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SANITARY PROGRESS

— EDITED BY —

EDWARD PLAYTER, M.D.

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ON THE PREVENTION OF DIPHTHERIA

AT the last years Meeting of the Philadelphia Medical Society, Dr. A. Jacobi (Prof. Clin. Med., Col. of Physicians and Surgeons, and Physician Bellevue Hospital, N. Y.), author of a standard treatise on diphtheria, by special invitation read an extensive paper on this subject, from which we take the following valuable extracts, as published in the N. Y. Medical Journal.

Diphtheria is a contagious disease. Severe forms may beget severe or mild forms. Mild cases may beget mild or severe cases. There is probably no spontaneous origin of diphtheria any more than there is a spontaneous origin of cholera or scarlatina. The mild variety is that from which adults are apt to suffer. It made me proclaim the warning that there was as much diphtheria out of doors as there was in doors; as much out of bed as in bed. With this variety the adult is in the street, in business, in the school-room, in the railroad car, in the kitchen and nursery. With this variety, parents, while complaining of a slightly sore throat, kiss their children. Wherever it is suspected it ought to be looked after. Where it is seen it ought to be isolated and treated, less perhaps for the sake of those who are sick than of those who are in serious danger of being infected. This is the more necessary as this form is apt to last long. Serious, undoubted cases are also apt to last for weeks, and some of them months. As long as they persist they are contagious.

These reminiscences and quotations from former writings must justify the pre-eminent place I claim for preventive treatment. Those sick with diphtheria, severe or mild, must be isolated. If possible, the other children ought to be removed from the house. This can but rarely be done in the homes of the poor, in the densely pop-

ulated districts. A great charity is still waiting for its consummation—viz., that of erecting buildings, dormitories, and play-rooms for those who ought to be temporarily exiled from their infected homes. A suggestion of mine, before the New York State Medical Society at its meeting of 1882, resulted in the erection of the Willbrod Parker Hospital, of New York for the benefit of those suffering from scarlatina and diphtheria. The erection of a sufficient number of temporary homes would be a still greater protection to the public at large. If it is impossible to send the well children away, let them remain out-side the house, in the air, as long as feasible, and with open bedroom-windows during the night, in the most distant part of the house; during the winter on a lower floor. Their throats must be examined every day, and their rectal temperatures taken by the mother, so that the physician may be called on the occurrence of but slight changes. The few minutes spent in this way are amply repaid by the safety they may accomplish. The attendants upon patients with diphtheria must have no intercourse with the well children; though a brief visit of the physician may not render him sick or dangerous to others, a long exposure affects him or a nurse to a greater or less degree. The well children of a family in which there is diphtheria must not go to school or church. Schools must be closed when a number of pupils have been attacked; or, better still, when there is an epidemic, though it may not yet have affected the school-children to a great extent; the teachers ought to be taught how to examine throats, and directed to do so every morning, and send home those children who are suspected.

When an attack of diphtheria has made its appearance, it is time enough to examine the hygiene condition of the house

with its deteriorating influences on the general health of the inmates, and to look after the source of the case in the persons of friends, attendants, and help. A family with children ought to insist upon the occasional inspection of the throats of their servants; those with chronic pharyngeal catarrh should not be hired. A seamstress or laundress coming for an occasional day's work, sick-nurses, children's nurses, and cooks ought to be examined from time to time, the more so the more such people are inclined to conceal slight troubles, for obvious reasons. The opportunities for infection are so numerous that it is impossible to sail absolutely free from it. It is easy to imagine how many cases of diphtheria are liable to be disseminated by teachers, shopkeepers, restaurants barbers and hair-dressers.

In times of an epidemic every public place, theatre, ball-room, dining-hall, and tavern ought to be treated like a hospital. Where there is a large conflux of people there are certainly many who carry the disease. Disinfection ought to be enforced at regular intervals. In this respect I can but repeat what I said in my treatise (p. 172) and Peppe's "System of Medicine" (i. p. 697). Public vehicles must be treated in the same manner after a suspicious person has been carried; that it should be so when one with small-pox has happened to be conveyed in them appears quite natural. Livery-stable keepers who would be anxious to destroy the germ of small-pox in their coaches must learn that diphtheria is as dangerous a passenger as variola: and what is correct in the case of a poor hack is more so in a railroad car, whether emigrant or Pullman. I have many patients coming to and leaving the city in them. They ought to be thoroughly disinfected in times of an epidemic at regular intervals, for the high-roads of travel have always been those of epidemic diseases. Still, can that be accomplished? Will not railroad companies resist a plan of regular disinfections because of their expensiveness? Will there not be an outcry against this despotic violation of the rights of the citizen, the independence of the money-bag? Certainly there will be, exactly as there was when municipal authority commenced to compel parents to keep their children from school when they had contagious diseases in their families, and when small-pox patients were arrested because of their endangering the passengers in a public vehicle, or taken to a fever hospital for the protection of their

neighbors. In such cases it is not society or the State that tyrannizes over the individual; it is the individual that endangers society.

To what extent the infecting substance may cling to surroundings is best shown by the cases of diphtheria springing up in premises which had not seen diphtheria for a long time, but had not been interfered with; and best, perhaps, by a series of observations of self-infection. When a diphtheritic patient has been in a room for some time, the room, bedding, curtains and carpets are infected. The child is getting better, has a new attack, may again improve, and is again stricken down. Thus I have seen them die; but also improve immediately after being removed from that room or house. If barely possible, a child with diphtheria ought to change its room and bed every few days...

Prevention can accomplish a great deal for the individual. Diphtheria will, as a rule, not attack a healthy integument. be this cutis or mucous membrane. The best preventive is, therefore, to keep the mucous membrane in a healthy condition. Catarrh of the mouth, pharynx and nose must be treated in time... During an epidemic operations in the mouth, even to extracting teeth, ought to be postponed: as they are liable to be followed by diphtheritic lesions within a day or two.

For its salutary effect on the mucous membrane of the mouth, chlorate of potassium or of sodium, which is still maintained by some to be a specific, or almost one, is counted by me among the preventive remedies. If it is anything more, it is in a case of diphtheria an adjuvant. It exhibits its best effects in the catarrhal and ulcerous condition of the oral cavity. In diphtheria it keeps the mucous membrane in a healthy condition or restores it to health. Thus it prevents the diphtheritic process from spreading.

Diphtheria is seldom observed on healthy or apparently healthy tissue. The false membrane is mostly surrounded by a sore, hyperæmic, œdematous mucous membrane. Indeed, this hyperæmia precedes the appearance of the diphtheritic exudation in almost every case.

Dr. Jacobi, among other remedies for cure, advises inhalation of steam. Water is to be kept constantly boiling in the room, and every hour a teaspoonful of oil of turpentine, and "perhaps also a teaspoonful of carbolic acid," is to be poured on the water and evaporated. Every practicing physician should read this valuable paper, in which Dr. Jacobi enters fully into the best treatment of the disease.

PRECAUTIONS AGAINST DIPHTHERIA: BY
DR. BENJ. LEE, SECRETARY OF THE
PENNSYLVANIA STATE BOARD OF HEALTH.

Diphtheria is a malignant contagious disease, and like scarlet fever, is frequently followed by physical defects, such as blindness, deafness and paralysis.

Whenever a child or a young person has a sore throat, with a bad odor to the breath, especially if it has fever, it should immediately be separated from all other persons, excepting necessary attendants, until it is ascertained by a physician that it has not diphtheria or other communicable disease. Mild cases may communicate malignant and fatal forms of the disease.

Diphtheria may be conveyed by personal contact, clothing, hair, paper, the discharges of the body, or anything which has touched the sick person. The diphtheria poison has great vitality, and may lie dormant for weeks, and even months. It seems to be able to travel in the air of sewers from house to house, also to rise in the emanations from putrid privies and cesspools. It can also, undoubtedly, infect foods, milk and water, and with them enter the bodies of children.

The time required to develop diphtheria may be from two to six days; the average is variously stated at from six to ten days, but the time may be extended to five or six weeks.

The greatest number of deaths from the disease occurs in children under twelve years of age. Adults usually have it in milder form than do children. Children under two years and half old are not very liable to the disease. One attack usually prevents any subsequent one, but this is not always so. If parents everywhere could only be brought to act intelligently, these diseases might become almost unknown.

GENERAL PRECAUTIONS.

Notices should be placed on every house where there is a case of diphtheria. When necessity requires one to visit such a house the clothing should afterwards be changed and a bath taken before going where there is a child.

Whenever the disease is prevalent in any district, children should be removed from the day and Sabbath schools, and should not travel in the public cars or carria es.

Close attention should be paid to the sources of the water and the food supplies. If there is any doubt about the purity of the water, boil it thoroughly before using it. Foods and milk should not be used which come from a house in which there is diphtheria. Filth may be considered a promoter of diphtheria. Perfect cleanliness should be enjoined in the house and all its surroundings. All foul odors must be destroyed in privies and cesspools by the appropriate disinfectants. Let the house receive all the pure air and sunlight possible.

Do not send your clothing to a public laundry during an epidemic of diphtheria.

PRECAUTIONS IN THE SICK ROOM.

The sick room should be in the upper part of the house, if possible. Cold draughts are especially to be avoided in this disease. An open fireplace with a lamp burning in it, is an excellent means of ventilation. The room should be cleared of all needless draperies, carpets and furniture. A sheet wet with a solution of the sulphate of zinc should hang before the door connecting the sick room with the rest of the house, or in the passage way leading to the room. No person but the nurse and the physician should enter the sick room until the patient has recovered and the room disinfected.

The nurse should not mingle at all with children, and as little as possible with the adults. Her outer dress should be made of some material which can be washed rather than of wool, which harbors the disease.

Each piece employed for wiping the nose and mouth, after being once used, should be immediately burned. A disinfecting solution should always be at hand for the patient to spit into, and all discharges of the body should be received on their very issue into vessels charged with disinfectants, and thrown into the water closet, or buried in the soil, at least one hundred feet from any well.

The hands of nurses should be washed as soon as soiled, with disinfectant water. The patient's clothing and bed clothing, whenever changed, should be thrown at once into water to which has been added the disinfecting solution, No. 4 of this article. Leave the clothes in the solution four hours, and then give them a thorough boiling. Never carry any clothing which

is dry, from the patient through the rest of the house.

PRECAUTIONS DURING CONVALESCENCE.

The patient should remain in complete isolation until all sores in the throat and about the nose or mouth are healed. He should before leaving his room, and under the direction of the physician, take several warm baths. All the clothing he wore for two weeks previous to his sickness, and during his sickness, must be thoroughly disinfected. He should be very careful of himself for some weeks, dressing warmly in woollen undergarments, avoiding chills and cold draughts, and using the eyes as little as possible for reading and study.

PRECAUTIONS IN REGARD TO BURIALS.

After death the body should be wrapped in a sheet saturated with a solution of corrosive sublimate, or placed in an air-tight coffin, and buried as soon as possible. The body should not be exposed to view after being placed in the coffin. The funeral should be as private as possible and certainly no children should be present. Articles used should be washed with a solution of corrosive sublimate before being used elsewhere.

Disinfection after recovery or death should be done thoroughly, by an intelligent person who has had experience in the work. Everything used during sickness should be burned. The room should

be stripped of wall paper &c., thoroughly scrubbed with a disinfectant solution No. 4 (1 pint to 4 gallons of water), and finally whitewashed.

STANDARD DISINFECTING SOLUTIONS.

No. 1—Four ounces chloride of lime to a gallon of soft water.

No. 2—Corrosive sublimate and permanganate of potash in soft water, two drachms of each salt to the gallon. This solution is highly poisonous. It requires a contact of one hour to be efficient.

No. 3—To one part of Labarraque's solution of hypochlorate of soda, add five parts of soft water.

No. 4—Four ounces corrosive sublimate to the gallon of water. One fluid ounce of this solution in a gallon of water is sufficiently strong. Articles should be left in it for two hours.

SULPHUR FUMIGATION.

Open wide all the drawers and closet doors, hang on lines all woollen articles, and burn two pounds of sulphur for every thousand cubic feet in the room. Every opening and crevice in the room must be tightly closed, and the sulphur burned in an iron vessel set in a tub containing a little water to guard against fire. Pour a little alcohol or kerosene upon the sulphur by which to ignite it. Leave the room quickly and close the door tightly for twenty-four hours or more. Then air thoroughly for several days.

ON THE INTERCOMMUNICABILITY OF TUBERCULOSIS BETWEEN MANKIND AND THE DOMESTIC ANIMALS.

BY EDWARD PLAYTER, M. D., EDITOR "CANADA HEALTH JOURNAL."

(READ AT THE MEETING OF THE OTTAWA MEDICO-CHIRURGICAL SOCIETY, MARCH 8, '89)

OF all the destroyers of human life, tuberculosis stands first. Evidently not less than at least 10,000 lives, and possibly 15,000, are destroyed by it in Canada alone every year. From one-sixth to one-tenth of all deaths almost everywhere are caused by tuberculosis, chiefly by that form of it best known as pulmonary consumption. The investigation of the cause and the source, then, of this most destructive agent is a subject of the very first importance, not only to this locality but to the country at large. As it is not my object to enter into the unhygienic conditions which give immediate rise to this

disease—to suitable soil for its development, or, rather, which so depress the vitality as to enable the bacillus or its spores to take root in the human organism, develop, multiply and destroy life, I will now at once endeavor to lay before you some of the evidence which has been recorded to show that the disease may be, and probably frequently is, communicated to the human organism from domestic animals and more especially from cows.

About seven years ago at this present time, Mr. Veterinary-Surgeon Shaw, of the U.S. Bureau of Animal Industry at Washington, said, in the *U.S. Health Bulletin* :

“To-day, after ten years of experimental observations by Villeman, Viscar, Klebs, Zurn, Bollinger, Leisering, Chanveau, Bagg, Semmer, Guenther, Harms, Bassi, Virgad, Gerlach, Buhl, Tilbury, Fox, Burden, Sanderson and a host of others, it has been definitely established (1) that the tuberculosis can be transmitted from animal to animal, from man to animals, and presumably from animals to man, by inoculation, or by the accidental contact of tuberculous matter with a raw or abraded surface; (2) that the raw tuberculous matter taken from man and animals and eaten by other animals may determine tuberculous in the latter; (3) that even the flesh of tuberculous animals will sometimes produce tuberculosis in animals that consume it, though with less certainty than if the tubercle itself were taken; (4) that the milk of tuberculous animals will at times produce tuberculosis in susceptible subjects, and above all where the morbid deposit has taken place in the udder; (5) that cooking of the tuberculous matter gives no guarantee of protection, as flesh is a poor conductor of heat, and tubercle that had been boiled from a quarter to half an hour has readily infected a number of animals that partook of it; and (6) that tubercle matter mixed with water and thrown into the air from an atomizer causes with great regularity the development of tubercles in the lungs of animals respiring such air.

Within the last seven years the subject has received a great deal of attention, and a great deal of scientific investigation has been the result.

The bacillary origin of tuberculosis, and the transmissibility of the disease from one individual of the human race to another individual, are points now universally admitted, and not doubted by anyone, I believe, whom we can regard as an authority. The disease is the most common of all human diseases, except the ordinary infectious diseases of childhood, and the sources or vehicles of it must be proportionately common. What are they? Dr. E. F. Brush, who is, I believe, connected with the Bureau of Animal Industry at Washington, and who, as he states, has long been compelled to devote his attention to the

subject of diseases afflicting dairy stock, in a lengthy article in the *N. Y. Medical Journal*, in March of last year, on the question we are now considering, declared it as his “candid opinion” that tuberculosis “is all derived from the bovine race.”

The human race is almost everywhere very closely associated with the cow. As Dr. Brush words it: “We are veritable parasites on this animal. We milk her as long as she will give milk, and we drink it; then we kill her, eat her flesh, blood, and most of her viscera; we skin her, and cloth ourselves with her skin; we comb our hair with her horns, we fertilize our fields with her dung, while her calf furnishes us with vaccine virus for the prevention of small-pox.

Now the cow has tuberculosis and we have tuberculosis. If we regard her as a possible common centre of the infection, we have a reasonable and full explanation of the commonness of consumption. Where this animal does not exist, pulmonary consumption it appears is unknown. The inhabitants of the steppes of Russia, who have no cows, have domesticated the horse, using its milk, meat and skin, and it is said a case of pulmonary tuberculosis has never been known to exist among them. The Esquimaux have no cows, neither have they pulmonary phthisis, and it appears to be a fact that where the dairy cow is unknown pulmonary consumption does not prevail. Evidence that a certain amount of relation exists between the death-rate of man and animals respectively from consumption, and that this relation is materially affected by the use of tuberculous flesh for human food, is afforded in a chart issued by the authority of the Grand Duchy of Baden in the year 1881. The chart applies to fifty-two towns, and shows that where tuberculosis was prevalent among cattle, it was proportionately prevalent amongst the human population, and was particularly prevalent in towns in which the number of low-class butchers were greatest. One remarkable exemption to this was found in the town of Wertheim; but it was significantly pointed out that from this town large quantities of sausages made from

flesh of inferior quality were annually exported. Many observations of a like nature have been made in the United States; that is, that where tuberculosis is prevalent among cattle it is proportionately prevalent amongst the human population. At the Paris congress on Tuberculosis in July last, Dr. Robinson of Constantinople, in a communication on "Consumption in Asia Minor," stated that notwithstanding the fact that the inhabitants of this country lived much in the open air, the disease was very prevalent, and ten per cent. of his patients suffered from it. The natives recognized its contagiousness, and always destroyed all articles, etc., used by those suffering from it. The frequency of the disease, Dr. Robinson said, there could be no doubt, was owing to the free consumption of milk and of nearly raw flesh by the natives.

On the other hand, the Hebrews are exceptionally free from tuberculosis, as we all know, and they exercise the greatest care in the inspection of the meat they consume. The lungs of all the animals destined for their food are examined, and in all cases where they cannot be fully inflated, or where there are adhesions of the pleura, the animals are rejected.

What are the conclusions we are almost forced to draw from these facts?

I need hardly state here that tuberculosis in the bovine race, once known as the "pearl disease," is now universally regarded as being identical with the tubercular disease of man. Not only are the bacilli in the two cases indistinguishable under the microscope, but their growth in various culture media and their other biological characteristics are identical. The latest scientific evidence I have observed on this point is this: Dr. Woodhead and Prof. McFadyean last year examined six hundred cows in the Edinburgh dairies. Among other results of their investigations Dr. Woodhead states that he found as great differences in size between the bacilli under the same cover-glass, from sputum of a tuberculosis patient, as he had found between bacilli taken from a cow and from a human subject, and he concluded that any differences there might be between

the size, mode of growth, or position in the tissues of human and bovine tubercle bacilli were not sufficient to constitute a specific difference.

From our present degree of knowledge of comparative physiology, should we not naturally conclude that any parasite finding a favorable soil for its development in the cow or other domestic animals would find the soil of the human organism about equally favorable; and *vice versa*? The bacilli all appear to be very tenacious of life, and a difference of two or three degrees in the temperature of the different organic fluids they would doubtless readily reconcile themselves to, and likewise to any other such slight physiological or chemical differences existing between the internal structure or condition of the human body and that of these lower animals.

There is a large amount of the most conclusive evidence that the disease is communicable from man to the domestic animals. Besides a great many instances of observation, in which it was plain that poultry had contracted well-marked tuberculosis from eating the sputa from the human lungs, the bacillus from human sputa has been, time and again, cultivated and inoculated into various animals, with the result of giving rise in them to unmistakable tubercular lesions. Bollinger, one of the first German authorities, has inoculated tuberculous matter obtained from man into the dog and produced typical military tuberculosis of the pleura, lungs, liver and spleen: and a great many experiments of a like character are upon record. But I will not dwell upon this settled point.

In the last number (March 2nd) of that conservative and cautious organ, the *New York Medical Journal*, the editor, Dr. Frank P. Foster, in an editorial on this very subject, says:—Fowls have become infected by the sputa of tubercular patients, and hogs by the milk of cows in which there was tubercular disease of the udder and teats; the transmission of pulmonary tuberculosis in man from one individual to another is undoubted, and, unless the bacillus tuberculosis is greatly modified in its passage through the lower animals, the danger of infection travelling from animals to man would seem to be very great.

Many classes of the feathered race, I may here observe, are very prone to this disease: especially the common fowl, pigeon, partridge and other grain-eating birds. Dr. T. W. Mills, Professor of Physiology, McGill University, at the last December meeting of the Montreal Medical-Chirurgical Society, exhibited specimens from a tuberculous pigeon, a white Jacobin, bred by himself, which had died two days previously. The 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.

Now it may be argued that there is no direct proof of the transmission of tubercle from animals to man by the consumption of flesh and milk. "Such proof, it need scarcely be said," argues Prof. Walley of the Royal Veterinary College, Edinburgh, "cannot for manifest reasons be obtained, but the mass of indirect proof in favor of such supposition is enormous." But he adds, very recently a most striking example of the effect of consuming the flesh of a tuberculous animal has been brought to light by a French physician in the case of a young woman who rapidly became consumptive as the result of eating the imperfectly cooked bodies of tuberculous fowls.

The flesh of tuberculous animals has evidently been suspected as dangerous from the earliest records. On the authority of Lydin, Fleming, and Van Herten, there existed in the Mosaic laws strict legislative rules condemnatory of the flesh of an animal affected with this disease. The laws embodied in the "M'schna" (the oldest part of the Talmud) distinctly refer to the prohibition of the use of such flesh. From that time onwards various ordinances have been instituted with the object of checking the use of consumptive flesh, especially in France and the German States, and even

in Spain, Italy and Switzerland: and severe punishment has at different times been inflicted upon butchers and others who have wilfully sold such flesh for human food.

That the milk of tuberculous cows is dangerous there is more conclusive evidence than that the flesh is dangerous. Long before Koch's discovery of the tubercle bacillus it had been accidentally and experimentally demonstrated that milk was infective by ingestion to calves and other young animals: and, as Prof. Walley observes, there is a mass of evidence in favour of the view that by this vehicle the germs of the disease are conveyed from the cow to the human subject. The question of the infection of tuberculosis being conveyed by milk is of greater importance than is infection by flesh; for the two-fold reason that the former is so largely consumed by infants, and generally in an uncooked state. The danger of contamination by milk will be more clearly comprehended when it is known that the tubercle bacillus can be readily detected in the lactiferous product of animals in whose udders tubercular lesions exist; and also, as has been shown by Professor Bang of Copenhagen, in women in whose breasts the disease existed. Of the six hundred cows examined by Dr. Woodhead and Prof. McFadyean, already referred to, in six cases they demonstrated the presence of tubercle bacilli in the milk.

Prominent physicians both on this continent and in Europe maintain that tuberculosis is often imparted to human subjects by milk from diseased cows; and Prof. Bollinger, in a paper read not long ago in Munich, has sustained their position. He said that repeated experiments show that the milk of tuberculous beasts has a very decided contagious influence, and its noxious properties cannot always be expelled boiling. The professor enjoined upon by farmers the necessity of taking the strictest care of their stock, and upon people generally the greatest care as to the quality of milk they use. Prof. D. E. Salmon, of the U. S. Bureau of Animal Industry, declares his belief that tuberculous milk is an exceedingly prolific source

of consumption in the human family, and says there are clinical observations proving the transmission of tuberculous from animals to man through the use of this fluid.

But let us come to something more definite. Prof. Walley says: "In 1872 I lost a child in Edinburgh under circumstances which allowed but of one explanation, viz., that he had contracted mesenteric tuberculosis through the medium of milk." A Mr. Cox, of the Army Veterinary Department, England, has related the particulars of a case which led to the same conclusion; as also has Mr. Hopkins, F. R. C. V. S., of Manchester. Fleming has referred to a similar case as occurring in the child of a surgeon in the United States; and a short time ago, says Walley, a case of mesenteric tuberculosis by the imbibition of milk occurred in the child of a well known veterinary officer of the Privy Council. At a meeting of the Edinburgh Medico-Chirurgical Society, held last year, Dr. Woodhead referred to some undoubted cases of transmission to man and the pig by the medium of milk.

A few years ago in a paper, bearing upon this subject, which I had the privilege of reading before the Toronto Medical Society, I mentioned the two following cases which had then but just been recorded in the *U.S. National Health Bulletin*: One by Mr. J. Shaw, Veterinary Surgeon and Prof. of Vet. Med. in Cornwall University, in which a family cow, in Brooklyn, U. S., was found in an advanced state of tuberculosis, and the owner, one William Martin, and his wife, were rapidly sinking under the same malady; in the other case, reported by Dr. Corlies, of New Jersey, a family cow, supposed to be suffering from lung plague, was found to be afflicted with tuberculosis instead, and the owner's wife, who had been making free use of the milk warm from the cow, was suffering from the same disease, but was persuaded to give up the use of the milk, when she underwent an immediate and decided improvement.

A more striking case than any one of these was recorded in the *Medical Press and Circular* a few months ago, by Denune

of Berne, the details of which are as follows: An infant, aged four months, belonging to a family whose history was absolutely negative in regard to tubercular affections, died of tuberculosis of the mesenteric glands, a fact confirmed by a post-mortem examination. The glands alone contained the bacilli: or at least none could be found in any other part of the body. The child had been fed with the milk of a cow which was kept for the special purpose, and, for the purpose of enquiry, the animal was killed and examined. The left lung and pleura were found to be studded with tubercle, in which the bacilli were easily detected. The milk first drawn yielded but negative results bacteriologically, but the bacilli were found in portions of this fluid expressed from the deep parts of the mammary glands.

The journal alluded to regards this case as important from another point of view: as if, instead of a human infant, a calf had consumed the milk from its mother's udder, it would in all probability have become tuberculous, and the case would have been regarded as one of hereditary transmission.

According to Prof. Bang and others, the cream and butter, and also the buttermilk, from tuberculous cows has been shown to be as infective as the milk, if not more so. This is of the most serious importance of all: for although the milk and flesh can doubtless be so cooked as to be rendered safe, it is not so practicable to cook cream and butter.

Now it becomes a question—is the disease in Canada so prevalent among cows or other animals as to create alarm or uneasiness? I should say at once, although not very prevalent, it is sufficiently so, in view of all the facts which I have brought before you to-night, with others yet to be noted, to give rise to much uneasiness, and indeed, to more than this, if some decided action be not soon taken with a view of lessening the danger,—as by a system of inspection of both cows and beef, and of the education of the farming community in relation to the whole subject. I think I can bring before you evidence which would convince anyone, that now is the

time to take some action in order to avoid or prevent much more serious consequences in the near future.

I will first say a few words relating to the early symptoms of the disease in cows. A peculiarity of the disease, which much increases our difficulty in deciding upon the point now under consideration, and which must not be overlooked, is the obscurity of the early symptoms. As Prof. Walley says: Under certain circumstances animals may become extensively diseased, and yet no suspicion of the fact be aroused in the minds of the owners of, or the attendants upon, such animals.

According to Fleming, the first perceptible signs are general dullness and indifference, and less activity and energy; with heightened sensibility of the skin, especially over the withers, back and loins, manifested by marked shrinking of the animal if these parts be pinched. There is exaggerated sexual desire, marked by continual or frequent periods of rutting: such animals being known as "bullers" (in France, as *tavelières*). They rarely breed, however, though they may now fatten or yield as much milk as if quite well. The milk is more watery of, a bluish tint, and less rich in nitrogenous matters, fat and sugar, but containing a larger proportion of alkaline salts. There is a dry, deep, though feeble cough, especially on exertion of the animal or on sudden change of temperature of the atmosphere, or on compression of the windpipe. There is not generally expectoration or nasal discharge, though at a later period exertion causes a flow of glairy mucus streaked with thick flakes. The walls of the chest become more sensitive on percussion, or thumping, and there is a duller sound. By placing the ear on the chest one may often hear, instead of the smooth respiratory murmur of air passing in and out the lungs, as in health, a harsh, rasping or loud blowing sound, especially in some part of the lungs. The heart's action is at times quicker and stronger; the skin, particularly toward the base of the horns and ears, is hot and dry; intermittent bleeding from the nose may take place; lameness,

too, and enlargement of the glands about the neck and elsewhere.

The above symptoms may continue, with little change, for months, but if no preventive or curative measures be adopted, the symptoms become intensified, and what is called the second stage, with weak digestion, diarrhoea, emaciation, etc., but the symptoms of which I need not here detail.

Veterinary-Surgeon Grissonnanché, at Paris Congress on Tuberculosis, in July, stated that the disease is characterized from the first by tumefaction of the pharyngeal glands, irregular inspiratory movements, a harsh friction sound on auscultation, with a short cough not easily provoked except by sharp percussion on the thoracic parietes, a procedure evidently causing pain to the animal.

Veysiere, at the same congress, said that he had seized a very fat and apparently well-conditioned cow on account of symptoms of a local tuberculosis, and a post mortem examination revealed tubercular lesions in the lungs and liver. He had injected some of the expressed juice of the meat of this cow into two rabbits and both animals had died. Guinard said he had seen a lady patient drinking the fresh blood from a fine appearing animal which was afterwards found to be tuberculous and was condemned. You will remember that the pigeon submitted by Prof. Mills was fairly well nourished when it died. Indeed, it is now generally well known that cows in good condition, appearing to the ordinary observer to be in good health, and which continue to give abundance of milk, may be the subjects of extensive tubercular deposits in different parts of the body.

From these facts it seems clear that the disease may be more common in any locality or country than would be apparent to the public or to any ordinary observer. Then it must be borne in mind, in considering the question of the frequency of cases, that if cows were allowed to die naturally, as human beings are virtually allowed to die, the proportion or number of cows succumbing to the disease would in all probability be

much greater. Many farmers, too, on the first symptoms or signs of any failure in the health of his animal, will, from self interest, almost instinctively, at once sell it to the butcher.

Before bringing evidence before you as to the degree of prevalency of the disease in Canada, allow me to briefly quote authorities as to its prevalency in other countries.

Dr. Heath, Pres. American Farmer's Club, some time ago (in *Lond. Med. Rec.*) stated that "This disease prevails extensively among such animals all over the world, and especially in populous and crowded localities. Observations in Mexico have led to the conclusion that 34 per cent. of all beasts slaughtered there were more or less affected with this disease, and probably 50 per cent. of the cows kept in large towns were thus diseased. The fact that this is not more generally recognized is, of course, owing to the animals being slaughtered before the disorder has attained any very noticeable development."

Mr. Salmon, Chief of the Washington Bureau of Animal Industry, at the last November meeting of the A. P. H. A., declared that from "an inspection of about half a million" cattle, the "widespread prevalence of the disease is certain." In the second and, I think, last report of the Maine State Board of Health is given in detail the history of the destruction by this disease of two very valuable herds within the past two years: one, the Orono herd in Maine; the other, that of the Willard Asylum Farm New York. At a recent meeting of the Butchers' Association in California, the agent there of the Bureau of Animal Industry spoke strongly of the prevalence of the disease—of the "rotteness" of the cattle—there, and the great danger to the public health therefrom. At the last meeting of the British Medical Association, Dr. Alfred Carpenter said it had been his duty to hear evidence when application was made for the condemnation of tuberculous carcasses, and that if all such meat were prohibited it would be impossible to feed such a population as that of London. One of the principal inspectors of the largest meat markets in London, he said, stated in the evidence that sometimes as much as

30 per cent. of the meat on sale was so affected. At this same meeting, Dr. Farquharson, M. P., after discussing the subject, said, "under these alarming circumstances, he held it was the duty of the government to deal seriously with it."

About two years ago I sent out questions to a large number of veterinary surgeons throughout Ontario, with the special object of finding out the facts as to the frequency or otherwise of cases of the disease in this province. I received a good many replies, although not so many as I had hoped for. Collectively, these went to show that in the opinion of the writers the disease was not very common, but that on the whole there were a good many cases of it. Some of the respondents mentioned recent cases observed, while others wrote that although few cases had come under their own observation, other veterinary surgeons, they were informed, had observed many cases. One wrote, in effect, that he had reason to believe the disease common, but that stock owners wished to keep it quiet: and he expressed the wish that his name should not be publicly mentioned in connection with this information. At the opening of the Montreal Veterinary College, in October, 1887, Dr. R. P. Howard, Dean of McGill Medical Faculty, in the chair, Mr. McEachren, Chief Veterinary Surgeon of the Dominion, said: "The communicability of tuberculosis from animals to man has been proven beyond a doubt. The insidiousness of this disease makes it difficult to arouse the people to its danger. The milk supply is often tested by public analysts and police inspectors to prevent its adulteration by water, but no effort is made to prove the absence of diseased germs in the nutrient fluid which forms the chief food of infants and invalids. . . . He was aware that this disease was on the increase among cattle in Canada as elsewhere." In the ninth annual report of the Agricultural College and Experimental Farm, Guelph, Ontario, it is stated that "the extent to which this disease exists amongst the better breeds of cattle in this country is alarming, for many reasons; not the least one of which is the danger to which the public

are exposed from the consumption of meat from such animals. From an economic standpoint the outlook is serious, as the annual loss must be very great, and will continue to become greater as long as so little care is observed in the selection of healthy dams and sires."

Evidently the belief that heredity is an important factor in causing the disease still retains its hold upon veterinary surgeons to a much greater extent than upon the medical profession.

The President of the New Brunswick Medical Society, Dr. P. R. Inches, at the last annual meeting of the Society, after alluding to a number of outbreaks of the disease, 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 infrequently, 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 tubercule." The animal was isolated, quarantined, and kept under observation. After death an examination took place, which verified the diagnosis in every particular. The case was reported to the Department of Agriculture. The veterinary surgeon tells me, said Dr. Inches, that such cases are not rare, and that the milk of such animals is used and no doubt their flesh often eaten. 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.

Now, from the foregoing facts, and from others so well known that I have not here alluded to them, the whole question may be summoned up, and the conclusions which may be reasonably drawn therefrom are briefly as follows:—

1. That, as it has been long known that glanders and hydrophobia may be communicated from animals to man, and it has been clearly demonstrated that tuberculosis may be communicated from animal

to animal, from man to man, and from man to animals; that the bacillus of tubercule, invariably found in all tuberculous matter, is in animals, so far as can be ascertained by the microscope, by their action in different culture media and their other biological characteristics, identical in every respect with the bacillus in the tuberculous matter in man; that many of the more highly organized parasites, such as tape worm, trichina and other forms, are common alike to both man and animals; that there are no known differences, physiological or chemical, between the constituents and structure of the various parts of the human body and those of the domestic animals such as would lead to the conclusion that any parasitic organism which finds suitable conditions for its development in the latter would not find equally suitable conditions in the former; that it appears that where cows are not to be found, tuberculosis is not common or is quite unknown, and that many observers and investigators in both Europe and America declare that wherever the disease is prevalent amongst cows it is proportionately prevalent amongst the human population; and finally, that many cases of tuberculosis in human beings are upon record in which tuberculous milk had been consumed as food, and as no other cause could be assigned, there was the strongest presumptive evidence that the milk was the source of the disease: it would, therefore, for these reasons, appear to be in a high degree unreasonable for us to refuse to receive as a fact the extreme probability, at least, that this disease may be, and not infrequently is, conveyed to the human body by the meat, milk and butter of tuberculous cows.

2. That although cases of tuberculous disease in cows are not known to be very common in Canada, it must be remembered that from the attention of the public not having been specially drawn to the subject, the disease has not been suspected or looked for: that there is abundant evidence that the disease is prevalent in many parts of the adjoining States, many entire herds there having been

destroyed by it, while one of the inspectors of the largest meat market in London, Eng., in evidence before Dr. Carpenter, has declared that sometimes as much as 80 per cent. of the meat examined there was tuberculous; that a report of the Experimental Farm at Guelph, Ontario, states that "the extent to which this disease exists amongst the better breeds of cattle in this country is alarming," that the chief veterinary surgeon of the Dominion, Mr. McEachran, states that the disease is on the increase among cattle in Canada, as elsewhere, while other veterinary surgeons say it is not rare amongst us, and at least one entire herd in Nova Scotia has been destroyed by it; that the insidious nature of the disease causes it to be overlooked and makes it difficult to arouse the public to its occurrence and danger; that according to the best authorities, cows may be tuberculous in a marked degree and yet continue to thrive and give abundance of milk, containing the tuberculous bacilli, and yet the disease not be suspected by the owner or attendant; that as cows are not allowed to die naturally but are slaughtered for the market, and doubtless in some cases tuberculous cows are thus disposed of before the disease has attained noticeable development, and that even in the known early symptoms of the disease in individual cases, such animals would as a rule be sold by the owners to the butcher

in order to prevent loss; and finally, that in Canada there is no system of inspection of either live animals or slaughtered carcasses by which the proportion of cases of the disease might be estimated; it is, therefore, possible and even probable, that cases of tuberculosis in cows are of much more frequent occurrence in this country than may seem at present to be the case, and that tuberculous meat, milk and butter may now be sometimes sold in the market and be a cause of tuberculosis or consumption in the human organism.

3. That this disease is well known to be infectious; that it is the rule with infectious diseases that, when no special means is employed to prevent their spread, cases will become more and more frequent, and in a constantly increasing ratio,—one case giving rise to 2, 3 or 4 cases and these again giving rise to probably 4, 9 or 16 other cases, and it is to be feared that if some preventive measures be not employed, the disease may, and is likely to, soon become as prevalent amongst cows in Canada as in any other country; and that, therefore, it is most desirable, and in the interests, not only of the public health, but of all stock growers and dairymen, that some means be put into practice at the earliest possible time with the view of preventing, while it is yet the easier to do so, the spread and increase of the disease.

THE HOLT SYSTEM OF MARITIME SANITATION—AN IDEAL QUARANTINE

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IN August, 1886, during a visit to the Southern States, I, through the courtesy of Dr. Joseph Holt, the President of the Board of Health of the State of Louisiana, visited the quarantine station on the Mississippi. Thanks to the courtesy of Dr. Thomas Y. Aby and his assistant, Dr. Ryan, I had every facility given me for seeing the exact working of that most admirable system—a system built up and developed from point to point under the able guidance of Dr. Holt. It was my intention to have written a report on that quarantine system for the last issue of the biennial report of the Board of Health of the State of

California; but, having stayed some time in the South during great heat and moisture, it resulted in a severe bilious-remittent fever, and instead of sending the report on for publication, I became intimately acquainted with a private ward in St. Luke's Hospital, Jacksonville.

Between that date and this, fire has destroyed the quarantine station as I knew it in 1886. Last year on my return from Cuba, per steamship "Hutchinson," I, together with all her passengers, went through the whole process. While the fire undoubtedly upset the plans of the Board for the time being, the result as a

whole, I take the liberty of thinking, has been undoubtedly beneficial, as the building used to-day is a substantial one, made of brick, whereas the earlier edifice was built of wood.

I will now endeavor to give you a word picture of what happened to the steamship "Hutchinson" and her passengers upon reaching the upper quarantine. The passengers and their luggage were disembarked. They walked the pier to the building referred to. One room was allotted to the women and another to the men. Their trunks were opened and the contents taken out and placed upon movable frames that ran into a steam-tight chest of huge proportions. All of the effects were arranged on supporting bars inside what I take the liberty of calling a steam chest, the various sections of which had checks fastened on them externally, and a check corresponding with that number was given to the individual whose effects were on a given series of shelves or supporters constituting a vertical section within the steam chest. Such, briefly told, was the way in which our effects were taken and placed within that steam chest.

Now, to deal with what followed. Within the chest were steam coils without number, for dry heat or moist steam. The temperature ran up immediately to 230, a point at which, as all students of bacteriology are aware, germs and spores are killed. Later the compartment was filled with moist steam; thus the effects were first baked at a temperature of 230; then they were saturated with live steam at a temperature of 230, and were allowed to remain within the chamber upwards of half an hour. At the end of that time the long, sliding vertical sections were drawn out, and the individuals received their effects, piping hot, but wholly undamaged. It will be well to add, at this point, that the finest silks have been treated in this way without the slightest damage. While this process of killing germs, or any other morbid particles, that might have become entangled in our effects while in Cuba was going on, many of the coarser things which could not be placed within the huge steam chamber, such as boots,

shoes and rubbers goods, etc., were thoroughly drenched with a solution of mercuric bichloride.

It will be just to state that this excellent application of mercuric bichloride was first thought out and applied by Dr. Joseph Holt.

So much for the effects of the passengers and their luggage. Next let us get back to the steamer. While we had been absent a steam tug had been fastened to her starboard quarter, and a huge asbestos pipe had been adjusted to an opening in the stern in hatch. This pipe connected with a large furnace, in which sixteen pans were filled with burning brimstone. A current of air from without inwards was passing through the furnace, and the sulphurous acid gas thus generated was driven by a powerful steam pump through the asbestos pipe into the lower holds and all parts of the vessel. I may briefly cover this important section of the work by stating that it is most thorough and effective—so effective that all mice, rats, and cockroaches are killed. Time and again unfortunate cats that have been left on board have been killed. Thousands of feet of sulphurous acid gas are thus forced into all parts of the vessel under high pressure. The hatches are on, and the gas is confined for upwards of two hours. All who are familiar with this most admirable of disinfectants and germicides know what a penetrating and all powerful agent it is.

I may state that vessels reaching the Mississippi, coffee-laden from Brazilian ports, have special shafts placed from the combing of the upper hatchway and extending to the floor of the lower hold, when such vessels reach the quarantine station. I saw one (the "Maranhm") with a cargo of twenty thousand sacks, treated at the old quarantine station in the fall of 1886. Six hours was ample—a mere minimum of detention.

The decks and all parts of the ship are thoroughly washed with a solution of the mercuric chloride, which the assistants spray over everything.

I have omitted to state that all the dirty linen from the ship, and everything of that nature, was taken on shore and thor-

oughly treated, so that it is simply impossible for any infected material to reach the city of New Orleans.

The mercuric solution used for the purpose of drenching the decks, disinfecting the bilges, etc., is kept in a huge tank at the end of the pier, a tank holding some ten thousand gallons. The steam tug has been fitted with all the necessary appliances—appliances that have been elaborated from point to point by necessity combined with experience. In the able hands of Dr. Holt and his assistants, they have evolved the most perfect system of maritime sanitation known to science or the world.

Such, briefly told, is the expeditious working at the upper quarantine. I do not enter into details as to the boiler-room, the steam boiler, especially constructed, or the methods by which the steam chamber is supplied with live steam, and with dry heat. I simply deal with the results.

The passengers are not allowed to leave the quarantine station.

Among the passengers with me on the steamship "Hutchinson," on that trip from Havana, was Dr. J. W. Ekens, a gentleman already alluded to in another article in this report. We were greatly pleased with all we saw, but thought we discovered a weak point, in that the clothing worn by the passengers themselves, was not taken from them and disinfected, in the same manner as obtains in England when contagion or infection is likely to be carried about. Upon reaching New Orleans, and during a pleasant interview with Dr. Holt, we took the liberty of making this suggestion, when the system would be perfect in every detail. Dr. Holt received our suggestions in a frank and open way characteristic of that gentleman, and the day following he telegraphed the quarantine station that on and after that date all passengers should be supplied with a stit of their clothing that had been thoroughly disinfected, and that the suit that they had worn should be taken from them and put through the process of the steam chamber. [We would suggest that the skin of the bodies of the passengers, too, be disinfected as by a thorough antiseptic bath.—ED. HEALTH JR.]

The exact beauty of the Holt system,

briefly stated, is this: All germ life and spores are first and finally disposed of: secondly, cargoes are handled expeditiously at a minimum expense; thirdly, absolute protection is granted the City of New Orleans; the ship master and passengers suffer but small delay, six hours to eighteen hours being ample for the purpose: and after the vessel clears from the upper quarantine for the Crescent City, she is sweet, safe, and healthy, and the State authorities know that vessels that have undergone this most crucial of treatments are not carriers of disease; they cannot be.

Now, to revert to some other phases of quarantine system, as developed by Dr. Holt. On reaching the mouths of the Mississippi, the vessel is boarded by a medical man in the employ of the Board of Health. He makes a crucial inspection to see if there are any cases of infectious or contagious disease on board. If the vessel is clean, and there are no cases of disease, she receives permission to proceed to the upper quarantine, where all the steps already described follow. On the other hand, if there are cases of yellow fever or smallpox on board, she passes up the river a given distance and into an inlet, where the necessary steps are taken to disinfect her in the most thorough manner; her patients are placed in a small hospital, if necessary, and the vessel may be detained from four to six days, according to the requirements of the case, each and every case being treated on its own merits. If the passengers are disembarked, and the vessel has undergone the regular process of fumigation, disinfection, etc., she is allowed to proceed to the upper quarantine station, where each and all of the steps already described are enacted *de novo*—or, in other words, she undergoes double disinfection, fumigation and cleaning.

With the best of knowledge, born of experience, Dr. Holt years ago refused to recognize even the so called clean bills of health from infected ports. I refer to the disease producing and distributing centres of Colon, on the Isthmus of Panama, Vera Cruz, on the Atlantic coast of Mexico, and the various ports of Cuba. All of them are constant sources of danger to ports trading with them, particularly southern ports. Previous to 1884, when Dr. Joseph

Holt was elected President of the Board of Health of the State of Louisiana, old-time methods obtained on the Mississippi, and owing to those old-time, unenlightened practices, commerce on the Mississippi during the summer was practically killed. The detentions were lengthy and the charges so heavy that commerce by the way of the Mississippi during the summer or fever months, was almost out of the question, but thanks to Dr. Holt's careful study, all that has been done away with. Trade by the Mississippi goes on in summer the same as in winter, it being practically unhampered, a result that could be obtained, and obtained only by the most elaborate methods instituted by Dr. Holt. Unimportant branches of trade that were hitherto practically unconsidered, such as the banana trade, have taken on the handsome proportions of \$1,500,000 per annum. For one consignment of coffee that was received under the old system, it will be safe to say that hundreds are received; in short, that the old-time method of quarantine, which debarred Louisiana of her just maritime trade, is now of the past.

In concluding this brief and very hastily written article, it is but just to Dr. Holt to state that he is the father of this most admirable of methods of maritime sanitation and that to-day in Central and South America, in Mexico and the West Indies, all health authorities speak of the Holt system with admiration.

Quite recently, when in Port of Spain, Trinidad, one of the British West Indies, I learned from Dr. Leonard Crane, C. M. G., the Surgeon General of the Island, and Dr. C. Burgoyne Paisley, its ever vigilant health officer, that a system somewhat similar to the Holt system is about to be adopted there. I simply cite this to show how the good work done by Dr. Holt is bearing fruit, and how science, thanks to the conscientious and indefatigable workers of his type, is making constant strides. In conclusion it will be safe to say, that knowing what we do of germs, germ life, germicides, disinfectants, and the like, Dr. Holt has combined all of the best methods for destroying germs and the result is "An Ideal Quarantine."

THE ASCENT OF MAN—EVOLUTION—POPULATION OF THE FUTURE.

THE upright posture has been supposed to have its disadvantages. This consideration has led someone to suggest that the fall of man consisted in his getting upon his hind-legs. The fall, then, according to such persons, was a fall upward. This, they say, has had some baneful results. Uprightness and progression demand fearful penalties. Gravity is always at work to prevent humankind from being to happy. The animal mechanism, despite weak points here and there, is a relatively perfect structure when in the horizontal posture. Once it assumes the vertical, all this is changed. The weak points are exposed, and the entire structure is strained. For an animal that goes on all-fours the valves in the veins are sufficient; but for most of them are inadequate. Hæmorrhoids, and their frequently accompanying curse, prolapsus ani, are certain agonizing penalties paid for the pleasure of walking on two feet instead of four. The poetic assertion that men were made upright and perfect is slightly weakened

by the subordinate clause: "but they have sought out many inventions." Another source of trouble is found in the scars that appear to be the remains of organs or glands that have disappeared through inactivity. These are sometimes the seat of disease and harboring-nests for pathogenetic germs. Weakness is blended with strength. The law of heredity preserves the former with as much pertinacity as the latter, leaving to the survival of the fittest the improvement of affairs by a slow process of alimination.

Our upright posture has been held to be the cause of more ills and exposure to strain than would at first thought seem possible. "Descent and Disease," a paper by R. G. Eccles, M. D., in the "Brooklyn Medical Journal," sets this forth with admirable directness and skill. The doctrine of evolution is the author's working hypothesis, the "Open sesame!" to myriads of Nature's secrets. By its light, countless doors have been found that earlier seemed mere baffling *culs-de-sac*.

To withdraw this conception from the domain of science would be about as difficult as a return to the Ptolemaic system of astronomy. If pathology follows in the wake of physiology in making use of the evolutionary doctrine of the descent—or, rather, the ascent—of man, much that is contained in works on practice, gynæcology, and even surgery may become as antiquated as the chapters on phlogiston in old books of physics and chemistry. A knowledge of how a thing grew, how it came to be as it is, constitutes an important guide to its successful management. It is necessary to search for the persistent causes of disease along the route of apparent or real development of the human race, from the unicellular amœba to the highly differentiated Caucasian. Heredity tells the story of the experiences of the lower animals as well as of our known human progenitors. The history of our weakness and strength is thus chronicled in the human frame. . . . The weight and volume of the pelvic organs appear to have altered the box-shaped pelvis of quadrupeds into the wedge-shaped pelvis of man. Every difference between the pelvis of a four-footed animal and that of a Caucasian is just what might be expected under an incessant strain with conditions as they are. This might be contemplated with some complacency if human heads diminished correspondingly in size. Unfortunately, the reverse is the case. The conditions of propagation seem destined to great embarrassment, and the race seems likely to become less prolific, which may not be a disadvantage. The upright posture, especially in pregnant woman, has for ages put a strain upon the capillaries of the spinal region, and has tended to cut off the blood supply in the growing vertebrae. This, it is suggested, has greatly increased the liability of infants to spina bifida. It may also have helped to do away with the caudal appendage that our humbler cousins still possess, and of which the os coccygis is the rudimentary form buried in the tissues.

Heredity must be recognized as repetition. An animal that develops by its law must repeat the steps which produced it, wholly or in part. Blood must flow

through all the old channels before it can reach the place where it can begin to develop new ones. Pathology must seek to put itself upon a scientific basis by attempts at broad generalizations. Chemical botanical, electrical, and physical theories have led to much substantial progress in therapeutics. It is unreasonable to suppose that the hypothesis that originated in the brain of Herder, the speculations of Lamarck and Earwin, Wallace, Huxley and Morse, Mivert and Haeckel, together with those of Cope Lankester, Dollinger and Klein, may yet do as much for pathology?

THE PLACE OF EVOLUTION.

That the hypothesis of evolution has not arrived at the dignity of a theory is of comparatively slight moment. As Copernicus says: "It is not necessary that hypothesis should be true or even probable; It is sufficient that they lead to results of calculation which agree with observations." Like the x, y, z of mathematics, the doctrine of evolution holds an important place. It has led to discoveries impossible without it, and must be held in grateful remembrance always, whatever its ultimate fate. The way to find out how the universe came to exist is to study the universe. The hypothesis of evolution seems capable of proving a real vantage ground in the warfare against disease. Yet it may not prove so, and then it will be an easy thing to give it up as a working hypothesis in this particular sphere. Science labors not for the glory of a single idea. Its aim is to ennoble human life by making it healthier and happier and increasing material prosperity. When Molyneux fancied that the observations of the nutation of the earth's axis destroyed Newton's theory of gravitation, he tried to break it softly to Sir Isaac, who only answered: "it may be so; there's no arguing against facts." Such is the calm serenity of the flexible mind, ever open to conviction, above narrow prejudice or personal preference, and loving truth for truth's sake.

A word more concerning fallen man, who fell upward. Is man a degenerate animal? Is humanity doomed to early extinction? Pessimism has no scientific basis. It is contrary to reason. Man sur-

vives, and is likely to survive, because the fittest to live, move, and have his being in this delightful but very imperfect world. Now, the fittest is not the ideal by any means. It is simply the ideal of the situation, the creature best adapted to its surroundings, the one fittest to survive, the only one that can survive. Were absolutely perfect man a possibility, environment—which is by no means perfect—would soon be too much for him, and speedy extinction his inevitable destiny. Balance once destroyed, and harmony out of the question, humanity must go. But, like the policeman in the comic opera, it does not go. It stays with all its imperfections on its head—and elsewhere. As a mechanism, the human body is in some respects imperfect. The exposition of its alleged persistent weak points referred to must convince even the most arrogant of this melancholy fact. Even if not exactly poor worms, we are poorer in spots than was formerly believed. Yet there is comfort in the situation after all. It is well to remember that there are two kinds of perfection, the mathematical and the utilitarian. And the glory of the one is not the glory of the other. The first is quite outside the sphere of vital action. It is the prerogative of minerals and machinery. Man in mathematical perfection could not exist for a single instant. The proposition must be dismissed. Imperfect as it is, the human body is the best possible under the circumstances. Its imperfections are inevitable and essential, the result of the adaptation of means to the greatest number of ends.

THE POPULATION OF THE FUTURE.

What, then, of mankind in the future, according to the evolutionary idea? Civilization everywhere has had for its antecedent the increase of population. Numbers beyond the means of subsistence constitute a never-ceasing requirement for skill, intelligence and self control, and involve the exercise and growth of these qualities. The peaceful struggle for existence in a society that becomes ever more complex calls for an increase of the nervous centers in mass, complexity and activity. The

larger emotion needed as the source of energy for men who must hold their own and bring up families under intensifying competition is, other things being equal, the correlative of larger brain. In the original cost of construction and in subsequent cost of working, the nervous system must become a heavier tax upon the organism. This implies a diminished reserve material for race maintenance, owing to the costliness of nerve structure and nerve function. But this greater emotional and intellectual power and activity must be understood as becoming, by small increments, organic, spontaneous and pleasurable. The higher nervous development and greater expenditure in nervous action must not be taken to mean an intenser strain or a mentally laborious life. Even now, when relieved from the pressure of necessity, the Caucasian's passionate energy finds voluntary expression in enterprise and activities which the savage could not possibly keep up to satisfy urgent wants. In still higher degree our descendants seem destined to find the joy of living in careers entailing even greater mental expenditure. The demand for increased material to establish and carry on psychical functions will be a constitutional demand. Evolution points to a greater adjustment of man to his surroundings. In all its aspects, whether general or special, it is an advance toward equilibrium. Man, as now constituted, fails in certain matters. Failures to meet some of the outer actions to which he is exposed—actions mostly involved, remote, irregular—and failures to counteract the separate and joint forces amid which the organism exists, are the sum and substance of man's incompleteness. "Were there no changes in the environment but such as the organism has adopted changes to meet, and were it never to fail in the efficiency with which it met them, there would be eternal existence and universal knowledge."

The necessary antagonism of individuality and genesis not only fulfills with precision the *a priori* law of maintenance of race, from monad up to man, but insures final attainment of the highest form of this maintenance, in which the

amount of life shall be the greatest possible, and the births and deaths the fewest possible. War is becoming unfashionable to a certain extent, accidents are fewer and fewer as civilization advances, disease in many forms is now known to be preventable, and these forms will doubtless be prevented in the future; women are becoming better instructed in regard to their place in nature and the care of their offspring, and men are learning how to value and care for women so as to afford them the best health and development. Excess of fertility has rendered the process of civilization inevitable; and the process of civilization must inevitably diminish fertility and at last destroy its excess. Pressure of population has been the proximate cause of progress, producing the original diffusion of the race, compelling men to abandon agriculture, forcing them into the social state, and making social organizations inevitable. It has developed all social sentiments and stimulated to progressive improvements in production, to increased skill and intelligence, and to closer contact and more mutually dependent relationships. When the habitable parts of the globe are raised to the highest state of culture, when all processes for the satisfaction of human wants are brought to perfection, when the intellect is developed to competency for its work and the feelings are trained into complete fitness for social life, the pressure of population must gradually bring itself to an end. Humanity seems destined to excel in quality rather than in numbers. American mothers may some time share the proud position and dignity of the lioness in the fable, who, when twitted in an assemblage of other animals with the fact of producing only one at a birth, replied grimly and much to the point: "But that one is a lion." The two, three or possibly four children in the families of the future promise to be citizens worthy of the State.

How may this further evolution, this higher life, this greater co-ordination of actions be expected to show itself? This

may be answered by a review of present human needs. Numbers are no longer a prime necessity, and mechanical appliances are fast supplanting brute force. Human progress in the future points not to numbers, strength or agility. There is still a need for increased mechanical skill—co-ordination of complex movements—for awkwardness entails injuries and death, and the complicated tools of civilization require an increasing delicacy of manipulation. The advance in industrial and aesthetic arts implies a corresponding development in the executive and perceptive faculties of man. Advances in art and mechanical skill necessarily act and react. There is also ample room for an advance in intelligence, and a great demand for it as well. Life is shortened by ignorance. It kills more children than any disease. In attaining complete knowledge of our own nature, in ascertaining the conditions of existence to which we must conform and in discovering the means of conforming to them, there is abundant scope for intellectual progress. In morality—the power of self-regulation—there are also vast possibilities for improvement. The further cultivation of the will is an essential factor in larger and more complete living. Want of will more than want of knowledge betrays poor humanity into countless imperfections of conduct. Recognition of the proper course is not the only thing needful. There is a further prerequisite—a due impulse to pursue that course. Sentiments responding to the requirements of the social state and emotions that find their gratification in duties fulfilled must be more fully developed before the crimes, excesses, dishonesties, and cruelties that now so greatly abbreviate life can cease. Thus, it will be perceived that future evolution—a more complete moving equilibrium—is likely to take the direction of higher intellectual and emotional development, together with its correlative and complement, increased mechanical skill.

MILK AND MOTHERHOOD.

UNDER this title Dr. Ephriam Cutter contributes an article to the *Annals of Hygiene*. He writes: The mother's milk is made out of her blood by the epithelial cells of the lining membrane of the tubes of the mammary glands. The milk is a product of the protoplasm of the epithelial cells under the wonderful, simple, but not yet understood, life chemistry of these cells. The blood, loaded with its food products, congests the tissues, and the wonderful product called milk is secreted, specially under the stimulus of sucking. The cells that secrete bile have the same protoplasm to our observation, but why cells in the liver secrete bile and cells in the breast secrete milk is as abstruse a problem as the reason of the yellow color of gold, the whiteness of silver, etc.? Here we are on the confines that come between us and our Creator. Some say it is the nature of the liver cells to secrete bile and of the mammary cells to secrete milk. These are satisfactory explanations to finite minds, as the word "Nature" implies a God and Creator. Derived from the verb "nascein," to be born, the word "Nature" refers back to a being whence the things we find in Nature were born—to a fatherhood and motherhood in an Almighty Creator, "in whom we live, and move and have our being." Indeed the subject under contemplation is one of the many connected with the text.

When nursed by the mother, the child gets the milk pure and unadulterated, warm with the life of the mother and ready to be digested and assimilated. There is no admixture of foreign odors, vegetations, no dilution, no chemical changes from telluric and atmospheric, electrical or other influences. It is warm with life, full of vital force, and is in a nascent condition ready to do the most good.

In Japan it is customary for noblewomen to sometimes suckle their children to the age of ten years. In ancient Egypt the human infant was sometimes so nourished until the seventeenth year of age. If Rameses was suckled till he was seventeen

years of age he must have had a splendid start in the world. In the absence of any fact to the contrary, as Dr. Cutter states, we may infer that it was understood that lactation was a great advantage physically, and that the ancients were wiser in the matter, and considered it to be so good an example that the process of suckling a seventeen year old boy was depicted on a monument which is extant to-day.

The editor of this JOURNAL has witnessed a fine healthy girl seven years of age, standing by her Canadian mother's side drawing nourishment from the fountain from which she had first obtained it, and which had helped to sustain her for a period of over seven years.

On a number of occasions it has been urged in this JOURNAL that where cows milk is fed to children it should be given if possible fresh and warm direct from the cow. The eminent Dr. Salisbury makes his patients take milk warm from the cow. A pint bottle previously prepared properly and warmed is held so that the stream of milk from one teat is injected into the open mouth so as not to impinge on the wall of the neck. When the bottle is filled the patient immediately drinks it rapidly. It would be better to take it directly from the teat if it could be done. Here it may be remarked that this able physician was born on a farm, and when a boy used to go about with a silver cup tied to his neck by a string. Whenever he chose he was allowed to go among the cows and get a drink of milk warm from the udder. It has been said that, "possibly this lactation may explain the unusual intellect he possesses and the great things he has done in medicine."

The practice of wet-nursing is becoming quite too common. Only rarely is it necessary to deprive the mother of her right and duty and the little innocent of its right, and most suitable food, by employing a wet-nurse. Queen Victoria was nursed by her good German mother and in her time has it is said nursed and watched and guarded nine children as a true and loyal mother should. It is recorded, too,

that the mother of Louis IX of France suckled and brought up all her children. " During an illness under which the queen labored, her infant son was placed at the breast of one of her ladies of honor ; upon seeing it, the royal mother called for the young prince, put her finger into his mouth, and caused him to vomit the milk he had just swallowed, exclaiming, Do you suppose that I shall suffer anyone to take from me the title and office of mother which God has given me? She then placed the child to her own breast, and nursed him, notwithstanding her illness. During illness of almost any kind however of the mother it would be imprudent to allow an infant to thus draw nourishment from her.

Dr. J. E. Winters (in N. Y. Med. Rec.) writes as follows in reference to this important subject: With these and other salutary examples before her, the unnatural mother of to-day will stand uncon-

cernedly by and watch her child while it draws the breast of the lowest grade of her sex. The lives of nine-tenths of the wet-nursed children are purchased at the expense of the lives of other children. The practice of placing children to day-nurse, either in families or in institutions, in order that the mother may go as wet-nurse, is iniquitous. It is lamentable that a system so pernicious and injurious to the best interests of society should be tolerated, and even encouraged, by the most eminent and honorable members of the medical profession. Briefly, we select a hireling to perform the mother's most sacred duty; often one who occupies the lowest place in the social scale. . . . If after being nourished from such a fountain the child is perverse, froward, insolent, and has no regard for truth, who is accountable? I believe, with rare exceptions, their employment should be suppressed.

THE PUBLIC HEALTH.

BIRTHS, MARRIAGES AND DEATHS IN ONTARIO IN 1887.

Although the Ontario statistics relating to births, marriages and deaths are far from being complete, they afford a great deal of very useful information, wanting which would be a great drawback. The annual report of these events in the Province for 1887, has just been received and seems to be of more than usual interest.

The return shows that during the year the number of Births registered in the Province was 45,904, of Marriages 14,460 and of Deaths 23,414, shewing, as compared with the previous year, a decrease in births of 554; an increase in marriages of 615; and an increase in deaths of 230. The total registrations number 83,778; a small increase over the total of 1886. The ratios to population were as follows: Births, 21·7 per 1,000; Marriages, 6·8 and Deaths, 11·5 per 1,000.

Of the births there were 1,814 more of males than of females. During the last ten years there have been recorded 16,287 more births of males than of females.

There were only 396 illegitimate births registered; a decrease of 275 as compared with the previous year; while the average for the ten previous years was 693. The report states: A very large decrease has taken place in the number of illegitimate children registered in 1887, chiefly in the Counties of Carleton, Middlesex, Wentworth and York; the total decrease in these four counties alone numbering 207. Evidently these births were not as fully registered as in former years.

In 2,533 of the 14,460 marriages, the female was under twenty years of age—quite too many, we think—while in only 131 of them was the male under this age. In 7,035 of the total number of marriages, the female was over twenty, and under twenty-five years of age; and in 3,078 of them between twenty-five and thirty years of age.

Of the deaths, the months of March and April, as usual, returned the highest number in the whole Province. September was second in 1886. This was quite unusual, as in previous years it ranked low down in the order of deaths by months. In every year June returns the fewest

deaths, and may therefore be looked upon as the healthiest month in the year. In the cities July was the most fatal month, caused doubtless by diarrhoeal diseases. The healthiest month in the cities was October.

Of the total number of deaths,—23,414, about one-third,—7,794, were of children under five years of age; while about 44 per cent. of the totals were of those not having reached maturity, or twenty years of age. Less than one-half had reached the age of thirty years.

Consumption was, as usual, the most destructive of all the diseases, causing 2,556 of the total number of deaths, or more than one-tenth. For the whole Province the mortality was 1·2 per 1,000 of the population; for the cities, 1·9; towns, 1·2; and for the rural districts, 1·07 per 1,000.

Next in fatality comes inflammation of the lungs, causing 2,289 deaths: then follow nervous diseases (including convulsions, etc.), anemia and heart disease, causing 2,157, 2,034 and 1,456 deaths, respectively; while sixth, as to fatality, stands diphtheria, causing 1,340 deaths. The proportion of deaths from diphtheria in the different counties varied greatly. In Prescott and Russell (United), the ratio was as high as 2·1 per 1,000, while in six counties it was not above ·2 per 1,000. In the County of Prince Edward no deaths were recorded from this cause. In sixteen counties the ratio was above the average, and in twenty-four below it. In the cities the mortality was greatest in Toronto and Guelph, 1·5 and 1·6 per 1,000, respectively. Ottawa and London were nearly as great, 1·1 per 1,000 each. In Belleville no deaths were returned from this disease, and in Kingston and St. Catharines only five and three deaths respectively. Diphtheria was very prevalent in several of the towns in 1887, principally in Whitby, Napanee, Woodstock and Pembroke, the table shewing that the death-rate was 3·1 and 3·0 per 1,000 respectively in Whitby and Napanee; and 2·5 and 1·9 per 1,000 in Woodstock and Pembroke. In contrast to this severe mortality it will be observed that none of the deaths from the towns of Kincardine, Owen Sound, Perth, Picton and Port Hope were caused through diphtheria. The deaths of 130 infants under one year were

recorded, the mortality however, was almost exclusively confined to the period between the ages of one and fifteen years as the returns shew that out of the total deaths from diphtheria (1,340) no less than 1,105 died during that period. There were a few deaths from this cause at sixty years and over.

The returns from the cities and towns in Ontario are now probably about as complete as they can be obtained by any system. From the rural districts, however, for some reasons, they must be still very incomplete.

TORONTO BOARD OF HEALTH ANNUAL REPORT FOR 1888.

This report contains a great deal of useful matter much of it of interest to communities outside of Toronto. The correspondence of the Medical officer in the report is voluminous and often highly suggestive. The first step taken by the Board was to give the citizens the fullest information possible regarding the requirements of the "Public Health Act." This was done by way of having large boards placed in very conspicuous places throughout the City.

The Medical Officer had drawn up a Report setting forth the necessity of having the dairies, creameries, etc., thoroughly inspected, but owing to the large amount of important business before the Board the matter was left over for further consideration. Nothing further was done with the matter. It is the wish of the Board that next year will see a rigid inspection carried out.

Many private dwellings and 287 factories and manufacturing establishments had been inspected. The Medical Officer had brought before the Board a Report setting forth the great necessity of having the law amended, giving power to his department to order the closing up of all privy pits, wells and cisterns forthwith, these places being very detrimental to health and "any number of cases of sickness having been caused by their existence." "The recommendation was approved of and will have to be considered again at an early day." The citizens are gradually becoming educated up to the necessity of closing up all privy pits, and before many months very few will be

found in the central parts of the city. 161 privies had been abolished, and 109 w. closets and 37 earth closets put in during the year.

There will continue to be many sanitary evils until municipal Medical Officers are given greater powers. The report states: It is a matter of extreme regret that the Board has to report that the action of the Council in passing the Plumbing By-law without making any reference therein to the Medical Health Officer was most injurious to the health of the citizens, as a large number of matters were reported daily which require the attention of practical men, and as a result of such reports could only be dealt with to a certain degree and then deferred and dropped." It is not only expedient but requisite and necessary that the Plumbing Inspectors should report to the Medical Officer's Department on certain matters, and "the Board hope that such a provision will be made in the new By-law before being finally passed by the Council."

Altogether it is clear that a great deal of good work was accomplished in Toronto during the year by the health department.

VICTORIA, B. C. HEALTH REPORT FOR 1888.

Relative to sewerage, the health committee report that, before asking the rate-payers to vote a sum of money to carry out the sewerage system according to the plans now in possession of the Corporation, and known as the combined system, "your Committee would beg to recommend a careful consideration of what is known as the separate system, in as much as this system of sewerage cities is being adopted by all modern engineers in the new works being prosecuted on this coast. If the separate system should be adopted it will be found that it will be a saving of several hundreds of thousands of dollars to this city." The Medical Officer, Dr. Milne, as we have already noted has been urging the consideration of the separate system. The Medical Officer reports specially in favor of a proper quarantine Hospital, and of better ventilation of the schools. He concludes with what is too universally recognized everywhere, as follows: The fact is assured that many children suffer the slightest ailments day after day from the unsanitary condition of the school-room; while at the same time such places are fertile sources and fruitful fields for the propagation of diseases among children.

MISCELLANEOUS NOTES.

WOOLEN CLOTHING AND INFECTIOUS DISEASES.—The editor of the Sanitarian writes: Impatient at the increasing prevalence of yellow fever (a few years ago), the writer took the responsibility of having every person on board the 'Delaware,' except necessary keepers, washed and dressed in *new flannel suits* (sailors' shirts and pants), procured for the purpose and transferred to the hospital, where he provided them quarters, and *from that time there was not another case of fever among them*, though there were five cases the day before. So much for elimination as against development under changed conditions. *The Role of infective Microbes*, is to battle with the physiological powers of the system which they enter, and to put it upon the defensive immediately that they are distributed to the tissues of the body, by means of the blood which carries them to every part. If the system they enter be weak from any cause, con-

stitutionally so, or feeble from recent disease; by reason of unhealthful surroundings, such as a foul atmosphere sudden exposure to excessive heat or cold without sufficient protection; deprivation of sleep; deranged digestion or mental disturbance; above all by debauch; in short, if by anything which disturbs bodily vigor, the microbes have the advantage—and they never fail to avail themselves of it—and generally overcome the power of resistance. It is not because they are cowards and they only attack the weak; they attack the strong and the weak alike on every opportunity, but the strong—with all the functions of the body maintained in a state of vigorous health—are liable to cope with microbes and overcome them. The feeble, on the other hand, are taken at a disadvantage, and the more if the circumstances of their enfeeblement are in any degree maintained. The future of preven-

tive medicine, said Professor Ray Lankester, in a lecturer which he delivered recently at the London Institution, is the education of the white blood corpuscle. A corpuscle is a minute cell of protoplasm which floats in the human blood. "This minute creature eats, and lives, flourishes and dies almost like a human being. Its special function," said the lecturer, "is to eat up the poisonous element which finds its way into the blood. When a wound heals it is because these indefatigable corpuscles have found their way to the sore and have eaten away the injured part. When bacteria get into the system the duty of the corpuscles is to go for them and eat them up. If they succeed, the patient recovers. If they are out of appetite, or the bacteria too tough a morsel for them to attack, the patient dies. Sometimes, with unconscious heroism worthy of Marcus Curtius, they purify the bodies in which they live by eating up poisonous particles and then ejecting themselves, thus sacrificing their own lives. But such heroic self-immolation is not necessary, if you educate your corpuscle. His education proceeds by inoculation. By accustoming your protoplasmic cell to a low diet of mildly poisonous matter such as the vaccine lymph, it becomes acclimatized, as it were, and is strong enough to eat up without inconvenience the germs of small-pox, which would otherwise prove fatal. It is these invaluable corpuscles which enable confirmed arsenic eaters to swallow with impunity a dose sufficient to kill six ordinary men." Professor Lankester is of the opinion that they can be trained so as to digest the most virulent poisons and deal with a great number of diseases. With the foregoing suggestions it is apparent, says the Sanitarian, that the indications in dealing with the microbe (infectious disease) are to strengthen the power of resistance in the body. Woollen clothing is so well known as the best possible means of protecting the wearer against the ill effects of sudden changes of temperature; of preserving the equable temperature of the body while it admits of thorough ventilation of the surface with the least risk from exposure; as a means of absorbing perspiration as fast as it is emitted, and—if unrestrained by over-clothing of other material—allowing the perspiration to pass off into the atmosphere insensibly almost as fast as it is generated, and thus keeping the skin dry

even in the hottest weather, and warm in coldest; and as a gentle stimulus to the skin removing scurf, keeping the pores open and clean, and promoting its healthy action for the promotion of health or the elimination of disease.

COLDS AND CLOTHING.—The *Lancet*, (Lond. Eng.) of Jan. 26 last, gives the following valuable suggestions: the teaching of modern science and of ancient custom goes to show that heat-production within the body has much to do with the tissue-changes concerned in muscular activity and with healthy digestion. It is conserved by warm and moderate, wasted in evaporation by excessive, clothing. Finally, by a simple nervous reaction, it is increased after the contact of external cold. It follows from these observations that, if we be so clad with comfortable underclothing that surface perspiration is not formed in excess and is rapidly removed, one great cause of chill—sudden evaporation—is done away with. Outer cold, then, provided it is not too severe, only touches, as it were, the spring of the heat-making metabolism, and, exciting an elastic rebound in the chain of vaso-motor fibres, awakens that oxidative action by which every tissue is made to yield its share of heat to the body. This bracing influence is lost wholly or partly to those who are too heavily clothed, and in its place we may have a dangerous excess of surface heat. It is for this reason that we have before protested, as we now do, against the indiscriminate use of the thick and heavy overcoat. We would rather see men in fairly robust condition, especially if young, clad warmly next the skin, and wearing either a light top-coat or none at all. There can be no doubt that the habitual use of great coats is indirectly accountable for the chills which they are intended to prevent. Were the overcoat worn continually it might attain its object. Its intermittent use, even when ample under-clothing is worn, affords no solid guarantee of safety, but rather the reverse. The man of sedentary habits has especial need to remember this. He emerges daily from a warm breakfast-room clothed in his ordinary winter garments, with probably woollen underwear, and over all the heavy ulster or top-coat. After a short walk he finds that the sense of warmth he began with is more than maintained. He arrives at his office or place of business, and off goes the overcoat, though the air of the newly-opened room is as cold as that without, and draughty in addition. During the day perhaps he travels to and from adjacent business houses wearing only his

house clothing. The overcoat is laid aside till closing time reminds him of the journey home. The frequent result is that somehow between the hours of his departure and return he is chilled. No doubt he would run as great a risk if, lightly clad, he were to face the vigor of a winter day. In this case, however, exercise and habit might do much to develop the power of endurance, and there would, at all events, be less danger of sudden cold acting upon a freely perspiring surface. Woollen underclothing represents a state of healthy comfort intermediate between these extremes, and more resistant to chill than either. In commending its use, however, we do not assert that the influence of age and constitution is to be overlooked. Youth can oppose a power of resistance to depressing agencies which does not reside in the worn-out nerve-centres of a riper age. Similarly, that elastic reaction which characterizes the nervous and sanguine types is not to be looked for in the lax tissues of the lymphatic. The weaker physique naturally calls for fuller protection than the stronger; and any rules requiring the disuse of the overcoat should allow of reasonable exceptions in favor of the old and constitutionally feeble. Unusual severity of weather, especially if associated with night air and loss of sleep which this implies, is another condition which might well constitute an exception. In such a case we are compelled to add some form of overcoat to the ordinary amount of clothing. Some parts of the body—for example, the chest, throat, and feet—are certainly more susceptible to cold than others. As a useful safeguard, cold or tepid bathing of such parts is in merited favor. The custom so common with many persons, especially women, of walking out in thin-soled boots often plays an important part in catching cold. The progress of time and of rational thought may be expected to bring a more comfortable arrangement by clothing the foot in woollen hosiery and a stouter boot.

HYGIENIC HABITS OF ERICSSON.—John Ericsson, the inventor of the "Monitor," and one of the most prominent engineers of modern times. He enjoyed vigorous health and a mind unimpaired, and attributes such enjoyment in his own words, to the understanding of the machinery of his being, its care, and its needs. His day began at seven o'clock in the morning, at which hour he rose the year around. The first hour was spent in exercising, and a tepid bath followed by a cold shower and a vigorous rubbing. At nine o'clock he was ready for breakfast. This consisted of tea, with a great deal of milk in it, two or

three poached eggs, and bread. The bread was prepared by a formula of his own, and was a coarse brown bread, thoroughly dry; a loaf being always disposed on the mantel by the grate fireplace for the purpose. Newspapers and periodicals, many of them being scientific publications, and his mail took up his attention for awhile. Then he went to solid work in his individual workshop. At four o'clock he dined and the meal consisted of vegetables, tea and bread, with about one ounce of meat, never exceeding two ounces, and rarely as much as that. There were no other meals, no more eating. Nothing else passed his lips, except occasionally a drink of water. He used no tobacco, wine, beer, or liquor. He was not fanatical on the point, but went without them because he thought them not good for him. After dinner he read an hour or two before work. His reading was generally of a scientific character, and in the line of whatever investigations and experiments he had on hand. When he went back to work again it was to the principal work of the day. He preferred the night for real effort. His ideas came more freely, and there was less disturbance of noises from the outside world. At eleven o'clock he stopped at whatever stage his work was in. It was never with any feeling of being tired, but with the idea of giving his brain a rest before bed time. This came at midnight, and means sleep at once, with refreshment and reinvigoration that found him ready at seven o'clock for another day of the same routine.

DISEASE COMMUNICATED FROM HUMAN TO LOWER ANIMALS.—Reading an article in a previous issue from Dr. Chisholm, of Baltimore, says a writer in the Medical Record giving an account of a case of measles in a dog, contracted from his young master, brought to my recollection the following somewhat similar case. About four years ago a patient came under my care for treatment for scrofula. The disease at that time had advanced to such an extent that exfoliation of bone from various parts of the body had taken place, especially from ulcers of the scalp, tibia etc. The bones of the nose were coming away, accompanied by much of the nasal tissue producing a hideous appearance and offensive in the extreme. The patient was a married woman, no children, fifty years of age. She was very fond of cats, and kept one or two about the bed much of the time during the last year of her life. About 13 months ago the cat which slept most of the time in bed with her became sick, moped about the room, with swollen eyes and purulent discharge from the nose,

sneezing and soon became a horrid spectacle and finally died, greatly emaciated. While this unfortunate feline was pining away, the patient had adopted another bed fellow of the same species; in about two months this cat sickened and died precisely as the former. Another was then taken in bed to be carressed and die in about the same length of time, and with the same symptoms. The husband of this poor woman saw by this time the fatal effects upon the gentle mousers, but not willing that his wife should be deprived of any comfort in his reach, procured another famous "rat catcher," from a negro in the neighborhood, and brought it to the now sinking patient, who soon fondled it into perfect acquiescence. It too manifested the same symptoms of nasal catarrh first, then swollen head, purulent discharge, sore eyes cough, sneezing, emaciation, etc., until November 20th last, the long suffering woman died. That night the cat lay upon the hearth in a sort of comatose state, but lingered until the next day when it expired. This was the fourth victim in less than thirteen months. In visiting regularly at this house my attention was called to the animals, as one by one they succumbed to the dreadful malady.

HOUSE-CLEANING--REMOVAL OF DUST
—In house-cleaning the end to be achieved is the abolition of dust and dirt. The first object, then, is the collection of these obnoxious substances in a small compass, preparatory to disposing of them. Begin with the small articles, washing and wiping those that require it, and dusting others. Then, when perfectly clean, remove them from the room. (In cases where this is impossible they may be laid upon the bed, which must be covered with a large dusting sheet.) The furniture must now be brushed and cleaned, so much of it as is possible may be removed from the room, the rest covered with dusting sheets. Now, dust the walls thoroughly and every mirror and picture, especially its back, with large feather brush. By this time we will assume that all the dust and dirt of our apartment are gathered upon the carpet. With a broom clean every corner, working always towards the centre. Now, when these lurking-places are thoroughly cleaned out, bring in a carpet-sweeper, and with it gather up the whole collection, driving the machine systematically back and forth as the farmer does his plow, leaving a clean furrow each time. When this is accomplished wait a few moments until the dust can settle, so that you may know where it is. Again bring forward the large feather duster, brush again the pictures and mirrors, washing such as have soiled glasses. Remove the dusting sheets and shake them

from the window, or somewhere out of doors. Restore the furniture and ornaments to their places, and the work is done, with one-half the weariness, and an excellent result, impossible without care and system.

LARD ADULTERATION.—The Department of inland Revenue have issued Bulletin No. 7, which relates to lard. Water, cotton seed oil and tallow are the chief adulterants. The tables given contain the results of the examination of 109 different samples of lard, of which 38 were of native, 11 of unknown, and 60 of American origin. Among the samples of American lards there appears to be only one which is genuine, from Chas. H. North, & Co., Boston. Generally the manufacturers in the United States make no pretence of exporting pure lard. The chief adulterant found is cotton seed oil, but in a great many cases, no doubt, beef tallow. The following conclusions may be fairly drawn from the tables. "The samples said to be manufactured by Fairbanks, Chicago, since they have generally the highest sp. gr., absorb the greatest percentage of iodine, and give the darkest colors with the silver test, probably contain the highest per centage of cotton seed oil, and the lowest amount of lard. With some of the samples it seems very doubtful as to whether any lard can be present." The fats from two samples were melted and allowed to cool slowly and separation of oil took place on the surface. In the case of the samples said to be of Armour's manufacture, the sp. gr. of the fat is generally lower and the iodine absorption less, results which indicate a lower degree of adulteration. Neither Fairbanks nor Armour's lard contain any water, which is found in many of the samples supplied to the Lower Provinces from New York. The amount of this adulterant detected varies from 5 to 24 p.c., besides varying proportions of cotton seed oil and beef tallow. With regard to the samples of Native lard, if we exclude those which have only been derived from trading firms not concerned in the packing business, and which may therefore be of American origin, we find that out of 35 samples examined 3 were adulterated. Almost all the lards rendered by the vendors themselves are pure, but still there are to be found a few cases from which it would seem that our manufacturers are beginning to imitate American practices. To prosecute vendors as the

chief analyst says, where the sale of the adulterated article is so general would scarcely be a reasonable proceeding. "Nor is it certain that convictions would follow, because, no doubt, the offenders would, as such have often done before, shelter themselves under the provision contained in the second paragraph of the 23rd section of the Adulteration Act, and which reads as follows: "Provided that "if the person accused proves to the "court before which the case is tried that "he did not know of the article being "adulterated, and shews that he could "not, with reasonable diligence have obtained that knowledge, he shall be "subject only to the liability to forfeiture "under the 21st section of the Act." The Department has at present under consideration the advisability of making such arrangements as will enable vendors, with the exercise of "reasonable diligence," to obtain certainty regarding the character of the goods they sell, but in the meantime it finds itself face to face with a system of extensive adulteration which it has no practical means of suppressing. The only available remedy is one which has been suggested by the Commissioner of Inland Revenue, namely, to impose a higher duty on lard imported from the United States, and that without reference to its being adulterated or genuine." Cotton seed oil, we may state, is not known to be unwholesome and it may not be less digestible or nutritious than lard, but it is less expensive. The adulterations are more a system of plunder than of an injury to the public health; yet lard is known to be a valuable article of diet, while cotton seed oil is not known to be such. The American Analyst (Mar. 21 '89) says of it: Cotton-seed lard is a misnomer and calculated to mislead. Lard is a French word, meaning bacon, and has been adopted into the English language, to designate tried out hogs' fat. The company which manufacture this cotton-seed "lard" has so mendaciously attacked all hog products that the least they can do, in our opinion, is to leave the poor hog the name of one of its chief derivatives. This cotton-seed lard, as nearly as we can judge without a special analysis, is made of cotton-seed oil and stearine, raised to a high degree of heat and suddenly chilled. As it takes about three pounds of this stuff to answer the same purpose as two and a half pounds of genuine lard, and, as it is sold at a higher price, it is certainly not cheaper. For many foods it cannot be employed, because the peculiar smell of cotton-seed oil in such undue proportions and the taste of stearine are not considered any recommendation. It commands no sale in the exchanges, but is simply pushed by extensive advertising through retail grocers.

AN IMPORTANT IMPROVEMENT coming into general practice in good drainage work, says that eminent sanitary engineer, Mr. W. P. Buchan (in Sanitary Rec.), is *keeping the waste-pipes from baths, basins and sinks separate from the soil-pipes of water-closets, and especially when hot water is run off down said waste-pipes.* Another important point is to have all the sanitary appliances next the outer wall, so that disconnection and ventilation, as well as *light*, may be got more easily, and that the drains may be kept out of the house as much as possible.

IN THIS CONNECTION Mr. Buchan says: there is an important difference in practice between the engineers of a number of the sanitary protection associations and the principal sanitary plumbers of the kingdom, which it may be well to mention here, viz: The former allow the various soil-pipes in a building to act as blow-off or ventilating-pipes for the drain, so that whatever smells or disease germs may get into the drain are free to go over all the soil-pipes. The latter, where possible and allowed, lock off each soil-pipe from the drain, and ventilate the drain by a special blow-off pipe. This latter style is my own practice, as it gives real isolation and greater safety to the inmates, and has been done by me at many mansions, villas, and some tenements. It is the system upon which Mr. Hellyer, of London, works, and is also adopted by many architects. The drainage of Belmont Castle has been lately carried out in this style.

A GREAT DEAL of nonsense has been written of late in disparagement of the value of water as a trap against sewage-gas. Mr. Buchan continues: There is no better practical protection than a good siphon-trap with sufficient water-lock or dip, and the body of water in it and its surface, especially on the house side, not too large. Even allowing that in time, and with a trap in which the water was not often renewed, sewage-gas could be diffused through it, this would be very slowly, while all the disease germs, if any in the gas, would be caught by the water, as in a filter, and prevented from passing, and then the first time fresh water was let into the trap the old water and the disease germs in it would be sent off.

PLUMBERS and masons have often been to blame for giving the water-trap a bad name, owing to the improper way in which they fitted it in, viz: either without any water-lock at all or else with too little,

perhaps one eighth of an inch instead of one and a half inches to three inches inside of a house, and about one and a half inches or fully that on the drain-traps outside. The plumber sometimes fits in his lead traps with sufficient water-seal but omits to provide proper ventilation for the prevention of siphonage. The new system of the registration of plumbers, which is being largely applied for, will no doubt tend to prevent a repetition of former mistakes.

THE COUNTRY HOME.—Much attention has been given to country residences. Extensive observations have been made by Dr. Lucy M. Hall, who recently delivered a lecture before the Academy of Anthropology in New York on "Sanitation in the Country." She has examined over one hundred and fifty country houses in the East and in the West, and gives it as her opinion that the country house is not the healthful place it is usually supposed to be. She has robbed country life of much of the charm with which people in crowded cities have robbed it. A vacation in the country, according to her opinion, is not assured of the promises of health with which many bent on a summer outing regard it. She has found disease and death lurking in the vine-clad cottage and in the cool retreats of the shaded dwelling. This state of affairs is produced by the ignorance of hygienic laws and their violation. Among the evils found to exist are improper drainage, uncemented cellars, failure to ventilate sleeping apartments, exclusion of light, too much shade about the house, and the improper disposal of kitchen refuse. It is probably not saying too much to state that a majority of country houses owe their escape from more continuous and fatal sickness to the free circulation of the air, the cleansing effects of rains, frost and other natural agents, more than to any regard for sanitary laws. Were the average of country homes crowded together, and shut out from the free action of these agents, as in a crowded city, their sanitary condition would become deplorable. Nature abhors disease, and in many ways attempts to remedy the evils caused by man in the violation of her laws. But the transgressor can go too far.

WASHING CARPETS.—To many people it does not seem to occur that a carpet can be washed. They would be astonished to see what an improvement can be made in this way. Take a gallon of water in which two ounces of carbonate of ammonia have been dissolved, and apply it with a soft rag to each breadth. If there be any pro-

nounced soils and stains, grease spots or other, procure from your butcher a pint of ox-gall. Mix it with three quarts of water and apply with a soft scrubbing brush, taking care to rinse thoroughly afterwards with pure water.

CLEANING WALLS.—A soft cloth tied over a broom is a good substitute for ostrich feathers, if this does not remove the smoke or grime that accumulate, take a loaf of stale bread, divide it into quarters, and after moistening the cut surfaces very slightly, proceed to rub you paper very carefully, beginning always at the ceiling and moving your hand downward in straight lines. The results will be surprising.

THIS IS JUST ABOUT HOW IT IS.—Prof. Staley, at the Ohio State Sanitary convention, said (*Annals of Hyg.*): The necessity for sewers—it is easy to prove to the satisfaction of physicians and persons familiar with sanitary matters, but it is by far the most difficult one to prove to the satisfaction of the voting majority in any community. "None are so blind as those who won't see:" and as sewerage is synonymous with taxation to the average householder, he will absolutely refuse to see its benefits. Nothing which savors of taxation can, from his point of view be proven to be desirable. The sanitarian may declaim about "pure food, pure water, and pure air," and show the necessity of these in order that the health of any community may be preserved: and so long as he keeps in the region of pure theory, he will be listened to respectfully if not attentively. But once let him try to make a practical application of his theory in any community in such a way as to disturb the existing status, however bad it may be and good-natured indifference will immediately give place to active hostility." Attempt to carry out any sanitary form which costs anything, and you may count upon the most determined opposition. Health or sickness is uncertain, and the chances may be taken, but money is certainty itself—that must not be tampered with.

THE SANITARY REQUIREMENTS OF A DAIRY FARM.—The medical officer of Glasgow, Dr. Russel has drawn up a memorandum on these, as follows: 1. A farmhouse ought to be wholesome in structure, and the steading well supplied with pure water, drained by vitrified pipes and with privy accommodation for both sexes. 2. The house ought to stand apart from the premises used for dairy purposes. A distinct domestic washing-house is indispensable.

The milk house ought to be open unto the free air, and be at a distance from the dung pit. The dung-pit ought to have retaining walls, an impervious bottom, and a light roof borne on pillars. 3. The byre ought to be well lighted, ventilated, paved and regularly cleaned. 4. No person who suffers from infectious or any recent indefinite illness, or who has been in any way in communication with an infected person or thing, should engage in the milk business. 5. The milk of no animal which seems to be ill, or which has any sore about the udder or teats, ought to be sold for human consumption. 6. The udder and teats if soiled, ought to be washed before milking; soap, warm water, and towels ought to be at hand; and every milker ought to wash his hands before beginning. 7. Healthy cattle, healthy servants, cleanliness in every detail of the business of a dairy farm, mean money to the producer and retailer of the milk.

DR. C. V. CHAPIN, of Providence, R. I., author of a prize essay on consumption, gives the following suggestions on the prevention of this disease:—1. Teach the people the true nature of tuberculosis—that no one ever has tubercular consumption unless the tubercle bacilli find their way into the lungs. 2. Teach them also that, even if it finds its way there, it will not grow unless the conditions are right. Teach fathers and mothers how to rear healthy boys and girls. Tell them what to eat and what to wear, and to exercise, and to breathe fresh air. This alone would exterminate phthisis. 3. This contagion must be destroyed. Fortunately in this disease there is no need of isolation. Disinfection is enough. The consumptive patient gives off the poison only in the sputum, or perchance the other excreta, if the disease extends beyond the lungs. The virus is not given off from these while moist. We must therefore disinfect all sputum at once with mercuric bi-chloride. Cloths must be used instead of handkerchiefs, and then burned; or, if the latter are used, they should be often changed, and immediately put into a bi-chloride solution and boiled. Bed-linen should be treated in the same way. Frequent disinfection of the entire person, and fumigation of the apartment, would be safe additions to the preventive measures.

DIET AND FAMILY DISCIPLINE.—A physician in *Farm Stock and Home*, gives this experience: Three years since a kind, conscientious mother said to me: The greatest trial of my life is that my children quarrel so with each other. Nothing they do annoys me so much, and by teaching, persuasion and punishment I have been unable to change their habit. I asked in

regard to diet. She told me they were great meat eaters. I told her of the bear that was kept in the museum in Giessen: when fed on bread only it was quiet and tractable—even children could play with it with impunity—but a few days' feeding upon meat made it ferocious, quarrelsome and dangerous. She changed their diet to fruits, grains and vegetables: milk, toast, graham and corn meal gems, wheatlet and oatmeal mush and milk, fruit puddings, etc. This required tact, study and perseverance, but she was more than amply paid. In less than a month she could see a difference in the habits of her children, and a year later she testified that it could hardly be recognised as the same family. The children were cheerful, playful, gleeful, full of spirit—but in place of fretfulness and quarrels, were kind, benevolent and considerate to each other. They were also more than ordinarily exempt from acute attacks of fever and inflammation.

DYSPEPSIA OF BRAIN WORKERS.—Good Health says: Why are active brain-workers so frequently, we almost said, so universally dyspeptic?—Evidently because they use their brains better than their stomachs. Charles Dickens was an enormous eater; Bayard Taylor was a gormand and a beer-guzzler, and when he died was bloated to such an extent that his coffin could not be carried through an ordinary door, but had to be passed out through a bay-window. The dyspepsia of brain-workers is generally charged to excessive mental work. From observation we are satisfied that this is a mistake. It is not too much brain work, but too little muscle work, and neglects of the commonest principles of hygiene in its relation to digestion, that make such pessimistic authors as Carlyle, such acute theologians as Calvin, such savage sceptics as Voltaire. The latter once wrote to Lord Chesterfield, "My Lord Huntingdon tells me that you have a good stomach, which is worth more than a pair of ears." Sydney Smith declared that he could feed or starve men into virtues or vices, and that the character, talents, virtues, and qualities are powerfully affected by beef, mutton, pie-crust, and rich soups. Good humor helps to keep a man in good digestion, but is not a substitute for dietetic recitade or ample muscular exercise. For example, Smiles tells us of a broken down dyspeptic that one day consulted Dr. Abernethy. The Dr. looked him over, then said,—"Well I don't think there is much the matter with you. You want stirring up; you want cheerfulness. Go and see that clever fellow, Grimaldi: you will get a hearty laugh: that will do you more good than physics." "Alas," said the patient. "I am Grimaldi!"

OPIMUM smoking seems to be one of the dissipations indulged in by a few Harvard students. One of these opium smokers was recently found dead after smoking a pipe, and is supposed to have died of opium narcosis.

A WRITER in the Popular Science Monthly states among the Parsees of India baldness is unknown, although they are obliged by a religious law to keep their heads constantly covered, wearing a tall tightly fitting felt hat out of doors, and at home a skull cap.

AN English brewer, recently deceased, Mr. Richard Berridge, has left a fund of £200,000, or \$1,000,000, to be applied to the advancement of economic and sanitary science.

FOR THE SICK CHAMBER.—An exchange says: Don't let stale flowers remain in a sick chamber. Don't be unmindful of yourself if you are in the responsible position of nurse. To do faithful work you must have proper food and stated hours for rest. Don't appear anxious, however great your anxiety. Don't forget that kindness and tenderness are needful to successful nursing. Human nature longs to be soothed and comforted on all occasions when it is out of tune.

DANGER IN TINFOIL.—A great deal of the material which is erroneously called tinfoil is used to wrap articles of human food, including Neufchatel cheese, chewing gum, licorice pellets, fig paste, various kinds of candy, chocolate and nearly all kinds of chewing tobacco. As the most of this tinfoil is largely composed of lead, it is very dangerous to health, and its use for wrapping food has been legally prohibited in France. Nothing that is to be taken into the mouth should be allowed to come in contact with lead.

Castor-oil is said to be an infallible remedy for the stings of bees or other insects. It appears to counteract the poison and allay the pain as soon as applied.

Spirits of turpentine, or, better yet, "Santitas," will remove unpleasant odors from the hands when all other deodorants fail.

A CITIZAN of Iona, Mich., while standing with wet rubbers on an iron doorstep, suddenly lost the power of walking. He nearly fainted with terror, thinking he was paralyzed. Upon discovering that his rubbers were frozen to the doorstep he felt better.

ENGLAND'S leading woman doctor is said to be Mrs. Garrett Anderson, who has a practice worth \$50,000 per year.

THE INCREASE OF CANCER in England and Wales in the ten years 1871-'80 as compared with the decade 1851-'60, was equal to sixty-two per cent. among males and forty-three per cent. among females. The disease appears to prevail most extensively in London and its environs—possibly by reason of the attractions offered to patients by its hospitals—and in Devonshire—possibly on account of the health-resorts.

ARSENIC IN HANGINGS.—What might have proved a serious epidemic if the goods had not been removed was started recently in a civil-engineering college in England from the brilliantly colored cretrone and muslin hangings of some of the student's rooms. Even such colors as black and dark blue, have found unsafe.

OF PERFUMES.—W. P. Ungere, in the Popular Science News, says: I have watched for years the action of inhaling perfumes on the human system and come to the conclusion that inhaling perfumes and odors of flowers is not only a valuable therapeutic agent to the human system, according to Professor Schonbein's statement, but it is my personal opinion that living in perfumed air will prevent lung diseases, and arrest the development of consumption. In my connection with perfumery manufacturing, for over thirty years, I have had several consumptive persons in my employ of both sexes, who were condemned to die young of the inherited disease, out side of that occupation, but who lived to a good old age in the saturated air of perfumes. In my late visit to Grasse, in the south of France, which is called the Flower-Garden of Europe, my assertions were confirmed, as consumption is of rare occurrence in that locality. The air is full of the escaping vapor from the distilling of perfumes and ethereal oils, which is the chief occupation of that country; and the in and out door air is saturated with the exhalation of the flowers and plants all the year round. "Moral:" Cultivate abundance of fragrant flowers.

OAT MEAL PROPERLY COOKED.—Table Talk gives this process: Oat meal will turn out like properly boiled rice, each grain swollen four times its natural size, and no two sticking together, if cooked by the following rule: Put four table-spoonfuls of finest quality Irish oatmeal, with one quart of cold water, into a double boiler; add a teaspoonful of salt, and stir for a moment to mix. Stand it over a brisk fire and boil the water bath without stirring the meal for two hours, or until the mass has a thick, jelly-like appearance; push it to the back part of the range, where it will steam over night. In the

morning bring the water in the under boiler to a boil, then turn the oatmeal carefully into a large, deep dish. Do not stir or scrape.

The naked hills lie wanton to the breeze;

The fields are nude, the groves unfrocked;
Bare are the shivering limbs of shameless trees—

What wonder that the corn is shocked?

RURAL HOME says: A very foolish man is he who robs himself of the comforts of life that he may accumulate a great fortune for his heirs. More foolish is the farmer's family who live uncomfortably in the kitchen—usually the dingiest and most uninviting room in the house—keeping the best rooms darkened, waiting for company. Better, a hundred times better, live in those cozy, comfortable rooms all the time. They will seem all the more cozy when the company comes.

ON BAD BREATH.—Dr. F. H. Gardiner gives the following causes (Dental Rev.): first, decaying particles in the mouth as far back as the pharynx vault taint the breath exhaled very little if at all. Second, mouth breathers have a bad breath when the tonsils are enlarged, or when cheesy masses exist in the tonsillary mucous folds. Third, certain gastric derangements taint the breath only when gases are eructated through the mouth. Fourth, the principal cause of bad breath is decomposition in the intestinal canal, the retention of fecal matter in the transverse and descending colon, and the absorption of gases into the circulation, finally exhaled by the lungs. Dr. Jewell called attention to this last source of bad breath and its serious consequences. Fifth, catarrh, nasal, pharyngeal, laryngeal or bronchial, causes bad breath. Sixth, medicines or aliments that undergo chemical changes below the esophagus may by rapid absorption through the stomach walls, or immediately below, give to the breath the characteristic odor. This bad breath is often a source of serious annoyance to patients and the fact that it has more than a local cause is too often ignored by the physician who therefore fails to cure it.

THE TRUTH ABOUT THE MIND-CURE is thus given by F. A. Fernald, in the popular Science Monthly for April. Now, in view of what has been done in curing disease by the aid of mental influence, the public has a right to demand that our physicians shall give us the benefit of this healing agency. Mental influence is a pleasant and inexpensive medicine; it

cures in some cases where drugs fail, and it shortens the term of sickness and lightens its pain in many other cases; furthermore, it has no injurious incidental effects. But the mind-cure should be taken out of the hands of the untrained and irresponsible visionaries and the impostors who now practice it, or it will add a terrible amount of suffering and death to what it has already caused. These enthusiasts, carried away by their seeming successes in a few cases, insist that the mind-cure is the only treatment that is worth anything in all diseases and for all persons. They know too little about the nature of disease to recognize symptoms which indicate the fitness of this agency, too little of science in general to realize that a means suitable to remove one condition may be entirely inadequate or unsuitable to counteract another.—From "Science and 'Christian Science.'"

UNIVERSAL FIRE-EXTINGUISHER.—A physician gives to the *Atlanta Constitution*, the exact receipt of the solution used in the fire extinguishers now offered for sale, as follows: "20 pounds of common salt and 10 pounds of sal ammoniac (muriate of ammonia, to be had of any druggist), and dissolve in seven gallons of water. When dissolved it can be bottled and kept in each room in the house, to be used in an emergency. In case of a fire occurring one or two bottles should immediately be thrown with force into the burning place so as to break them, and the fire will certainly be extinguished."

THE DELAY in this issue of the JOURNAL has been owing to circumstances over which the publisher had, most unfortunately, no control. In brief, it was caused by want of money, and this want was owing to subscribers, a large number of them, being so far in arrears with their subscriptions; as many are yet, and must now be "cut off" if they do not remit at an early day.

A DOUBLE NUMBER is now issued in order to "catch up," and it may be necessary to issue another in a month or two—The April number will soon follow this double number, if it be not delayed by the printer. These irregularities it need not be said are much regretted, but could not in the circumstances, have been avoided. About the same amount of information will be given as if the JOURNAL had been issued every month.

EDITOR'S SPECIAL DEPARTMENT.

AS A TEST of the degree of civilization of a people, an eminent German authority has urged that, we should take, not the fine buildings—dwellings, palaces, halls, etc., and works of art, but the back yards, lanes and manner of disposal of the sewage and other refuse of life. The strongest proof of civilization is the value placed upon life; and where the back premises are disregarded, life will be shorter than where these are carefully kept and free from all waste matters. As the Tennessee State Board of Health Bulletin gives it, All persons who have given much attention to the inspection of premises are impressed with the singularly unwise contrast between the front and rear of city dwelling-houses. The front rooms of houses are generally but little occupied, being used for show or temporary purposes. Care, attention and cost are devoted to the front, while the rear is too often in an unkempt, desolate state. The reverse should be the case. Use rather than show. With us in America it is always show before use.

NOW IS THE TIME to clean up; that is, if every spot has not been kept thoroughly clean. Within, from cellar floor to roof; and without, from back-yard limits, (for it will be best to begin there) to street. Dust and scrub, rake and dig, and burn with fire, till every spot is absolutely clean, and the whole premises are free from every trace of waste or refuse. Use soap and carbolic acid freely within the dwelling, and lime wash outside. If any animals are kept,—fowls, dogs, pigs, or any other, see that the places they inhabit are made and kept as clean as it is possible to make or keep them. This is a matter of economy if nothing more. For all animals, as well as men, women, and children, will thrive and do better if kept clean.

A GOOD SIGN is in the firmament of the public health; that which we find in the leading medical journals giving much more attention to questions hygiene, even to play and games. In the issue of this JOURNAL for January we referred to an article in the New York Medical Journal upon play as a means of development. In a late issue of the British Medical Journal (March 16th), is an article on the Educational Value of

Outdoor Games; which games are doubtless a much more healthful way of promoting education than that of book-lore in a badly ventilated school-room. The organized game is a means of co-ordinating the spontaneity of brain action which is the basis of intellectual effort. The word of command, the sight of the flying ball, are impressions quickly followed by rapid and accurate action. 'Organized play produces a most useful effect. It trains the boy to do correctly just what he is told to do, and, while his spontaneous action is encouraged, he is kept ever ready to act according to circumstances. Play is healthful; so is the alternation of mental work and active play.

HERBERT SPENCER has said that the first requisite to success in life is to be a good animal; and to be a nation of good animals is the first condition of national prosperity. Now I don't believe that we can have a good human animal without *co-ordinate* mental and physical development. A good first class human animal must be of pleasing appearance; have pleasing features and graceful movements and attitude. We cannot have these without mental culture, and the mental culture must go "hand in hand" with the physical. Hitherto the one great aim in education has been the development of the mental faculties. We must not now go to the other extreme.

VEGETARIANISM seems to be growing apace, both in England and on this continent. It is contended that a vegetable diet gives a clearer head. Perhaps on the principal that a beef-steak is too stimulating, according to the Philadelphia Times, Rider Haggard has become a vegetarian. He found by experiment that he could work longer and to better effect on a meatless diet than when he indulged freely in beef and mutton, and that the imagination becomes more active when the body abstains from animal nourishment. We have not become a convert to this ism, but there is much evidence certainly in its favor.

THE DIET has, it is now more perhaps than ever before conceded, a tremendous influence, not only upon diseased physical conditions, but upon the mental faculties also. We are not positive as to the authenticity of the statement,

but it is said, the greatest intellects that the world has seen have not been flesh-eaters but vegetarians. The ancient Prophets and Philosophers, Milton, Shakesphere, Newton, Wesley, and Franklin are all quoted as opposed to flesh-eating and as living on the direct productions of the soil. The Anglo-Saxon race may be showing its greatness in spite of its tendency to beef-eating, it is said; which as Shakespeare has written "does harm to the wits"

IT MAY BE that these eminent men were not strict vegetarians, but ate only a small quantity of animal food. And it may be that it is not the partial flesh diet, *per se*, that is less favorable to mental effort, but the excessive amount of food eaten, as a whole, or of the nitrogenous elements, when flesh forms a part of the diet. In short, as beef and mutton are highly concentrated foods, had Rider Haggard indulged less, "freely in beef and mutton,"—perhaps a good deal less, yet a little—the effect would have been better than that of discontinuing them altogether. People who eat flesh are more liable to over eat, and so clog the whole internal animal economy, as well as the mental.

IN THIS CONNECTION the Westminster Review, commenting on a new work recently published by the Vegetarian Society, endorses the work as follows. We must frankly admit that the arguments are almost all on the side of the vegetarians. They claim—and they support their claim with arguments not easy to answer—that flesh-eating is at once immoral, unwholesome and uneconomical. That it is less wholesome and economical than their own system, they claim to have proved, from their own personal experiences; and if it has these two characteristics, it is certainly hard to resist the further argument that it is immoral. For if flesh-eating is not beneficial to the body, mind, or pocket, how can we justify the appalling amount of suffering inflicted on animals by the practice?

AN EMINENT authority has said that whenever there was a case of typhoid fever somebody ought to be hung. Another writer has given it as his opinion that the time would come when a case of typhoid fever would be regarded with as much stigma as a case infected with *acarus scabiei*, commonly known as the "itch." These expressions were intended to emphasize the fact that the disease is dependent upon filth of one form or another and that some one is responsible

for the infection from the filth having found its way into a human body. As an exchange says, the public understand this idea sufficiently well to remark upon the appearance of the disease, that "there must be *something* wrong with the premises."

TYPHOID fever, it appears clear from statistics, destroys not less than 3,000 lives, mostly of the best lives, in Canada alone every year. Yet this great destruction of human life might be prevented by proper sanitary administration. Who is responsible, who should be hung for want of such administration. A case of small-pox creates great consternation; and the deaths of half a dozen persons by a railroad accident is viewed with horror. Yet with what calm equanimity the people contemplate these 3,000 victims of the typhoid bacillus, which a little prompt and vigorous action would soon exterminate.

AT ONE TIME in the history of the world, consumption, it appears, was regarded with a loathing akin to that with which small-pox is now regarded. Yet how calmly the Canadian people look upon the 10,000 to 15,000 deaths caused by this disease every year in the Dominion. These deaths, too, for the most part, could be prevented, yet not so readily and effectually, in the present state of our knowledge, as the deaths from typhoid fever. Great advancement in the treatment of cases of the disease is being made, however, which together with preventive measures, might, if vigorously pushed, soon greatly lessen the mortality from this most destructive of all diseases.

WHILE THE OUT OF DOOR TREATMENT stands first, and in the earliest stages is frequently successful, the hot air treatment bids fair to be of much benefit in later stages. The bacilli of consumption are peculiarly susceptible to influences of temperature. Their vitality is lowered, it appears, by a temperature of 101.3° (about 3° higher than the blood) and they are killed by a temperature of 107.6°. In a particular case reported by Prof. Kohlschutter (Berliner Klin. Wochen, Mar. 11—in Brit. Med. Jour., March 30), after 7 weeks of inhalation of hot air, the size of the chest increased from 89 to 95½ centimetres. The breathing improved greatly. The "bacilli appearances were remarkably altered." While "at first the bacilli were numerous and more or less uniformly scattered, subsequently they were found only in groups of 3 or 4, and were far fewer, and at a

later stage had all but disappeared." Cough and expectoration had disappeared and the bodily weight had increased.

THE HOT SEASON will soon be upon us, and as we have suggested, mothers and nurses should give water freely to the babies ; indeed, it is well to do this at all seasons, but more especially in hot weather. The query, "What makes baby cry so?" which is discussed by Dr. Patton in *Babyhood*, recalls the question once asked by the late John G. Holland, says an exchange, namely : "What does baby think?" To which some ribald made reply, that the baby thought what the Governor of North Carolina said to the Governor of South Carolina : "It's a long time between drinks." In discussing a paper by Dr. A. Jacobi, an eminent physician of New York, on the value of water as a remedy in disease, read at a late meeting of the New York County Medical Society, Dr. S. H. Dessau expressed his belief that a leading cause of disease in infants would be stopped when nurses and mothers were taught to give an infant water instead of milk as a means of soothing it whenever it chanced to become restless. Cold water should also, he said, be given freely in summer diarrhoea,

OBSERVATIONS AND ANNOTATIONS.

SANITARY SCIENCE ON THE FARM : At the farmers' Institute meeting at Elmira, Ont., Mar. 15, Dr. Walmsley, of that place, gave a valuable address on this subject. After complimenting the farmers on their endeavors to advance with the times, the doctor dwelt particularly upon the sanitary state of stables, cellars and wells and showed how disease is propagated by germs, instancing a case of tuberculosis (consumption). A cow dies of consumption, is hauled out behind the barn and devoured by the hogs, chickens, &c. The tubercular germs (bacilli) not being easily destroyed, burning or boiling being the only means of destroying them, they propagate and infect other animals as well as the waters of the unprotected wells and thus go on spreading the cause of certain death not only to the animals but through the water to the household. The milk also of tuberculous cows is liable to contain bacilli and thus be the means of infecting not only the farm household but all who may be unfortunate enough to partake of it.

FURTHER, the bacilli being very tenacious of

life, Dr. Walmsley continued, were not always destroyed by the digestive organs of the hogs or chickens, that devoured the cow spoken of, and those not absorbed by the animal's system passed off in the feces and being among the barn yard manure were washed by the rains into the ground and thus into the well, which was often on lower ground than the yards or very near to them, becoming a continued source of propagation of disease. He spoke of other diseases such as Typhoid Fever, Diphtheria, Anthrax &c, being caused by spores and cautioned the people in reference to having decaying vegetable or animal matters in their cellars or around the premises and laid particular stress on the proper destruction of such matters by burning it

THE ICE CREAM season is at hand and we would advise our readers not to use colored ice cream. It is less pure to say the least. In Brooklyn, N. Y., nearly one hundred persons have recently been made seriously sick by eating ice cream which had been flavored with a compound containing arsenic. The cream was made by E. C. Swain, of No. 1187 Fulton Street, Brooklyn. The case first came to the attention of the Health Department through the sickness of members of a family who lived over Swain's store. One physician called in suspected the strawberry cream they had eaten, and a sample was forwarded to the Health Department. Investigation showed that it had been colored with carlic red, an aniline coloring matter containing arsenic. Further enquiry shows that many persons had suffered from eating strawberry cream, and a general investigation is in progress. Mr. Swain says he supposed he was getting cochineal when he purchased the coloring matter.

ON SNORING, Dr. Scanes Spicer, writes (in *Brit. Med Jr.*) in reply to "Stertor," I would suggest that the condition of the nose and naso-pharynx be thoroughly explored, to ascertain whether there is any obstruction, structural or erectile. In my experience, most snorers have some obstruction of the nose which increases . . . on assuming the horizontal position ; and most cases of snoring will yield when the physiological path of the breath is permanently restored, together with many of the symptoms so often accompanying snoring, such as night-mare, restless nights, dryness of mouth, and unpleasant taste of mouth in the morning, post-nasal catarrh, and throat irritation and cough.

Over-indulgence in food, alcohol, and tobacco undoubtedly increases the erectile condition of the obstruction.

THE CORONER for Sheffield recently held an inquest on the body of an infant between 4 and 5 weeks old, who died from a dose of a soothing syrup. The coronor severely censured the chemist who had prescribed the medicine, saying that soothing syrups killed thousands of children and ruined the constitutions of thousands more; the latter, instead of growing up healthy men and women, were ill and delicate, and of the two he thought those were more fortunate who were killed.

FROM THE Sanitary Record, London, Eng., we learn that the inhabitants of St. Ambrose, Quebec, observing an unpleasant taste in the water, had a reservoir examined, and the bodies of eleven children were fished out. The American Architect does not think that the inhabitants of that small village, where eleven children could be murdered within a short time without any inquiries being made after them, need be very squeamish about the water they were drowned in; but there seems to be some dissatisfaction, so the reservoir will be cleaned. It is suggested that if the people who murdered these babies were caught and hung in conspicuous positions around the reservoir it might be useful if not ornamental.

A CHINESE correspondent of the Texas Siftings says, the more I study Americans, the more I am convinced that they are mentally diseased. Instead of doing everything in a common-sense manner, they try all they can to do it in the very opposite way. At home, for example you and your other members of the Mutual Health Association pay Dr. Wun Lung and his assistants a liberal salary to keep you all well and pay nothing when you are sick. On this account he and his young men work very assiduously in regular calling and examining every member of the union, and all of you enjoy comparative immunity from illness. Here, in New York, a physician is paid for the amount of your sickness, and the less able you are to earn any money the larger and more onerous is his bill. As a result many doctors, I am told, yield to temptation and keep their customers sick. The consequence is that those who have the largest number of sick and dying are the richest, most esteemed and influential, while in China they would be ostracized and not allowed to practice.

ALL LAUNDRIES should be carefully looked after. An exchange reports the case of a woman who lived in a tenement in Brooklyn in which there was a case of malignant diphtheria. She did the laundry work for a well-to-do family in Brooklyn and another in Bedford, and in forty-eight hours after she carried home the weeks clothing the disease broke out in its worst form in both these families. In one it destroyed the life of two children and left the mother and a child invalids; in the other the only child, a brilliant boy, died and both parents narrowly escaped.

ONE of the greatest evils is the sale and use of milk from diseased and badly fed and uncared for cows, and one of the greatest marvels is that intelligent well-to-do people will give such milk to their children, and will not rather insist on a careful system of inspection of all dairies.

IN INTOXICATION, it is claimed that half a teaspoonful of chloride of ammonium in a goblet of water will almost immediately restore the faculties and powers of locomotion even in a man who is helplessly intoxicated.

PRINCE LOUIS FERDINAND, of Bavaria, the husband of the Infanta Paz, is a clever surgeon, and the Duke Theodore, who is the brother of the Empress of Austria, is both an oculist and a surgeon.

BELGIAN trains are compelled by law to carry what is called a *boite de secours*, supposed to contain all surgical appliances needful in case of accident, and to be carried in that portion of the train which is regarded as the safest.

IN THE REPORT of the Committee on Hygiene of the Albany Medical society, it is stated that the committee had investigated the causes of inefficiency of local boards of health as now constituted, and expressed the opinion that probably further enquiry into the subject would show the advisability of changing the so-called unit of territory upon which local boards of health were based, and have them embrace a county instead of a town or city.

DR. STEWART, commenting in a paper read before the Philadelphia County Medical Society on some cases of lead poisoning, says that lead is a more frequent cause of chronic endocardial inflammation (a heart affection) than gout, syphilis, or alcoholism.

FRENCHMAN.—“You should to Paree go, eef only to see zee beautiful picture of New York harbour, painted by Misses Bartholdi.

Eet is one grond compilong.”—OMAHA MAN.
—“I have seen New York harbor itself.”—F.—
“Oui, but in zee picture you get zee grond view
woutout zee smell.”

AT A MEETING of the Board of Health of the City of New York the following resolution was recently passed: That Drs. Prudden, Briggs, and Loomis, the pathologists of this department, be and are hereby requested to formulate a brief and comprehensive statement regarding the contagiousness of tuberculosis in man, stating therein the evidence of the same, and recommending in the briefest possible manner practicable the simplest means of protection from its influence.

EXPERIMENTS have been made in Berlin with India-rubber pavement. It is said to be very durable. It is of course noiseless, and unaffected by heat or cold. As a covering for bridges it has special merits, its elasticity preventing vibration.

THE Michigan State Board of Health, and we think also the Iowa, Board, has decided that the so-called inflammatory croup should be classed with communicable diseases, and be reported and treated with the same precautions as diphtheria, as in the objects of the Public Health Office diphtheria and croup are identical.

FLORIDA now has a Board of Health. It has locked the stable etc.

THE American Lancet says: It was noticeable that most of the graduates of Detroit College of Medicine were from Canada.

In line of development, physicians sprung from priests, surgeons from barbers and apothecaries from grocers.

LIVERPOOL is making arrangements to obtain its water from the mountains distant sixty-eight miles, requiring the longest aqueduct ever constructed.

NEEDLESS NOISES we have frequently denounced in strong terms. That which is unpleasant to the senses—and, so far as the sense of hearing is concerned, discordant noises always are—is always injurious to the nervous system. The shrieking of steam whistles, the hiss of steam pipes, the rattle and clash of wheels on stone-covered streets, the rumble of street cars, the clangor of bells, the howling of hucksters, keep up a condition in which a healthy nervous system of natural strength and sensitiveness is impossible. And there is not one of

those agencies that is not suppressed more or less completely in most of the great cities of the world. In Berlin heavy waggons are not allowed on certain streets. In Paris, any car-load of rattling material must be fastened until it cannot rattle. Munich allows no bells on street cars. In Philadelphia church bells have been held a nuisance in certain neighborhoods by judicial ruling. Steam whistles are forbidden in nearly all the larger cities of this country, and most of these noises in our advanced stage of civilization are utterly unnecessary. An exchange says clocks and watches are now so cheap and plentiful that steam whistles and bells to denote the time are useless.

JOE HOWARD, says that alcoholic spirits are destroying our men and women, while cigarette smoking is duceing our boys and girls. “Effeminate-looking boys, strutting about with vile-smelling cigarettes in their mouth, a nuisance to everybody, would be bad enough, but well-informed physicians say that cigarette smoking has largely increased pharyngeal, bronchial and catarrhal troubles, which are fast laying the seeds of phthisis, filling our hospitals and cemeteries with consumptives faster than an epidemic. Another evil effect of the cigarette habit was recently brought to our attention by a prominent tobacconist. He says that it has enormously increased the number of smokers and the amount of tobacco consumed, not only by this addition to the ranks of smokers, but out of all proportion the amount smoked by those who were only moderate cigarette smokers before, and have now become cigarette fiends.

SIR SPENCER WELLS, the eminent English surgeon, at a recent meeting of the Scottish Burial Reform and Cremation Society, called attention to the danger of the extension of disease through grave-yards. He mentioned a remarkable case which occurred in Yorkshire as an illustration of the propagation of specific disease through grave-yard infection. Several scarlet-fever patients had been buried in a church-yard. A portion of the church-yard was afterwards included in the garden of the rector, who had it dug up. Scarlet fever broke out in the house-hold of the rector, and in a number of families in the neighborhood. An exchange says, It seems incredible that the germs of this disease should survive, so long an exposure to the disintegrating elements, but the story is vouched for by a man whose integrity is not

to be impeached, But why so incredible? the seed of the diseases, perhaps, spores of bacilli, lay in the ground, deeply and perhaps in very dry soil, but awaiting to be turned up like other seeds to moisture and warmth.

CURRENT LITERATURE.

THE ILLUSTRATED LONDON NEWS (American edition) has given to its readers in late numbers as usual many good things. Besides a large amount of well selected and "well dished up" "news," such as is indispensable to every well informed man and woman, the most noticeable illustrations in late numbers are: Granddad's delight, full page; The Black Soudanese capturing a gun at the battle of Suakin, double page; No Admittance Except on Business, full page, very pretty; sketches in Nova Scotia, of the N. W. mounted police in Canada, Victoria, Australia, and in S. Wales, South west Spain, Solomon Islands, New Zealand and other places; The Nearest Way to Church, full page, very fine; "Irene," full page, lovely; with portraits of the late Crown Prince Rudolph, Boulanger, and of scores of the new London city council. Some funny things are: "Two Fools and Their Folly;" "Tommy Atkins" in Hospital; and Tiger shooting in India. (Weekly, \$5 a year. Potter building, New York.)

IN THE MARCH CENTURY a timely essay is Dr. Edward Eggleston's review of James Bryce's already famous work on "The American Commonwealth," under the title of "A Full-Length Portrait of the United States." In the same category of special timeliness should be mentioned a curious article on "The Use of Oil to Still the Waves," by Lieut. W. H. Beehler, of the Office of Naval Intelligence, United States Navy Department. The present installment of the Life of Lincoln is entitled "The Edict of Freedom," and completes the story of Emancipation. Referring to the chapters on this subject, the editor asks in "Topics of the Time," "Has the mental history of a single sublime and world approved act ever before been so minutely and authoritatively described?" The frontispiece of the number is a portrait of the Grand Lama of the Trans-Baikal, from a photograph given to George Kennan in exchange for his own. The only other visit to this special Grand Lama by a foreigner, so far as is known, was that of Dr. Erman, nearly sixty years before the date of Mr.

Kennan's visit. Mr. Kennan's article describes an interesting and amusing episode of his Siberian tour. In fiction there is begun a three-part story by Mrs. Mary Hallock Foote, entitled "The Last Assembly Ball: A Pseudo Romance of the Far West." Mr. Jessop, in "The Correspondence of Mr. Miles Grogan," gives a study of the process of a New York policeman, from a liquor saloon to a residence in Montreal.

THE POPULAR SCIENCE MONTHLY for March is a very good number. Many educators who would be glad to use science in the training of young pupils, if they knew just how to go about it, will be interested in the practical directions given in an article on "Natural Science in elementary schools," by J. M. Arms. In this number Mr. Arms writes with a full appreciation of the true aims of science teaching, and from an experience of ten years in the work.

"THE POPULAR SCIENCE MONTHLY" for April will contain a scientific explanation of the power to ensnare the human mind possessed by the leading delusion of the present day. The article is by Prof. Joseph Jastrow, and is entitled "The Psychology of Spiritualism." It contains accounts of the manifestations by the Fox sisters, Dr. Slade, Englington, and other mediums, all of which have been proved to be "gross intentional fraud throughout."

A HANDBOOK for the Hospital Corps of the U. S. Army and State Military forces by Major Charles Smart, of the U. S. Army, an officer of much experience in this subject, is about to be issued by W. Wood & Co., of New York.

WINES, it appears from our exchanges, are becoming unusually adulterated. Some large shipments of wine supposed to be genuine were found on chemical examination not to contain a trace of grape juice. We would urge upon our readers in all cases to confine themselves to Canadian wines, some of which are very fine and no doubt genuine. We especially recommend those of the Ontario Grape Growing and wine manufacturing company, of St. Catherines.

MESSRS JOHNSON & JOHNSON announce that they have succeeded in greatly improving the quality and action of medicated plasters by combining a mild detergent or solvent with the remedial agents employed, by which not only is the fatty matter in the pores of the skin decomposed, thus enabling a much larger proportion of the medicinal element of the plaster to be absorbed through the skin, but the drug employed is rendered soluble and thus more absorbable, thereby ensuing an increased therapeutic effect. Thos Leeming & Co, Montreal, are the sole agents for Canada.