the liquid part of blood, the plasma, and even common albumen possess the faculty of killing bacteria. This, however, appears improbable, and a final decision of the question has still to be expected in future.

Susceptibility to diseases is as variable as sensitiveness to vegetable and animal poisons. Judging from the current opinion that putrefying animal matter is the principal bearer and transporter of infectious germs, we are forced to ascribe a high degree of immunity to certain animals which, like swine, ducks, chickens, and rats, are accustomed to select their food from places where such matter is accumulated. Predisposition for splenic fever is stronger amongst herbivora than among carnivora: birds of prey seem to be quite free from it. Experiments on sheep, performed by Pasteur, the results of which were confirmed by application on a large scale, gave evidence that immunity against splenic fever may be acquired by systematic inoculation of the attenuated virus very much as small-pox is prevented by vaccination.

Various herbivora, chiefly horses, sheep and goats, are exposed to a disease called "glanders," which ends by death in most cases. White mice are safe against it. This circumstance of late occasioned R. Koch to ascertain, by experiments, whether predisposition to glanders might not be

artificially induced by changing the composition of the animal juices. The change consisted in the formation of sugar in the blood of the mice, which received as food *phloridzin*, a crystalline compound, naturally preformed in the roots of fruit trees and easily splitting up into sugar and some other products. It undergoes a similar change when brought into circulation of the blood. The result of these experiments was, that white mice lose their immunity and become susceptible to glanders when phloridzin is given to them; infection by this disease invariably took place when the mice were inoculated to the virus, and thus the proof was furnished that by changing the chemical conditions of an animal its immunity from infectious disease may be neutralized. This indicates that immunity in the present case, as in the action of carbon monoxide, depends upon the composition of the blood, predisposition being established when the composition is changed.

These facts indicate that, as to susceptibility to and immunity from the effect of poisonous and virulent matter, the composition of blood is of the highest significance, and that the changes caused chiefly relate to its condition. They coincide with the experience that the action of poisons throughout is quickest and most energetic when they are injected into the blood; moreover, there seem to be many substances existing which induce infection only when present in the circulation of the blood, but not when brought into the digestive channel. Apparently harmless lesions can turn out disastrously, when even the smallest trace of a virus happens to reach the wound.

A LIER AWAKE of twenty-five years standing, is thus quoted by the Medical Age: I took hot water—a pint, comfortably hot, one good hour before each of my meals, and one the last thing at night, unmixed with anything else. The very first night I sleep for three hours on end, turned round and slept again till morning. I have faithfully and regularly continued the hot water, and have never had one bad night since. Indigestion with pain and restlessness it appears was the trouble.

WASTED ENERGY.

THE following remarks from the *Laws of Life*, a monthly issued by the Jackson Sanatorium, of Dansville, N. Y., we regard as very practical and endorse them fully :—

There are many ways of misusing vital power, but hardly one is more prolific of physical disorder and disease than the habit of over-eating. The majority of people eat about a third too much. It is well understood by physicians that over-eating is the responsible cause of a large proportion of sickness. The distinguished Abernethy aphoristically says: "One-fourth of what we eat keeps us, the other three-fourths we keep at the peril of our lives." When more food is taken into the stomach than can be appropriated for the purpose of growth, repair and functional activity, all the organs of digestion, assimilation and excretion are over-taxed to dispose of this superfluity, additional labor is put upon the kidneys, lungs, and other excretory organs, to eliminate unused material which has served no end in the human economy, and this strain long continued leads to an impairment of vigor, and not infrequently to chronic disorders which puzzle the best of physicians to overcome. It is, therefore, a waste of energy to over-eat, but how many persons are tempted to gratify the palate long after the demands of hunger have been satisfied! It is from this class that a large percentage of invalids is recruited. Sometimes this excess of nutriment is stored up in an accumulation of flesh, but not always, for very often the effort required in taking care of so much more food than is necessary so taxes the whole system that the person is always exceedingly thin. A smaller quantity of nourishing food, which could be readily digested and assimilated, would give an increase of flesh and a more symmetrical roundness to the whole body. The impression prevails that flesh is a sign of health and strength. On the contrary, an abnormal amount of flesh, above one's average weight, is an indication of ill-health, and it may be accompanied

by extreme weakness and inability to work or exercise.

How shall we know when we have eaten enough?

I. Eat to live, and not live to eat. Keep a guard over the appetite, and do not let it take control. That is, do not eat simply because food is agreeable to the taste. Decide what and how much you, as an individual, need, and take that and nothing more. Put your bodily desires under the direction of the spirit, which should always hold the mastery if you hope to have health or happiness.

II. Having arrived at maturity, a smaller amount of nourishment is called for to keep the tissues in repair than during the period of growth. This can be properly estimated if your normal weight remains about the same month after month. Any marked difference one way or the other may indicate the need of medical advice.

III. Two meals a day will help solve this question for the majority of persons. The objection is sometimes raised that in eating but twice a day, more food is taken than in three meals, but I believe that just the opposite is true when once the habit is well established, and that all the requirements of the system are amply supplied at a great saving of vital power by eating but twice in the twenty-four hours. Only a certain amount of nutrient material is required by the system. It does not so much matter when this is taken, except that by dividing it into two meals instead of three, the stomach, liver and all the other organs concerned in the assimilative and digestive processes are thus secured a period of rest which is absolutely necessary in order to maintain their healthful activity and to furnish functional power on demand.

The average American really dines three times daily, with his beefsteak breakfast, chops for lunch, and roast beef at his six o'clock dinner. And he does it at his peril, for this habit of over-feeding, especially of eating so much meat, is one of the provoking causes of so many sudden ill-

nesses and so many premature deaths. Three meals a day of hearty food is exhausting to all the vital processes, and even the strongest succumb finally to this "wasteful and ridiculous excess."

Abundant material prosperity is in more ways than one the herald of disaster. Physical degeneracy always accompanies the increase of wealth and luxury in any nation, because human beings are so shortsighted that they give loose reins to the physical appetities, which swiftly lead downward.

Americans are a nation of brain-workers and so cannot safely indulge in high living. High thinking, or the constant use of the brain in any direction, calls for a plain but nourishing diet. Brain-workers, especially, ought to live sparingly. Lux-

urious feeders require much exercise in the open air and freedom from pressure on the brain.

For the aged, or even for those above fifty, luxurious living and over-eating are specially dangerous. As functional activity lessens with increasing years, the supply of food should be decreased accordingly. An over amount that might be borne without disturbance in earlier years often proves fatal in old age.

The hardiest races live on the simplest fare. Frugality in diet, a minimum amount of the right quality serves far more certainly to prolong life, insure health and well-being, than a rich abundance and variety which are accountable in a large measure for the ill-health and dissatisfaction of the present time.

LEFT-SIDED AND RIGHT-SIDED DISEASE—INTERESTING AND PRACTICAL.

THERE is a distinct difference between the right and the left side of the body, unless this inequality has been in a measure overcome by training, as the New York Medical Journal says, "as in the case of pugilists and violin players." Anatomically, the human body presents asymmetry in its bony framework and in muscular development, while there is also a functional difference. The right is the side of most energetic activity. The left holds back, as it were, and is distinctly weaker.

The inequality of the lateral halves of the body has been carefully considered in its different aspects by Rollet, Malgaigne, Galippe, Giles de la Tourette, and others. Pathological conditions due to excessive development, such as exostoses, &c., or supernumerary organs, are commonly on the right side; rarely on the left. The left side is the chosen site of malignant disease, of abnormalities due to delayed union or arrested development, and of degenerative tissue change. Man goes to pieces on the left side with such surprising facility that the prognosis in left-sided disease is much less favorable than in disorders of the right side. In the *Gazette des hôpitaux*

for September 6, 1890, Dr. Broussolle, of Dijon, records numerous facts and personal observations to prove that the work of physicians and surgeons is chiefly to the left of the median line. Of organs in pairs when one alone is attacked by disease, it is usually the left. In the case of single organs, those on the left side are the preferred victims. Unilateral pulmonary phthisis, for instance, beginning on the left side, runs a more rapid course than when the disease manifests itself first in the right lung, when the pathological process is comparatively slow and the outlook much more hopeful. Cancerous degeneration of the subclavicular lymphatic glands following abdominal carcinoma was recorded in twenty-one on the left side, out of a total of twenty-seven. In the course of left-sided carcinoma of the abdominal parietes that afterward attacked the thoracic wall, there was carcinomatous degeneration of the cervical and inguinal glands of the left side only. At no time did the disease cross the median line, and the autopsy revealed the total absence of all visceral lesion on the right side. Cerebral hæmorrhage is generally into the left hemisphere; hence the frequency of right-

sided paralysis. Malignant tumors of the tonsil, of the parotid gland, and of the larynx have a distinct predilection for the left side. The larynx, on the median line and in itself symmetrical, presents admirable facilities for prognosis on the basis of locality. Fauvel reports thirty-seven cases of malignant tumors in this region, of which twenty-six began on the left side. In the celebrated case of the late Emperor Frederick the first vegetations and ulcerations appeared on the left side.

Anomalies and irregularities of the teeth exist more often on the left than on the right side. The teeth on the left side are smaller, possibly weaker, and more subject to decay. Displacement of the kidney, as well as cancer or other tumors of that organ, usually occurs on the left side.

Occupation neuroses, growing out of undue exercise and strain of the right side, such as writer's cramp, for instance, naturally find expression on the right side. This is also the chosen territory of muscular atrophy.

The cheiromancers, palm-readers, and all those queer occult people, say that the right hand is the hand of the race or family, but the left is the hand of the individual himself. It is impossible, they affirm, to read his history clearly without studying the lines of both. Health, fortune, disposi-

tion, and personal attainments make furrows in the left palm. But the history of ancestral benefits or struggles is found more clearly in the right. May not this be a rather fanciful way of saying that the vital side manifests the accumulated experience of three, or four, or four hundred generations, and that the left, the weak or personal side—weak as is one against the many, as the individual and his efforts are weak in comparison with ancestors numerically strong and deeds numerically great—is distinctly individual, though less, and the real unit? The right, or race, side is the stronger side, and is always trying to get the better of its weaker fellow. The step of the right foot in both men and women is longer, and the angle at which the foot is turned outward exceeds that of the left by one or two degrees. After walking for some distance—to the extent of unconscious fatigue—there is a tendency to turn toward the left, as if the stronger side of the body were constantly gaining on its weaker half. The unconscious veering toward the left is best demonstrated with the eyes closed.

The lesson to be learned is, not necessarily that we all should become pugilists or violin players, but, that we should by proper physical culture render the whole body as vigorous as the right side usually is.

ON THE COLLECTION AND DISPOSAL OF SEWAGE.

BELOW are extracts from an excellent paper written for the State Board of Health of California by Rudolph Hering, Civil and Sanitary Engineer, of New York.—From the Sanitary News.

THE COLLECTION OF SEWAGE.

A complete system of sewerage should collect the foul waters from an inhabited territory and dispose of them in a satisfactory manner. . . . It is necessary for the health of the community to prevent decomposition of organic matter as much as possible, under circumstances which contribute to the spread of bacteria in our

midst. For this reason the sewerage system should be designed, constructed, and operated so that the waste matter, from the time that it enters the pipes within the dwellings, should be carried swiftly, and with a minimum of opportunities for retention or deposit on the way, until it reaches a point where it can safely be purified. The engineering problem, so far as it concerns the sanitary features of the system, is thus determined.

The design should aim to cause the water to flow with a sufficient velocity, so that the heaviest of the ordinary matter will be carried in suspension to the point of dis-

posal, and thus prevent deposit and consequent foulness within the sewer. There is a fixed relation between the velocity of the fluid and the matter which it will carry in suspension. Thus, sand will be carried along by a stream of water flowing with a speed of six inches per second, but be deposited if the velocity becomes less. Pebbles one inch in diameter are carried along by a flow of about two feet per second, and deposited if the velocity is less. The sewers should, therefore, have a certain minimum inclination or fall. They should also have a sectional form which will concentrate the sewage laterally into a compact stream, instead of allowing it to spread out in a thin sheet [Hence, the narrow bottom or egg shaped sewer is best.—Ed. C. H. J.]. All changes in the direction of the flow should be made in such a manner as to prevent eddies, or a material reduction of the velocity. The interior surface of the sewer upon which the sewage flows should be as smooth as it is practicable to make it, because roughness causes particles to be held back. It would likewise be desirable, but engineering science has not yet solved the problem, to prevent a smooth surface from allowing the adhesion of mycelial and other growths forming a slimy surface, and thereby again causing the adhesion of passing matter.

In spite of the greatest care in building and in maintenance, some decomposition will always occur in sewers, and we must, therefore, provide for cleansing, both by ventilation, to dilute and remove offensive gases, and by flushing, to produce an increase of the ordinary amount of velocity of the water, and thereby cause it to again take up and remove matter which has been deposited. Ventilation is usually obtained by facilitating the natural circulation of the air within the sewers. The circulation is caused by a difference of temperature and of humidity within and without the sewers, and under certain conditions by impulsion, due to the flow of the water. Artificial ventilation has rarely been a success, owing to the necessary complication in the arrangement of the pipes within the houses and in the streets.

Flushing is usually obtained by causing the sewer to run more than half full for a short period of time, either by temporarily damming the sewage, or by suddenly introducing other water in large quantities.

This first part of the problem, namely, the collection of sewage, is comparatively simple, but the second part, pertaining to the final treatment with reference to purification, is far less so. It has been the subject of much controversy and of many experiments. Until recently, when bacteriology had sufficiently developed to throw some light upon the matter, the discussions were generally unscientific, based upon assumptions rather than facts, and often guided by self-interest, with consequent misrepresentations of facts.

DISPOSAL OF THE SEWAGE.

For a long time the principal efforts were directed toward converting sewage into manure, it was thought that besides being a satisfactory solution of the sewage question, great profits could be made from such a conversion. In Europe "dry removal" of the nightsoil or solid matters was frequently urged. This allowed manure to be manufactured from sewage at a smaller cost than if the solid matter were combined with the wash water from kitchens, laundries, bed-rooms, etc. But this water was still left unprovided for, and formed sewage about as offensive as when it contained the more solid matter. . . . England, which has generally been in the lead in sewerage matters, has only a few localities retaining the system of dry removal. But in every such case it still leaves unsolved the purification of the large amount of dirty waste water which is discharged from the buildings of a modern city well supplied with water, and which virtually makes up the sewage thereof. . . .

Probably the oldest method of disposing of the waste [sewage] waters, though imperfect in detail, was the application to land, or simple irrigation. In Italy and Spain, and some parts of Germany and France, more or less crude methods were occasionally practiced. The object of irrigation was profit rather than sewage purification, and therefore the requirements

for the latter was left substantially undeveloped. Toward the middle of the present century, when cities began their modern rapid growth, the question of purification of sewage forced itself upon the communities. This was particularly the case in England, where many towns, using rivers as sources of water supply, also use them as the most convenient depositories for their waste water, to the detriment of the towns below.

Broad irrigation was recommended and applied with more or less success. The leading idea was to have vegetation absorb, and thus to dispose of the sewage as it was delivered upon the fields. One acre was considered necessary for the sewage from about one hundred to two hundred persons. But not everywhere was suitable or sufficient territory to be had, and seldom was this method of disposal found to pay the cost of properly applying the sewage to the land.

It was then suggested in England that in porous soil sewage could be purified by filtration, and would require much less territory, namely, one acre of land might serve for six hundred to one thousand persons, according to the porosity of the soil. This method was found to be successful in purifying sewage when the ground was carefully prepared in level beds and furrows, and underdrained, and when the application was intermittent.

Where no porous ground was obtainable, or where its preparation was too costly, filtration was not feasible, and still other methods of purification had to be sought. It was known that milk of lime, salts of iron, and other chemical agents, would coagulate some of the albuminous compounds, precipitate organic matter and thus clarify the liquid. The deposited "sludge" could then be treated as manure. A multitude of processes for precipitation were patented, and some were practically tried. The general results in brief were these: The clarified liquid was still more or less impure, and soon putrefied if left standing. If discharged into a river, however, and diluted with fresh water the discharge was not

objectionable. The deposited matter, or "sludge," was, however, rarely of sufficient value as manure to justify the expense of drying and preparing it for the market. Owing to the cost of the chemicals and handling the sewage, the cost of precipitation was often prohibitory.

In the meantime, those cities which were situated upon large rivers or on the coast, disregarded all methods of land and chemical treatment, and turned the crude sewage directly into the passing currents of water, generally because it obviated the cost of providing special works for purification.

Each of the three above mentioned methods of sewage disposal began to have its advocates, and we can find a voluminous literature setting forth the advantages peculiar to each. An impartial observer examining the various executed works for sewage disposal would come to about the following conclusions: Each one of the above methods has merits, and is capable of accomplishing the desired object under favorable conditions. A preference of one over the other should rest upon the desired degree of purity and upon the relative cost. Where a direct discharge into a large river or into the sea is not objectionable, it will generally be the least expensive method of disposal. Where such a discharge is impracticable, either a partial or a complete purification can be obtained by straining the sewage through screens, which will prevent floating matter from standing upon the shores or in shallow places. A much better partial purification is obtained by collecting the sewage in tanks and treating it with precipitants. The effluent water in this can be made clear and discharged into a stream or along the ocean beach with impunity. Where the stream is to be thereafter used for a water supply the effluent from precipitation works is usually unsatisfactory, unless it can afterwards be subjected to land filtration.

Filtration through land unquestionably accomplishes a greater degree of purification than can be obtained by any other method of treatment. If the conditions

are favorable, the soil suitable, and the management good, the purification can be made complete and the effluent safely be discharged into any stream furnishing potable water.

While existing sewage works, if carefully compared, lead the observer towards these conclusions, we are now, through our recently acquired knowledge of bacterial action upon sewage, also able to explain them, at least partially.

A jar of fresh sewage if left standing in a warm room soon becomes putrid. The number of bacteria increases until a maximum is reached, after which the water assumes a clear color, and a sediment forms on the bottom. After a sufficient time the main body of water is practically free from putrescible organic matter and bacteria, and contains in solution but the gases, which are the products of decomposition. The purification is hastened by warmth and aeration, and it is retarded or prevented by cold or lack of oxygen—conditions which are respectively favorable and unfavorable to the development of germ life. If sewage is sterilized by boiling or otherwise, and retained in this condition, no purification takes place. It is therefore necessary, first, to provide conditions which are favorable to the life and action of bacteria upon the sewage;

and secondly, to prevent the resulting decomposition from being offensive, through an absorption of the gases, either by large bodies of water or by the soil. With these requirements as a basis we can arrive at some practical results.

The discharge of sewage into large bodies of water will not be objectionable if the dilution is great enough to supply the required oxygen, and to absorb all the gases of decomposition. When the temperature of the water is high, bacterial action is more rapid and the dilution required greater than when the water is cold. This fact is demonstrated by comparing the condition of streams or lakes receiving sewage in southern with those in northern latitudes. A warm current will, therefore, show a complete purification to have taken place earlier along its course than a cold one in which bacterial action is retarded; instance the summer and winter conditions of the canal and the Desplaines River, which receive the sewage of Chicago, and where the polluted condition can be traced much further down stream in winter than in summer.

Further, as salt water is not favorable to the life of bacteria, purification is slower, and sewage remains therein in a decomposing condition for a longer time than if the water is fresh.

MISCELLANEOUS NOTES AND EXTRACTS.

THE RESULTS OF KOCH'S LYMPH.

On this the Medical Record, one of the very highest medical authorities, says: It is now over three months since Prof. Koch began the experiments with his lymph upon man, a sufficient time to determine whether consumption in its earliest stages can be cured. Prof. Leyden has treated 127 cases, Dr. Guttman 75 and Prof. Gerhardt 79; all in addition to the cases first treated, directly under Koch's supervision. Among these 281 cases, we hear of four deaths, while Dr. Guttman announces four cures. Most of the remaining cases are simply "doing well." If any experienced physician were to treat 281 cases of phthisis in the very initial stage by methods already known there is very

little doubt that much better results could be obtained, even within two or three months, than a simple one per cent. of cures. There is a belief that it is more effective against laryngeal tuberculosis, but we hear as yet of no announced cures. Its specific effect upon lupus is, so far, quite interesting. Temporary "cures" have certainly been produced by it. Pasteur is quoted as saying: Up to this moment there has not been a single authenticated cure, not even of lupus. Dr. Bergmann himself has seen a patient suffering from lupus return to his hospital fifteen days after having been discharged as cured, a severe relapse having occurred. There is no real certainty as to the consequences of the treatment. The medicament is of unheard of virulence, and the reactions

which it brings on are terrible. . . . It is a toxic of such indomitable energy that it may introduce into the organism disorders the consequences of which no one can surmise, and have yet to be studied. A report in the medical papers of yesterday stated that albuminuria and hæmaturia have been found in a patient who had been treated for tuberculosis to very small doses of this lymph. The last University Medical Magazine (Phila.) says: The remedy is dangerous, and has caused death when used upon persons much weakened by prolonged disease. The local and general symptoms following injections upon tubercular patients, are so characteristic as to make this treatment of great diagnostic value. To accomplish permanent cure, patients suffering from lung trouble will still need the help of tonics, stimulants, dietetic and hygienic regulation, and careful selection of climate. Those exhibiting tubercular lesions of bones, joints, or glands, will require surgical operations to rid them of the necrotic tissue. It is highly probable that where the lungs are involved, the remedy will be serviceable only in the very early stages of the malady, and absolutely no safeguard is granted against the recurrence of the disease. At a meeting of the Belgian Academy of Medicine, Dec. 27th, M. Crocq (*Sem. Médicale*, Dec. 31st, 1890,—*Brit. Med. Jr.*, Jan. 10) denied "absolutely" that Koch's fluid is of any value even in the diagnosis of tubercle. He had made injections in a patient suffering from phthisis, and in another the subject of acute pleurisy, "without a trace of tuberculous character;" in both, intense reaction took place. In other cases of "manifest" tuberculosis, the injections were followed by no reaction, while in other cases patients suffering from nontuberculous affections reacted strongly. M. Crocq has seen nothing of its alleged curative action. In his experience the remedy has done nothing but aggravate the evil. The lymph is, according to him, simply a pyrogenic agent, and he "denies utterly" that it has any specific effect on tubercle. "It produces a febrile movement, of variable duration, which causes an effervescence of the organism, various congestions in the skin and internal organs which have no relation to any tuberculous lesion; this congestion is more easily set up in diseased organs which have previously been attacked by an inflammatory lesion of any kind. The N.Y. Medical Journal, one of the leading Weeklies says, there are indications—feeble, to be sure—that we are verging on that stage of consideration of the Koch treatment that will be marked by something better than an impulse to

rush to Berlin, and. . . . than the recital from week to week of the number of Koch injections given at such and such hospitals, with hasty statements as to the patients' condition before and after. The medical profession is beginning to realize that it will be just as well to wait and see what comes of it.

A NOVEL LIFE-SAVING BELT.

Mr. Rossi-Gallico, from Italy, lately read a paper on the merits and adaptations of this invention before the members of the Balloon Society of Great Britain, London (*Scientific Am.*) The belt is very compact, light, portable and, in a non-inflated state, flat, and can be worn without the least inconvenience. Its inflation is effected by carbonic acid gas, instantaneously produced by the combination of acids and alkalis with which the compartments of the belt are charged on its being brought into contact with water. The one intended for passenger use inflates, as we have said, on touching water; that intended for the use of officers and seamen is made different. It is easily understood that a belt which would inflate simply by being brought into contact with water would be rather inconvenient to wear for those whose duties expose them more or less to a wetting. So to avoid this a special arrangement is made. The acid and alkali are introduced into the belt in a liquid form, and when the moment arrives for the services of the belt being required, all the wearer has to do is to pull two small tassels, which at once allows the chemicals to mix, and the belt is at once inflated. This was demonstrated at the lecture by Sig. Rossi-Gallico, who inflated both classes of belts, the one by wetting, and the other by pulling the strings, in something like fifteen seconds. The belt was also shown inclosed in a brass bomb furnished with cord to allow of its being swung to a distance from the ship, and is so constructed that on its touching the water it sinks for a second, and then a fully inflated belt appears on the surface with sufficient floating power to support two men for forty hours. The belt can also be discharged by rocket to a drowning person quite 1,000 yards away, and may carry a line with it to draw to shore or deck the person to be rescued.

RESUSCITATION OF THE APPARENTLY DROWNED.

In the transactions of the Medico-Chirurgical Society of London, Dr. Bowles gives the following: After the patient has been placed for a moment with face downward, to allow the escape of water from the mouth and throat, he is turned on the side and kept on that side continuously, except when (about fifteen times a minute) the

body is rolled for a few seconds on the face again. By *keeping the same side always up*, the lung on that side becomes clear. Turning first one and then the other side up is dangerous, because thereby the partly cleared lung is suddenly flooded with fluid from the lung which was downward. It is better to clear one lung entirely than to have both half cleared. Each time the body is turned upon the face a little more froth and water escapes from the mouth and nostrils. If one lung is thus cleared it may escape the inflammation which results from the inspiration of water. When the upper lung has been almost cleared, it is useful to raise the upper arm above the head as in the Sylvester method, since the entrance of larger quantities of air into the lung is now safe. Pressure upon the back at each pronation assists the escape of water somewhat, and it has a good influence on the heart, aiding the propulsion of the blood toward the lungs. The continued use of the prono-lateral method is an excellent mode of keeping the pharynx clear of obstruction. The Medical Record speaks approvingly of this treatment in a recent editorial, and considers it superior to the usual Sylvester or Marshall Hall method.

RELATION OF BAD COOKERY TO INTEMPERANCE.

The relation of bad cookery to intemperance is not often considered, and in fact not generally understood, says Dr. Kellogg, member of the Michigan State Board of Health and chief physician of the Battle Creek Sanitorium. Nevertheless, he continues, it is true that intemperance and unhealthful, unhygienic cookery are often related to each other by laws of cause and effect. A man can get drunk on almost any variety of the popular bitters advertised. Richardson's bitters contain sixty per cent. of alcohol: more than the best Scotch whisky. . . . Spices and condiments in the seasoning of food also lead to intemperance in the cultivation of a taste for hot irritating substances. They create a craving for more food than can be digested, and for liquors as well. Persons who do not know how to cook, seek to make food palatable by using spices and condiments to hide defects. Really good cookery consists in increasing the digestibility and improving the palatableness of food. Bad cookery ignores the natural flavors of foods, and adds a variety of high seasonings which render it still more indigestible than the unskilled preparations would be without them. . . . Of course, it takes more skill to cook simple foods so that their natural flavors shall be preserved than it does to rob them of natural flavors by poor cookery, and supply the deficiency by

using a plentiful amount of condiments. If we call upon a neighbor, the first thing is to offer refreshments of some kind, as though the greatest blessing of life came from indulging the appetite. This evil is largely due to wrong education, which begins with childhood. When Johnnie sits down to the table, the mother says, "Johnnie, what would you like?" instead of putting plain, wholesome food before the child, and taking it as a matter of course that he will eat it and be satisfied. The child grows up to think that he must have what he likes, whether it is good for him or not. It is not strange that an appetite thus pampered in childhood becomes uncontrollable at maturity: for the step from gormandizing to intoxication is much shorter than most people imagine. The natural, unperverted taste of a child will lead him to eat that which is good for him.

HYGIENE AND CREMATION.

Dr. McCrann, in the Medical World, says: Hygiene claims to be the youngest-born of all practical sciences, and bids fair to do more for disease-ridden and woe-beset humanity than all her sister sciences combined. Hygiene was, in ancient days, borne upon the knees of religion, and played at her feet during a lengthened period of infancy and childhood. A classic illustration in proof of these views is furnished us by the once widely prevalent custom of ancients in burning their dead. For fire was in days of old held sacred by every race of man, and was worshipped by some as a living God. Men sent their sacrifices, vegetable, animal and human aloft in a column of light and smoke to where they fancied their gods and goddesses dwelt in unclouded bliss, believing as they did that the souls of the departed became reconciled to their fate only after their bodies had been consumed by fire. Now, if this history be true, it would appear plainly that the ancients did not adopt cremation for purely hygienic reasons. But cremation, removing as it does innumerable germs of disease and causes that are most inviting to pestilence, may in my opinion, have become a secondary consideration with them. Thus it was religious sentiment that once introduced cremation, not because it promoted the public health and safety, but because it seemed to assure the souls of the departed a safer and swifter ascent to heaven. Then, again, it was religious sentiment that abolished cremation from a higher moral and metaphysical motive, notwithstanding the great sanitary advantages it manifestly affords, and today we must acknowledge, in spite of religious sentiment and traditional ideas, which are antagonistic to cremation, that it is gradually advancing in public favor.

EDITORIAL NOTES.

THE MEDICAL OFFICERS in all the principal cities and towns, and in many villages and townships too, receive this JOURNAL. We again ask them to be kind enough to forward to us a copy of their annual report. It is usually published by the local press and so a copy is easily mailed. There is not room in the JOURNAL for the full reports, but we often find points in them which by being selected, and published therein may be suggestive and useful to other officers as well as to general sanitary progress in the Dominion.

KOCH'S REMEDY so [freely] discussed by the press everywhere naturally is a popular subject in view of tuberculosis being the most fatal and costly disease which afflicts humanity. Elsewhere in this issue we give the most reliable opinions regarding the merits and demerits of the remedy. The latest that is reliable is the following from the Supplement of the British Medical Journal of Jan. 24. Drs. Skerritt and Baron reached the German capital on Dec. 5th. They saw a very large number of cases presenting the results of treatment under the most varied conditions, including Koch's original cases at a demonstration given to the Hufeland Society, by Professor Paul Guttman. They sum up as follows:—"The evidence warrants the conclusion that the beneficial effects of the remedy is undoubted in tuberculosis of the skin, bones, joints, glands, and throat. With regard to pulmonary phthisis, whilst there is good reason to hope that in suitable cases a most satisfactory result may be obtained from this treatment, sufficient time has not as yet elapsed to allow of the formation of any accurate estimate of its value." Others contend that there has been abundance of time.

EXPERIMENTS ON CATTLE are mentioned in the same Supplement (of Jan. 24). Prof. Bollinger, of Munich, gives a summary of some experiments made in the Veterinary Institute at Dorpat by W. Guttman. "Guttman concludes that Koch's remedy is a most valuable aid to diagnosis in the case of cattle suspected of tubercle. In this view Professor Bollinger agrees with him." Yet on another page we note that M. Crocq, from a number of experiments, denies that the fluid is of any value even in diagnosis of tubercle and that it will produce the "reaction" in diseases other than tuberculosis.

BROWN-SEQUARD'S FLUID, is mentioned in a

previous Supplement as a valuable remedy in pulmonary tuberculosis. Dr. Uspenski, in a lecture before the Russian Society of Public Hygiene (Deuts. Med. Ziet., Dec. 29th, 1890), gave an account of clinical experiments he had made with Brown-Sequard's "emulsion" in eighteen patients in different stages of this disease. Two of them had been quite "given up." In one of these the patient had gained in a few In the other there was marked improvement, months, after 15 injections, about 26 pounds in weight and had otherwise greatly improved. and in twelve more there was general improvement, with reduction of temperature and diminution of night sweats after from two to four injections. Even amid the unfavourable surroundings of a prison infirmary Uspenski obtained good results by this treatment in seven cases. He considers that Brown-Sequard's fluid has a markedly strengthening effect, and is beneficial in all cases of phthisis without exception.

PREVENTIVE measures after all,—and there is no "getting over" this fact, nor will there ever be,—are our only safe resource if we wish to rid the earth of this "great white plague," consumption. Many remedies or cures will aid in the stamping out of the disease but our reliance must clearly be in the destruction of the bacilli,—by a certain amount of isolation, disinfectants, with sunlight, in short, absolute cleanliness everywhere,—*outside the body*, before they can gain access to it, and in fortifying the entire bodily structure, especially the lungs, and so destroying or lessening the favorable soil for the growth and multiplication of the bacilli. When will the masses learn this and not rely upon "cure?"

SMALL-POX will cure the disease, it is said; but who should desire to apply the remedy? Dr. Lawrence, of Chepstow, Eng., reports (Brit. Med. Jr. Jan. 24, '91) two cases, in "the last stage" of consumption which entirely recovered after an attack of small-pox; both with large vomice and great emaciation. The small-pox was of a virulent type, with very high temperature. The patients were well nursed and supported, fed hourly with liquid nourishment and brandy, and both recovered from the small-pox, and at once the pulmonary symptoms disappeared. This was "some years ago." "The patients laid on flesh, and are now the living images of health."

Now, in these cases, Dr. Lawrence asks, did the small-pox bacilli predominate and become masters of the situation, and exterminate their weaker brethren the tuberculous bacilli, or did the phagocytes, so ably described by Professor Ray Lankester, stimulated by an exalted condition of things, put on an active condition and destroy the tuberculous bacilli? Or did the high temperature kill or cause their exit in the same way as we often hear of worm fever, where the temperature is so high that it is too warm for the comfort of the entozoa, and they make their exit, the fever being the cause of their exodus, not the worm the cause of the fever?

THE ACTION against Dr. Church of Aylmer, East, for practicing across the "boundary" in Ontario has naturally created considerable interest in medical legislation; and some local papers have published some very silly remarks, because the Ontario law, the like of which prevails all over Canada, was simply carried out. These things come about in the most natural way possible, in due time, almost as the seasons come, to force improvement, in legislation &c. Now we trust the direct outcome of this case, before there are any others of the kind,—for most unfortunate and disagreeable they are, for the time being, will be legislation for a uniform standard of medical requirements throughout the Dominion, or for reciprocity between all the various provinces. Indeed we greatly need in Canada less Provincialisms, in the broadest sense of the word, and more true CANADIAN sentiment.

IN CONNECTION with the Dominion Health Department or Bureau, proposed, there might very properly be simply a special committee, a sub-committee of the proposed advisory committee of the Department, whose duty it would be to examine into the credentials of all who desire the privilege to practice in two or more of all the provinces, and to grant to all such candidates who could present satisfactory testimonials the privilege desired. Of course mutual reciprocity could be agreed upon by the examining bodies of the different provinces, sanctioned by legislation. It is most desirable that something be done in this way at the earliest possible time.

IN PETERBOROUGH, according to the report of the medical officer, Dr. Clark, just received, in 1890 there were only 120 deaths in a population of 9,337, or 12.85 to the thousand; "a rate which, when returns come in from other places, we may safely predict as being almost the lowest, if not the lowest, in the Dominion "

Since sanitary work began there a few years ago, the death rate has declined from 19 per thousand and to the present rate, says the report, and this decrease "has not been spasmodic or accidental, but step by step. The causes unquestionably are: Removal of garbage and excreta (2,500 barrels of the latter, it is estimated, were carted away during 1890); isolation and disinfection in contagious diseases, thus limiting their number; greater care as to purity of water drunk; and a more general attention to cleanliness and other hygienic requirements."

IF IN EVERY TOWN and city in Canada the mortality were reduced in like manner, about 40,000 lives would be saved in the Dominion every year,—40,000 of the human beings who now die every year would be alive at the end of the year. There is no reason why the mortality in every one thousand people in Canada should not be reduced to 12 per year, instead of averaging as it does now over 20 per year, per 1000; no reason why there should not be only 60,000 or 70,000 deaths instead 100,000 or 120,000 as at present.

THE Royal Commission on Tuberculosis has been meeting regularly during the last few months, and much evidence from experts and clinical physicians bearing on the matters referred to has been collected. It has now been decided, we understand, to pursue the inquiry in a different direction by a careful examination into the various systems of meat and milk inspection abroad, by the collection of statistics bearing on the subject, and probably by the initiation of further researches of an experimental nature, to settle some of the doubtful points concerning the degree of infectivity of the products of tuberculosis animals.

A SUDDEN OUTBREAK of typhoid fever in Waterbury, Ct., last summer, has been traced to the milk supplied by one particular dealer. Of his 600 quarts daily, disposed of, 160 came from a farm at which there were cases of typhoid fever. This dealer supplied probably not more than four per cent. of the milk of the city, yet of the fifty-five cases in thirty-five houses, forty-one cases in twenty-six houses were of persons regularly supplied by him. Others of the patients were known to have used the milk occasionally, and still others presumably received it indirectly.

AN EXCHANGE from across the border says: Disassociated from personality, cleanliness shades lighter as one moves west in this country, (U. S.), or conversely, dirt appears darker, until one may almost gauge the degree of enlightenment in measuring by this standard. The great difference between Western and Eastern

cities, and small cities and towns, is the manifestation of clearliness in public places. It is not a question of wealth, but enlightenment.

FROM BANCROFT and Kalakaua who recently died, we may all take a lesson. The slight, rather delicate historian, with intellectuality, cheerfulness and common sense temperance in all things, lived happily to be over 91 years old; while the stout, robust king of the Sandwich Islands virtually killed himself by excess—rich food and alcoholic spirits, at about half that age, and who can say he really enjoyed life while he did live.

THE statistics of cities show that consumption is, relatively, more prevalent in narrow than in wide streets, and that in narrow streets the mortality is greatest where the street is long and forms a *culs-de-sac*.

It is said that General Booth entertains the common sense belief that in soapology, and scrubology, rather than theology, are to be found the redeeming civilizing agencies for the lower nineteen-twentieths of humanity.

JIMMY says "We got the scarlet fever at our home and the doctor says I can't go to school; but I'm going to the dime museum this afternoon."

THE famous nerve cure of Father Knelp, at Waershofen, it is said, lasts twenty-one days, and consists in walking about barefooted, taking daily baths in ice-cold water, and living upon milk and vegetables.

THE digestibility of starch is greatly increased by prolonged cooking, says Dr. N. Butiagin, and since the ptyalin value of saliva is diminished by disease, starchy food for invalids should be well boiled.

IN LONDON, Liverpool, Manchester, Salford, Glasgow and other cities in Great Britain there are Sanitary Associations, voluntary, of the citizens for discussing sanitary subjects and aiding the authorities in promoting sanitary progress. If there were such an Association now in Toronto it would prove of great service in the present crisis. A live "Sanitary" or "Citizens" Association of largely interested citizens in every city would be of great service in promoting the welfare of the community.

IT is as true as it is trite, that a man's progress in civilization can be marked by his progress in cleanliness.

KOUMISS, or Russian milk wine, is a dietetic remedy of much value, which usually agrees with the most delicate stomach, and is used in many

forms for indigestion. We desire to draw attention to that prepared by W. A. Dyer & Co., of Montreal. Every bottle of it bears on its label the date of preparation, which is a great advantage. When from five to twelve days old it is creamy and soft, but soon after this age it becomes acidulous and sparkling. We have great pleasure in recommending Dyer's.

NOTES ON NEW BOOKS AND CURRENT LITERATURE.

THE MODERN TREATMENT OF HEADACHES, by Allan McLane Hamilton, M.D., of New York, published by Geo. S. Davis, Detroit, is the latest issue of the "Physicians Leisure Library," and is a very practical little treatise for the practitioner. It is based mainly upon the writer's personal experience, and hence includes chiefly such medicines and measures as he has found most suitable in his actual practice. He divides headaches into six varieties, viz.: Congestive, Anaemic Organic, Toxic, Neuralgic, and Neurasthenic; the congestive being under two forms,—that in which there is general cerebral congestion and pain, and that which begins in one side of the brain.

A PRACTICAL DELSARTE PRIMER, by Mrs. Anna Randall-Diehl, published by C. W. Barden, Syracuse, N.Y., is "not a great volume unfolding the philosophy of Delsarte," but "a brief compendium which may be used as a manual and drill-book by the masses who study elocution," and desire to comprehend this great artist's method—the study of human expression and of the laws which govern it; a philosophy based on the triune nature of man and the reciprocal relations of body, mind and soul. Delsarte, believing that every mental state has its outward expression or gesture, and that there are fixed laws which govern these expressions, studied them out in a most scientific manner and worked them into a system. It is a charming system, and this little book will greatly aid any one desiring to become familiar with it.

IN THE ILLUSTRATED NEWS OF THE WORLD, W. Clark Russell's new story, "My Danish Sweetheart, the Romance of a month," is becoming of exciting interest; while the descriptive text with numerous sketches by the "special artist," in the "River Voyage of the Phoenix," "From the Thames to Siberia," is full of interest, but of a somewhat different kind. "The largest rivers in Europe unwind into absolute insigni-

ficance in comparison with" the Yenisei, "while the poor little Thames would be but as a small muddy brook even when compared with one of the least important tributaries of this great stream, in which the "sea" is sometimes as heavy as during a "Sou' Wester" in the English Channel. For a distance of 4,000 miles from the sea, it averages about 10 miles in width, while 200 miles up, for nearly 100 miles, it is over 60 miles in width. The usual large number of excellent illustrations, including some fine pictures—"Nina," "A Slovak village Maiden" and "A Fortune Teller"—have been given during the past few weeks.

THE DOMINION ILLUSTRATED, for the year 1891, offers a literary bill of fare that should make it as popular as it is excellent. It is essentially a high-class journal with new and striking literary features and is rapidly growing in public favor. The publishers have decided to distribute during the next six months over \$3,000 in prizes for answers to questions, the material for which will be found in current numbers of the journal. The first prize is \$750 in gold, and there are 99 others. On receipt of 12 cents in stamps the publishers (The Sabiston Litho. & Pub. Co., Montreal) will send to any address a sample copy of the journal and all particulars.

ON MARCH the 2nd the Methodists throughout the world will celebrate the centennial of the death of John Wesley, and those in Canada will also celebrate the centennial of the introduction of Methodism into this country. The METHODIST MAGAZINE contributes its share to this celebration by a special Centennial Number, enlarged to 112 pages, now ready, February 15. Among its articles are, "Footprints of Wesley," with many engravings; "Last Days of Wesley," with portrait; "Mother of the Wesleys," by Dr. Potts, with portrait; "Methodism in the Eighteenth Century;" with many other illustrated articles. January, February and March numbers, including centennial articles by Dr. Douglas, Dr. Stafford, Wm. Arthur, the Editor and other writers,—324 pages and nearly 100 fine engravings, mailed free for 50 cents. William Briggs, Toronto, Publisher.

THE SCIENTIFIC AMERICAN, published by Munn & Co., New York, during forty-five years, is, beyond all question, the leading paper relating to science, mechanics and inventions published on this continent. Each weekly issue

presents the latest scientific topics in an interesting and reliable manner, accompanied with engravings prepared expressly to demonstrate the subjects. The Scientific American is invaluable to every person desiring to keep pace with the inventions and discoveries of the day.

ONE OF SEVERAL valuable articles announced for the March Popular Science Monthly is an explanation of Dr. Koch's Method of treating Consumption, by Dr. C. A. Heron, a London physician, and a friend of the discoverer. The Supposed Tendencies to Socialism is the title of the article that will open the March number. It is by Prof. William Graham, of Belfast, who gives his reasons for expecting a progressive improvement in the state of society, but no sudden social transformation.

THE FIRST original article by Count Tolstoi that has ever been published in an American magazine, it is said, appears in the February issue of The Cosmopolitan, with a number of interesting photographic reproductions, one of them being a picture of Tolstoi guiding a plow in his Russian fields. Brander Matthews appears with his first article upon some Latterday Humorists. Ex-Postmaster General James gives an article upon the Welsh in the United States, liberally illustrated by portraits of prominent men of Welsh extraction. This is an excellent high class magazine at a low price, only \$2.40 a year, or 25 cents a number (Cosmopolitan Publishing Co., Madison Square, N.Y.).

A VERY successful tableau-entertainment was recently given in New York, the subjects being taken from illustrations in the current magazines. The idea is a simple one, and if the subjects are well chosen it can be made very interesting. The Century Company has prepared a list of suitable pictures with suggestions for any one who wishes to get up the entertainment. They will send it free on request.

THE University Medical Magazine (Philadelphia Pa.) proposes a new department and will contain a summary of the progress of medicine abstracted from the most important foreign journals as well as the progress of medical sciences in this country. The eminent gentlemen who edit the several sections will select from abstracts first made by assistant. This will make it a very valuable publication.