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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.

Vol. X.

DECEMBER, 1888.

No. 12

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ON THE GERMS OF DISEASE.

THIRTY years ago, what is now known as the germ theory of disease was, to all intents and purposes, unknown. It had been surmised that certain minute animals or bodies invisible to the naked eye were sometimes the cause of disease. Such guesses or assertions, based upon negative reasoning, were made and reiterated in various ways, and found more or less favor all the way along from the time of Terentius Varro, a Latin scholar, who wrote a century before Christ, until the time of Pasteur, who first *demonstrated* the truthfulness of that which had been blindly discussed and believed or disbelieved in, as the case might be. Of course, the microscope, long waited for, revealed to the diligent searcher that which had previously been hidden, and brave men entered into the mysteries revealed and patiently investigated and sought light where before all had been darkness, or at best but dim twilight....

Thirty years! What is now known? It is known that germs exist everywhere. That the air is loaded with them. Not all or many of them are disease producing. That each produces its kind and *only* its kind. That the full development of the germ requires that the parent germ be perfectly developed and be planted upon a proper soil. Sow wheat, and you get wheat, never oats. Sow the germ of diphtheria, and you get diphtheria, and not small-pox. Sow wheat in the sand and it will not germinate, or but imperfectly. Inhale the germs of diphtheria, and unless a lodgment is effected upon a surface adapted to receive it, it will not multiply. Sow an imperfectly developed germ of wheat, a grain harvested before it is ripe, and even under favorable conditions, it will develop but imperfectly, if at all.

The same may be said of germs, disease producing or otherwise. Not only are the effects produced by germs of a definite character governed by fixed laws, but, as would naturally be supposed, the germs themselves bear certain individual or physical characteristics, and laborers in this field have a well-defined, intelligible and expressive nomenclature. A germ is a *seed*, as its name implies, yet a micrococcus and a bacteria have as distinct or quite as diverse characteristics as a sweet pea and poppy-seed. Dr. John S. Billings has given the name of microderms, or little living things, to the great variety of microscopic particles found in air and water under ordinary conditions. Under this term, microderms, are included microplutes, or little vegetable organisms, the microzoa, or minute animals, the microzymes, or little ferments, the microbes, or little lives, or microbia of Pasteur, the bacteria, etc. The minutest spherical forms of the microderms are known as micrococcus, or little grains, the short cylinders or rods, bacteria, etc. These organisms can be and are cultivated, and spherical forms produce spherical forms, and rods produce rods. It is not worth our while to set forth the arguments pro and con that were formerly used by the advocates and opponents of what was and is known as the germ theory. It is enough to say that within the last decade the labors of Cohn, Virchow and Koch in Germany, Burden-Sanderson and Tyndall in England, and Pasteur in France, have gone far to confirm not only the profession but the laity of the truthfulness of the germ theory. It was maintained, is now by some, we presume, that given heat, moisture, and filth in proper proportions, that disease would spring into

activity *de novo*—that is, by a kind of spontaneous generation. The labors of the trained observers mentioned go to show that the factors heat, moisture, and filth furnish the conditions or environment, so to speak, that is adapted to the development of disease-producing germs, yet no germ, no disease. . . .

It is quite probable that those who boldly say : " We do not believe in this germ theory and this attenuation of Koch's and Pasteur's," disbelieve simply because they are ignorant of it, and it is no evidence of the untruthfulness of the doctrine that the busy practitioner of medicine cannot always trace disease to its cause. That part of this subject relating to attenuations and inoculations is full of absorbing interest, but time and space forbid my telling what is known about it. I will, only for our profit, undertake, in the language of another, to study the development of one germ and, perhaps, if this paper is not too long and your patience not exhausted, relate some interesting facts that have been brought out in the study of germs and the practical results obtained. It may, perhaps, be well at this point to give the definition of the germ theory of disease, which is, " that certain diseases are due to the propagation in the system of minute organisms which have no share or part in its normal economy." The germs set up an action in the blood analogous to processes of fermentation that can be witnessed outside of the body. As illustrative of the theory of the development of the germ, I will, as I have said, use the language of another : " Take a portion of any vegetable—*e.g.*, the beet or some grapes—crush them, add a little water, let the mixture stand a short time, then pour off the liquid, and you have the simplest form of vegetable infusion. Allow it to remain exposed to the air at the ordinary temperature, and shortly a change will be found to have passed over it, which is popularly called souring, but which is fermentation, and takes place as follows : the air is full of microscopic 'germs' or 'spores' or 'cells,'" the microderms of Billings, which only need the right soil or matrix to grow or develop. Let a grain of corn remain in your coat pocket, and it will stay a grain of corn, but drop it in

some fertile spot of earth, and it changes into a tall plumed spike, bearing many thousands of similar grains. The glucose of the infusion is related to these universally diffused spores just as the waiting earth is to the grain of corn, and a spore which might have stayed a spore a thousand years but for the infusion, finds its divinely appointed environment, lives its life, dies its death, and fulfils its mysterious but appointed part in the economy of nature. It is so small that it takes more than 3,000 of them ranged in line to measure an inch. One spore having appropriated its infinitesimal morsel of glucose instantly becomes two; these in turn appropriate their modicum of glucose and at once double, so that by a swift progression the nature of the infusion is changed—it may be into alcohol, it may into something with boundless powers for mischief to which science has not yet fitted a name.

"The same thing is illustrated by allowing a little beef's blood to stand exposed to the air. An analogous change to the foregoing takes place, which is called putrefaction. In this case the albumen of the blood represents the soil. The germ that changes the fluid is bacteria. As has been remarked, the air is at all times laden with these spores, yet only when the proper conditions obtain, as illustrated by the kernel of the corn, will they multiply. . . . Leave a pot of flour paste open, and it will become covered with a *greenish* mould; an old boot left in a damp place with *blue* mould, and a lilac leaf in July will have spots that look like dust from the road."

All of these—the mould—are plants produced by air-sown invisible seeds, and if not disturbed and the conditions remain favorable, will produce perfect plants and will ripen their seeds just as perfectly as any plant in the field or garden. This is not an imaginary statement, for the process can be watched under the microscope. These parasites are as dissimilar in their physical characteristics as any familiar forms of vegetation visible to the naked eye, as a potato plant and cabbage if you please. . . .

The steps in the study of splenic-féver, by which so much of practical value has been learned, (and which has been so des-

tructive of sheep, especially in France, but which, through Pasteur chiefly, is now largely under control), are interesting to trace. In 1850 Davaine and Rayer noticed in the blood of animals which had died of splenic-fever the rod-like bodies now known as bacteria. In 1861 Pasteur published a paper on the fermentation of butric acid, and described the microscopical organisms that provoked it. Davaine read it, and conceived the idea that splenic-fever might be due to a similar fermentation in the blood of the living animals, produced by the same organisms. Subsequent studies proved such to be the fact. It was found that the rod-like organisms lost their vitality after a few weeks, which led Burton-Sanderson, in 1874, to conclude that the virus existed in two forms, "fugitive" in the rods and "latent" in some form not then determined. At this time young Koch was studying the rod-like organisms, and he found that they could be successfully cultivated. The aqueous humor of the eye of an ox he found to be an excellent field in which to cultivate them. He placed a trifle of the liquid containing the transparent rods under the microscope and watched for two hours before any change could be seen. At that time they began to lengthen, and at the end of four hours were from ten to twenty times their original length. At the end of a few hours they put out filaments hundreds of times the length of the original rods. The filaments lay length-

wise and twisted and filled the whole field of the microscope, making, in short, a luxuriant growth. Had his observations been abandoned at this point his observation would have been of little if of any practical value. Patiently continuing the watch, he saw after a time little dots appearing in them. These dots grew more and more distinct until they could be seen, microscopic ovid bodies, lining the integument like peas in the pod. At last the integument fell to pieces and the field of the microscope was filled with seeds or spores. Here then was the "latent" form of the virus as believed to exist but not demonstrated by Burton-Sanderson.

Cohn, of Breslau, confirmed the discovery. Guinea-pigs and rabbits were inoculated with the seeds and died of splenic-fever within twenty-four hours afterward. So, then, it is shown that disease may be produced by the contagion, directly or indirectly. It explains, too, how contagion clings to a locality and how under favoring circumstances and conditions it springs into light. Apples may be propagated either by cuttings, grafts, or from the seed. So with splenic-fever, [and probably with typhoid and other fevers.—Ed. Prop.], the disease may be contracted at once from the rods or later from the rods having gone to seed. The results are the same but reached by different routes.—O. W. Peck, M.D., Health Officer, Oneonta, N. Y. Read before the County Med. Soc. From the Sanitarian.

ON EXERCISES FOR DEVELOPING THE CAPACITY OF THE LUNGS.

FROM A PAPER BY A. H. LEUF, M.D., DIRECTOR OF PHYSICAL EDUCATION AT THE UNIVERSITY OF PENNSYLVANIA, IN THE MEDICAL AND SURGICAL REPORTER.

DISEASES of the lungs cause more deaths than any other class of diseases. A large proportion of the deaths arise on account of imperfectly developed lungs. Parents should always attend to the development of these organs in their growing children. This is a most imperative duty. But it must be properly and safely done, as will be seen in the following extracts :—

As the function of respiration has for its

main object the abstraction of oxygen from the air and the exhalation of carbonic oxide from the blood, the bodily supply of oxygen—vital air, depends chiefly on the capacity or size and structure of the lungs. If these are proportionately small in an individual, a full measure of vigor is wanting, while disease of the organs is the more likely to be developed.

Two points are very important to bear in mind: First, as Dr. Leuf says, chest

girth is no reliable index of lung capacity, because larger pectorals, (i.e. the fleshy part or muscles on the front of the chest) especially while contracted, make a difference of several inches as compared with the girth of a chest just as large in a person with very thin pectorals; he adds, in fact, I have satisfied myself in several instances that increased girth of chest was accompanied by actual contraction of the chest itself. I could mention instances where I feel certain that lives were lost because of well meant, but wrong and carelessly given, advice about exercise, while others are now ebbing away at a quicker rate than was indicated previous to the beginning of gymnastics.

The Second point is, to use only those exercises known on good medical authority to be suitable and to use these properly—discriminately. Dr. Leuf says—Of all the books issued on gymnastics most are good; I may say very good; but, from the view of the athlete mainly. Their scientific value from a medical standpoint does not meet a critical requirement. The average physical educationist, and some of them are medical men it must be said, see no other cause for "short-windedness" than insufficient chest capacity and weak pectoral muscles. The heart is practically ignored as a cause of dyspnoea. All advice tends to the development of the chest girth and chest capacity. It has lately become the fashion to incline toward athleticism. In fact there are "schools" or "systems" of athletics. Some of these are—well, absurd. The motives of the originators I believe to be the best, but the effects are detrimental. One such system favored by a growing number, and undoubtedly good if properly used, is that which is so simply and perspicuously outlined by Mr. Blaikie in his little school manual. Its principle is very light work, slow movements and intermediate rests, associated with long, slow, and deep breaths that are held for several seconds. It is against the indiscriminate use of these that I would raise a warning cry. Some of these "mild" (?) exercises cause not only an enormous increase of the intrathoracic pressure, but also of the pressure in the

veins of the head and neck. The danger is evident. It may affect the heart. It may affect the lungs beneficially or detrimentally; beneficially if it is desirable to force the air into all parts of the cells under considerably increased pressure, and detrimentally under other circumstances. It may cause a rupture of the vessels of the inside or outside of the head, but especially of the small delicate ones of the brain.

A remedy that so takes the powers and is so potent for good should be most carefully employed. Many consider the lighter gymnastic performances innocent, but a personal trial by one who is weak and follows instructions to the letter will develop the fact that the remedy is often heroic.

The author of a recent book on this subject, and he is not a physician with a degree, describes a certain exercise for "broadening the chest," which has little or no effect whatever on the chest capacity, but increases the girth of the chest only by enlarging certain muscles, besides increasing the size of the ribs at the site of the muscular attachments. He figures upon the contraction of the large pectoral muscles in this movement and so far he is right, but he forgets that other muscles take part in the work.

Persons with lungs less developed proportionately than the other parts of the organism should practice some exercise for increasing the lung capacity.

It may be laid down as a safe rule that very few exercises expand the chest that call into direct action the large pectoral muscles. All such tend to compress the chest.

"Now, Doctor," he said, as he joined the medical gentleman in the street, "in the case of a man who can't sleep at night, what would you advise?" "I would advise him to sleep in the daytime."

MINISTER (mildly)—I've been wanting to see you, Mr. Kurd, in regard to the quality of milk with which you are serving me. Milkman (uneasily)—Yes, sir. Minister (very mildly)—I only wanted to say, Mr. Kurd, that I use the milk for dietary purposes exclusively, and not for christening. —N. Y. Sun.

THE COST OF THE FOUR PRINCIPAL EPIDEMIC OR INFECTIOUS DISEASES IN CANADA, AND HEALTH LEGISLATION.

FOR preventing the spread, and for the complete suppression, of epidemics, vigilant and prompt action in isolating and closely looking after the first cases is indispensable. Every case of infectious disease has its origin in another case however impossible it may sometimes be to trace back the trail to that origin. It is well known that the terrible epidemics of small-pox in Montreal two or three years ago developed from probably one case, certainly from not more than two cases. Just so it is with every other epidemic wherever known. As Dr. Russell, Medical Officer of Glasgow, puts it: Given one person in a community attacked by communicable disease, and the one tends to become two, the two to become four; or it may be the one tends to become three, the three to become nine, and so on. In all cases you have a tendency to geometrical progression, but the ratio will vary according to the intensity of the tendency in the special disease. This tendency carries the disease from its centre of origin, as the prairie fire licks up the blade of grass and leaps from tree to tree with an ever-widening front. Every sick person is a menace to those who are well. The settler does not awake to his danger when the careless match is thrown down among the dry grass miles away, but it began then, not when the lurid reflection of the gathering fire lights up the horizon.

But small-pox it may be well to note here, as a cause of death, taking one year with another, stands very low down in the list of causes. Either measles, scarlet-fever or typhoid causes now usually more deaths than small-pox, and diphtheria probably ten times as many more. These four diseases, like the poor, we have always with us. Daily, on every hand, we learn of their destructive work. Some boards of health seem dreadfully alarmed at small-pox; and seem to exist almost solely for the detection and suppression of this disease. Destructive and loathsome too as it is in a city without a good Sanitary organization, let us see how its mortality stands as

compared with the more familiar and less unkindly received diseases.

During the year 1887, not a single death from smallpox was reported any where in Canada. In the twenty largest cities and towns there were 51 deaths recorded as from scarlet fever, 140 from measles, 385 from typhoid fever and 1183 from diphtheria. This shows a total of 1758 deaths from these four diseases, in a population of about 700,000; or taking the whole Dominion at the same rate of mortality, and in all probability about the same rate prevailed throughout the Dominion, there were last year in Canada not less than 14,000 deaths from these four common causes.

As evidence of the reasonableness of assuming that the same rate of mortality from these causes prevailed all over the Dominion I find the mortality from measles during the year was 150 per cent greater in proportion to population in the ten smaller of the twenty cities and towns—taking the twenty largest—with a population of about 100,000, than in the ten largest cities, with a population of 600,000, while there was also a larger proportion of typhoid fever in the ten smaller places. From the four diseases together the difference in mortality was proportionately slightly less in the smaller places. Furthermore the statistics in Ontario for many years previous to 1883 showed that these diseases were proportionately more fatal in rural than in urban districts. I do not know how it is in this regard since that year.

Now how many of these 14,000 good lives, cut off at various ages, from 2 and 3 years up to 40 or 50, might have been saved and by the application of our present knowledge of Sanitary requirements? It is reasonable to say nine-tenths of them. All the cases developed directly from a few first ones, probably from less than one-tenth possibly from less than one-twentieth; had these first cases been promptly isolated and cared for, so that others could not have contracted the disease from them

and so that there would have been no contamination from them of the air or the water or the milk supplies, there would not have been from each case as there doubtless was, two, four, ten and perhaps twenty or more fatal cases.

If 10,000 immigrants were to arrive from Europe in ten ships what an acquisition to the country it would be thought to be ; or if 10,000 of our people were to cross over to the United States what a great loss it would be looked upon. And how much per 1,000 has immigration cost? The 10,000 lives that might be yearly saved from death from these epidemics, would be worth vastly more to the country than 10,000 foreigners. Yet hardly a thing is being done, hardly a rescuing hand stretched out, to save this multitude of men women and children, many of them, especially of the victims of typhoid, the best lives in the country. True we have three or four provincial boards of health. We find notwithstanding that most local boards throughout the country report from year to year to the Provincial board, when they report at all, that the public health in their locality is good—good, notwithstanding these 12,000 to 15,000 deaths from these easily preventable diseases—representing probably a quarter of a million of cases of the same—millions of days of weary sickness and suffering, and many millions of lost dollars, in loss of valuable time, medical attendance, medicine and nursing. Yet this is but a small part of the loss to the country from preventable disease. The diarrhoeal diseases, which destroy such multitudes of young children, are also preventable. Consumption, which causes more deaths than any other disease, is, too, quite a preventable disease. So are many others in the list.

Our taxes are lamented ; but think what a tremendous tax inattention to Sanitary requirements entails. As Dr. Broundel at the late International Congress of Hygiene at Vienna said :—Has it not been said repeatedly that nothing costs so dearly as an epidemic? Is it not true that a malady which kills one or two thousand persons every year strikes, from an

economic point of view, a population more cruelly than the taxes, which might have spared the lives of several thousand from 15 to 25 years old, cut down at an age at which they have cost so much and returned so little to their state? And this tax, this drain of human life and millions of money, will go on in Canada until there is some practical central responsible body provided, with the sole object and with the means of suppressing it.

The more centralized a Sanitary authority is the better. If it were possible to have but one such central authority for the whole civilized world it would be far better for the public health everywhere. Our neighbors south of us have learned that a central power at Washington is indispensable to the health of their country and a bill is now before the Senate for the establishment of a sub-department of health under the direction of a commission.

On another occasion. I shall endeavor to show why Canada will never be at the height of her prosperity until provision be made for a like central authority in connection with the Federal Government, and how it may be practically accomplished. Education and some investigation are as much needed in health subjects as is compulsion. If there be no other way in which to educate the people and awaken them from their apathy in regard to health matter, a missionary spirit should be aroused and a sort of home mission organized, and eloquent men engaged to go out and preach the gospel of health.—From the Empire : by the Editor of the Health Journal.

CONGRESS at its late session resolved that all animals affected with tuberculosis should be condemned as unfit for food. This is sound sense, says the American Lancet, but we should have thought still better of Congress if it had made such arrangements that, at least in the great meat-markets of the country, this doctrine were practically executed.

FEDERAL v. PROVINCIAL SANITARY LEGISLATION.

ALTHOUGH, as I have stated, there are in the Dominion three or four Provincial Boards of Health, Canada as a Dominion has no special provision whatever for promoting the public health. In this she is behind almost every other country, even such as Brazil and Japan. To most legislators whose thoughts and time are chiefly occupied with such questions as railways, colonization and trade, the subject of the public health may seem to be of little consequence. But who will contend that a department of health, or a sub-department, say, in connection with the Federal Government, is not just as essential as almost any one of the present departments? What greater necessity is there for a Federal Department of Justice or of Agriculture? Why could not the affairs of these branches of the Government be left in the hands of the provinces, just as well as matters concerning the Public Health? If anyone will give the subject sufficient attention, he will be very likely to come to the conclusion that no branch of the Public Service needs more to be centralized than that of Health,

I would not, by any means, take from the provinces all authority in relation to health matters. But I say the Canadian Government is or ought to be responsible for the preservation of the health of the Canadian people, and for the country's credit, it should adopt such measures as would secure to all the provinces the best sanitary condition for the preservation of health and life. Not long ago I observed in an English periodical, in some remarks on the low death rate in England, a reference to the high mortality in the "Colonies," and a reminder to emigrants that in leaving Great Britain to live in the "Colonies" they exposed their health and life and the health and life of their families to proportionately greater risk.

The mortality in the cities in Canada is largely in excess of that in the much larger and more densely populated cities in England. The infantile mortality here is something dreadful—something to be ashamed of; while our death rate from

zymotic diseases averages about double that in England. How can any country reach the highest point in her prosperity with such a state of things? How can she reach to even a high point, to say nothing of the highest, with from 20,000 to 40,000 more deaths every year than there should be? The country is undoubtedly fairly, and probably substantially, prosperous. Some people question this; and much is said about our enormous debt and high taxation. As I wrote in a former paper, think of the enormous tax arising from preventable sickness and death. Why, with efficient practical sanitary work, enough could be saved by it in a few years to pay off the national debt.

I shall now endeavor to show why it would be much better for the control of the public health to be under Federal authority. The foundation for good Sanitary organization lies largely in a system of mortuary and other health statistics. By these the place and course of epidemics are learned, as also, is any prevalency endemically, in any locality, of infectious diseases, which might spread and become epidemic. The Province of Ontario might make provision for obtaining such statistics, and obtain them satisfactorily from within the Province, and act upon them. Just across the border of the Province in Quebec or Manitoba, however, there might prevail endemic or epidemic disease in communities having direct intercourse with communities in Ontario. About such disease, Ontario could learn nothing except that it might do so through the Quebec authorities. Again, vaccination might be efficiently practised in one Province and neglected in an adjoining one. Insanitary conditions in regard to drainage, sewage, waste refuse or water supply, ready to explode at any time from the igniting touch of a case of malignant infectious disease, might exist at the border of one Province to the great danger of the one next to it, which would be practically helpless in preventing a catastrophe.

True, the same difficulties are now encountered in relation to the Provinces and the adjoining states. But we cannot

remedy this very well in the present circumstances. This but affords evidence of what I stated in a former paper, that it would be better for the public health if there were but one centralized Sanitary authority for the whole civilized world.

Then again, for the investigation of causes and sources of disease—milk and water supplies, foods, animal diseases, etc., a hygienic laboratory is indispensable. One such would be quite enough for the Dominion and could so be made much more efficient than could several Provincial ones, and at much less cost to the people.

Furthermore, for efficient Sanitary progress it is essential that the people be educated up to a sense of the desirability and value of attending well to Sanitary measures. With one hand, authorities must educate, and with the other, gently force the negligent to keep up in accordance with their knowledge; or in other words, the authorities must make judicious health laws and then require the people, by compulsion if necessary, but by education first, to follow or keep these laws. In a large measure this education must obviously be accomplished by means of published periodical reports, weekly, monthly or quarterly, of the health statistics which have been collected and compiled. As already stated, these can only be satisfactorily collected by and for the Dominion as a whole. Any further education is usually accomplished by means of the free distribution of brief pamphlets or leaflets containing directions for avoiding and preventing certain infectious diseases; or on disinfection in general, &c, or by posting up in public places of certain suggestions, rules and regulations. Now all this can be done with much less cost to the people by one central body than by several provincial bodies.

Port quarantines have been kept under the authority of the Federal Government. So it appears have been measures for the suppression of diseases of animals. Was this because the spread of these diseases was regarded as of more consequence than the spread of more diseases of the human body? Certainly it

were better that all disease, of whatever sort, in man or animals, should be dealt with by the same authority.

Now can any man give a single reason why special legislation by the Federal Government for the better promotion of the public health in CANADA should be delayed from year to year? Surely it does not suffice to say that health legislation rests with the provinces. It cannot be possible that it is entirely or irremediably so. Better, I repeat, that the postal service, or the administration of justice, or even the customs, were under provincial authority than that matters relating to the public health were entirely in that way.

The commencement of a foundation for some practical public health work was made five or six years ago by the Federal Government, in providing for the collection of mortuary statistics from the principal cities and towns in the Dominion. These might with but little difficulty be made sufficiently accurate—as accurate as any statistics can be, and be extended to more centres; with the provision at the same time for reporting at short periods of the existence of any epidemic, or cases of outbreak of infectious disease. On an early occasion I should like to endeavour to show that this could be carried out with comparatively little cost, and that this would be practically all that need be demanded in the way of Health Statistics in the interest of the public health in this new and constantly developing country for a long time to come.

THE PUBLIC HEALTH SERVICE IN SERBIA.

I will close this paper by noting the condition of public health legislation and service in Serbia, a young member of the community of nations; from the Boston Medical and Surgical Journal:

In Serbia, there is a "general sanitary council" of seven doctors, constituting a scientific consulting body for the State; its duty is to study and regulate measures adopted by the "sanitary department", whose functions are executive. The "sanitary department" is under the authority of a surgeon-general with an inspector-in-chief, secretary, two chemists, and a vet-

erinary ; its sphere comprises everything relating to health, including even the food of the people ; obligatory rules in regard to the diet of workmen are numerous and minute.

The national administrative *cadre* is paralleled by the medical. The *préfet*, or departmental governor, has the aid of a doctor, correspondent in grade, and nearly as well paid ; the heads of districts and communes have, likewise, medical advisers receiving the same salaries. Midwives and veterinaries are subordinated to this "department." In each town of importance the physician has a right to form part of the municipal council or board of aldermen.

The country is, therefore, as to hygiene, in the hands of medical men—a national board of health, with proper sub-officials—empowered to inspect and dispose all things concerning the physical well being of mankind and of domestic animals.

By way of illustration : Every child must be vaccinated between the third and twelfth month ; again when leaving the primary school ; and once more when twenty-one years of age. This operation,

free and compulsory, is performed from May 1st. to September the 30th. under superintendence of the *préfet* and departmental surgeon, in presence of the mayor. The proper medical officer must inspect inhabited houses, and remove causes of illness arising from poor food and water, defective drainage, and from customs relating to births, burials, etc. Buildings where there are contagious diseases have descriptive labels affixed. Strict and detailed directions exist to stop the progress of infectious maladies, both on the frontier and throughout the kingdom. In this newly-formed European commonwealth, however, the function of the departmental doctor is to trace how marriages are made, if they produce hereditary affections, what is the average number of children to each union, and whether there are limiting causes. Under penalty of disciplinary punishment, the medical officer is to obtain from the *préfet* measures to abolish, in workshops and private houses, "everything that may injure health."—By the Editor, as published in the Empire.

TWO NOTABLE OUTBREAKS OF TUBERCULAR DISEASE IN COWS.

THE principal facts in regard to the remarkable prevalence of tuberculosis in the Orono herd, as given by Dr. Geo. H. Bailey, Secretary and Veterinary Surgeon of the Board of Commissioners for Maine on Contagious Diseases of Animals, in a Report to the Legislature, are as follows ; from the second Annual Report of the State Board of Health of Maine :

Early in March, 1886, Dr. Bailey was called to inspect the College herd, which then numbered fifty-one head, and came to the conclusion that a large proportion of the animals was suffering with tuberculosis.

"The result of subsequent examinations and consultations with the State and College officials, and finally with Dr. C. B. Michener, who was detailed for this service by the Commissioner of Agriculture at Washington, culminated, as is now well

known, in the condemnation and destruction of the whole herd."

"At the time of my first visit I found the buildings in which the cattle were contained were among the best and most commodious I had ever visited, and that every provision for the maintenance of perfect health among its occupants had been fully and amply secured. An abundance of sunlight and pure water, scrupulous cleanliness, sufficient and wholesome nutrition, thorough drainage, and ventilation so perfect that the air was almost as pure inside the barn as out ; all contributed to the uniformly fine appearance of this high-bred herd, which proved so deceptive (upon further investigation) that, had it not been for the persistent and pathognomonic cough by which they, one by one, betrayed their real condition, I should have much doubted the correctness of my decision. The

rough coat and arched spine, the difficult and labored respiration, the sunken eye and pendulous abdomen, with extreme debility and emaciation, were nearly all absent in this herd; the judicious attention to hygiene, and the untiring care-taking of their faithful Superintendent, accounting in a great measure for the slow but sure development of the disease, a circumstance that so long deceived the attendants and College officials themselves as to their true condition. Many of the animals were also pregnant, and it is a well-known fact that increase of the tubercular growth is then held in abeyance, the energies of the nutritive processes of the body being diverted to the nourishment and growth of the foetus, while after parturition the system is for a time debilitated, and rapid extension of tubercle is favored. Individual members of the herd were of great excellence, several cows having 'butter records' of sixteen pounds per week, while one hundred and fifty pounds of 'gilt edged' butter was being sold in Bangor market weekly. About ten days before my visit, the Jersey cow Pet, No. 40, P. M., fourteen years old, had become so emaciated that she had been killed, and lay frozen in the field adjoining the stables, and this cadaver furnished me with ample opportunity to verify my diagnosis. From this cow I obtained the lungs, and a cross-section of the pulmonary tissue revealed the presence of numerous yellow tubercles, large and small cavities filled with a mucopurulent mass, others with caseous material. The lungs presented the identical lesions afterwards found in most of the animals at Orono, and of the peculiar metamorphosis which tubercles undergo, those of caseous degeneration afford the most favorable conditions for infecting the expired air of the diseased animals. At the time of my second visit, March 12th, from among ten or twelve cows I had previously ordered isolated from the others, I selected two Jersey cows, Princess Alice, No. 44, P. M. and Princess Alba, No. 27, P. M. (the latter I then regarded as a typical case), and had them destroyed for the post mortem examination. Princess Alba had

a temperature of 103 3-5°, marked emaciation, and dullness on percussion over the right lung, while auscultation clearly disclosed humid crackling or gurgling rales. The autopsy revealed an extraordinary amount of disease. The lung, pericardial, and pleural membranes were loaded with deposit, which hung like bunches of grapes, exhibiting a perfect case of what is known as "angleberries." In some part there was scarcely a remnant of proper lung-structure detectable, while others contained large tubercles filled with caseous material and also cavities connecting with bronchia, whose contents had been expectorated or absorbed. The bronchial glands in this case had attained enormous dimensions, the thymous weighing several pounds, and altogether the lesions were as extensive and varied as in any subsequent autopsy. The lungs of Princess Alice were studded with miliary tubercles scattered throughout them, while the bronchial lymphatic glands contained calcified material that grated under the knife when attempting to cut it. Mr. Gowell wrote me on March 20th: 'There is not a very marked change in many of the cattle, but in others, particularly those isolated in the stable, the process of 'wearing out' is going on actively, and every day's developments go to sustain my conviction, and opinion expressed before notifying the Board of Commissioners that the entire herd was doomed. Unpleasant as it was, I was forced to recognize the truth.'

"On April 6th, the Commissioners met with the Governor and Council, at Orono, when the herd was again inspected and final action recommended at an early date. I then suggested to Governor Robie the propriety of requesting the Hon. Norman J. Colman, Commissioner of Agric. Iture, at Washington, to send Professor Salmon, or some other expert examiner from his office, to consult and advise with the Cattle Commissioners, as to the proper disposal of so valuable a herd. The request was promptly complied with and Dr. Ch. B. Michener, Professor of Cattle Pathology and Obstetrics, at the American Veterinary College of New York, was detailed for this service."

“Dr. Michener arrived April 21st, and on the 22d and 23d, after a careful and critical examination of every animal in the herd, it was found necessary to condemn them all, when they were forthwith expeditiously and humanely killed, and the post mortems openly made in the presence of the Governor, prominent physicians, stock-owners, reporters and others interested, the autopsies in every instance revealing the fact that the disease had been correctly interpreted, and that every animal presented unmistakable lesions of tuberculosis.”

The following extracts from the post mortem notes are given to show the character of the pathological changes which were found. Though a few are chosen as having presented points of special interest, the selections are pretty fairly representative of the whole lot. (No. 1.) Pansey, I. Cyst in centre of left lung. Apex affected, right filled with miliary tubercles. Age 8 years. (No. 2.) Mildred, 1. Adhesions of both lungs to costal pleura, badly affected. Age 5 years. (No. 3.) Hyacinthe, 1. Both lungs affected. Tubercles in right. Age 4 years. (No. 5.) Helen Hart. Both lungs and mammary glands affected, so that her milk was tainted. Age 8 years. (No. 6.) Helen's Calf. Affected with miliary deposits in both lungs. Age 8 months.

The investigations which were undertaken by Dr. Bailey for the purpose of tracing the origin of the disease brought out the fact the development of the outbreak had not been so sudden as the public at first supposed. It transpired that as far back as 1876, ten years previous, there were cases of tuberculosis developed upon the College farm, and that occasionally since then, animals have died of chronic lung trouble or, having been slaughtered on account of a wasting disease, have been found to present the post mortem appearances of tuberculosis. Before the notification of Castle Commission, there were thus lost from the College herd seven cows from 1881 to 1886.

The following history of an outbreak of tuberculosis which occurred at the Willard

Asylum, Willard, N. Y., from the Medical Record of Jan. 15, 1887. “During the fall of 1883 tuberculosis broke out in an acut form in the asylum herd, which consisted of about one hundred head of milch cows and forty head of young stock, most of which were of Holstein blood, and with the exception of a few head, all were in excellent condition and thought to be in perfect health. During the summer months, however, a number of the cows were noticed coughing, which attracted some attention, but nothing of a serious nature was suspected until late in the fall, when those that had been noticed coughing began to emaciate, presenting in general a very bad appearance; the hair seemed dead, having lost its gloss, standing erect, cleaving from the skin. Their eyes were sunken and presented a heavy appearance. The animals did not move about, and usually lingered behind on going to and from pasture, and if hurried, they seemed exhausted from want of breath. My attention was called to them. . . and finally, it was thought best to kill one of feebler ones, and ascertain the true nature of the disease.

“Case I. The animal chosen for examination was eight years old, of Holstein blood, and one year previously would have weighed 1,200 pounds. On post-mortem, the animal was found highly tuberculous, and there seemed to be no organ in the body free from the disease. The lungs were voluminous and double their normal weight. They were completely adherent on either side, and the left lung on section seemed to be a mass of tubercular deposit. Small vomica had formed in some places, in other places the deposit was calcified, and in still others, cheesy. The bronchial glands were three to four times their normal size and degenerated. Numerous tubercles the size of hazel-nuts and smaller were found upon either surface of the diaphragm, and the liver was found at least three times its normal size and contained large masses that would equal in weight several pounds. On cross-section it revealed large cavities filled with a muco-purulent mass. The bowels were

covered with tubercles, and in a state of sub-acute inflammation. All the abdominal organs were more or less affected, also the milk-bag, which contained several large deposits, some of which were calcified, and others softened and in a semi-purulent state. All of the glands throughout the body were enlarged, and in places degenerated.

“ Many of the diseased animals remained in the herd for several weeks, when the herd was again examined by myself. I found that those that only a few weeks previous were considered doubtful had now developed positive symptoms of the disease, and still others were found that seemed quite suspicious. The bull, a full blooded Holstein, at this time appeared to be failing in flesh, but manifested no positive symptoms.

“ On May 22nd and 23rd, twenty-eight of the most advanced cases were killed. On examination all were found affected, but not all to the same degree. The organs principally affected were the serous membranes, the lungs, liver, bowels, and the milk-bag in many cases. A number of them were affected to an equally great degree as the two cases already reported. Examination was again made of the herd on June 10th, and others were found manifesting the usual symptoms: the bull was again examined and it was very apparent that he was affected, although he had not manifested any cough, but he was rapidly losing flesh. He was then weighed, and was found to weigh 2,456 pounds. He was again weighed on July 10th, and his weight was then 2,290 pounds: and as at this time it was very evident that he also was affected, it was decided to kill him. On post-mortem we found a large deposit in the central portion of the left lung, and numerous small tubercles upon the left pleura. The bronchial glands were greatly enlarged, and on cross-section were found calcified.

“ Leaving the herd at present, I wish to call your attention to the calves that were born during the winter and spring of 1883-84. Writers tell us that it is not an unusual occurrence for animals well advanced in tuberculosis to abort. This

seems to be true, as such was the case in this herd. I observed that eight calves were prematurely born, two of which required assistance at birth, as the mothers were much exhausted. One of the two that were removed was in about the eighth month of gestation. The foetus on examination was found saturated with tubercles, some of which were as large as peas, and on drawing a knife across them they were found calcified. Tubercles were found in the liver, bowels, diaphragm and chest-wall; there being none observed upon the lungs. The mother of this calf was killed some weeks afterward, and was found highly tuberculous, the disease being well advanced to the third stage of suppuration.

“ No. 2 was from a diseased mother, also in about the eighth month of gestation. On examination I found the liver, diaphragm, and bowels quite thickly studded, but the tubercles were much smaller than in the preceding case. Of the other six prematurely born, I was able to examine only two of them, as the other four had been destroyed before I was acquainted of the fact. One of the two, however, that I did examine, was found to have a tuberculous liver.

“ During the winters and springs of 1883-84 and 1884-85 fifty-three calves were born to the herd, and each one was examined, with reference to the disease. Twenty-nine of the number were found tuberculous in some of the viscera. The greater number of the calves were killed within five weeks after birth, and the whole number before the expiration of four months. I will only call your attention to the most interesting cases. One calf killed at the age of five weeks was found highly tuberculous. The liver was double the normal size and covered with tubercles. On cross section it was found to contain a large vomica, filled with at least one pint of fluid of a muco-purulent character. Tubercles were also found upon the pleural face of the left lung: also an extensive deposit in the apex of the same lung. The mesenteric glands were enlarged and cheesy. The bowels were thickly studded and in a state of subacute inflammation. This calf had suffered from a severe

diarrhoea for several days, and had failed considerably in flesh.

“The mother of this calf was killed shortly afterward, and was found badly diseased. Among the organs affected was the milk-bag which contained a large tuberculous abscess. In this case does it seem possible for the disease to have been acquired wholly after the birth? To my mind it does not seem possible that the disease could have developed with sufficient rapidity to have produced an abscess of the liver in such a limited time. However, I am of the opinion that the intestinal lesions were produced, to a great extent, from the milk of its mother, as undoubtedly the milk must have contained elements of the disease.

“In another calf, seven weeks old, the left lung was adherent to the chest-wall at the apex, where there was a large tubercular deposit. Also there were many small tubercles upon the lungs and in other places. The liver and bowels contained many tubercles the size of peas, and on cross-section were found in a state of cheesy degeneration. In the remaining cases the lesions were not as marked, but the disease was none the less apparent.

“You have now the history of the herd up to June, 1884, and we find that nearly one-half of the herd of milch cows has been disposed of, all that were supposed to be diseased having been killed. The remainder of the herd were observed from time to time, and examinations repeated every twenty or thirty days: and upon each examination new cases were discovered, which were immediately removed from the herd, as it was thought they could be fattened and made use of.

“The sorting out and feeding continued for several months, and at the time of killing many had not gained at all, while others had taken on considerable flesh; but upon killing only five were found fit for use, and four of these were slightly diseased in some of the viscera.

“During the spring of 1885 a number of young heifers in with calf had been kept upon another portion of the farm. Before putting them with the old herd they were

examined, and many of them were found diseased. It was deemed advisable to kill them. The calves of these heifers were all diseased. The remainder of the young herd were put with the remaining portion of the milch cows, and the combined herds now numbered about forty head. The examinations were still continued from time to time, during the summer and fall of 1885, and occasionally one was found manifesting the usual symptoms of the disease. This procedure was continued until the spring of 1886, when it was thought advisable to feed the remainder of the herd. During the past summer all were killed except ten, which have been killed during the past month, and, in nearly every case, disease could be found in some of the viscera, and some badly diseased. The specimen that I wish to show you is a very interesting one, inasmuch as it shows that one is not able, at all times, to tell whether or not the animal is diseased. You will observe that the disease, in this case, is confined wholly to the bronchial glands, there being no other organs affected—that is, as far as I have been able to determine. Auscultation of the lungs in this case revealed nothing abnormal, and the superficial lymphatic glands, were not enlarged, and the animal had not manifested a cough. The bronchial gland, in a healthy cow, is about four or five inches long, about one inch wide, and one-half inch in thickness. Here we have a specimen, removed from a Holstein cow nine years old, in which we find the gland is about ten to twelve inches in length and nearly six inches in thickness. This, on section, we shall find in some places calcified, and in others cheesy.

“The only possible objection that could be raised regarding the care of these animals was that of ventilation. The stables were kept scrupulously clean, being washed out daily, and there were no cesspools about the barns or yards. The barns are situated upon a side-hill, thus affording the best possible drainage.

“Their food was of the best of hay, corn fodder, bran, and vegetables.

OVER POPULATION AND FOOD SUPPLY.

A DISTINGUISHED savant and social reformer, Prince Krapotkine, has been recently, according to the Boston Herald and New York Medical Times pointing out possibilities of soil cultivation and production which should calm those who have fears of over population—of excess of consumers over possibilities of supply; who even, sometimes, question the wisdom of efforts to save and prolong life, and who pronounce war on a large scale to be one of the necessary and effectual among the “preventive checks” opposed by Providence against the otherwise inevitable overgrowth of population beyond the means of subsistence. Remove it they say, and the disturbed balance will have to be redressed in some way perhaps still more terrible. “Progress in medicine and sanitation—improvements in arts and manufactures—colonization of the darkest regions of the globe—the widest spread of unrestricted commerce—all the blessings, in short, which the most advanced civilization can carry in its train—will only add to the burden of misery ever weighing upon the masses of mankind, if these are to go on multiplying as at present, without a corresponding increase in their power of food production.” Any means which shall be discovered towards fulfilling the latter condition—making waste places to blossom as the rose, and vastly increasing the productive capacity of the area at present under cultivation, must therefore, says the New York Medical Times, be hailed as infinitely more important than all labor-saving inventions put together.

As an illustration of the productive capacity of the earth under proper treatment, the prince gives a number of instances borrowed from the experience of market gardeners in the country districts around Paris, where the soil, even in the hands of relatively ignorant men, has been utilized so as to be enormously productive.

He refers to one farm of 27 acres in extent, from which there are annually taken 125 tons of market vegetables of all kinds. The farmer in this case—and he is but a sample of his class—has found out a part of the secrets of nature, and, as a consequence, has his little farm constantly in a productive condition from Jan. 1 to Dec. 31. He and other market gardeners around Paris make their soil, and Prince

Krapotkine says it does not in the least matter what the soil is from which they originally start, for a French market gardener would in two years time raise an abundance of vegetable products from an asphalt pavement as a foundation. He goes on to speak of one French gardener, who has covered over a half acre tract of ground with a glass roof, and has run steam pipes, supplied by a small steam boiler, at intervals under the ground thus sheltered. As a result, he has been able for ten months out of every year to cut each day from this little tract of ground from 1,000 to 1,200 large bunches of asparagus; that is the productive capacity of his land has been increased more than a hundred fold. Even this result has been surpassed by an English gardener, who has entered into the cultivation of mushrooms.

Prince Krapotkine maintaining that, even at the present time, with their only partially instructive methods, the French gardeners could easily raise enough both in animals and vegetables, to supply all that would be needed for the sustenance and protection of life at the rate of 1,000 human beings to the square mile; or, in other words, under a method of intense and properly directed culture, it will be easy for the State of Massachusetts to sustain within her own borders a population of not less than 9,000,000 human beings, and this be it remembered, is but the beginning, for no one knows the limit to set upon the productive capacity of the soil.

Taking his statement as a basis, it is easy to see that assertions concerning the present congestion of population refer rather to the lack of knowledge on the part of mankind, or to vicious laws restricting the distribution of land than to what might be termed natural obstacles. Great Britain and Ireland have, by the last official estimates, a population of 37,000,000 souls; but, on the basis of sustenance given by Prince Krapotkine, the land area in the united kingdom, throwing out one-sixth as mountainous and hence unsuited to agriculture, ought to be able to support, without importation from abroad, quite 100,000,000 human beings; on similar estimate, the United States has the natural resources needed to sustain a population of fully 3,000,000,000, or twice the present population of the entire world; while Canada could sustain at least as many more.

HANDSOME DOES THAT HANDSOME IS.

JUST how long the saying (it may be so antiquated as to have become an adage; it is not an axiom) that "handsome is that handsome does" has been quoted, is probably not on record; nor who first said or wrote it. Nor have I ever heard its correctness questioned. Yet, while it appears to serve an excellent and useful purpose in consoling the unlovely and ill-formed, it never was designed nor said for the promotion of good looks. And while it contains much truth, it is allegorical, and only correct to a limited extent; and it has done, doubtless, more harm than good. The heading of these few observations, "Handsomeness does that handsome is," can be shown to be at least a more scientific rendering of the words than the older form; and I contend, if acted upon, will have a more exalting and happy effect upon the human race.

There are women, it is true, many, with unlovely form, perhaps of ugly face, who do and say such nice things in such a charming way that they are regarded as being handsome. Their want of physical beauty is over-balanced by their mental attractions. But there are not many such. On the other hand, there are very handsome women whose words or doings, almost all perhaps, tend only to evil—evil, it may be, of the worst kind. But it will probably be generally conceded that there are a much larger number than of either of the above class of unnatural women, handsome ones whose words are above the average in real goodness. And if many who are of unlovely form and feature are noted for being good, true and adorable women, their goodness is probably in a measure acquired; it is less natural to them than to the more perfect creatures, requires the exercise of greater effort on their part, and probably, in proportion to their temptations to evil, more self-control. The evil that is found in the few of the more beautiful is owing, not to their beauty of course, but largely to the state of society and the comparative scarcity of really handsome women—beautiful in

form and feature, and to the adoration which society usually bestows upon them.

The comparative rarity of beautiful women, enables the few to exercise great power, and they are, alas! too often unable to resist the temptation to make use of this power, so easily exercised, in order to gratify their many desires, often too much indulged and pampered from the cradle.

What I contend is simply this: while not believing that mental action is merely brain function, it seems clear that, as the brain is the organ of the mind, a highly organized brain is absolutely essential to a high degree of mental development, as a good and well-tuned instrument is essential to good music. And while a brain of great perfection is not infrequently found in a human being of unlovely form, few will deny that, if we desire to cultivate a race with mental organs and endowments of the highest order, we can only succeed in our efforts by cultivating into as great perfection as possible, in every respect, along with the mental faculties, in each individual, the whole physical organism,—that is, by making the whole body, the limbs, the head, the face, in every part, in every case, perfect and beautiful, while at the same time we cultivate the mental faculties.

It must ever be remembered, however, that while we seek to cultivate a creature of beauty, in all its parts, from crown to sole, even in facial expression, we must not make this—the handsome body—the "handsome is," the ultimatum, the chief aim, but we must cultivate the body with the view and purpose of developing through it a handsome mental display—the "handsome does." M. R.

The famous Boerhaave thought that more people could be cured by climbing a bitterwood tree than by drinking the decoction of its bitter leaves. Again, another old-fashioned doctor has declared that sawdust pills would be found an invaluable remedy for dyspepsia, if the patient were compelled to make the sawdust.

A VALUABLE PAPER ON FOODS AND DIGESTION.

IN the Dietetic Gazette is the following valuable paper by Sarah E. Post, M. D., of New York. In view of the prevalence of kidney diseases and also diseases of the liver and nervous system, it should be widely read and receive much attention in practice:—

Having detected this condition, [one predisposing to kidney disease], I would like to consider the question of prophylaxis. Dr. Fothergill has, more than any other writer, insisted upon excessive meat eating as the predisposing cause, basing his argument upon the growing tendency to gout and Bright's disease among the English, associated with their flesh-eating propensities and the work imposed upon the kidneys and liver. Voit tells us that the adult may maintain nutritive equilibrium upon a diet of proteids, water and salts. The advisability of such a diet is, of course, another matter. Of the proteids taken as food, a small portion only is appropriated to the growth and repair of the tissues. The remainder is immediately split up into a nitrogenous constituent, such as urea or one of its allies, and a non-nitrogenous constituent, such as sugar, fat or something else. The latter may be oxidized or stored up, it is useful; the former is on the contrary poisonous, it serves no purpose, it must be excreted at once. Voit tells us that the amount of urea rises during the first hour after the ingestion of food, and on a pure proteid diet it may amount to ten and fifteen times the amount which tissue waste requires. In the face of these facts we are forced to the conclusion that where the kidneys require shielding it would be better to limit proteid food to the amount required for repair and growth and to supply carbonaceous food under its own form. Why impose work by giving a complex food where the simpler food is required? We have seen that the extra nitrogenous food serves no purpose but that of its carbonaceous constituent, that a process of analysis must be performed in the body before this can be liberated, and that a waste product is also the result,

which must be eliminated. If we care for the kidneys shall we not cease requiring from them this apparently useless work?

In the third place I would like to call attention to the question of digestibility as applied to the proteid foods. However well arranged our dietary, a certain amount of nitrogenous surplus will be probable in every case. It will be impossible for us to estimate exactly the body's needs. The appetite, too, will have to receive consideration. How shall we manage this surplus so as to give the kidneys the least work? The waste of the body is supplied to the kidneys little by little. It is possible that we may safely imitate this method. It is possible that the kidneys would be thus less embarrassed than if asked to do the whole piece of work at once. This is something that we hear little about. The great cry is for easily digested food, pre-digested food, etc., something that the absorbents can take up. The whole business of therapeutics upon this point is apparently to get the food out of the alimentary canal. Its later vicissitudes are apparently uncared for and indeed unknown. Yet we are told that absorption is a mechanical matter. Having an exceptionally good digestion, or having the food pre-digested, why might not one absorb enough to embarrass the economy? . . . The food which chokes the liver is all regularly digested and absorbed. If in a bird (in feeding for that delicacy, *paté de fois gras*) digestion can outrun assimilation, why not in man? The appearance of many men and women suggests a parallel case. The fact that food is easily digested is no sufficient proof that it is required. Voit says that peptones are rapidly absorbed, that within an hour they appear as urea in the urine, that they do not serve the office of albumen in the economy, but that they are entirely eliminated within a very short time. Our present system of feeding on easily digested proteid food simply floods the system with excrementitious material. Without completely interdicting proteids, can this flooding with

excrement be avoided? Possibly, perhaps, by feeding the invalid a little at a time, at frequent intervals, and by the supply of proteids not so very easily digested to persons in health, the requisite degree of indigestibility depending upon the digestive power. From four to six hours can be allowed for each meal's digestion. There are people whose urine is loaded with urates, and yet who are hungry at the end of two hours after food. When we are puzzled to know what to do with such a case, suppose we try giving them food which cannot be digested so soon. This is merely in the way of suggestion, but it would certainly appear as though such a protraction of the process of digestion would give the liver and kidneys their best chance for a successful work.

Further, apparently, such a protraction of the processes of digestion and elimination best serves the nutritive needs of the economy. It would appear as though the tissues even preferred the scantier and more constant supply. A lady who has travelled extensively tells me that upon her home breakfast of steak or chops she becomes hungry before the noon stop, and that she has had to depend upon ham, hard-boiled eggs and other food, all called unhygienic and indigestible, when upon the road. Also, I understand that birds who live upon grass seed perish during the storms of the plains, when every source of food is buried by the snow for days in succession; while birds who live upon the larger grains will survive. Upon a cold winter's evening the farmer does not feed his hens upon corn meal and water nor upon wheat siftings, but upon whole corn, which will be digested very slowly and will continue to furnish a supply to the system through the night. The laboring man acts upon a similar plan. In spite of recommendations in regard to soft-boiled eggs, broiled steaks, farinaceous puddings and rare roasts, the workingman prefers and demands what he calls hearty food. This means usually hard-boiled eggs, fried steak—the harder and crisper the better, pot roasts, well boiled down,

corned beef, pork, baked beans, not too well done, potatoes with a core, suet puddings, and pies. Apparently hearty food means food which will remain a long time in the stomach, digesting slowly. The man who works out of doors requires a meal which will "stay by him" from his six o'clock breakfast until his dinner at noon. The reason for this is perhaps not difficult to find. The body is an engine for which the stomach is the coal-box. He would be a bad fireman who would empty his coal-box into his furnace all at one time. He would get up a rousing fire undoubtedly, but if he had to wait six hours before replenishing his coal-box his engine would probably come to a standstill on the road. The wise fireman puts in a little coal at a time and replenishes often. If one has six hours between meals, and continuous effort to provide for, it would be poor policy to put into the stomach food which would digest completely in two hours' time. The laboring man will never agree to such a reform. His present diet is suited to his needs. Even the frying process cannot be logically objected to.

Digestible and indigestible are relative terms. The rating of food depends upon the stomach to which it is to be applied. What is indigestible for one stomach is digestible for another. What is simply digestible in one case is too digestible in another. Food may be too digestible for the traveller, for the worker and for the poor man who cannot afford frequent meals. It can be so digestible as to leave one hungry at the end of two hours and faint at the end of four. It can be too digestible for a diseased liver and kidneys to take care of. Plain food does not mean more easily digested food in these cases. It is significant, perhaps, that milk, so beneficial as a diet in kidney embarrassment, is not a very easily digested food, not by any means so easily digested as raw beef grated, or beef juice, or peptonoids.

Digestibility is not a complete test of food value. "Pre-digested foods" and "easily digested foods" should be reserved for cases in which the digestion is in fault.

THE President of the Association at this meeting, held at Milwaukee, Wis., Nov. 20, 21 and 22, was Dr. Chas. N. Hewitt, secretary of the Minnesota State Board of Health. His address treated of the condition of sanitary affairs the land over. He called for less red tape and offensive centralised co-operation, and independence of local, State, national health boards. The true function of the national board he deemed to be to facilitate and to cement the independence of State boards, and to provide a thorough national system of sanitary inspection.

The first paper was on 'The Pollution of Water Supplies,' by Charles Smart, M. D., U.S.A. His opinion was that, reduced to its lowest and simplest terms, the question of water supply is this: the raising of sufficient money to bring in the wholesome water, and the investment of the health officer with sufficient power to preserve the wholesome quality of the public supply, and to prevent the use of water from sources which are known to be unwholesome.

Dr. Lee, secretary of the Pennsylvania State Board of Health, sent a paper giving his opinions of our quarantine service formed after a personal inspection. These opinions were:—1. Want of uniformity in quarantine regulations, placing one part at a disadvantage (either commercially or sanitarly) as compared with another. 2. Conflict of authority owing to the methods of appointing officials. 3. Entire lack of appreciation on the part of local legislatures, whether State or Municipal, of the importance of the expenditure of considerable amounts of money in order to render quarantines at once efficient and inoppressive. 4. Tendency on the part of local, civil, and sanitary authorities to limit their responsibility to the protection of their own city, reckless of the consequences which may ensue to inland communities if they permit infection, which circumstances render harmless to themselves, to pass unchallenged to the latter.

Dr. Gray, health officer of Pittsburg, Pennsylvania, accounted for a typhoid fever epidemic and for the fact that the

death-rate on one side of a stream bisecting his city was six per cent. higher than the other, to the fact that the water supply drawn from the Monongahela River was being seriously, steadily, and increasingly polluted by sewage, factory refuse, and by bumboat nuisances.

Dr. Barker, secretary of the Michigan State Board of Health, asked for a more methodical and significant classification of vital statistics.

Harbour quarantine was treated in three descriptive papers by Dr. Frederick Montizambert, of Grosse Isle quarantine station, Lower St. Lawrence River, Dr. S. H. Durgin, health officer of Boston, and Dr. L. N. Salomon, secretary of the Louisiana State Board of Health.

Dr. S. S. Kilrington, health officer of Minneapolis, read a paper describing all the garbage-burning experiments made in England during the past decade, and of four crematories in reasonably successful operation in that city.

Dr. Jerome Cochrane, health officer of Alabama, who has been shut up all summer in the fever-infected town of Decatur, read a paper on yellow fever, which held that the disease is caused by a transportable and transmissible specific poison, the germs not appearing to be bacteria of a generic distinction or kind, the probability pointing rather to a pathologically productive condition of the flora ordinarily resident in the alimentary canal. Infectious and communicable, though probably not by contact but by environment, exotic in this country, non-intercourse is the best prophylactic. Domiciliary quarantine, followed by thorough disinfection, is necessary.

The Lomb Prize was given this year for the best paper on sanitary cooking, the first prize being \$500, and was awarded to Mary J. Hinman, wife of John J. Abel, now resident at Strasburg. There were sixty-nine other contestants, not one of whom was deserving the second prize.

The new president of the Association is Dr. Hosmer Johnson, of Chicago, member of the ex-National Board of Health. The next meeting will be held in Brooklyn, N.Y., in November, 1889.

MISCELLANEOUS NOTES AND SELECTIONS.

DRINK MORE WATER.—A good deal of very much needed attention is being paid, says the Canada Medical Record, by those who devote themselves specially to the subject of dietetics, to the common error made by so many of not drinking enough water to supply the wants of the system. When we think of the quantity of fluid exhaled by the lungs, and secreted by the skin and kidneys, we may wonder how people can get along at all without drinking water. It is true that in most cases a good deal of water is taken with the various forms of food; but at the same time we think that the majority of people take too little water. It is becoming generally recognized that what we call rheumatism and gout, as well as gravel and stone might be prevented, or their evils mitigated by flushing out the kidneys frequently by taking large quantities of either pure or acidulized water. Sir Henry Thompson's work on "The Preventive Treatment of Calculous Diseases and the Use of Solvent Remedies" has reached its third edition.

FOR "BRICK DUST" IN THE URINE.—During a visit which we recently paid to a large sanitarium at Battle Creek, says the Editor of the Canada Medical Record, we noticed that water entered largely into the treatment, both internally and externally, and we had an opportunity of observing for ourselves in the laboratory there that uric acid and the urates almost disappeared from the urine generally within three days. In our own practice we have made it a rule for some years past to order our patients to drink two or three tumblers of water (hot preferred) every night whenever their urine desposited "brick dust" on cooling. It is a fact which must have been observed by every one that the urine of rheumatic subjects is always loaded with urates, and we very much suspect that a great deal of the benefit derived by such patients from drinking the waters at the various springs is in large part due to the quantity of fluid of which they there partake. In some cases the same quantity of water ingested at home would have just as well effected the cure,

USE AND ABUSE OF MILK.—It was Fothergill we think, (Canada Medical Record) who first called attention to the abuse of milk as an article of food, or rather we should say, to using it as a beverage instead of as a food. The truth of his views on this subject have lately been

forcibly demonstrated to us in the persons of several cases of acute rheumatism. They had all been large drinkers of milk and their temperatures were over 103 and the pain was excessively severe when they came under treatment. By putting them on a diet of thin water gruel, suitably flavored, and a mixture of salicylate of soda, in a half tumbler of weak lemonade every two hours until relieved, in every case the symptoms had almost disappeared within thirty-six hours; and the urine which had been dark and loaded at the same time became clear. It seems to us that in rheumatic cases the blood is in a condition of saturation with water coming from the defective combustion of nitrogenous food which ought to, but does not, reach the ultimate stage of urea, and it only requires a local slowing of the circulation, or a temporary cooling of an extremity in order to have a desposit of the sharp pointed crystals in the joints, ligaments or muscles which causes such excruciating pain. It is a fact proved by experiment that certain articles of diet increase the excretion of uric acid; these are milk, cheese, meat and beer, the latter acting probably by preventing other food from being burned, as it burns much easier than they. Some great medical authority of the old school once said that the best cure for rhumatic fever was six weeks in bed, and as the patient was generally put on an exclusively milk diet, that may perhaps have been the explanation. The idea is general among people that the more milk they could drink the better for their health; and so they drink two or three tumblersful of milk as though it were water. The moral of all this is that though milk is one of the best and most nutritious of foods, being indeed the only perfect food, it is the worst possible beverage, being already saturated, and therefore being utterly useless for the purpose of washing out effete matter from the blood.

THE MILK SUPPLY.—Dr. Cyrus Edson, of New York, advocates the examination, by veterinary inspectors, from time to time, of every herd of milch cows, in order to secure the destruction of all animals suffering from tuberculosis, and the quarantine of those liable to cause contagious disease. Prof. Leeds says official inspection should be extended so as to include the pasture, the stall and the dairy, such effort would help to prevent the spread of infectious diseases from cattle to man.

MORF DANGERS IN CONVALESCING.—A young man, married last fall, had pneumonia. His wife was in Minnesota, where he intended to join her soon. A telegram was sent to her and she arrived in season only to see her husband alive. "He seemingly fought against death to see her once more. As she entered the room he rose in bed and remarked, 'I wanted to see you and am now willing to go!'" After these words were spoken he fell back upon the pillow, turned upon his side and expired. As an exchange says: It seems a pity to spoil such an interesting and romantic story, but the fact is that it illustrates, not the power of the mind, (which is sometimes great), in prolonging life, but the peril of physical exertion when life is trembling in the balance. The poor fellow no doubt precipitated his death by rising in bed; and he might perhaps be living to-day, and have missed newspaper fame altogether, if he had kept on his back.

HOW DOCTORS ARE IMPOSED UPON.—This is how the Boston Journal of Health "goes" for those who do not pay the doctor: Not only are the income of physicians, as a rule, smaller than those of men of other professions, notably the legal and ministerial, but even the sums which they receive are grudgingly yielded. It is notorious that the last bill to be paid is the doctor's. Tradesmen's claims are always "preferred." If it happens that the services of an undertaker have been employed, he, too, is among the first creditors to be paid. If anything is left, and there is no prospect of its being needed for any purpose, why then the doctor's bill is considered; but it would be violating old customs were it to be paid in full. A complete settlement, in nine cases out of ten, is only effected after he has deducted a large per cent. of what is due him. Even the most honest of patients seem to have little or no compunction about asking him for discounts, even when they well know that the physician's bill rendered is not only just but reasonable. "The doctor makes his money easily," says the average patient, and full of that belief, he adjusts his sense of right and equity and drives a sharp bargain if he can. It is safe to say that but few physicians in general practice manage to collect more than half of their bills. It is certainly not pleasant to contemplate that a large share of our people are dishonest, and swindle their physicians; and yet such is actually the case. It is doubtful if there is any class of men in business who would be content to receive such treatment. Why, in the name of all that is right and proper, should physicians be

obliged to put up with it? Probably they themselves are, in a measure, accountable for it. Were they more exacting, and making the practice of medicine a trade, insisted upon the full and immediate payment for their services when rendered, their patients would, in time, learn to be honest. Very few doctors would care to take such a course if they could, and yet it is an open question if all concerned would not be better in the end for it.

SEWAGE PURIFICATION—THE MAGNETIC PROCESS.—The Sanitary Record says: We have been watching for some time with interest the development of this process. The method is called the Magnetic Process of Sewage purification, and consists: Firstly, in effecting rapid precipitation of the solids, and deodorization of the supernatant liquid. Secondly, in the removal of the organic matter in solution by passing an effluent fluid through a specially constructed filter-bed of "Polarite." The precipitate and deodorant is called "Ferozone," and the filtrant "Polarite." The chemical compositions of both these materials is given in Sir Henry Roscoe's report. We have made searching inquiries, and the evidence obtainable from very numerous well-qualified authorities—including the inspectors of the Local Government Board, professors of the Army Medical School of Military Hygiene, and many leading engineers and sanitarians—goes to show the great importance of this process, both from an economical and from a sanitary point of view. The effluent produced by at the Acton Sewage Works is admittedly the purest, and the sludge the least in quantity and one of the best in quality yet produced. We note with pleasure, the Record adds, this real and solid step in the march of knowledge in the study of the public health, and look upon it simply as the natural product of the immense amount of attention this all-important subject has commanded, during the past ten years.

BERLIN SEWAGE DISPOSAL.—Mr. Councilor Margraff, of the Berlin Municipality, has written to Mr. Hancock, F.S.S., of London, expressing the utmost satisfaction with the sewerage and irrigation system adopted there fifteen years ago. "The Berlin Sewerage Farms are now beginning to yield a better revenue—even to the extent of giving a profit of two per cent. on the outlay—which I hold to be a very favorable result, considering the very extensive costs we have been put to in the preparation of the land, its levelling, draining, etc. We hope in the future for further favorable and even better successes, and we do not by any means think of giving up our system or adopting any other. I

maintain that our method is the best—nay, for a large town, the only possible one. Deodorization, chemical processes, precipitation schemes, are one and all, when tried on a large scale, hardly capable of being carried out with effect, and are very expensive, too; while as to the resultant sludge, not only is it impossible to make advantageous use of the same, but the mere getting rid of it is a most difficult matter.”

REST FOR WOMEN.—An exchange says: Many women never rest. They seem not to understand what rest, real rest, means. To throw one's self down with a newspaper or book is not rest; it is only a change of occupation. To sit down and keep the fingers flying over some sort of fancy work, as if one were pursued by a demon of unrest, is certainly not rest. But to lie in full length on a hard surface, arms extended at sides, head back, with no pillow, eyes closed, all cares and worries dismissed, this is rest; this will smooth away wrinkles in the face and in temper; this will give an air of repose to the tired, anxious, nervous woman; this will take away many an ache, and straighten out the rounded shoulders and craned out necks.

AN ACTIVE EIGHTY YEAR OLD VEGETARIAN.—Hon. J. E. Weeden, of Randolph, New York, says Good Health, is undoubtedly the oldest vegetarian in this country. From a letter recently received from this gentleman, we glean the following interesting facts, some of which are stated in his

own words: Mr. Weeden is a lawyer, and, although eighty years of age, still goes regularly to his office, and attends to the business of his profession. At thirty he found himself with a strong tendency toward consumption. He abandoned the use of flesh food, tea, coffee and tobacco, and took but two meals a day. He has continued in this course of life ever since. He was the oldest of thirteen children, all of whom, with the exception of himself, and the three youngest, are now dead. He has not had a sick day for thirty years. Mr. W. ascribes, and no doubt correctly, his wonderful vigor to his simple habits.

CONSUMPTION IN PIGEONS—INTERESTING CASE.—Dr. T. W. Mills, Prof. Phys. McGill University, at the meeting last month of the Montreal Medico-Chirurgical Society, exhibited specimens from a tuberculous pigeon, a white Jacobin, bred by himself, which had died two days previously: “The specimen illustrated two principles that seemed to hold in regard to tuberculosis among the lower animals: (1) The extreme rapidity of the process; and (2) the extensive character of the lesions. This bird had been ill only three weeks, and was fairly well nourished at death. The tubercles were very widely distributed, the organs inflamed and bound together by recent adhesions. Owing to enlargement of the organs and pressure the apex of the heart was squeezed to such an extent that it must have become functionless.” Dr. Mills stated that no doubt many birds offered for sale on the market were subjects of tuberculosis.

NOTES ON GENERAL SANITARY PROGRESS.

AS NOTED ELSEWHERE, progress is being made in relation to the treatment and disposal of sewage; the “Magnetic” process giving most satisfactory results.

WORK relating to the examination and registration of plumbers is apparently going on satisfactorily in England, and meetings are being held in this behalf in various towns.

A GREAT SCHEME for the sanitary improvement of the City of Buenos Ayres is now being carried out upon a scale which dwarfs anything which has ever been attempted in any other part of the world. It is proposed not only to connect 40,000 houses to the main sewers which are almost completed, but also to sanitize each and all of these houses within a space of three years. This means that the objectionable arrangements of cesspools and other defective appliances must be removed from

the city at the rate of about 250 houses per week. If the same scheme were to be adopted in London, The Sanitary Record (Dec., '88), says, it would take nearly thirty years to arrive at a similar result, and would require an army of workmen, and an amount of material which would necessitate a vast addition to the employees in our potteries, brass foundries, and lead mills throughout the breadth of the country.

IN PARIS It is proposed to supply that city with water from Lake Nauchatel, three hundred and twelve miles distant and sixteen hundred and twenty-three feet higher than the mean level of Paris. It is proposed to tap the lake two hundred and sixty feet below the surface, where it has a temperature of forty-three degrees. A tunnel of twenty-two miles under the Jura mountains will be required. The supply of water is practically unlimited.

IN ABERDEEN, Scotland, a Ladies Sanitary Association, in order to relieve and prevent overcrowding in dwellings, commenced a system of giving aid in cases where the desire existed to secure additional house accommodation. The numbers thus receiving aid last year was ninety-two, and the amount paid £64. The grants varied from single grants to grants extending a period of six or eight years, and two payments a year. The grants were withdrawn as soon as the income of the recipients increased sufficiently, usually by the family having grown up and become contributors to the general income.

IN RUSSIA good sanitary progress is being made. The public schools there have now medical practitioners connected with them, whose duty it is, it appears, to subject the pupils to a careful examination every morning before the commencement of daily work, in order to prevent any possible spread of infectious disease from one child to another. Every pupil complaining of headache, or sore throat, or fever must be at once sent home. Many other matters relating to the health of the pupils are also attended to.

THE EPIDEMIC of diphtheria which has recently prevailed so extensively in London, Eng., appears to have set men's minds very seriously to consider the ultimate causes. Several physicians, the British Medical Journal says, who have studied the subject under very different circumstances, have formed the opinion that diphtheria is in some way connected with moulds which grow in damp places and especially in accumulations of vegetable matter.

STERILISING MILK by boiling is a practice extensively carried out now in the Russian capital, not only in the Children's Hospital and some of the larger dairies, but in many private families.

IN VICTORIA, B. C., the city council and daily papers are discussing the question of a sewage system for that city. The medical officer, Dr. G. L. Milne, recommends the separate system, which would be less costly.

IN BRANTFORD, Ont., the work of introducing the dry earth closet system throughout the city is reported to be progressing most favorably. The immediate necessity for drainage is being urgently brought forward. The milk inspection, which has been well attended to there, is reported to have resulted in a much better standard. It has been decided to establish a dairy in connection with the hospital there as the best means of securing a pure supply for patients.

IN FRANCE the Comité Consultatif d'Hygiène Publique have approved of the principle of compulsory notification, and have recommended the preparation of a bill for this object. The list of notifiable diseases includes "infectious puerperal" and "septic diseases," and the duty of notifying is to be laid upon the medical attendant.

THE President of the French Republic has signed a decree providing that all animals of the bovine species suffering from tuberculosis are to be isolated. The meat is to be condemned if the tubercular lesions are generalized, and the sale of the milk of tubercular cows is absolutely prohibited.

IN ENGLAND, of the new arrangements, under the new Local Government Board Act, passed at the last session of Parliament, for the formation of Municipal Councils, the British Medical Journal says: It cannot be doubted that the general action of the County Councils will be to favor sound local administration of sanitary affairs. A clause was introduced in the act creating a class of county medical officers to be specially appointed to aid the County Councils in considering the sanitary conditions of their whole area.

BIRMINGHAM and Leicester have abandoned the precipitation system of sewage disposal and supplemented it by irrigation, and Glasgow is proposing to buy 4,500 acres of land for a sewage farm; sufficient, it is thought, for the sewage of 750,000 of population. The head of the city cleansing department it made a tour of inspection to Birmingham, Nottingham, Croyden, Berlin, Paris and other places for the purpose of observing the methods in use in these places.

SUICIDES AND LEGISLATION was the subject of a paper read before the New York Medico-Legal Society by Mr. Clark Bell. What is needed, he said, is "additional force upon the moral sense of the community, to render the crime of suicide more generally odious and detestable. There is at present practically no legal restraint against suicide. The suicide has nothing to fear for his crime, even if unsuccessful."

THE BURIAL REFORM Association in England will have a wait upon the Home Secretary to ask for an inquiry by Royal Commission into the condition of cemeteries and modes of burial, with a view to further legislation.

FOR CLEANING obstinately dirty bottles, porcelain shot, an exchange says, is a novelty recently introduced by a firm in Munich, Germany; it being well known that lead shot is objectionable, if not dangerous, as particles of lead may detach

ed sometimes from the shot and adhere to portions of the interior of the bottle, from which they cannot be dislodged by after brushing.

THE NAIL BRUSH question and sub-nail cleanliness has recently been considerably discussed in the British Medical Journal. "Nail Brush" writes: the indications are to keep the under nail space as small as possible, and to wash the boundaries of it with soap and water. The first indication

is met partly by keeping the nails trimmed short, but partly, also by avoiding, under any circumstances, the use of a penknife or other similar instrument for scraping the space. Such a practice obviously deepens it, and renders its capacity for collecting dirt greater. To make it really clean, its walls must be washed with soap and water. Now, I submit that for this purpose the only means is me (the nail brush.)

THE PUBLIC HEALTH.

CANADIAN CITIES.—The total number of deaths recorded for November in the twenty-eight principal cities and towns which make monthly returns to the Department of Agriculture, in Ottawa, was 1,290; 36 less than in the previous month. For the corresponding month of last year the record was 1,371 with two cities less making returns, which, with the increase of population, gives a decidedly lower rate for last month than in 1887. No deaths from small-pox were reported for November. From measles there were 22 deaths, 8 of which were in Halifax, 6 in Hull and 4 in Montreal. In the previous month there were only 16 deaths from measles. From scarlet fever there were 28 deaths, the same number as in October. St. John, N. B., returned 18 of the 28 in November, and 17 in October. From diphtheria 59 deaths were recorded in November; 3 less than in October; 20 of the 59 were in Montreal. 18 in Ottawa, 4 in Toronto, 4 in Victoria and 3 in Quebec. With the colder weather there was a large fall in the mortality from fevers.

ENGLISH TOWNS.—In the twenty-eight large English towns dealt with by the Registrar-General in his Weekly Return, with an estimated population of nearly nine and a half millions of persons, 22,627 births and 13,471 deaths were registered during the four weeks ending the 1st of December. The annual birth-rate, rose to 31.4 during the month, but was below that recorded in the corresponding period of any of the five preceding years. The lowest birth-rates in these were 23.6 in Brighton and 25.5 in Huddersfield.

THE ANNUAL DEATH-RATE in the twenty-eight towns, which had risen in the four preceding months from 15.6 to 20.3 per 1,000, declined to 18.7 and was below that recorded in the corresponding period of any of the six preceding years. The lowest rates last month was 13.8 in Hull; Leicester 14.1; Brighton, 14.5; Nottingham, 14.9; and Derby 15.9. The highest rate during the month was 26.8 in Cardiff.

The mean death-rate in the twenty-seven provincial towns was 21.3 per 1,000, and exceeded by 1.3 the rate recorded in London, which was only 18.0 per 1,000. There were 903 deaths from measles. 239 from scarlet fever. 217 from diphtheria, 203 from diarrhoea, 202 from whooping-cough, 184 from 'fever' (principally enteric) and 7 from small-pox: equal to an annual rate, from zymotics, of 2.7 per 1,000. Measles was the most fatal zymotic disease, the rate of mortality from which had been 0.24 and 0.65 per 1,000 in the two preceding months, further rose to 1.25 during November, against an average rate of only 0.51 in the corresponding periods of the five previous years. In London the death-rate from measles was as high as 1.54 per 1,000.

IN OTHER CITIES, the mortality in November was reported as follows: New York, 21.4 per 1,000—zymotics 4; Brooklyn, 18.5—zymotics, 3.9; Philadelphia, 17 and 2.7; Washington, 18 and 3; Baltimore, 17 and 3; Boston 21 and 3.4; Chicago, 15.9 and 4; Cincinnati, 14.1 and 3; Cleveland, 23.6 and 9.9; Milwaukee, 13.8 and 1.17; Minneapolis, 12.4 and 3; St. Louis, 16.7 and 3.4; New Orleans, 24.3 and 3.8; San Francisco, 20.7 and 2.9; Copenhagen, 19.8; Frankfurt 13.8; Hague, 17.3; Christiania, 20.5; Paris, 20.5; Lyons, 18.7; Rome, 21.6; St. Petersburg, 23.2, Cairo, 44.5; Alexandria, 35.5; 15 towns in Lower Egypt, 44.9; 12 do in Upper Egypt, 49.4; Madras, 37.7. In Victoria, Australia, the mortality in 1887 was 15.69.

IN MICHIGAN, compared with the average of the month of November in the nine years, 1879-1887, diphtheria, intermittent fever, consumption of the lungs, typhoid fever, whooping-cough and remittent fever were less prevalent in November, 1888.

THE DIPHTHERIA epidemic in London, Eng., which had assumed serious proportion during the summer, still continues. During October, November and up to this time, nearly the end of December, there are reported to have been from 25 to 40 deaths weekly from this cause.

EDITOR'S SPECIAL DEPARTMENT.

PUBLIC OR GOVERNMENT AID FOR POOR CONSUMPTIVES.

Already on more than one occasion we have referred to this important subject. Thousands of poor persons die in Canada every year from consumption, who, if they were timely and properly treated could be cured and would probably live on to a good age as useful members of society, but who have not the means to provide the proper timely treatment. Here is a wide and inviting field for the philanthropic and toward an object for which we think Government aid, better probably Provincial Government aid, should be liberally "voted." There are asylums for the insane, and asylums are proposed for inebriates. There are institutions for orphans, for young infants, for imbeciles and idiots, and the dumb and the blind and the deaf, for all sorts of surgical cases, for the more especially infectious diseases, and all other diseases, but not a place to which a consumptive can be taken with a good prospect of recovery or a cure; not a place specially adapted or at all fitted in any way for such cases. True, general hospitals are open to all such cases, but general hospitals are about the last places to which a consumptive should be taken, as all physicians will admit. Consumption is a special and somewhat peculiar disease, and requires a more special treatment than almost any other disease; moreover, it adds more than any other cause of death to the death-roll, and the very want of the comforts, and perhaps even of what are termed the luxuries, of life, acts as a cause of the disease and adds largely to the number of its victims. There are in Ontario alone not less than 4,000 deaths from this disease every year, nearly all of men and women or young people in their teens just coming into manhood or womanhood. Probably one-third, perhaps one-half, of these are not so circumstanced as to be able to secure proper treatment could it be at all conveniently obtained; while the remainder, however able to pay for the best treatment, can hardly obtain it in Ontario. True, a few intelligent patients, especially in the early stage of the disease, who have comfortable homes in a healthy locality, and who will probably follow strictly the advice of their physician, may, and occasionally do recover. But it is not likely as many as ten in a thousand do so. Change to a warmer climate is not now much to be relied upon; but rather, out-a-door treatment in the climate to which the

subject of the disease has already become accustomed. Then they may recover in a large proportion of cases. On the continent of Europe, as Dr. Daremberg writes, in the *Journal des Debats*, "While medical men in general send their phthisical patients to warm climates—Mentone, Cannes, Algiers, Madeira, etc., the directors of the institutions here expose theirs to the vicissitudes of the season. The patients leave their rooms at eight o'clock in the morning, and after partaking of a light breakfast are carried (for they must not walk) down into the garden, and placed in a reclining posture under galleries surrounding a park, or in open kiosks. They are covered with blankets, and there they lie, winter or summer, whether it rains, hails, or snows, until he evening, five o'clock in winter, and eight or nine o'clock in summer. Proper shelter is afforded in time of rain or great wind. When a patient comes to the establishment having high fever, he is watched closely for a few days in his room. The window is kept open night and day, and finally he joins the rest below. Nothing is more curious than the sight of over a hundred patients camping out under the galleries covered with their blankets. Short walks are taken by those who are the strongest." Recently at the New York Academy of Medicine, Dr. Paul H. Kretzschmar read, in the form of a paper, "An Appeal for the Establishment of an Institution for the Rational Treatment of Pulmonary Consumption," in which he set forth the special benefits of out-a-door, pure air treatment, to the exclusion of medicine. We have no doubt whatever that if there were a good institution of this kind established in some pine-wooded district in central or northern Ontario, say one or two hundred miles northward of Toronto, to which all phthisical patients could be sent, whether able to pay or not, with special provision for those able to pay, that many hundreds of lives might be saved to the province every year which now fall victims to this very common and most fatal disease.

TWO VERY IMPORTANT MOVEMENTS.

One very important movement is that taken by a labor organization of Montreal and we believe also of Toronto, for building homes for artisans and laborers; and another good movement is that advocated by some papers, for legislation giving an exemption to the value of

\$600 on all homes. One of the first essentials of health is a comfortable dwelling place—a home, wherein a man and his family can feel free and unencumbered. There can be no great sanitary progress, no great general improvement in the public health in cities and towns until there be less overcrowding, better ventilation and better means of disposal of household and personal waste matters. There is moreover, much truth in these words of Dr. Carpenter: "There is an intimate relation between the sanitary state of our bread-winners and their families and our political system." In England associations have provided model tenement houses for artisans and laborers, which at a very low rent have returned fair interest on investments. There is no reason why these people should not join and provide means themselves for the construction of cottage homes (or even tenements, well constructed). As we wrote in this JOURNAL a year ago: "One square mile of land would give ten thousand families one-twentieth of an acre each and allow for streets. With an average of five in a family this would accommodate fifty thousand souls. Five square miles would provide a twentieth of an acre plot for each family of a quarter of a million of a population. And such allotment, besides giving room for a cottage (or a double cottage on two allotments) would by cultivation take in all refuse matters—kitchen slops, excreta, etc.; and so the sewage difficulty would be overcome. With the present and improving facilities for conveying large numbers of people, the carrying of fifty thousand men a few miles out of a city would not be an insurmountable difficulty." And then to exempt such homes from taxes and in the case of individual homes, from seizure for the payment of debt, would be a wise thing to do; this last would at least tend strongly to prevent debts being incurred. We would urge strongly that agitation and effort be continued until both these objects above alluded to be generally attained.

OVER-CROWDING.—Dr. Vivian Poore, of London, Eng., argues that the greatest of all sanitary evils is overcrowding, and that the professional sanitarian would scarcely be needed if it were not for the fatal tendency of populations to concentrate in towns. The science of sanitation, he says, "is practically the science which enables persons to live in crowds with the least

amount of damage to themselves; and we must not lose sight of the fact that big schemes of water-supply and sewerage tend indirectly to cause a concentration of population in itself most undesirable." While there is much truth in this, it is plain that if there were no overcrowding or concentrating in towns, the ventilation of dwellings, the proper disposal of excreta and other waste matters, dietetics and other important essentials of life would require much attention, even in rural districts.

ON "PREVENTION OF EMERGENCIES," Dr. R. S. F. Perry writes thus sensibly: Numerous works have been written on "what to do in emergencies," "first aid to the injured," and kindred subjects, all of the same general tenor. As yet, so far as I know, no one has ever put forth a work on the prevention of emergencies. Of course, there are many emergencies which cannot be prevented, but with judicious care some of them can. The frequent suits brought against corporations for damages following some avoidable accident shows the necessity from a financial view, of studying the best methods of preventing such emergencies. The sufferings of the patient justify the study from a humane point of view. Occasionally a poisoning case occurs which is due to carelessness, or to a mistake in compounding medicines. There never should exist in the household the possibility of a case of poisoning from the careless handling of drugs. Fractured bones and dislocated joints are a frequent source of expense in winter when the streets are covered with ice and the pavements are slippery, and they are apt to occur in summer when the banana-skin lurks about seeking to cast down pride.

AN IMPORTANT RESOLUTION was passed at the last quarterly meeting of the State Board of Health of Tennessee as follows: That this Board repeat its resolutions of April 24, 1888, in regard to a National Bureau of Health, which is substantially that the Federal Congress established a National Bureau of Health to prevent the introduction of epidemic diseases into this country by maritime quarantine, and the spread of such diseases from one state to another, should they be introduced. Also, that this Board now calls upon other State and local Boards to co-operate with it through their representatives in Congress to enact necessary laws to this end. We italicise a portion which is applicable to Federated Canada and the provinces.

THE MONTREAL Board of Health Report for last year very wisely draws attention to what we have referred to before now. The provisions of the Act of the Federal Government in relation to food: "By section 6 of Statute 48-49 Vict., chap. 67, concerning the adulteration of food, drugs and agricultural fertilizers, the council of any city, town, county or village may appoint one or more inspectors of food, etc., who, for the purposes of this Act shall have all the powers by this Act vested in the officers of the Inland Revenue; they may collect samples, and by offering the fees fixed by the Governor in Council, have them analysed by any public analyst and recover all fines imposed in cases of prosecution; which fines may be utilized and spent in the manner which the council may direct. The Federal Government hoped by the adoption of those provisions to favor the appointment of food inspectors in the more populous centres, so as to prevent the practice of adulteration by rendering inspection as general as possible. It is astonishing the report adds, that the different cities of the Dominion have not profited more by the advantages offered by this Act; advantages so necessary for the protection of health, and attainable at so small an expenditure.

TUBERCULOSIS IN COWS in New Brunswick is said by a leading Veterinary Surgeon there to be "not rare." In the Maritime Medical News, we observe that in the address of the President of the New Brunswick Medical Society, Dr. P. R. Inches, at their late annual meeting, after alluding at considerable length to a number of outbreaks of the disease in other places, and to the danger to the public health therefrom, said: Since writing the foregoing, I have learned from a reliable source of the existence of the disease in this neighborhood. Cases are met with not unfrequently, and it is only a few days ago that the termination of one of those cases took place. The animal—a Jersey cow—had been ailing for quite a time, and was examined by a leading veterinary surgeon who diagnosed the case as one of tubercle. The animal was isolated and quarantined by him and kept under observation. After death an examination took place which verified in every particular the post-mortem appearances which I have previously described, both in the cavity of the chest and in the mesentery; and every manifestation of the disease which makes it infectious was present. The

carcass was buried and the case reported to the Department of Agriculture. He tells me such cases are not rare, that the milk of such animals is used and no doubt their flesh often eaten. He has no doubt such a case is infectious under favorable circumstances both to other animals and to human beings who use the milk. There is no system of inspection provided against such cases, and his last remark to me was "that the medical profession will wake up some day to the importance of such cases of infectious disease and insist upon measures to prevent its propagation."

ON THE HARMFULNESS OF SHOULDER-STRAPS, shoulder-braces and such, Mr. Bernard Roth, F. R. C. S., of London, Eng. in a paper (to the Am. Orthop. Assoc., in New York Med. Jour.), after dwelling upon the uselessness and evil effects of such apparatus, said:—In spite of these facts, ninety-nine out of a hundred medical men of the present day are in the habit not only of allowing, but even of advising patients to wear these instruments of torture. I understand that large fortunes are being made by the sale of those popular American and other shoulder-braces which are so largely advertised at the present time. The only way in which shoulder-straps might be worn with benefit—not that I recommend them—is well illustrated by the following anecdote, which is culled from good old John Shaw: An eminent surgeon was consulted by a gentleman who became one of our first tragedians as to the best mode of correcting a stoop which he had acquired. The surgeon told him that neither stays nor straps would do him any essential good, and that the only method of succeeding was to recollect to keep his shoulders back by a voluntary effort. But the tragedian replied that this he could not do, as his mind was otherwise occupied. The surgeon then told him that he could give him no further assistance. Shortly after this conversation the actor ordered his tailor to make a coat of the finest kerseymere, so as to fit him very tightly when his shoulders were thrown back. Whenever his shoulders fell forward, he was reminded by a pinch under the arms that his coat cost him six guineas and that it was made of very fragile material; being thus forced, for the sake of his fine coat, to keep his shoulders back, he soon cured himself of the stoop. He then showed himself again to the surgeon, who ever afterward, when consulted whether young ladies should wear

shoulder-straps, permitted them, on condition that they were made of muslin or valuable silk, for tearing which there would be a forfeit !” In nearly all cases, there is no doubt that PERSISTENT, voluntary effort will overcome the tendency to stoop, round shoulders and all such deformities much better and safer than any apparatus.

EUTHANASIA — BENIGNITY IN DEATH.—Although this JOURNAL’S object is to prevent disease and prolong life, it desires not to beget a fear of death, but on the other hand to aid to a natural euthanasia. Man should die as unconscious of his death as of his birth. As Dr. Richardson has said : “ When physicians have taught the world how this benign process of nature may be secured, and the world has accepted the lesson, death itself will be practically banished ; it will be divested of fear, of sorrow, of suffering. It will come as a sleep.” As the King of Terrors, death is frequently spoken of ; yet how rarely does the act of dying appear to be painful, how rarely do we witness agony in the last hours. “ Strict, indeed, is the fell sergeant in his arrest, but few feel the iron grip ; the hard process of nature’s law is for most of us mercifully effected, and death, like birth, is ‘but a sleep and a forgetting.’ ” A well known physician says “ I have been much impressed with this recently in the case of a friend who had entered far into the Valley, and who now in his convalescence, bitterly contrasts the pains and tortures of suppurating hypodermic punctures with the dream-like, delicious sensations of the profound collapse in which he nearly passed away.” Shelly’s description is true in the majority of cases :

“ Mild is the slow necessity of death :
The tranquil spirit fails beneath its grasp ;
Without a groan, almost without a fear,
Resigned in peace to the necessity ;
Calm as a voyager to some distant land,
And full of wonder, full of hope as he.”

THE TUBERCULOUS DISEASE.—In Scotland, Dr. Woodhead has been making researches relating especially to tubercular infection of milk. In conjunction with Professor McFadyean, (Brit. Med. Jor) he examined 600 cows in the Edinburgh dairies, and in six cases, he was able to demonstrate the presence of tubercle bacilli in the milk. Dr. Woodhead states that he found as great differences in size between the bacilli under the same cover-glass, from sputum

of a phthisical patient, as he had found between bacilli taken from a cow and from a human subject, and he concluded that any difference there might be between the size, mode of growth, or position in the tissues of human and bovine tubercle bacilli was not sufficient to constitute a specific difference. Bacilli were also found in vast numbers in sections of tubercular udders. The presence of the bacilli in the milk, and the feeding experiments recorded by other observers, went far to prove, according to Dr. Woodhead, that milk is a source of tubercular infection, especially to young children. In the report of the Commission the possibility of the transmission of tuberculosis to the human being by means of milk containing bacilli was admitted, and legislative measures have been suggested with a view to the prevention and extirpation of the diseases among cattle.

AESTHETIC SANITATION is receiving much attention in Glasgow:—At a recent meeting of the Ruskin Society, according to the British Medical Journal, a Mr. Jolly delivered an address on “ Natural Law, at once Natural, Moral and Religious,” in which he urged that immediate and energetic action should be taken by the municipal authorities to lay the physical foundation of a permanent reform of these social and moral evils, by securing the requisite sanitary conditions for human habitations. The Kyrle Society, which has been quietly doing good work in bringing “ the influences of natural and artistic beauty home to the people,” has now, to its sanitary section, added one “ to improve the condition of the dwellings of the poorer classes in the city.”

THE Philadelphia Crematorium, according to The American Lancet, advertises for business. It has made a heavy investment and it wants some return for its capital. For fifty dollars cash it will burn a dead body and furnish a tin can as a receptacle for the ashes of the consumed body.

THE United States have five hundred and sixty-three manufactories of patent medicines, with a capital of nearly eleven millions of dollars, and an annual product of about fifteen millions of dollars. And “ Pucks ” motto is, “ What fools these mortals be.”

PASTEUR ascribes the poor health from which he has suffered during the past few years to his lack of proper exercise.

NOTES ON CURRENT LITERATURE.

THE ILLUSTRATED LONDON NEWS has given the usual amount of good things during the month. Notably among many others are some excellent sketches of views on the Canadian Pacific Railway; Hunting and other scenes in Morocco; and of the black Mountain Expedition. There is a lively double page scene, "Hereditary Sportsmen: Three generations;" and a good copy of Mr. A. J. Carter's lovely picture, "His first visit to the Flock." The "Illustrated" contains a vast amount of interesting and profitable reading on current topics—Music, the Drama, Art Notes, the Societies, Book Reviews, The Court, Chess, and other subjects, besides "Our Note Book," and full accounts of the illustrations.

THE CENTURY for December contains a notable article on "The Reorganization of the British Empire;" which all who feel a deep interest in the Empire should read. "From Sinai to Shechem" is another highly interesting paper. "Life on the Great Siberian Road" is of thrilling interest. "London," by Henry James, profusely illustrated, almost conveys one personally into that vast city. "The Romance of Dollard," a highly interesting Canadian story, of 1660, with scenes in Quebec and Montreal, is continued.

HARPER'S WEEKLY for the month has been as full of interest as usual. Editorials on "Christmas," "The President's Message," "Lord Salisbury and the Suffrage," "John Bright," "Boodle and the Cabinet," "Silence at Indianapolis," "The Panama Canal" and "Women at the Polls," we have read with much interest. There have been many excellent illustrations, including a page portrait of Henry M. Stanley, with numerous other portraits of men of note. "Their pride," is as natural as life. "Christmas in Germany," "Old Santa Claus" and "Santa Clause Captured" are all highly attractive.

IN HARPER'S BAZAAR, THE ladies weekly, we find, regularly, most excellent articles bearing upon health and subjects of domestic life. Under the standing head of "Women and Men" are "The Athletic Girl," "Guest and Hostess," and the "First Snow," all of a most instructive character as well as interesting. In the "Cradle and Nursery" columns too are articles invaluable to the mother. In illustration, "In the Australian Bush—Dead for want of Water," double

page, from a drawing by W. Small, is as pathetic as "Type of Beauty," double page, is attractive. One wants to look at and study both for a long time. Thanksgiving number is a delight. The Christmas number contains two double page illustrations: "Christ and the Fishermen" and "Ecce Agnus Dei—for unto you is born this day," etc.

IN THE POPULAR SCIENCE MONTHLY for January, just to hand, so well distributed is the space among the several departments, that the number can not be said to have a special feature. There are four illustrated articles this month, one of which, "The Guiding-Needle on an Iron Ship," opens the number. "House-Drainage from Various Points of View" is the title under which Dr. John S. Billings, U.S.A., an authority on this subject, describes, with illustrations, the present condition of this complex problem. Very timely and interesting is Mr. W. H. Larrabee's copiously illustrated paper on "Sea-Lions and Fur-Seals." Two articles that will interest teachers and parents are "The Sacrifice of Education," a protest against the abuse of examinations, and "Inventive Geometry" by E. R. Shaw, which tells how geometry has been made a pleasure to pupils using the book prepared by Herbert Spencer's father. Eighteen drawings made by boys and girls in working out the problems are inserted. "Town-Life as a Cause of Degeneracy" is the subject of an instructive paper by G. B. Barron, M.D. The real nature of "Genius and Talent" is described by Grant Allen in his peculiarly happy vein.

AN ENLARGED reproduction of the map of Siberia published in the May Century, showing the route taken by Mr. George Kennan, has been issued by the Century Company. Copies are mailed, in a roiler, to any address for 10 cents in stamps.

A CORRECTION.—The article on "Corsets and Dress Reform," by Mrs. Lydia Becker, in the November number of the JOURNAL, was not the paper she read at the meeting of the British Association, as implied in the heading, but one written by her expressly for the Sanitary Record.

MANY OF OUR SUBSCRIBERS are behind for this year's subscription. Will they kindly remit now for both 1888 and 1889? Many others are two and three years behind, we believe chiefly through "putting off" so small a matter. We hope they will not, now that another year is about past, require us to send accounts again, after the many already sent.