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PRACTICAL NOTES AND EXTRACTS ON HYGIENE.

(Continued.)

VENTILATION—INLETS AND OUTLETS—ARTIFICIAL
VENTILATION.

In the Tobin system of natural ventilation, with a notice of which the last article on this subject was concluded, no special outlet, it appears, is provided, and it may be said to be applicable only to rooms provided with open fire-places, as grates, which would act as outlets.

POSITION, DESCRIPTION, &C., OF INLET AND OUTLET.—The inlets should be a few feet above the ground, where the external atmosphere is usually most free from impurities; more or less exhalations are constantly floating in the air which is near the earth's surface. This is an important point to attend to, though it is not infrequently disregarded, especially in dwellings fitted with basement-furnaces for warming the air for rooms above. "The air must be taken from a pure source and there must be no chance of any effluvia passing in. As a rule, the inlet tubes should be short, and so made as to be easily cleaned, otherwise dirt lodges, and the air becomes impure. Inlets should not be large and single, but rather numerous and small (from 48 to 60 inches superficial), so that the air may be properly distributed. They should be conical or trumpet-shaped where they enter the room (the base or large end toward the room,) as the entering air, after perhaps a slight contraction, spreads out fan-like, and a slight back-current from the room down the sides of the funnel facilitates the mixing of the entering air with that of the room. To lessen the risk of immediate down-draught they should turn upwards, if they are placed above the heads of the persons. Externally the inlets should be partly protected from the wind; other-

wise the wind blows through them too rapidly, and, if the current be strong, draughts are felt; an overhanging shelf or hood outside will answer pretty well. Valves must be provided to partially close the openings if the wind blows in too strongly, or if the change of air is too rapid in cold weather. If covered with wire-gauze, it must be frequently cleaned.

"Sometimes an inlet tube must be carried some distance to an inner room, or to the opposite side of a large room which is unprovided with cross-ventilation. In this case the heat of the room so warms the tube that the wind may be permitted to blow through it.

"The position of the inlets is a matter of some difficulty. If there are several, they should be, of course, equally distributed through the room, so as to insure proper mixing of the air. They should not, however, be placed too near an outlet, or the fresh air may at once escape; theoretically, their proper place of entrance is at the bottom of the room, but if so, the air must in this climate be warmed; no person can bear the cold air flowing to and chilling the feet.

"If the air cannot be warmed, it must not be admitted at the bottom of the room; it must be let in above, about 9 or 10 feet from the floor, and be directed towards the ceiling, so that it may pass up and then fall and mix gradually with the air of the room. The Barrack Commissioners have adopted this plan with half the fresh air brought into a barrack-room. The other half is warmed. It answers very well.

"In towns or manufacturing districts the air is so loaded with particles of coal, or, it may be, other powders, that it must be filtered. Nothing answers better for this than muslin or thin porous flannel, or paperhangers' canvas, spread over the opening, which then should be made larger. This covering can be moistened if the incoming air be too dry."—*Parkes*.

As organic impurities in the air of inhabited rooms eventually gravitate toward the floor, it has been urged by some that the most perfect ventilation may be obtained by placing the opening for the outflow of impure air low down in the wall, as at the floor. But notwithstanding the fact that the organic matters tend downward, and that the carbonic acid is soon diffused, the tendency of all is undoubtedly upward until the expired air cools, and certainly that method appears most simple and practicable which takes advantage, so to speak, of this upward movement, and aids in continuing it until the foul air escapes from the building above the roof; to which point, in any case, it should be conveyed.

For good evidence of the upward tendency of breathed air, one has only to ascend to the upper part of an unventilated

room in which a large number of people are congregated, when the atmosphere will be found to be warmer, almost irrespirable, and suffocating, unmistakably more foul and offensive than the lower stratas.

On this point, Parkes, than whom we have no better authority, observes:—

“During the last few years it has been argued that it is better that the foul air should pass off below the level of the person, so that the products of respiration may be immediately drawn down below the mouth, and be replaced by descending pure air. But the resistance to be overcome in drawing down the hot air of respiration is so great that there is a considerable waste of power, and the obstacle to the discharge is sometimes sufficient, if the extracting force be at all lessened, to reverse the movement, and the fresh air forces its way in through the pipes intended for discharge. This plan, in fact, must be considered a mistake. The true principle is that stated long ago by D'Arcet. In the case of vapours or gases the proper place of discharge is above; but heavy powders, arising in certain arts or trades, and which from their weight rapidly fall, are best drawn out from below.

“Outlet tubes without artificial heat should be placed at the highest point of the room; should be enclosed as far as possible within walls, so as to prevent the air being cooled; should be straight and with perfectly smooth internal surfaces, so that friction may be reduced to a minimum. In shape they may be round or square, and they must be covered above with some apparatus (the cowl, hexagon tube, &c.), which may aid the aspirating power of the wind, and prevent the passage of rain into the shaft. The louvred openings are not the best.

“The causes of down-draught and down-gusts in outlet tubes are these;—the wind forces down the air; rain gets in, and, by evaporation, so cools the air that it becomes heavier than the air in the room; or the air becomes too much cooled by passage through an exposed tube, so that it cannot overcome the weight of the superincumbent atmosphere; or another outlet shaft, with greater discharge, reverses the current.

“Arrangements should be made to distribute the down-draught, if it occurs; flanges placed at some little distance below, so as to throw the air upwards again before it mixes with the air of the room, or simple contrivances of a similar kind, may be used. Valves should be also fixed to lessen the area of the outlet when necessary. If there are several outlet tubes in a room, all should commence at the same distance from the floor, be of the same height (or the discharge will be unequal), and have the same exposure to sun and wind.

“The discharge of outlets is much more certain and constant if the air can be warmed. The chimney and open fire is an excellent outlet—so good that in dwelling-houses, if there are proper inlets, no other outlet need be made. When rooms are large, and more crowded, other outlets are necessary; the heat of the fire may be farther utilised by shafts round the chimney, opening at the top of the room, or, in other words, by surrounding the smoke-flue with foul air shafts.

“Gas, if used, should in all cases be made to warm an outlet tube, both to carry off the products of combustion, and to utilise its heat. The best arrangement appears to be to place over the gas-jet a pipe to carry off the products of combustion, and to case the pipe itself with a tube, the opening of which is at the ceiling; the tube carrying off the gas products is hot enough to cause a very considerable draft in its casing, and thus two outlet currents are in action, one over the gas, and one from the ceiling round the gas-tube. A modification of the lamp proposed in 1846 by Mr. Rutter answers very well, and is now coming into use, as arranged by Mr. Ricketts.

“In various other ways the heat of fire and lights may be taken advantage of. There will be seldom any difficulty in arranging the inlets and outlets, and in obtaining a satisfactory result, if these principles are borne in mind, viz., to have the fresh air pure, to distribute it properly, and to adopt every means of securing the outlets from cold or of artificially warming them, and of distributing the air, which, in spite of all precautions, will occasionally pass down them.

“In hot climates, when outlet shafts are run up above the general level of the building, it would be of advantage to make them of brick work, and to colour them black, so that they may absorb and retain heat.”

The outlet opening in the wall of the room should always, when possible, be on the side of the room opposite to that of the inlet. And the higher the escape flue extends, the greater will be the extractive force, the less the atmospheric pressure.

ARTIFICIAL VENTILATION.—This is carried on either by *extraction*, drawing the air out of a room—the *vacuum system*, or by *propulsion*, forcing the air into and through a room—the *plenum system*.

Ventilation by *extraction* is produced by the application of heat, so as to cause an upward current, by a steam jet, or by a fan or screw, which draws out the air.

Of *extraction* by *heat* the common chimney, above referred to, is a well known example. When the fire is burning, there is a constant current up the chimney, in proportion, of course, to the size of the chimney and the amount of fire.

The usual current up an ordinary chimney, with a fair fire, is said to be, as measured by an anemometer, from 3 to 6 feet per second. When air enters equably, and is well distributed, the movement of air from the inlets is gently toward the fireplace. In a tight room unprovided with inlets, air is drawn down the chimney, and a double current is established to supply the fire. This is the cause of smoky chimneys, and may be at once cured by making an inlet.

In dwelling-houses it has been proposed to have a central chimney, into which the chimneys of all the fires shall open, and to surround this with air shafts connected with the tops of the rooms.

Mines are ventilated by lighting a fire at the bottom of the shaft. And in theatres, etc., the gas lights are used for warming an extraction shaft. Screws and fans for extracting air have for the most part been abandoned, and propelling fans substituted.

Ventilation by *propulsion* was proposed in 1734 by Desaguliers, who invented a fan or wheel enclosed in a box. In one form or another this fan has been used ever since. Large bellows are sometimes employed for a like purpose. The plan of propulsion by fans is adapted for cases in which a large amount of air has to be quickly supplied, as in crowded halls, &c. St. George's Hall, Liverpool, is ventilated in this way. The air is first washed, by being passed through a thin film of water, warmed in winter and cooled in summer.

As to the *relative value* of natural and artificial ventilation, Parkes observes:—"Circumstances differ so widely, that it is impossible to select one system in preference to all others. In temperate climates, in most cases, especially for dwelling-houses, barracks, and hospitals, natural ventilation, with such powers of extraction as can be got by utilising the sources of warming and lighting, is the best. Who, in fact, would not attempt to make use of these vast powers of nature, which are ever ready to serve us? Incessant movement of the air is a law of nature. We have only to allow the air in our cities and dwellings to take share in this constant change, and ventilation will go on uninterruptedly without our care."

THE SEWAGE QUESTION.—At the request of the Medical Society of Munich, Prof. v. Pettenkofer is about to give a course of lectures on Sewerage and Sewage Removal, which no doubt will be of unusual importance, seeing that the Professor is not merely a theoretical *savant*, but has done some most valuable experimental work on the subject in his hygienic laboratory.

VAPOUR BATHS.

EXTRACTS FROM A TREATISE ON BATHS BY JOHN BELL, M.D., &c.

Under the head of vapour bathing we include immersion of the body, in whole or in part, in a medium consisting of air in which water is suspended, or of dry air simply heated. The first is called a *moist*, the second a *dry vapour* bath. Either of these may hold in a state of suspension, or be impregnated with, various substances, volatilized or dissolved; and it is then called a *medicated* vapour bath.

The use of both moist and dry vapour, for the purposes of hygiene as well as for the treatment of disease, was known to the ancients.

The hygienic effects of vapour bathing have been observed on a large scale, as when both dry and moist air baths (*laconicum* and *vaporarium*) were used by the Romans, the dry air ones by the Turks and other people of the East, and the moist vapour by the Russians. Refreshment and invigoration—removal of the lassitude and aches incident to long travel and fatiguing exercises, and ability for fresh efforts—are common effects of vapour baths, when of a temperature corresponding with that of the warm water bath, and more especially when they are succeeded by cold or tepid affusions.

The extreme softness and suppleness of the skin, one of the hygienic effects of this kind of bath, result from the detachment of the outer epidermic scales, which peel off in quantities surprising to those who perhaps but a short time previously had subjected themselves to thorough ablution and cleansing in the warm water bath.

The reader has been told, in former chapters, how much the internal membranes and organs sympathize with the skin, both in its healthy and morbid states. Of course, it can easily be understood how the vapour bath, which places the skin in the very plenitude of its functional activity, should exert such agreeable hygienic effects on the entire organism—the nutritive, sensitive, and locomotive apparatus—and impart both mental and bodily vivacity and strength.

Incalculable benefits might be enjoyed by both the young and the aged, in whom nutrition is not well performed, and whose skins are dry and harsh, and digestive functions sluggish, by the use of vapour bathing.

Inequalities of growth of particular parts or regions, by undue development of some and weakness of others, might be greatly corrected,—especially if appropriate gymnastic exercises be resorted to contemporaneously with the vapour bath.

Irregularity of certain functions, as of menstruation, and derangements incidental to this state, whether at the age of puberty or later in life, at what is called the critical age in females, would be removed by the means now under notice. It has also its value in certain cases of pregnancy, in which the female suffers from nervous disorder and irritability of the vascular system; and also, after child-birth, where the lochia are defective, and the secretion of milk tardy.

Predominance of the lymphatic system, amounting to a kind of plethora, measured by fulness and yet softness and puffiness of the sub-cutaneous tissues, and engorgement of the lymphatic glands of the neck, associated too often with a similar condition of the bronchial and the mesenteric glands, calls for vapour bathing.

The preventive or preservative operation of the vapour bath is often manifest when it is resorted to by those who have been chilled by recent exposure to extreme cold, or to cold and moisture, and who, in consequence, are in imminent danger of violent inflammation—pleurisy, pneumonia, bronchitis, rheumatism, &c.,—supervening.

The more general and extended prophylactic powers of this agent may be readily understood from a knowledge of its physiological effects. Its judicious employment will go far to ward off hysterical and other convulsions, and varieties of nervous disorder. Equally efficacious in this way is the vapour bath against rheumatism and various forms of neuralgia, catarrh, &c.

In recommending the vapour bath under the circumstances just specified, I must be understood to have reference to the moist vapour, except in the instances of lymphatic plethora, and a predominance of the lymphatic temperament,—or when the skin is habitually cold, and lacks activity of circulation. In these cases, the hot dry air sudatory will be preferred. Whenever we have to do with persons of great sensibility, and whose systems are in a state of almost continual irritability,—the moist vapour will be chosen for its soothing effects. When, on the other hand, we desire to stimulate and to increase the activity of the circulation of the skin and mucous membranes, we should direct the use of the hot air bath.

GETTING WET.—If the clothing becomes even a little damp, the warmth of the body converts the dampness into steam, which carries the heat from the body with great rapidity, leaving it chilled, with all its dangerous results. Hence, if the feet or clothing become damp in the slightest, don't wait an instant; keep on walking until you get to the fire.—*Hall's Jr.*

LONGEVITY OF BRAIN WORKERS.

Extracts from an Essa By GEO. M. BEARD, A.M., M.D., of New York.

(*From the Health Reformer.*)

Thomas Hughes, in his life of "Alfred the Great," makes a statement that "the world's hardest workers and noblest benefactors have rarely been long-lived."

That any intelligent writer of the present day, and especially a writer who, like Mr. Hughes, is a thoughtful student of mental hygiene, should make a statement so absolutely untrue, shows how hard it is to kill an old superstition.

Between 1864 and 1866, while preparing a thesis for graduation, I obtained statistics on the general subject of the relation of occupation to health and longevity that convinced me of the error of the accepted teachings in regard to the effect of mental labor. The views I then advocated, and which I enforced by statistical evidence, were:—

1. That the brain working classes—clergymen, lawyers, physicians, merchants, scientists and men of letters—lived very much longer than the muscle-working classes.

2. That those who followed occupations that called both muscle and brain into exercise, were longer-lived than those who lived in occupations that were purely manual.

3. That the greatest and hardest brain-workers of history have lived longer on the average than brain-workers of ordinary ability and industry.

4. That clergymen were longer-lived than any other great class of brain workers.

5. That longevity increased very greatly with the advance of civilization; and that this increase was too marked to be explained merely by improved sanitary knowledge.

6. That although nervous diseases increased with the increase of culture, and although the unequal and excessive excitements and anxieties attendant on mental occupations of a high civilization, were so far both prejudicial to health and longevity, yet these incidental evils were more than counterbalanced by the fact that fatal inflammatory diseases have diminished in frequency and violence in proportion as nervous diseases have increased; and also that brain-work is, *per se*, healthful and conducive to longevity.

I have ascertained the longevity of five hundred of the greatest men in history. The list I prepared includes a large proportion of the most eminent names in all the departments of thought and activity.

It would be difficult to find more than 2 or 3 hundred illus-

trious poets, philosophers, authors, scientists, lawyers, statesmen, generals, physicians, inventors, musicians, actors, orators, or philanthropists, of world-wide and immortal fame, and whose lives are known in sufficient detail, that are not represented in the list. My list was prepared, not for the average longevity, but in order to determine at what time of life men do their best work. It was, therefore, prepared with absolute impartiality; and includes, of course, those who, like Byron, Raphael, Pascal, Mozart, Keats, etc., died comparatively young. Now the average age of those I have mentioned, I found to be 64.20.

The average age at death at the present time, of all classes of those who live over twenty years, is *about fifty*. Therefore, the greatest men of the world have lived longer, on the average, than men of ordinary ability in the different occupations by fourteen years; six years longer than physicians and lawyers; nineteen or twenty years longer than mechanics and day laborers; from two to three years longer than farmers; and a fraction of a year longer than clergymen, who are the longest-lived class in our modern society.

A few years since I arranged a select list of one hundred names, comprising the most eminent personages, and found that the average longevity was *over seventy years*. Such an investigation any one can pursue; and I am sure that any chronology, comprising from one to five hundred of the most eminent personages in history, at any cycle, will furnish an average longevity of from sixty-four to seventy years. Madden, in his very interesting work, "The Infirmities of Genius," gives a list of two hundred and forty illustrious names, with their ages at death. The average I found to be sixty-six and a fraction.

In view of these facts, it may be regarded as established that "the world's hardest workers and noblest benefactors" have usually been very long-lived. To work is to grow; and growth, except it be forced is always healthful. It is as much the function of the brain to cerebrate, as of the stomach to digest; and cerebration, like digestion, is normal, physiological, and healthful. In all organizations of force, the exercise of force develops more force; work involves strength for work.

Worry is the converse of work; the one develops force, the other checks its development, and wastes what already exists. Work is growth; worry is interference with growth. Worry is to work what the chafing of a plant against the walls of a greenhouse is to limitless expansion in the free air. In the successful brain-worker, worry is transferred into work; in the muscle-worker, work too often degrades into worry.

Brain-work is the highest of all antidotes to worry ; and the brain-working classes are therefore less distressed about many things, less apprehensive of indefinite evil, and less disposed to magnify minute trials, than those who live by the labour of the hands. To the happy brain-worker, life is a long vacation ; while the muscle-worker often finds no joy in his daily toil, and very little in the intervals. Scientists, physicians, lawyers, clergymen, orators, statesmen, literati, and merchants, when successful, are happy in their work, without reference to the reward, and continue to work in their special callings long after the necessity has ceased. Where is the hod-carrier, that finds joy going up and down a ladder ? and, from the foundation of the globe until now, how many have been known to persist in ditch-digging, or sewer-laying, or in any mechanical or manual calling whatsoever, after the attainment of independence ?

That precocity predicts short life, and is therefore a symptom greatly to be feared by parents, has, I believe, never been questioned. In poetry and in science, the idea has been variously incorporated that early brilliancy is a sure indication of a feeble constitution and an early death. This view is apparently sustained by analogy, and by facts of observation. Plants that are soon to bloom are soon to fade ; those which grow slowly live long and decline slowly. Observing these facts, we naturally adhere to the opinion that the same principle should hold good as regards men ; but in making the analogy, we forget that it loses its force, unless the objects implicated start in life with the same potential force and are surrounded by the same external conditions. It is probable that, of two individuals with precisely similar organization, and under similar circumstances, the one that developes earlier will be the first to die ; but we are not born equally endowed and similarly circumstanced. Not only are men unlike in organization, but they are very widely unlike ; between the brain of Shakespeare and the brain of an idiot is a measureless gulf, and we may believe that difference of degrees may be found between the greatest and simply great men. We may believe that some are born with far more potential nervous force than others. There are millionaires in intellect as well as in money, who can afford to expend enormous means without being impoverished. An outlay of one hundred dollars may ruin the mechanic, working for his daily wages, while the royal merchant may spend a thousand, and barely know it. There are those who can begin their life-work earlier, toil harder and longer, than the average, and yet attain a very great age. The average age of 500 illustrious men, including those who

did not exhibit any special precocity, was about 64.20. Of these, about 500 individuals, among whom there were twenty-five women, 150 were decidedly precocious, and their average age was 66.50, or more than two years higher than that of the list of 500, that included the precocious and non-precocious. So far as I could ascertain, the instances of extraordinary longevity were as great among the precocious as among those who were not. My investigation in this department fully confirm the remark of Wieland, that "an almost irresistible impulse to the art in which they are destined to excel manifests itself in future virtuosi—in poets, painters, etc., from their earliest youth."

The more closely I study biography, the more strongly I become convinced that the number of really illustrious geniuses who did not give early manifestations of their genius is very limited.

The manifestation of genius in childhood is as normal and as healthful as its manifestation in maturity; but in childhood, as in extreme old age, the effects of overtaxing the powers are more severely felt than in maturity. Petty smartness is often times a morbid symptom; it comes from a diseased brain, or from a brain in which a grave predisposition to disease exists. Such children may die young, whether they do or do not early exhibit unusual quickness.

The one requisite for great success is "*grit*;" and, more uniformly than any other single quality or combination of qualities, it is found in those who attain high distinction. One does not need to practice medicine long to learn that men die that might just as well live if they resolved to live; and that myriads who are invalids could become strong if they had the native or acquired will to vow that they would do so. Those who have no other quality favorable to life, whose bodily organs are nearly all diseased, to whom each day is a day of pain, who are beset by life-shortening influences, yet do live by grit alone. Races and the sexes illustrate this. The pluck of the Anglo-Saxon is shown as much on the sick-bed as in Wall Street or on the battle-field. During the late war I had chance enough to see how thoroughly the black man wilted under light sickness, and was slain by diseases over which his white brother would have easily triumphed. When the negro feels the hand of disease pressing upon him, however gently, all his spirit leaves him. The great men of history are as much superior in their will-power to the average of their fellows, as are the races to which they belong to the inferior and uncivilized races. They live, for the same reason that they become famous. They obtain fame because they will not be obscure; they live because they will not die.

MILK, IN ITS MEDICO-LEGAL ASPECTS.

BY PROFESSOR R. OGDEN DOREMUS.

Abstract of address before New York Medico-Legal Society, Jan. 26th, 1876.

Revised by the author.

Next to the attainment of pure medicines, perhaps it might be considered desirable that we should have pure articles of diet, and from time immemorial we have found a difficulty in milk. The chief diluent is water, and, whether we apply to the vendors or to the fountain head, we are told that no water has been added. In our city we have attacks constantly made upon those who distribute the milk chiefly in small quantities, and we fail to go back, step by step, until we reach those who perhaps really do interfere with the pure article; and I can state from actual knowledge, having paid many visits to the country and neighbourhoods of the city whence our supply is brought, I have found that the method we adopt for criticising milk is rather a premium on dilution, for the removing of the cream and the addition of water is, I believe, chiefly due to the employment of the lactometer. I propose to show where this is in error, although it is so popularly received as a test of purity, and then to demonstrate how, by the employment of this instrument, it becomes a very profitable business first to remove the cream and fabricate butter from it, and then send the milk to market diluted with water, which takes the place of cream and brings the milk to the proper standard. And first we can never judge of milk by its gravity. If milk is permitted to stand there is a light portion of it that rises to the surface, which we will call cream, thus showing that it is lighter than the rest of the fluid, and it is this cream that interferes with the working of the lactometer. In chemistry we test the gravity of fluids by different means, one of the best being the little phial called the thousand grain phial, and if we try milk by this it gives us the gravity, but is not at all a test of purity.—The Professor then experimented with the lactometer in milk which, he said, had been taken from the cow an hour or so previous, and that he knew to be pure, and the scale showed 105 degrees. In cream alone the instrument marked 70 degrees. He then continued: If we place it in milk diluted with water we find a similar result, namely, that it will sink in the milk that is diluted, hence we may have two samples, one rich with cream and the other diluted with water to a certain point, and the lactometer will give the same result in each case; hence, as will be evident, it is impossible to determine by the

gravity whether the milk has been enriched with cream or largely diluted with water; therefore we cannot trust the lactometer; it is no guide to indicate to us the purity of the article.

He showed by experiment how the "alcoholmeter" would test the degree of dilution of alcohol with water, because water is heavier than alcohol; and on the same principle how the "acidometer" would determine the amount of water in sulphuric acid, for here the diluent is lighter than the acid; how the "oleometer" and "urinometer" are scientific aids where the substance we are seeking for are uniformly lighter or heavier than the liquid tested.

That since cream and water are lighter than milk, while caseine, milk sugar and the salts are heavier, it is impossible to judge of the purity of milk by its specific gravity.

Mr. Wanklyn, a celebrated English chemist, announces in a work upon this subject that the lactometer is one of the most untrustworthy of all instruments. If the lactometer sinks to an enormous depth we can judge that it has been very largely diluted, but not otherwise, and in fact its use is a bid for adulteration. I tried the other day milk which stood at 113 degrees; the cream was removed, and it stood at 135 degrees. A gentleman in Orange County said to me, "Let the City of New York adopt the lactometer as the test of the purity of milk, and I shall go into the business; but I shall start a butter factory at the same time." I took samples of twelve different kinds of pure milk, and five out of the twelve were below the standard of 100 deg.—98, 95, 94, 92 and even to 90 deg. Now, bringing that milk into the city and subjecting it to chemical analysis, I found this result to be due to the richness of cream. I remarked that to have brought that milk into the New York market would have subjected the dealer to a fine. So the purest milk must not be sold here, but if they will take off the cream then it will rise to 120 deg., 130 deg., or more, and then it is sure to pass the test of the lactometer. The great difficulty in the Board of Health is, "What shall we do? What instrument can we employ?" Of course a complete analysis will at once indicate this, but this is a process tedious and expensive.

That the microscope is apt to lead us to erroneous conclusions he showed by placing several drops of the same milk in different slides, and covered them with thin pieces of glass—each showed a field containing different amounts of oil globules, for the thin plates were attracted to the slides, some with more force, others with less power, and consequently pressed out more or less of the fat globules.

I recommend, he said, medical students to place milk, say from different wet-nurses, in narrow test-tubes to observe their relative opacity, then to allow the cream to rise, and judge of its quantity by the thickness of the layer, and lastly to coagulate the milk with a little acid and a gentle heat, to learn the amount of caseine.

The Professor next exhibited a convenient water bath, with graduated glass tubes, as arranged by the celebrated instrument maker of this city, Mr. G. Tagliabue, accompanied with a diluted alkali, and a diluted acid in bottles. He tested several samples of milk variously diluted, and showed that by agitating them first with the alkali, next with the acid and then raising the temperature to about 190 degrees Fahrenheit, and then immersing the tubes and their contents in cold water, the depth of the various coagulations of cream and caseine indicated their comparative richness in these important ingredients. But his experiments with this method were too limited to decide on the full value of this arrangement; he would report further at the next meeting. He also had passed around among the members a small French instrument for showing the opacity of milk.

His chief object in presenting this theme to the Medico-Legal Society was to solicit the discussion of the propriety of seeking legislative interference to prevent the introduction of skimmed milk, or milk otherwise diminished in nutritive value, into our city.

That the lactometer was a premium upon fraud; that the custom prevailed in the surrounding country of denuding the milk to a greater or less extent of its cream, whereby the buoyant power of the milk was increased, and it responded generously to the lactometer.

He had tested very pure cream where the lactometer sank to 32 degrees, at 60 degrees Fahrenheit; whereas one sample of milk, before skimming, stood at 113 degrees; after removing the cream it lifted the lactometer above its graduation, estimated at 135 degrees—hence a very liberal dilution with water was necessary to bring it down to a reasonable point.

He stated that he had tested samples of milk which he had seen taken from the different cows in Orange county, and that five out of twelve, when cooled to 60 degrees Fahrenheit, indicated many degrees below the standard adopted by the Board of Health—100 degrees; one sample was as low as 90 degrees.

He took these specimens to his laboratory and subjected them to chemical analysis, which demonstrated that their low gravity was due to their richness in cream.

He said, in conclusion, that the lactometer had been discarded in every part of the civilized world. In France it was used only as a preliminary test, the method of analysis which he had showed being the test upon which punishment was based. There ought to be some protection against the adulteration of so necessary an article, and as the law stood now the dealers, in their own defense, were compelled to defraud the public. He thought it was the special task and opportunity of this Society to obtain proper legislation upon the subject.

The President rose and thanked the Professor for what he had said and shown them, and endorsed emphatically all that had been urged. The subject was then opened for discussion.

Dr. A. N. Bell, in agreeing with what had been expressed in regard to the unreliability of the lactometer, observed, however, that diseased cows had sometimes given milk extremely rich in oleine, especially those fed on swill. During the prevalence of the rinderpest the milk was observed to be almost buttery. He feared that the analytic method they had seen only exhibited the richness of milk in oleine, not its healthfulness. Professor Doremus replied that this would be beyond the power of analysis, which could only show how much oleine, how much caseine, how much lactine was contained in any given specimen of milk. He was most desirous, however, that the question of swill-milk should be taken up at some future meeting, because he believed that there was considerable misunderstanding upon the matter, even among doctors; and he was unwilling that any popular view should be held by medical men without its truth having been demonstrated. After some further discussion a committee was appointed with Professor Doremus chairman, to report at the next meeting.—*Sanitarian*, for March.

NIGHT MEDICAL ATTENDANCE.—In Paris they have a nice arrangement, which might be useful in all cities, by which the attendance of a physician is secured in case of severe illness at night. Death undoubtedly sometimes supervenes on account of delays and difficulties in obtaining the services of a physician at this time. At the police-offices in Paris, doctors who are willing to get up at night inscribe their names. The public may see the list there all night, and choose any name they please. A policeman will immediately proceed to the doctor's house, return with him, and hand him a ten-franc fee. This fee will be reimbursed to the Municipality by those who are able to afford it, but those who cannot pay will receive medical succour gratis.

SMALL-POX CARRIED BY A LETTER.—In the February number of the *Pacific Medical and Surgical Journal*, a case is given in which small-pox was apparently, indeed without doubt, conveyed from Indiana to California in a letter. A man in the latter place received, on the 14th or 15th of December last, a letter from a sister in Indiana, informing him that she, her husband, and three children, had small-pox, a babe had died. On the 27th Dec. the man became ill, and the disease developed into a well marked case of discrete verida.

A SCHOOL OF PHYSICAL CULTURE.—Dr. Rothrock, a most accomplished botanist, a thorough physician and surgeon, accustomed to camp life, is to institute a school of physical culture, to be located at a beautiful spot in Luzerne county. The school will be open from June 15 to October 15. Subjects of culture: systematic exercises, the use of firearms, how to meet emergencies and sudden accidents, lectures on physical geography, geology, botany, and the general natural history and meteorology of the region.

PERCHLORIDE OF IRON.—It is not generally known that this perchloride preserves meat and fish admirably when plunged in water dosed with it in a very dilute form. A few drops added to milk preserves the serum, as well as butter, for a long time. It has further proved singularly useful, not only, as is well known, externally as an hæmostatic, but also internally, in suitable doses, as an antiseptic, and generally as a disinfectant.—*Nuova Liguria Medica*.

ANTI-VACCINATION.—Dr. H. F. Fermann, Prof. of Medicine, University of Leipzig, has just published a ponderous volume of one thousand pages on the subject of compulsory vaccination. Among other things Prof. G. claims that the scientific side of the vaccination question has not been so fully investigated as to justify any compulsion.—*N. Y. Medical Record*.

DURING THE inquiry into the opinion of the epidemic of typhoid which broke out at Croydon in the autumn, it was stated that out of ninety deaths, seventy had been the deaths of the servants and children who might be presumed to live in the upper parts of houses where sewer gas could obtain access.

An Irish gentleman wished to convert his uncle, and he wrote to him, "Dear uncle, do give up drink; I'm sure it will lengthen your days." In about a week he got an answer to his letter to this effect: "Dear nephew, I am much obliged to you for your advice. I have taken it. You were quite right when you told me it would lengthen my days, for the day I gave up drink was the longest day I ever spent in my life."

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Public Health.

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THE HEALTH BUREAU.

An important advance has been made toward health legislation in the carrying, by Dr. Brouse, in the House at Ottawa, of a motion for a Committee to enquire into the expediency of establishing a Bureau of sanitary statistics. The committee are preparing a report to submit to the House before the close of the session, and it can hardly be doubted that good results will follow.

We should be glad if space permitted us to give the doctor's speech upon the subject before parliament. It sets forth the value, in dollars, of Public Health legislation, shows the millions of dollars that would be saved to the Dominion, the thousands of lives, the most important of all, though seemingly with the masses of secondary consideration, that would be saved to the country—lives more valuable, as it were, than the lives of the immigrants, in the bringing of which to the country so much expense is necessarily incurred, all by a moderate expenditure in the enacting and carrying out of Public Health laws. We may draw a veil over—we cannot hide, the desolation and lamentation caused everywhere by death, the anxiety and suffering, the ill effects—often far-reaching, upon the mind, upon the stamina and vigor of the people—of disease, and just notice the fact so plainly set forth by Dr. Brouse, that according to his estimation, fifteen millions of dollars could be saved to the Dominion of Canada annually by means of legislation in this behalf. Other members of the House spoke of this estimation as very moderate, Dr. Tupper said it was not exaggerated in any degree. Over a year ago a similar estimate, upon a like basis, though arrived at somewhat differently, was made in this JOURNAL.

From that it appeared that thirty millions of dollars could be saved to the Dominion yearly by means of such legislation.

Now, how much longer are we to go on literally squandering this immense sum of money, these lives, 15,000 in number, as Dr. Brouse puts it, but probably double that number ?

A system of complete statistics, of deaths and of sickness, and the causes, necessarily forms the basis of health legislation. The returns would be a guide as to where insanitary conditions, whether climatic, or relating to soil, or to other causes, of human creation, most prevail, while they would indicate the most common and prevailing causes of disease and death. And as we have before contended, the system ought to be under the control of the central authority, with branches and health Boards in the Provinces. As the Government of the Dominion, or of any country, desires to, and should, know the number of immigrants and emigrants, so it should know the numbers, yearly or quarterly, or oftener, of those coming into the country and going out of it, by births and deaths ; besides, it should have knowledge of the *quality* of its people as well as of the *quantity*. A complete system of sanitary statistics would enable the Federal Government to point out to the Local Boards of Health, through the Local Legislature, those localities showing the largest death or sickness rate, or a rate larger than ordinary, when remedies could be applied for removing the causes. Health officers would vie with each other in reducing the death rate in their respective localities. While the returns would become with the masses interesting topics, as is found to be the case in Great Britain, and the subject of public hygiene would become of general interest, and more attention would be paid to it. More attention two would then, it is believed, be given to individual or personal hygiene.

We again say, that the thanks of the entire country are due Dr. Brouse for his work in this matter. It is difficult to over-estimate it. Would to God some medical man in our Local Legislature would rise up and move in a like course. We want, like many States in the Union (U.S.), which we are quite behind in this respect, a Provincial Board of Health. This must come from the medical men in the House. As Dr.

Thomas, President of the Georgia State Board of Health, says : —“If men of our profession, when elected to the Legislature, would only devote themselves to the interest of their profession, and the public good, instead of giving themselves to be controlled by petty politics, what great advances public hygiene would make in a few years.” There are several able physicians in the Ontario Legislature, competent to deal energetically and effectually with this important subject, we trust they will soon take action in the matter.

CONTAGION AND INFECTION.

In the air and water, all around us, we have an invisible world inhabited by untold numbers of organisms which live move and have a being; we have vegetable life of more or less luxuriant growth. They all have a commencement of life, a growth and development, a maturity, a decline and an end. There is no doubt that in this great theatre of action there is on a miniature scale the same struggle for life which we see in all animated nature. Doubtless there exists among these low forms of life the same variety as to strength and vitality which we observe in the animal and vegetable kingdoms with the naked eye. Some are healthy, others unhealthy; some are short-lived, others longer; some are clean, others unclean; some are benign and affect nothing they come in contact with, others are malignant and poison everything coming within their influence. Wherever there is life, there must be something to sustain it. These low organisms require food, and probably they mostly prefer to feed upon what we may call wholesome diet; if, however, such be not provided, they consume whatever may be within reach. We know that many animals would prefer to live upon pure food, but in the absence of such will readily take to decaying matter. However, as we have certain kinds of animals and birds which prefer to feed upon carrion, so it may be supposed there are among these invisible beings, certain species which find their natural food in the decomposing organic matter floating in the air and water. Now, in this decomposing or putrefying mat-

ter we may have a specific poison, or simply a poison arising from the putrescence. In either case, the germs, by partaking of it, become likewise poisonous. Low and degraded organisms will rapidly multiply when they have putrefying matter to feed upon. We [see a carrion on the plains, a few days after death of the animal, and it is instinct with maggot-life. Likewise among the air-germs, there are certain forms which rapidly spring into [existence when food is supplied of the right sort for such development. And now we come to the practical point. What is the most likely source of food for these degraded germs? It will not be found in the open country, although even there low forms of life may exist, as in malarious districts. It is in towns and cities, wherever there is an aggregation of dwellings; unless measures be adopted to remove the excreta and offal, before the process of putrefaction commences. It may, and often does exist in suburban and rural places of abode. In close rooms, in cellars, in the yard where the kitchen slops are daily thrown, this poisonous material may be found; but it is in the larger towns and cities where it is supplied most abundantly. The emanations from the sewers, and lanes and backyards constitute the food, in rich quantities, for the organisms of which we have been speaking.

These organisms no doubt exist in swarms, and move here and there as the air may carry them. When the air is at rest, and the aggregation great, the air is correspondingly impure. Any motion of the air is unfavourable for the increase of the germs; but free motion, as a wind, will scatter the organisms and the food they are consuming at the same time. We often see this taking place in the insect world. On a hot, still day, clusters of flies of different kinds may be seen clouding the air; but a stiff breeze springing up, they are soon scattered. It would seem that it is when there is an aggregation of organisms, that the most danger exists of infection. If the air, when crowded with them, is taken into the lungs, it is more likely to infect the system. The air-germs, no doubt, often lodge upon different objects. It may be something inanimate or living; it may be a fixed substance or a moving

one. Anything passing through the air crowded with these germs, may be as it were covered with them. If it be something with a rough surface, or with a porous texture, these little beings may find a secure lodging-place, and be carried great distances. For instance, a dog with a shaggy coat, or a human being with his garments of wool or other coarse material, may pass through a space numerously inhabited by germs, and they thickly fasten to his body, and may be then carried far, as well as near. Or some object of a portable nature, as a trunk, or satchel, or umbrella, may be within reach of the germs and they settle upon it; and when it is taken by human means, the germs lodged upon it are transported wherever it may go. It is in this way many contagious diseases, as well as infection, are disseminated. Scarlet fever, or some other contagious disease appears in a family; its origin cannot be traced; the child has not been exposed to the disease; it is not even in the neighbourhood, and it is a mystery how the disease was contracted. But the disease had not arisen spontaneously; the seeds had been brought by some means. It may have been some garments borrowed, while out, to protect from the cold or wet; it may have been some visitor, whose clothes contained in their meshes the germs of the disease, requiring only to be shaken out into suitable soil, in order to show their vitality. Possibly it may have been a dog, which had in some distant part received in its hairy covering the disease germs. The seeds of many contagious diseases, especially scarlet fever, may, like grain, be preserved for an indefinite length of time. Hence the importance of disinfecting clothes, and rooms where contagious diseases have existed.

LIFE INSURANCE AND PUBLIC HEALTH.

There is no class more deeply interested in the subject of public health, for obvious reasons, than life insurance companies, including, in mutual companies, every one whose life is insured therein. We earnestly desire to enlist the co-operation and assistance of all such in this vital subject. We have

been requested, on several occasions, to add to the **SANITARY JOURNAL** a life department. Although our space is at the present time very limited, we shall in the future devote some attention to this branch. Life insurance has developed to such an extent, that the public, the companies, and medical examiners are alike interested.

In this connection, it may be observed, that our attention has been drawn to an interesting article, by Dr. Theodore Parker, of New York, in the *Medical Record*, N. Y., to which belongs a "Medical Department of Life Insurance." Dr. Parker draws particular attention to the relation of medical examiners to the companies. He declares it has been believed by some that medical examinations were of little use in life insurance. "In every case," he says, "the examiner should consider himself as representing the company, and not the agent or applicant. In passing upon applicants, he should know no friendship, and should give the company the benefit of all doubt." As, in cases where a necessarily rather hurried examination fails at the time to discover any organic disease, and yet the general appearance suggests a doubt as to the safety of the risk. The correctness and justice of this can hardly be questioned. The relation of the examiner to the applicant is no doubt often peculiar, he may be his regular physician; nevertheless, he may, if he gives the applicant the benefit of a doubt, do injustice to others of his patients who may at any time, if they have not already, become applicants, as well as injustice to the Company.

Annotations.

ISOLATION AND CONTAGION.—The *British Medical Journal* asserts that medical health officers are constantly bringing to light revelations of the spread of disease, resulting in death, through carelessness in respect to isolation. The *Journal* mentions two instances as showing "how much misery is occasioned which might be prevented, would the people but exercise those principles in the way of precaution which are called into play when property is at stake from fire, or the lower animals are threatened with extermination by cattle-plague, and discharge that duty to society which the moral law demands."

HEALTHINESS OF THE PAST UNUSUAL WINTER. — In the February number of this JOURNAL was an extract on the wide-spread popular error that “a green Christmas makes a fat church-yard.” On this subject the *Med. and Surg. Reporter*, Feb. 19, 1875, observes:—“The health of this city (Philadelphia) is much better than during the same season last year, which was very cold. Such is also the case generally.” On the same topic Dr. Snow, of Providence, Rhode Island, remarks, in his last monthly report:—“It is a popular idea that very mild weather in winter is very unhealthy. Let us examine this theory. January, 1875, was remarkably cold; January, 1876, was remarkably mild. The first January was colder, and the last was warmer than any corresponding month for many years. Let us compare the mortuary results. The deaths from some prominent causes in the two months were as follows:—

	1876.	1875.
Whole number of deaths.....	115	159
Pneumonia	15	35
Consumption.....	22	31
Croup.....	5	10
Bronchitis	1	6
Scarlatina	4	19

“This shows a large decrease in the warm January of the present year, not only in the whole number of deaths, but also, especially, in those causes of death which might be supposed to be influenced by the winter weather.

“This result agrees with my observation for many years past. Extreme cold, or extreme heat, if continued for a week or more, increases the mortality; while more temperate weather, whether in winter or summer, is favorable to health.

“The population of Providence, by the census of June 1, 1875, was 100,675. The mortality last month was, therefore, at the annual rate of only 13.7 in each 1000 of the population. In January, 1875, calling the population the same, the deaths were at the rate of 18.9 per 1000.” Dr. Whitmore, Medical Officer of Health, Marylebone, Eng., in his monthly report for November last, says the deaths from bronchitis, pneumonia, and heart disease, have increased with the advent of the cold weather.

AN INSTRUMENT has been invented in England for determining the velocity of sewer-gas, so that the result of the steps being taken for drawing out the gases and ventilating the sewers in large towns can be ascertained. A velocity has been attained of a mile per minute; and it is believed that a still greater extracting power will shortly be effected.

EARLY TREATMENT OF DIPHTHERIA.—Dr. Garraway, in a communication to the *British Med. Jour.* (Feb. 19th, 1876,) endeavors to forcibly impress upon the public that the severity and mortality of diphtheria are regulated and controlled according to the period at which the disease comes under medical supervision. "Whereas ten or fifteen years ago," he says, "I looked upon these cases with a sort of horror, seeing that they were generally far advanced in blood-poisoning before medical aid was sought, now that my patients have been taught the importance of early treatment, I could well regard the disorder, save for here and there a grave exception, as one of the most trivial of throat-affections. But what is the first stage? That in which the germ or parasite, having lighted on its appropriate nidus (most commonly one of the tonsils,) has begun to multiply and spread over the adjacent mucous surfaces, like mould upon raspberry jam, to which it is not very dissimilar. It has not yet taken root enough to impregnate the constitution with its baleful influence: the pulse is not quickened; the temperature is not raised: the tongue, perchance, is not furred. In all cases of illness, when diphtheria is prevalent, it is expedient to look into the throat, as occasionally when there is not even ground of suspicion, the characteristic spot or layer of mouldiness, like an irregular patch of white kid, will be discerned. Now is the time when we are enabled to say, 'Thus far shalt thou go and no further.' Now is the time when one single painting with a strong solution of nitrate of silver will effectually destroy the parasite and rescue the patient. Twenty-four hours after this application, the "white leather" is seen dark and shrivelled, and the following day it has dropped off and disappeared. Contrast this with the same disease three days later on. I need not describe it; the picture has been only too vividly impressed upon the minds of all of us; the layer of deposit spreads more or less over the fauces, perhaps entering the larynx, when recovery can scarcely be looked for; the rapid pulse, the exalted temperature, the extreme nerve prostration, the blood more hopelessly poisoned than in typhoid fever, and death more imminent."

EFFORTS are being made in London, Eng., to get a clause inserted in some Bill in Parliament to compel the builders of all houses to be erected in future in the metropolis to construct a ventilation-pipe, to be carried from the drain of the house above the roof of the building; so that the sewer-gases, instead of entering the house through the drains, will be carried off at the top of each house.

EFFECTS OF RESPIRED AIR.—Dr. De Chamont, Professor of Military Hygiene, in his late work, "Lectures on State Medicine," declares that the changes in the atmosphere which occur through combustion are 'comparatively insignificant by the side of respiration, including transpiration, which is really the most serious and constant source of impurity,' as the oxygen is greatly diminished, the carbonic acid largely increased, a larger amount of watery vapor produced, a considerable quantity of organic matter and ammonia evolved, and a notable quantity of suspended matter set free. He believes that this fact has not received the attention it deserves, as 'among the rich and poor the most constant condition is ill-ventilated dwellings,' and that consequently phthisis, (consumption), which causes about 108 per 1,000 deaths, takes the first place on the death-rate; that bronchitis, with 87 per 1,000 deaths, takes the second; atrophy and debility, with 61 per 1,000, the third; and old age, which should occupy the first place, only obtains the fourth, with 55 per 1,000. That the injurious effects of air vitiated by respiration and transpiration are not confined to these above-named diseases, but extend also to zymotic diseases; and that if we could get rid of the effects of crowding, and provide a supply of pure air to the community, we might diminish the mortality by more than one-fourth.

INSPECTION OF DAIRIES.—The *Sanitary Record* announces the outbreak of another distressing epidemic of typhoid fever at Eagley, which is distinctly traceable to the milk-supply. Upwards of 120 persons who were supplied with milk from a particular farm in the neighborhood were attacked with somewhat peculiar symptoms, stated to be a hybrid of typhoid fever and ordinary blood poisoning. The drainage on the farm whence the milk was supplied is stated to be of the worst possible character, and the inference is that the milk was mixed with the polluted water, which was also doubtless used to wash the utensils on the farm. The epidemic has also made its appearance in Bolton in those houses which were supplied with the milk. This very serious outbreak of epidemic disease following on various others of the same character, says the *Record*, shows the absolute necessity for the systematic sanitary inspection of all dairy farms. In Canada there are no systematic investigations as to causes of typhoid and such like diseases, and consequently no knowledge as to the amount of disease produced by poisoned milk. Foul milk and disease germs are swallowed and no questions asked.

ARTIFICIAL INFANT DIET.—On this highly important subject, Dr. Dawson gives some valuable suggestions in the *Obstetrical Journal*. Regarding the dilution of cow's milk, he says: The addition of water alone does not improve the digestibility of the casein, for it does not dilute it; and when milk is introduced into the stomach, diluted with water, the water is soon taken up and the casein is left as undiluted and unchanged as before the food was given. Nor does the addition of sugar make the coagula any more easy of digestion. The admixture of farinaceous articles with the milk also leads to disastrous consequences. Good cow's milk diluted from one-third to one-half with barley-water, forms one of the best articles of food that can be used for infants when it is necessary to bring them up artificially. If barley cannot be obtained, oatmeal may be substituted, and answers nearly as good purpose. This article produces a real dilution of casein, and renders the coagula much finer and more like the coagula which is found in milk from the mother's breast.

THE SANITARY BUREAU.—After having attempted, at two previous sessions of the House, to carry a like measure, Dr. Brouse has at length succeeded in getting the Dominion Government to consent to a motion for a Select Committee to consider the expediency of asking legislation, with a view to constitute a Bureau of Sanitary Statistics, in connection with one of the Public Departments. The committee is composed of the Hon. Messrs. Holton and Robitaille, Drs. Brouse, Landerkin, Forbes and Christie, and Messrs. Blain, Dymond, Burpee (Chas., N. B.), Scatchard, Flynn, Young, Kerr, and Fiset. We are much pleased to find the members for West and North York are on the committee. Such a Bureau, as proposed, would lay the foundation for, and is essential to, practical and efficient public health laws. The returns of vital statistics, too, would soon, as in Great Britain, become popular topics, and public health would feel a resulting favourable change in public opinion.

AT A MEETING recently of the Northern Counties (Eng.), Association of Medical Officers of Health, Mr. Elliott, the president, said, longer life and better health simply meant an increase in this world's comfort and happiness. That human life could be extended and human health could be improved could no more be doubted than the fact that human life could be shortened or life deteriorated. They all knew that human life—like the quicksilver in a barometer—rose and fell according to certain rules and under certain influences.

VITAL STATISTICS.—In the United Kingdom, 1,112,295 births and 726,351 deaths were registered during the year 1875; these numbers give a birth-rate of 34.0, and a death-rate of 22.2 per 1,000. The excess of births over deaths was 385,944; 33,778 less than in the previous year. In the last quarter, however, the birth-rate was above, and the death rate below the average. The deaths registered in England and Wales from all causes during the year included 79,259 which were referred to the seven principal zymotic diseases, showing a decline of 5,860 from those so returned during 1874. These 79,259 deaths included 1,000 from small-pox, 5,973 from measles, 26,165 from scarlet fever, 3,078 from diphtheria, 13,435 from whooping-cough, 12,545 from fever, and 23,063 from diarrhoea. The rate of mortality from these seven diseases was 3.3 per 1,000, against 4.5, 3.8, 2.9, and 3.6 in the four preceding years. The fatal cases of whooping-cough and diarrhoea were more numerous than in 1874, whereas the deaths referred to the five other zymotic diseases showed a decline. The deaths from small-pox were less in number than in any year since civil registration was established in 1837.

A MOST HUMOROUS and outspoken health report is being noticed by our exchanges. The health officer of Westhouton Local Board, Dr. Gregory, reports as follows:—"One-fourth of the deceased ought to have been alive, and would have been alive now, had your board, or inspector, or predecessors, or all of you, done your duty. When a man has lived forty or fifty years in a fairly elevated house, and is then removed to a house the basement of which is on a level with the earth, no wonder that bronchitis or some other internal disorder deprives him of the residue of his years." Dr. Gregory complains of the indefiniteness of the sub-registrars, and gives as examples 'suspected heart-disease;' 'probable cough,' 'probable vomiting;' and considers they might as well write 'probably from sneezing.' He says, as regards these 'causes of death,' that he would prefer having such a one as the following, the invention of the inimitable Tom Hood the elder:

She had two bad legs, and a badder cough,
But her legs it was as carried her off.

DR. LANDERKIN stated in the House at Ottawa, the other day, that some time ago an epidemic of small-pox broke out in the place where he resided (county of Grey), and as the Municipal Council were unable to appoint a board of health until a proclamation was issued, in accordance with our present Public Health Act, the epidemic made headway, and many lives were lost before the board was organized. Comment is unnecessary.

A NEW UNIVERSAL DISINFECTING POWDER is being brought into use. It claims the approval of health officers and others, on the grounds of its cheapness, its great efficiency, its convenient form, its perfect solubility, its absence of colour, and its freedom from all unpleasant odour. It is rapid and effective in action, and may be used freely in powder or solution for the disinfection of drains, sewers, cesspools, for urinals and closets, and for all the purposes of disinfection in houses and hospitals. It is composed chiefly of *calcii chlorid.*, *zinci. sulph.* and *sodii chlorid.*, so that when water is added to it a partial decomposition takes place by which chloride of zinc is formed in the solution. It acts powerfully as a deodorant and disinfectant by stopping those changes in organic matter which give rise to putrefication and to disease. It is analogous to carbolic acid in its action and can be used in all cases where that unpleasant smelling disinfectant has hitherto been employed.

ARSENICAL ROOM-PAPERS.—Dr. Hodges, (*Sanitary Record*), at a late meeting of the Chémico-Agricultural Society of Ulster, referred to a case of arsenical poisoning in Belfast, in which a paper-dealer was sued for damages in consequence of the serious illness and expense for medical attendance occasioned in a gentleman's family by poisonous room-papers purchased from the dealer. The danger was fully proved, but the Recorder ruled that, as there was no proof the freedom from arsenic had been guaranteed, a verdict must be given to the defendant. In Germany and France the use of such papers is prohibited, with severe penalties, and should not be permitted in any country. Dr. Hodges stated that both light and dark green papers may be coloured with arsenical pigments.

THE MORTALITY in the liberties of the city of London, (*Brit. Med. Journal*), within and without the walls, was equal to 430 per 1,000 in 1665, the year of the great plague; whereas in the cholera year 1849, the most remarkable English epidemic year of modern times, the death-rate in London did not exceed 30 per 1,000. This represents remarkable sanitary progress, although the range in the death-rates during the decade 1861-70—between 15 and 39 per 1,000 in the 600 districts of England—conclusively proves how much sanitary work wanted doing in 1870, the bulk of which still remains to be done.

IN LONDON (Eng.), all the cabmen's shelters are now thrown open, free of charge for admission.

VALUE OF PROLONGED BATHS.—Kisch thinks it is a subject for regret, says *The Doctor*, that prolonged baths, *i.e.*, in which the patient remains several hours, or even a whole day, seem to be dying out of notice. Prolonged baths of 37-38 deg. C. are an admirable means for soothing irritated nerves, and influencing the skin by imbibition and saturation. The excretory organs are also stimulated by them, and the process of healing of open wounds and ulcers greatly assisted. They supply an admirable anæsthetic in cases of neuralgia and hyperæsthesia, or exposure of the cutis, and further, are a means of promoting the general metamorphosis of tissue and the expulsion of unhealthy materials present in the body.

A NEW DISINFECTANT has been exhibited at a recent meeting of the Medical Society of Victoria, by Dr. Day, an article by whom, on the "Disinfecting Properties of Certain Substances in Every Day Use," we published last year. He had been long in search of an agent capable of purifying the hands after *post-mortem* examinations, and for the use of persons in attendance upon the subjects of puerperal fever or other infectious diseases. He has found that a most effectual disinfectant is produced by the combination of a drachm of ethereal solution of peroxide of hydrogen (erroneously called ozonic ether) with an ounce of Rimmel's toilet vinegar.

THE MORTALITY OF MONTREAL, according to Mr. Workman (recent debate on Sanitary Statistics at Ottawa), is not so great as has been represented. He computes it at 39 per 1000. He says a large number of children, many of them in a dying state, are brought from neighbouring towns to the charitable institutions of Montreal. The mortality was most largely confined to children under four years of age, during July and August, which was "really appalling." The adult population, he said, was as healthy as in any town on the continent; and the water supply was as pure as any in the world.

SUBSTITUTES FOR SPIRITS.—The Wrexham Board of Guardians have for years past ceased to administer stimulants in their workhouse, and the guardians of St. George's, have just had a discussion on the advisability of adopting a similar course. Milk and eggs are given instead of stimulants, at an annual cost of about £20 a year, and £100 are saved annually. The inmates of the workhouse are said to like the change, and to be better in health since it has been adopted. It is said much mischief has been done by the amount of stimulants taken under medical directions.

THE PRESIDENT of the State Board of Health of Georgia, Dr. Thomas, who is also a member of the Legislature, in a communication recently received, informs us, that notwithstanding efforts were made, on political grounds it would appear, to repeal the law of last year creating a State Board of Health, he succeeded in carrying a further measure for establishing at once Local Boards in every county in the State, whose duties shall be to advise the ordinaries with regard to registration, and to supervise sanitary affairs in their counties.

A COMMUNICATION ON THE PRESERVATION OF MEAT has been made to the Paris Academy of Sciences, by M. A. Reynoso. The means employed are compressed air, oxygen, nitrogen, hydrogen, etc. M. Reynoso says he has succeeded in preserving meat, fresh and with the blood in it, in the case of beef, in pieces weighing 63 kilogrammes, for periods ranging from one month to three and a-half. So long as it remained in the apparatus it remained fresh and full of blood, and when taken out it kept a longer time than fresh meat from the butcher.

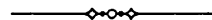
MANAGEMENT OF TYPHOID PATIENTS.—In a late discussion on this subject at the Dublin College of Physicians, Dr. Grimshaw remarked that his practice was to *leave the patient as much alone as possible*. Unless the diarrhoea was excessive, we should be cautious about checking it. He had tried the cold-water treatment, but thought the temperature could be more safely reduced by quinine, which would also act as a tonic. His views were approved by most members present.

THE LOCAL GOVERNMENT BOARD, according to the *Dublin Gazette*, have empowered the Belfast sanitary authority to make regulations arranging the number of parties who shall occupy a house, or part of a house, also to register all houses let or occupied by lodgings, for the registration of those houses, and for the purpose of enforcing cleanliness and due ventilation. The corporation by these powers can enforce the regulations fixed by them by penalties.

IN THE DISCUSSION on the question of a Bureau of Vital Statistics in the House at Ottawa, March 20, '76, Dr. Christie stated that he believed a greater number of lives were sacrificed in Canada, through preventable diseases, annually, than there were immigrants brought into the Dominion during that period. No doubt, to save those lives, would cost much less money than is spent in immigration.

THERE IS A METROPOLITAN and National Nursing Association, for providing trained nurses for the sick poor, in London (Eng.) Much interest is being taken in the association by medical men, the Duke of Westminster and others. Great assistance is declared to be derived from the nurses, and there is evident improvement in the rooms of the poorer patients attended by them.

A CLIMATIC ASSOCIATION, for the benefit of invalids and insurance companies, has been proposed by Dr. Denison, of Denver, Col., to be composed of physicians, especially representatives of health resorts, "devoted to the prolongation of life, and the adaptation of climate to the needs of invalids." A part of its labours would be to collect statistics of all climates.



BOOK NOTICES.

FIRST ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF GEORGIA, U.S., for the year ending Oct. '75.

This is a volume of over 200 pages, though it covers but a few months of work, and it is said is only intended to foreshadow to the people what the Board propose to do in the future. Besides many forms, the law creating the Board, constitution and rules, address to the medical profession, etc., there is a report on each of the following subjects, viz., endemic, epidemic and contagious diseases; hygiene of schools; influence of trees on health; sale of poisons, etc.; and on the most effective means of preventing small-pox in Georgia.

To one special point in the address to the medical profession, seemingly suggested by the "deplorable prevalence of female diseases," we wish to draw attention, as touching the important subject of vital statistics. It refers to the *etiology* and the *consequences* as affecting the *mother* as well as the offspring, as relates to the registration of premature births. *Forms* are prepared for the accurate inditement of these. Having marked some parts of this interesting report, which we intend to draw upon on a future occasion, we must conclude the present notice with the following truthful lines from the report by Dr. Campbell:—"Public sanitation is the last, the grandest, and most benevolent gift an enlightened government can bestow upon its people.. Though not so proudly contemplated by the people of a State as would be the acquisition of a territory, nor so highly valued as the removal of an impost or the reduction of a tax; yet, in its efficient operation, preventative medicine enhances the population more than the one, and enriches the people's treasury abundantly more than the other."

INSANITY IN ITS MEDICO-LEGAL RELATIONS. By A. C. Cowperthwait. Philadelphia: Stoddart & Co.

This is a neat little volume, consisting of seven chapters, on the pathology, classification, and diagnosis of insanity, criminal responsibility of the insane, epileptic insanity, and treatment of the insane. As the author observes in the preface, he is not bringing forward any strikingly new ideas, but endeavoring to incorporate in as little space as possible the ideas, &c., of eminent physicians, with his own somewhat extended experience; essential facts which should be familiar to every physician.

In the treatment of the insane, the author mentions three important elements:—no restraint; open air; association with healthy minds. Neither of these being “attainable where hundreds of invalids are assembled under one roof, and the whole atmosphere is saturated with insanity.”

TO CORRESPONDENTS.

SOMNOLENCE.—The benefits of early rising have long been thought to be great, but it seems more than probable that the advantage is derived from going to bed early, instead of “night watching” until midnight or later, rather than from “Leaving the easy couch at early day.” Long-lived people have usually been early risers, but they rose early and lived long because they were vigorous and had good constitutions; they did not live long because they were “Up at early dawn.” The air in the early morning is said to be less pure than it is after the sun has been shining for a time. We shall endeavor in our next to give Hufeland’s reasons for believing that sleep before midnight is much more beneficial than after that period.

IRIS.—The *color* of the eyes does not change, though the *shades* do. There are said to be, strictly speaking, only two colors, blue and brown; these together, produce hazel. Very light color of the iris indicates constitutional weakness and early dissolution. It is also said that most persons of eighty have hazel eyes, few have blue, and none brown.

OZONE.—Mix very gradually three parts of strong sulphuric acid with two parts of potassium permanganate; according to Bettger, the mixture will continue to give off ozone for several months, and may be used for the purification of the air of hospitals, public halls, rooms, etc.

SPECIALITY.—The ancient Egyptians, who were greatly advanced in the science of medicine, only permitted each physician to practice his own peculiar branch. Not a bad precedent.

J. G. T., Ga.—Very much obliged for your interesting communication. Would be glad to hear from you often.

SUBSCRIPTIONS RECEIVED since March 1st. :—Dr. Osler, for ('75 and '76), and Dr. Ross, ('75,) McGill University, Montreal; Dr. Theodore Parker, ('76), New York; Dr. J. G. Thomas, ('76), Savannah, Ga.; Dr. Brouse, M.P., ('76), Prescott; Dr. T. Christie, M.P., ('76), Lachute, Q.; Dr. Baxter, M.P.P., ('75), Cayuga; Messrs. P. Patterson, M.P.P., ('76), Patterson; K. Chisholm, M.P.P., ('75), Brampton; Wm. Brown, ('75); S. McColl, M.P.P., ('75), Vittoria; J. McGowan, ('75), Alma; J. Watterworth, ('75), Wardsville; Dr. C. T. Noble, ('75), Georgina; Dr. Geo. Hodge, ('75,) and Dr. Hornibrook, ('75), Mitchell; Dr. Burdette, ('75), Belleville; Dr. C. Freeman, ('75), Milton; Dr. Ghent, ('75,) Priceville; Dr. T. K. Holmes, ('75), Chatham; Dr. Fraser, ('75); Messrs. E. Martin, ('76); and Robt. Wilkes, ('76), Toronto.

THE PUBLISHERS desire to apologize for the late appearance of the JOURNAL this month; caused by the Editor being absent, in Ottawa, in the interest of Public Health.

WE SHALL FEEL MUCH OBLIGED to any of our readers who will send us articles or items of interest on any subject connected with public health.

THE ALDINE is now published in 24 parts, issued fortnightly. It is growing constantly in elegance and value, and is educating the taste in the beautiful. The *Independent*, N.Y., says it is a much better fine art serial than has ever been started or sustained in the United States, and that the issues for 1876 show it will be even better than ever. Looking back a little we find in a number for January last, "Shooting the Rapids," from a picture of the well-known Canadian artist, Mr. Verner.

IN THE APRIL NUMBER OF THE *Canadian Monthly* appear the opening chapters of a new novel entitled "AS LONG AS SHE LIVED," by F. W. ROBINSON, a well known English novelist, the author of "Little Kate Kirby," "Second Cousin Sarah," and other notable works of fiction. The new serial is published by arrangement with the author, and is expected to be completed in about ten numbers of the Magazine.

A DEFENCE OF ERIE B. SPARHAM; being a Medico-Legal Inquiry into the cause of death of Miss Burnham, late of Brockville.

The writer contends in this, that abortion may not have been produced in the case of Miss B., and if so, that it was not caused by the acts of Dr. Sparham, especially with intent; that the instrument used was a speculum; that while Miss B. in her depositions, "described every incident of her trouble with surprising minuteness of detail," yet in "no instance does she say that Dr. Sparham said he gave medicines with the intent specified in her deposition," that "in the absence of any certainty of diagnosing pregnancy, it is held by many conscientious physicians, legitimate and proper to prescribe for amenorrhœa." The defence is intended, and does *tend* irresistibly in the mind of the reader, to throw a doubt in favor of the prisoner. Truly medical men are, more than any other class, sometimes placed in most peculiar and trying circumstances.

THE SANITARY JOURNAL.

THE HEALTH LIFT, advertised in this **JOURNAL**, is highly spoken of by some of our exchanges. The *Sanitarian* says, to those who are well and would keep so, brain workers, office-keepers, &c., it is a boon. It is also a valuable means for obtaining systematic exercise, for the nervous, the debilitated, the dyspeptic. See advertisement and send for circular.

OBITUARY.—**DR. PARKES**, the well-known writer on Hygiene, and so frequently quoted in this **JOURNAL**, died, March 15th, near Southampton (Eng.) His life was devoted to his country and to science, and to within a short time of his death, it is said he was engaged in correcting proof-sheets of a Manual of Hygiene.

THE OPEN-AIR FLOWER SEASON is at hand; flower-pots, in any quantities, wholesale and retail, may be had at the Davisville Pottery, Yonge st., one mile north of Yorkville.

For \$4, Vol. 1, neatly bound, and vol. 2, for the current year, will be sent, postage paid, to any address.

Contributors to the **SANITARY JOURNAL**:—**Drs. JOSEPH WORKMAN, WM. CANNIFF, C. V. BERRYMAN, WM. OLDRIGHT, GEO. WRIGHT.**

THE PURPOSE OF THE SANITARY JOURNAL is to diffuse a knowledge of sanitary science—a knowledge of the causes of diseases and of the means of avoiding or removing these causes; to arouse public attention and the attention of the medical profession to the vast amount of preventable disease prevailing; to advocate Sanitary Legislation; to discuss, in short, all questions pertaining to public health, water supply, ventilation, drainage, food, clothing, bathing, exercise, &c., &c.

COMMENDATORY LETTERS TO THE EDITOR.

The following are copies of, and extracts from, a few of the many letters to the Editor, received from time to time, from medical men and others, regarding the **SANITARY JOURNAL**, unsolicited, of course, and, with two or three exceptions, the writers being personally quite unknown to the Editor:

TORONTO, December 7th, 1875.

DEAR DR. PLAYTER:— . . . Please send me your receipt for the enclosed two dollars, for your valuable Journal. I wish all in the profession valued it as I do. . . .

Very truly,

JOSEPH WORKMAN, M.D.

(Late Supt. Toronto Lunatic Asylum.)

BOWMANVILLE, June, 1875.

DEAR SIR:—I am much pleased with your Journal . . . I look upon it as one of the most useful periodicals with which I am acquainted, and especially to the medical practitioner, who wishes to keep pace with the advancements of science.

Yours truly,

W. ALLISON, M.D.

(Member Medical Council, Ont.)

GLANFORD, ONT., November 22nd, 1875.

DEAR SIR:—Enclosed you will find \$2, to be applied to **SANITARY JOURNAL**. . . . I think your journal is doing a good work, and that such a magazine was much needed in Ontario. Wishing it every success,

I remain, yours truly,

ALEX. BETHUNE, M.D.

(Member Medical Council, Ontario.)